

CONSTRUCTION SPECIFICATIONS AND CONTRACT DOCUMENTS FOR:

**TOWN OF MEEKER**  
**Water Valve Replacement**

Prepared for:

Town of Meeker  
345 Market Street  
Meeker, CO 81641

Prepared by:

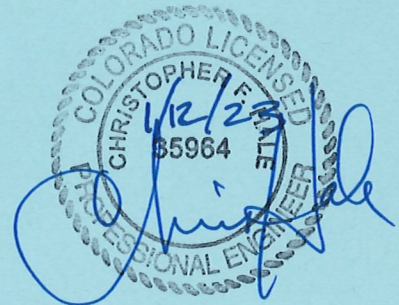


**MOUNTAIN CROSS  
ENGINEERING, INC.**

Civil and Environmental Consulting and Design  
826 1/2 Grand Avenue Glenwood Springs, CO 81601  
ph 970.945.5544 fx 970.945.5558 www.mountaincross-eng.com

Date:

January, 2023



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# BID DOCUMENTS

**INVITATION FOR BIDS**  
**Water Valve Replacement**  
**CLOSING BID DATE – February 14, 2023**  
**TOWN OF MEEKER**  
**345 Market Street**  
**Meeker, CO 81641**

You are hereby invited to bid for the construction of the Water Valve Replacement Project for the Town of Meeker. This project includes the replacement of 9 water valves and the installation of appurtenant water fittings. The project site is located on Shaman Trail. The Project Owner is the Town of Meeker. The Project Engineer is Chris Hale, P.E. of Mountain Cross Engineering, Inc. in Glenwood Springs.

A complete set of plans, specifications, and contract documents may be obtained after January 19<sup>th</sup>, 2023 from Meeker Town Hall, 345 Market Street. A mandatory pre-bid meeting will be held at the Meeker Town Hall, 345 Market Street, on February, 1<sup>st</sup>, 2023, at 10:30 a.m.

All Bid Proposals and Bid Security shall be sealed in an envelope with “Water Valve Replacement” written on the front. Bid Proposals shall be mailed or delivered to Meeker Town Hall, 345 Market Street, Meeker, CO 81641 by 3:00 p.m., Tuesday, February 14<sup>th</sup>, 2023. The bids will be opened and read aloud at a public meeting and will be awarded at a regularly scheduled Board of Trustees meeting on either Tuesday, February 21<sup>st</sup> or Tuesday, March 7<sup>th</sup>.

Each bid must be accompanied by a bid bond or a check in the amount of 10% of the bid made payable to The Town of Meeker as bid security, along with 3 references for similar work. Performance and Payment Bonds are required. The successful bidder must maintain workers compensation and general liability insurance in the amount of no less than \$1,000,000 during the project.

The Town reserves the right to reject any and all bids; to change, add, or amend the specifications; to waive any informalities; and the right to disregard all non-conforming or conditional bids or counter proposals. Each proposal shall be reviewed and considered consistent with the provisions of the Town of Meeker Purchasing Policy.

Contact Russell Overton with the Town of Meeker 970-878-5530 or 970-878-5344 for additional information or with any questions regarding this project.

**THE BOARD OF TRUSTEES**  
**OF THE TOWN OF MEEKER**  
Mandi Etheridge, Town Administrator

SECTION 00200

**INSTRUCTIONS TO BIDDERS**

**1. SUBMISSION OF BIDS/ATTACHMENTS**

- 1.1. Due date and time for bids: February 14, 2023, at 3:00 p.m.
- 1.2. BIDS RECEIVED AFTER THE DATE AND TIME LISTED ABOVE WILL NOT BE ACCEPTED.
- 1.3. Place for submission of bids:  
  
Town of Meeker  
345 Market Street  
Meeker, CO 81641
- 1.4. Copies of bid packets to submit: one (1).
- 1.5. Bidder shall attach the following to its bid:
  - 1.5.1. Certificates of insurance evidencing bidder's possession of insurance, as required by the sample Owner's Standard Form of Contract (attached): Workers' Compensation, General Liability, Auto Liability, including all required coverage.
  - 1.5.2. References: Minimum of three (3) references for construction projects of similar scope, scale, and cost upon which the bidder was employed. The information to be provided regarding the references shall be:
    - 1.5.2.1. The municipality or entity for which the work was performed and completed with contact information: name, address, contact person, and telephone number.
    - 1.5.2.2. The nature of the construction project.
    - 1.5.2.3. The contract price and the final price for the project.
    - 1.5.2.4. The year and date when the work was performed.
    - 1.5.2.5. Any other pertinent information to the project, as determined necessary by the Town Administrator or Town Board of Trustees.

**2. BIDDER'S REPRESENTATIONS**

- 2.1. In submitting this Bid, it is agreed and understood that:
  - 2.1.1. Bidder is fully acquainted with and understands completely the extent and character of the Project work, its various parts and elements. The total price for each bid item shall include labor, materials, equipment and incidental items and performing all operations necessary to complete the work for each bid

item in accordance with the Drawings and Specifications, including any equipment mobilization and demobilization, bonds, excavation, backfill, surface restoration, seeding, installation of gravel base, etc.

2.1.2. Bidder is aware of and accepts the provisions of the Instructions to Bidder.

2.1.3. Bidder agrees the bid cannot be withdraw for sixty (60) calendar days commencing the day the bid is opened.

### **3. BIDDING DOCUMENTS**

3.1. Contract Documents may be secured at the office of the Architect/Engineer or the Owner:

Mountain Cross Engineering, Inc.  
Chris Hale, P.E.  
826 1/2 Grand Avenue  
Glenwood Springs, CO 81601  
Ph: 970.945.5544  
Fx: 970.945.5558

Town of Meeker  
345 Market Street  
Meeker, CO 81641  
Ph: 970-878-5181  
Fx: 979-878-4513

### **4. VISITS TO SITE/MANDATORY PRE-BID CONFERENCE/QUESTIONS**

4.1. A mandatory pre-bid conference meeting is scheduled for Wednesday, February 1st, 2023, at 10:30 a.m. Bidder shall be responsible for inviting any applicable subcontractors to the mandatory pre-bid conference. Change orders shall not be approved for conditions that could have been determined by examining the site and construction documents.

4.2. Questions received later than noon, five (5) business days prior to the date for receipt of bids, (not counting the date for receipt of the bids), as specified in this Instruction to Bidders, will not be answered. Receipt of Addenda shall be acknowledged on the Bid Form. No addendum shall be issued later than two (2) calendar days prior to the date for the receipt of the bids.

4.3. Engineer plans, drawings, and specifications will be available to bidders at the pre-bid conference meeting.

### **5. REQUESTS FOR SUBSTITUTION**

5.1. No considerations shall be given to substitutions during the bid period. Bidder may and is encouraged to propose substitutions by means of Bidder's Alternates, which shall be properly identified on the Bid Form. Owner will evaluate such items and bidder agrees to submit detailed documentation of such alternates for this evaluation within forty-eight (48) hours after the Bid opening upon request. Owner may accept such Bidder's Alternates as it deems in its best interests.

### **6. BIDS/PROPOSALS AND MISTAKES/MINOR INFORMALITIES/IRRELGULARITIES IN**

**BIDS/REJECTION OF BIDS**

- 6.1. The bidder shall submit its bid on the Bid Proposal Form furnished with the Contract Documents.
- 6.2. DO NOT send the Contract Documents with the Proposal. The Contract Documents shall be returned to the Owner or Engineer.
- 6.3. Bids shall be in a sealed envelope and addressed to:
- Town of Meeker  
345 Market Street  
Meeker, CO 81641
- 6.4. The envelope shall state that it contains a "Water Valve Replacement".
- 6.5. It is bidder's responsibility to deliver or ensure delivery of the bid proposal to the place and on time, as specified in this Instruction to Bidders. Proposals received after the scheduled closing time for bids by either the bidder or a delivery service (e.g., Federal Express, U.S. Postal Service, United Parcel Service, etc.) WILL NOT BE ACCEPTED. Proposals entitled to consideration must be received in the Owner's office prior to the closing day and time for receipt of bids. All bidders are responsible to ensure all bids and fax modifications are received in the designated place prior to the scheduled closing time.
- 6.6. If requested on the Bid Proposal Form, any person making a bid to perform the work shall, as a requirement of a responsible bid, set forth the name of each subcontractor specified in the "List of Subcontractors" which is part of the bid proposal. The bidder shall list only one subcontractor for each such portion of work listed. The bidder whose bid is accepted shall not:
- 6.6.1. Substitute any other subcontractor in place of the subcontractor listed in the original bid, except by specific consent of the Owner.
- 6.6.2. Permit any such subcontract to be voluntarily assigned, transferred or allow it to be performed by any party other than the subcontractor listed in the original bid without the consent of the Owner.
- 6.7. Bid Proposals entitled to consideration shall be made in accordance with the following instructions:
- 6.7.1. Made upon form provided;
- 6.7.2. All blank spaces properly filled;
- 6.7.3. All numbers stated in both writing and in figures;
- 6.7.4. Shall contain no additions, conditional or alternate bids, erasures or other irregularities; and,



- 6.7.5. Shall acknowledge receipt of all addenda issued.
- 6.8. Bid Proposals entitled to consideration shall be signed by the proper representative of the firm submitting the proposal as follows:
- 6.8.1. The principal of a sole proprietor firm;
  - 6.8.2. A principal of a partnership firm;
  - 6.8.3. An officer of an incorporated firm, or an agent whose signature is accompanied by a certified copy of the resolution of the Board of Directors authorizing that agent to sign, or a member or manager of a limited liability company; or,
  - 6.8.5. Other persons signing for a sole proprietorship firm or a partnership shall attach a power-of-attorney evidencing his/her authority to sign for that firm.
- 6.9. UNIT PRICES: When a Bid Proposal Form contains unit prices, any errors discovered in the extension of those unit prices will be corrected by the Owner using the unit price figures. The adjusted extended amount will then be used to determine the correct total bid. The bidder is required to examine carefully the site of the proposed work, the Proposal, Plans and Specifications. He shall satisfy himself as to the character, quality and quantities of work to be performed, materials to be furnished and the requirements of these Specifications. Only after the amounts have been checked and adjusted, if necessary, will the valid responsible low bid be determined.
- 6.10. ESTIMATED QUANTITIES: All estimated quantities stipulated in the Bid Proposal and other Contract Documents are approximate and are to be used only as a basis for estimating the probable cost of the work and for the purpose of comparing proposals submitted for the work. It is understood and agreed the actual amounts of work done and materials furnished under unit price items may vary from such estimated quantities. The actual quantities may fluctuate up or down and will depend on the conditions encountered at the time the work is performed. The unit prices proposed by each bidder will remain firm and will not be renegotiated if the estimated quantities are not met or are exceeded. For bidding purposes, if there is a conflict between the extended total cost of an item and the unit price, the unit price shall prevail and be considered as the amount of the bid.
- 6.11. Mistake in Bid: When it appears from a review of the bid that a mistake has been made, bidder may be requested to confirm its bid. Situations in which the confirmation may be requested include obvious, apparent errors of the face of the bid or a bid unreasonable lower than other bids submitted. In the event of a discrepancy on the bid proposal between the written (alpha) numbers and the numeric numbers, the lowest figure will prevail.

6.12. Late Bid: A late bid or late modification of bid shall not be considered unless received prior to the bid award unless the Owner finds there is conclusive evidence that the bid proposal submitted to the designated place and on time, as specified herein in these Instructions to Bidders, was mishandled by the Owner or Engineer designed herein in this Instructions to Bidders for the handling/receiving of bids.

6.13. Minor Informality /Irregularity:

6.13.1. A minor informality or irregularity is one that is merely a matter of form and not substance. It also pertains to some immaterial defect in a bid or variation of a bid form from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is considered immaterial when the effect on price, quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the services being required.

6.13.2. If the Town Administrator determines that the bid submitted contains a minor informality or irregularity, then the Town Administrator shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a bid, or may waive the deficiency, whichever is to the advantage to the Owner. In no event shall the bidder be allowed to change the bid amount.

6.14. Any bid that fails to conform to the essential requirements of the invitation for bids will be rejected.

6.14.1. Any bid that does not conform to the applicable specifications shall be rejected unless the invitation authorizes the submission of alternative bids and the items or services offered as alternatives meet the requirements specified in the Invitation for Bids.

6.14.2. A bid shall be rejected when the bidder imposes conditions that would modify the requirements of the Invitation for Bid or limit bidder's liability to the Owner, since to allow bidder to impose such conditions would be prejudicial to other bidders. For example, bids shall be rejected in which the bidder:

6.14.2.1. Protects against future changes in conditions, such as increased costs, if total possible costs to the Owner cannot be determined.

6.14.2.2. Fails to state a price and indicates that price shall be "price in effect at time of delivery".

6.14.2.3. States a price but qualifies it as being subject to "price in effect at time of delivery".

6.14.2.4. Takes exceptions to the Invitation for Bids' terms and conditions.

6.14.2.5. Inserts the bidder's terms and conditions.

6.14.2.6. Limits the rights of the Owner under any contract/invitations for bid clause.

6.15. The Owner reserves the sole right to reject any or all bids and determine what is material and/or immaterial to the bids received. The Owner also reserves the sole right to determine what constitutes irregularities or informalities to the bids received and to waive such irregularities or informalities.

## **7. BID SECURITY**

7.1. All proposals shall be accompanied by a bid security in the amount of Ten per cent (10%) of the bid price proposal, without condition, as evidence of good faith. The bid bond shall guarantee that the bid will not be withdrawn or modified after the time set for the receipt of bids.

7.2. Bid security shall be in the form of lawful moneys of the United States, cashier's check, certified check, bank money order or bank draft, bid bond or bond, in a form acceptable to the Owner.

7.3. If the bidder, to whom a contract is awarded, fails to enter into and execute the proposed contract and otherwise comply with this Instruction to Bidders within fifteen (15) calendar days of award, the bidder shall forfeit the bid security in full and it shall become the sole property of the Owner.

7.4. The bid security of unsuccessful bidders will be returned as soon as possible when the contract has been awarded to the successful bidder or when all bids have been rejected.

7.5. Execution of and entering into a contract includes providing all necessary insurance certificates, bonds, federal form W-9, signed contract, and any other documents required by this Instructions to Bidders or the Contract Documents.

## **8. WITHDRAWAL OF BIDS**

8.1. Any bidder may withdraw its bid proposal at any time prior to the scheduled closing time for the receipt of bids.

8.2. Once the closing time for the receipt of bids is reached, a bid may not be withdrawn for a period of sixty (60) calendar days.

8.3. All bidders are responsible to ensure all bids and fax modifications are received in the Owner's place designated for receipt of the bid in the Instructions for Bidders prior to the scheduled closing time.

## **9. INTERPRETATION OF CONTRACT DOCUMENTS**

9.1. Bidders shall promptly notify the Engineer of any ambiguity, inconsistency, or error, which they may discover upon examination of the Contract Documents, or of the site and local conditions.

- 9.2. Bidders requiring clarification or interpretation of the Contract Documents shall request, in writing, clarification from the Engineer at least by noon, five (5) business days prior to the date set for receipt of bids (not counting the date for receipt of the bids).
- 9.3. Any interpretations, corrections, or change in the Contract Documents prior to the bid opening will be made by written addendum issued by the Engineer. The Engineer will endeavor to notify all plan holders of any addenda issued but it shall be the responsibility of the individual bidders to insure they have received all addenda prior to the submission of their bid.
- 9.4. All written addenda issued by the Engineer will become part of the Contract Documents and all bidders shall be bound by such addenda whether or not received and/or acknowledged by the bidder. No oral or telephone modifications of the Contract Documents shall be considered or allowed.

## 10. AWARD OF BIDS

- 10.1. All bids received by the stated day and hour will be opened and read aloud at a publicly meeting.
- 10.2. The Owner reserves the right to reject any and all bids and to waive any informality or irregularity in any bid received. The Owner reserves the right to determine what constitutes material and/or immaterial informalities and/or irregularities, as provided in this Instruction to Bidders. In addition to the criteria provided herein in this Instruction to Bidders, the determination of the lowest responsible bidder shall be made by the Owner consistent with the terms and conditions of the Town of Meeker Personnel Policy and Procedures, Financial Requirements, Bids Required.
- 10.3. The low bid shall be determined on the basis of the lowest Base Bid or the lowest combination of Base Bid and Alternate Bids, accepted in consecutive order.
- 10.4. The Owner shall award the contract to the lowest responsible bidder at the meeting of the Town Board of Trustees on either February 21<sup>st</sup>, or March 7<sup>th</sup>, 2023 at 7:00 p.m.
  - 10.4.1. The Owner may make such investigations as it deems necessary to determine whether or not any or all bidders are responsible.
  - 10.4.2. The term "responsible" includes, but is not limited to:
    - 10.2.2.1. Having adequate financial resources to perform the contract or the ability to obtain them;
    - 10.4.2.2. Having the ability to tender sufficient bid, performance or payment bonds;

- 10.4.2.3. Being able to comply with the required delivery, duration, and performance schedule;
  - 10.4.2.4. Having a satisfactory record of integrity and business ethics;
  - 10.4.2.5. Having the necessary organization, experience, accounting, and operational controls;
  - 10.4.2.6. Having the necessary production, construction, technical equipment, and facilities; or,
  - 10.4.2.7. Having the technical skill, ability, capacity, integrity, performance, experience, lack of claims and disputes, lack of actions on bonds, lack of mediations, arbitrations and/or lawsuits related to any construction work or performance, and the like.
- 10.4.3. Bidders shall furnish to the Owner all information and data for this purpose as the Owner may request.
- 10.4.4. The Owner reserves the right to reject any bid if the investigation or evidence of any Bidder fails to satisfy the Owner that such Bidder is properly and adequately qualified to suitably perform and satisfactorily execute the obligations of the Contract and Work defined in the Contract Documents.

## **11. CONTRACT**

- 11.1. The sample Owner's Standard Form of Contract will be used as the contracting instrument and is bound within the Contract Documents.
- 11.2. The form shall be signed by a proper representative of the bidder as defined above in this Instructions to Bidders.
- 11.3. The Contractor shall also complete and return federal form W-9 along with the signed Contract.

## **12. PERFORMANCE AND PAYMENT SECURITY**

- 12.1. THE CONTRACTOR SHALL PROVIDE BOTH SECURITIES FOR THIS PROJECT AS SPECIFIED BELOW, UNLESS SPECIFICALLY DIRECTED THAT THIS REQUIREMENT HAS BEEN WAIVED ELSEWHERE IN THESE DOCUMENTS.
- 12.2. The Owner shall require the successful bidder to furnish a Performance Bond in the amount of 100% of the contract price as security for the faithful performance of his contract.
- 12.3. The Owner shall require the successful bidder to furnish a Payment Bond in the amount of 100% of the contract price as security for the payment of all persons performing labor and furnishing materials in connection therewith.
- 12.4. The bonds shall be executed on forms acceptable to the Owner. No other forms will be acceptable.



12.5. Bonds shall be secured from a licensed bonding company.

12.6. Power of Attorney

12.6.1. Attorneys-in-fact who sign contract bonds must file with each bond a certified and effectively dated copy of their power of attorney;

12.6.2. One original copy shall be furnished with each set of bonds.

12.6.3. Others furnished with a set of bonds may be copies of that original.

**13. NOTICE TO PROCEED**

13.1. The successful bidder who is awarded the contract for construction will not be issued a Notice to Proceed until there is a signed Contract, the specified insurance certificates, completed bond forms, and federal form W-9. All items are required within fifteen (15) calendar days of contract award made by the Owner.

**14. LAWS AND REGULATIONS**

14.1. The bidders' attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the project shall apply to the contract throughout and will be deemed to be included in the contract as if incorporated herein in full.

14.2. The bidders' are advised to take notice that all project work must conform to the Town of Meeker Ordinances, including the ordinance set forth as follows: Notice of Town of Meeker Construction Noise Abatement Ordinance. Construction work activities and equipment which may be operated, conducted, or constructed pursuant to this permit, subdivision (development) improvements agreement, or contract are subject to the provisions of the Meeker Municipal Code and shall be operated, conducted, or constructed so as to not cause a violation of the Meeker Municipal Code, including, but not limited to Title 8, Chapter 28, Town of Meeker Construction Noise Abatement Ordinance. M.M.C.§8.28.104, provides as follows: "No person shall create, make, or continue or cause to be created, made, or continued any construction work noise before 7:00 a.m. (m.s.t.) or after 7:00 p.m. (m.s.t.), Monday through Friday, and before 8:00 a.m. (m.s.t.) or after 6:00 p.m. (m.s.t.), Saturday, Sunday, or legal holiday, such that the sound therefrom creates a noise disturbance across a residential real property boundary. Notwithstanding the provisions of this paragraph (A), during that portion of the calendar year when daylight saving time is observed, as provided in C.R.S. §2-4-109, construction work noise may be made, created, or continued to 8:00 p.m., Monday through Friday, and to 7:00 p.m. on Saturday, Sunday, or legal holidays. Any noise emanating from such construction work in violation of the

provisions of this chapter shall be determined to be an unreasonable noise, declared a nuisance, and shall be evidence of a violation of this section and is subject to the penalties set forth in this chapter." Contractor hereby acknowledges that it has read the ordinance, understands its requirements, agrees to comply with the provisions of the ordinance during the performance of all Project Work and warrants and represents that Contractor has taken the provisions and restrictions of the Ordinance into consideration in the preparation of the Contractor's Proposal and Contract Price to perform the Project Work.

**TOWN OF MEEKER  
WATER STREET: WATER LINE REPLACEMENT  
MOUNTAIN CROSS ENGINEERING, INC.**

**BID SCHEDULE**

	ITEM/DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1.	Performance and Payment Bonds	1	Lump Sum		
2.	Asphalt Sawcut, Removal, & Replacement	10	Square Yards		
3.	8" Gate Valve, Trenching, Bedding, Backfill, Etc.	1	Each		
4.	12"X8"X12" D.I. Tee, Thrust Block, Trenching, Bedding, Backfill Etc.	1	Each		
5.	8" Solid Sleeve Coupler	1	Each		
6.	8" Mega-Lug Restraint	1	Each		
7.	12" Gate Valve, Trenching, Bedding, Backfill, Etc.	8	Each		
8.	12"X12"X12" D.I. Tee, Thrust Block, Trenching, Bedding, Backfill Etc.	2	Each		
9.	12" Solid Sleeve Coupler	7	Each		
10.	12" Mega-Lug Restraint	13	Each		
11.	4" Blow-off Valve, Thrust Block, Fittings, 4" D.I. Pipe, Trenching, Bedding, Backfill Etc.	1	Each		
12.	Air Release/Vacuum Valve in Manhole (if necessary)	1	Each		
13.	Remove Existing Water Line, Valves, & Fittings	7	Each		
14.	Restoration of Existing Conditions	1	Lump Sum		
15.	Traffic Control	1	Lump Sum		

BIDDER \_\_\_\_\_ (Company Name)

\_\_\_\_\_ (Signature)

By \_\_\_\_\_ (Print Name)

Bid Form must also be completed and signed.

References from similar projects (list project name, contact person and telephone number) (Min. of 3)

1) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SECTION 00310

BID FORM

TO: The Town of Meeker  
hereinafter called "Owner"

1. The undersigned, having examined the proposed Contract Documents titled:

Water Valve Replacement

and having visited the site and examined the conditions affecting the Work, hereby proposes and agrees to furnish all labor, materials, equipment, and appliances, and to perform operations necessary to complete the Work as required by said proposed Contract Documents, within the time set forth therein, for the price indicated on the Bid Schedule.

The Total Bid sum is \_\_\_\_\_ Dollars (\$\_\_\_\_\_)

2. The undersigned understands and agrees to comply with and be bound by instructions to bidders issued for this Work.

3. The undersigned certifies that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to the Bid with any other Bidder or with any other competitor.

4. The undersigned acknowledges receipt of the following Addenda:\_\_\_\_\_

5. Enclosed with this bid is bid security in the amount of not less than 10% of the bidder's proposed Contract Sum.

BIDDER: \_\_\_\_\_ (Company Name)      CORPORATE SEAL

\_\_\_\_\_ (Signature)

By \_\_\_\_\_ (Print Name)

Address \_\_\_\_\_

Phone Number \_\_\_\_\_

Fax Number \_\_\_\_\_

Bid dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.



# BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

---

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

## BID

Bid Due Date:

Project (Brief Description Including Location):

## BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum

\_\_\_\_\_ )  
(Words)

\_\_\_\_\_ )  
(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

(Seal  
)

(Seal)

\_\_\_\_\_  
Bidder's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature and Title

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title

Attest: \_\_\_\_\_  
Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by Owner, or
  - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

# Notice of Award

Dated \_\_\_\_\_

Project: Water Valve Replacement	Owner: Town of Meeker	Owner's Contract No.:
Contract:		Engineer's Project No.:
Bidder:		
Bidder's Address: (send Certified Mail, Return Receipt Requested)		

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Indicate total Work, alternates or sections or Work awarded.)

The Contract Price of your Contract is \_\_\_\_\_  
\_\_\_\_\_ Dollars (\$\_\_\_\_\_).

*(Insert appropriate data if Unit Prices are used. Change language for Cost-Plus contracts.)*

\_\_\_\_\_ copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.  
\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders, General Conditions (Paragraph 5.01), and Supplementary Conditions.
3. Other conditions precedent:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Title

Copy to Engineer

# AGREEMENT DOCUMENTS

**AGREEMENT  
BETWEEN OWNER AND CONTRACTOR  
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)  
FUNDING AGENCY EDITION**

THIS AGREEMENT is by and between \_\_\_\_\_ The Town of Meeker \_\_\_\_\_ (“Owner”) and  
\_\_\_\_\_  
\_\_\_\_\_ (“Contractor”).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

**ARTICLE 1 – WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Water Valve Replacement.

**ARTICLE 2 – THE PROJECT**

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Replace water valves and appurtenant fittings.

**ARTICLE 3 – ENGINEER**

3.01 The Engineer for the Project in the Contract Documents is as follows or in some cases may be the Owner’s representative

Mountain Cross Engineering, Inc, Chris Hale, 826 ½ Grand Avenue, Glenwood Springs, CO 81601, 970.945.5544

**ARTICLE 4 – CONTRACT TIMES**

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Days to Achieve Substantial Completion and Final Payment*

A. The Work will be substantially completed within 60 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 60 days after the date when the Contract Times commence to run.



4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties 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 such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500.00 for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500.00 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

**ARTICLE 5 – CONTRACT PRICE**

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph 5.01.A below:

- A. For all Work a Lump Sum of:

\_\_\_\_\_ (\$ \_\_\_\_\_ )  
 (words) (figure)

All specific cash allowances are included in the above price and have been computed in accordance with paragraph 11.02 of the General Conditions.

**ARTICLE 6 – PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the Owner’s representative as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the day after the first Board Meeting of each month (the first Tuesday) during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of 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 Requirements:
  - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:
    - a. 90 percent of Work completed (with the balance being retainage); and
    - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 90 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

### 6.03 *Final Payment*

- A. Upon receipt of the final Application for Payment accompanied by Engineer's/Inspector's recommendation of payment in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay Contractor as provided in Paragraph 14.07 of the General Conditions the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages.

## **ARTICLE 7 – INTEREST**

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum legal rate.

## **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:
  - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
  - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Not Used
  - E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
  - F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
  - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
  - H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
  - I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
  - J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### 9.01 *Contents*

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 6, inclusive).
  - 2. Performance bond (pages 1 to 2, inclusive).
  - 3. Payment bond (pages 1 to 2, inclusive).
  - 4. General Conditions (pages 1 to 62, inclusive).
  - 5. Supplementary Conditions (pages 1 to 6, inclusive).
  - 6. Specifications as listed in the table of contents of the Project Manual.
  - 7. Drawings consisting of 3 sheets with each sheet bearing the following general title: Town of Meeker, Water Valve Replacement.
  - 8. Addenda (number \_\_, inclusive).
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor’s Bid
    - b. Documentation submitted by Contractor prior to Notice of Award
  - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Notice to Proceed
    - b. Work Change Directives.
    - c. Change Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### 10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract 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.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in four copies. One counterpart each has been delivered to Owner, Contractor, and Engineer. All portions of the Contract Documents have been signed, initialed, or identified by Owner and Contractor or identified by Engineer on their behalf.

This Agreement is dated \_\_\_\_\_. This Agreement shall not be effective unless and until Agency's designated representative concurs.

OWNER:

CONTRACTOR

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Agent for service of process:

\_\_\_\_\_

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

# PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

---

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Town of Meeker  
345 Market Street  
Meeker, CO 81641

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By: \_\_\_\_\_

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By: \_\_\_\_\_

Signature and Title

(Attach Power of Attorney)

Attest: \_\_\_\_\_

Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

3.3. Owner has agreed to pay the Balance of the Contract Price to:

1. Surety in accordance with the terms of the Contract;
2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
2. Deny liability in whole or in part and notify Owner citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone  
Surety Agency or Broker  
Owner's Representative (engineer or other party)

# PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Town of Meeker  
345 Market Street  
Meeker, CO 81641

CONTRACT

Date:  
Amount:  
Description (Name and Location):

BOND

Bond Number:  
Date (Not earlier than Contract Date):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)  
Name and Title:

SURETY

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_  
Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)  
Name and Title:

SURETY

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title:

EJCDC No. C-615 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor,



materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### 15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone**

**Surety Agency or Broker:**

**Owner's Representative (engineer or other party):**

**NOTICE TO PROCEED**

To:

Date: \_\_\_\_\_

Project: Water Valve Replacement

You are hereby notified to proceed with work on this project in accordance with the Agreement dated \_\_\_\_\_.

\_\_\_\_\_ (Signature)

Owner

By: \_\_\_\_\_ (Print Name)

Title: \_\_\_\_\_

**ACCEPTANCE OF NOTICE**

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

\_\_\_\_\_ (Signature)

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

By: \_\_\_\_\_ (Print Name)

Title: \_\_\_\_\_

**ADDENDUM ORDER**

Order No. : 1

Project : Water Valve Replacement

Date:

The following changes are hereby made to the Contract Documents:

**ACCEPTANCE OF NOTICE**

Receipt of the above ADDENDUM ORDER is hereby acknowledged by

\_\_\_\_\_

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

By:\_\_\_\_\_

Title:\_\_\_\_\_

**ADDENDUM PREPARED BY:**

*MOUNTAIN CROSS  
ENGINEERING, INC.*  
Chris Hale, P.E.  
Project Engineer  
826 1/2 Grand Ave.,  
Glenwood Springs, CO 81601  
(970) 945-5544

# Change Order

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

**Attachments (list documents supporting change):**

**CHANGE IN CONTRACT PRICE:**

**CHANGE IN CONTRACT TIMES:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change

\$ \_\_\_\_\_

Original Contract Times:  Working days  Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

**RECOMMENDED:**

By: \_\_\_\_\_  
Engineer (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable):

**ACCEPTED:**

By: \_\_\_\_\_  
Owner (Authorized Signature)

Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
Contractor (Authorized Signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

# Change Order

## Instructions

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.









# Stored Material Summary

# Contractor's Application

For (contract):		Application Number:								
Application Period:		Application Date:								
A	B	C		D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description		Stored Previously Date (Month/Year)	Amount (\$)	Stored this Month Amount (\$)	Subtotal	Incorporated in Work Date (Month/Year)	Amount (\$)	Materials Remaining in Storage (\$) (D + E - F)
<b>Totals</b>										

**LIEN WAIVER**

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_  
Project: Water Valve Replacement  
Application No. \_\_\_\_\_

The undersigned Contractor hereby certifies that (1) all previous progress payments received from Owner on account of Work done under the contract referred to above have been applied to discharge in full all obligation 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 otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all lien, claims, security interests, and encumbrances ( except such as covered by Bond acceptable to Owner).

\_\_\_\_\_ (Signature)  
Contractor

By: \_\_\_\_\_ (Print Name)

Title: \_\_\_\_\_

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

# GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



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*A Practice Division of the*  
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, 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.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

### B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to 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 Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

### D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

### E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### *2.03 Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of



the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.



## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
  - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. 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 notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- 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 6.05.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:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.



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 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall 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:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all 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.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is 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 Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.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 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. 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 a Change Order in the case of a substitute and 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 Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or 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 such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. 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, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

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

#### 6.11 *Use of Site and Other Areas*

##### A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

## 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

## 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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 persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.

- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the



Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER’S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. 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. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

### 8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,



and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
  - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.



## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### 14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### 14.02 *Progress Payments*

#### A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:



1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

*14.08 Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

### **ARTICLE 16 – DISPUTE RESOLUTION**

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### *17.01 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:
  1. 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
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *17.02 Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### *17.03 Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### *17.04 Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### *17.05 Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

### *17.06 Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

# SUPPLEMENTARY CONDITIONS

## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition (No. C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All Provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions, except where noted below. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

**SC-2.02.A. Amend Paragraph 2.02.A to read:**

- A. Owner shall furnish to Contractor up to 5 printed or hard copies of the Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

**SC-4.05. Delete Paragraph 4.05 in its entirety and replace with:**

NOT APPLICABLE

**SC-4.06. Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:**

- A. No reports or drawings related to Hazardous Environmental Conditions are known to Owner.
- B. Not Used.

**SC-5.04. Add the following new paragraph immediately after Paragraph 5.04.B:**

- C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
  - 1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
    - a. State: Statutory
    - b. Applicable Federal (e.g. Longshoreman's): Statutory
    - c. Employer's Liability: \$500,000
  - 2. **Replaces 5.04.A.3 through A.6 of the General Conditions** Comprehensive General Liability insurance with minimum combined single limits shall be provided by the Contractor as follows hereinafter, in order to insure against any claims arising out of or based upon any Work performed herein. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall contain a severability of interests provision.



**Coverage required (minimum) combined single limits**

- a. Bodily injury                                 \$1,000,000.00 each occurrence  
                                                              \$2,000,000.00 aggregate
- b. Property Damage                             \$1,000,000.00 each occurrence  
Operations Aggregate                         \$1,000,000.00 aggregate

**Coverages: Comprehensive Form, Premises-Operations, Explosion and Collapse Hazard, Products/Completed Operations Hazard, Broad Form Property Damage, Independent Contractor, Personal Injury, Contractual**

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions: revised to read “Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage shall be provided by the Contractor as follows hereinafter, with respect to each of Contractor’s owned, hired and/or non-owned vehicles assigned to or used in performance of the services. The comprehensive Form shall include owned, hired or non-owned vehicles. The policy shall contain a severability of interests provision. Minimum Coverage Required:

- a. Bodily Injury:  
Each person                                     \$1,000,000.00 each occurrence  
Each Accident                                 \$1,000,000.00  
                                                              \$2,000,000.00 aggregate
- b. Property Damage:  
Each Accident                                 \$1,000,000.00  
                                                              \$2,000,000.00 aggregate
- c. Combined Single limits  
Limit of                                             \$2,000,000.00

4. The following other persons or entities shall be included on policy as additional insureds.

- a. Town of Meeker  
345 Market Street  
Meeker, CO 81641
- b. The Owner’s Authorized Representative if other than the Owner.

D. The policies required above, except for the Workers Compensation insurance and Employers Liability insurance, shall be endorsed to include the Owner, and its officers and employees, as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the Owner, its officers, or its employees, shall be excess and not contributory insurance to that provided by Contractor. The additional insured endorsement for the Comprehensive General liability insurance required above shall not contain any exclusions for bodily injury or property damage arising from completed operations. The Contractor shall be solely responsible for any deductible losses under each of the policies required above.

- E. Certificates of Insurance shall be completed by the Contractors insurance agent as evidence that policies providing the required coverage's, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the owner. Each certificate shall identify the Project and shall provide that the coverage's afforded under the policies shall not be cancelled, terminated or materially changed until at least 30 days proper written notice has been given to the Owner. If the words "endeavor to" appear in the portion of the certificate addressing cancellation, those words shall be stricken from the form the certificate by the agent completing the certificate. The Owner reserves the right to request and receive a certified copy of the policy and any endorsements thereto.
- F. Failure on the part of the Contractor to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the owner may immediately terminate the contract, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the Owner shall be repaid by the Contractor to the Owner upon demand, or the Owner may offset the cost of the premiums against any monies due to Contractor from the Owner.
- G. The parties hereto understand and agree that the Owner is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently \$150,000 per person and \$600,000 per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S, as from time to time amended, or otherwise available to the Owner, its officers, agents representatives or its employees.

**SC-5.11 Add a new paragraph 5.11 A to read:**

No Personal Liability

- A. In carrying out any of the provisions of this contract or in exercising any power or authority thereby, there shall be no personal liability of the Owner, its governing body, staff, consultants, officials, attorneys, representatives, agents, or employees.

**SC-6.10 Add a new paragraph immediately after paragraph 6.10.A:**

- B. Owner is exempt from payment of sales and compensating use taxes of the State of Colorado and of cities and counties thereof on all materials to be incorporated into the Work.
  - 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
    - a. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

**SC-6.19 Add a new paragraph immediately after paragraph 6.19.C:**

- D. The Contractor shall warranty the work, free from defects of workmanship, for one year from final completion and acceptance of the work by Owner.

**SC- 6.22 Add a new paragraph 6.22 A to read:**

Construction Noise Abatement and Work Hours

- A. The contractor shall carry on all work performed pursuant to this contract in compliance with the Town of Meeker Construction Noise Abatement Ordinance, Meeker Municipal Code §8.28.101, et seq. The provisions of said ordinance limit the Contractors daily hours of work when performing all contract work, thereby mitigating any noise generated by or associated with the Contract work. The Contractor hereby acknowledges that it has read the ordinance, understands its requirements, agrees to comply with the provisions of the ordinance during the performance of all contract work and warrants and represents that Contractor has taken the provisions and restrictions of the ordinance into consideration in the preparation of the Contractors Bid and bid Price to perform the Project Work. It shall be the Contractors sole responsibility to obtain a copy of said ordinance from the Engineer, or the Owners Representative prior to submitting its bid for the Project.

**SC-8.01.A Amend paragraph 8.01.A to read:**

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through the Engineer or Owner's Authorized Representative.

**SC-8.02 Amend paragraph 8.02 to read:**

8.02 *Replacement of Owner's Authorized Representative*

- A. In case of termination of the Engineer or the employment of Owner's Authorized Representative, Owner shall appoint a new Authorized Representative to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Authorized Representative.

**SC-9 Article 9**

See SC-1.01.A.20 above. All duties, responsibilities, rights, and authority assigned to the Engineer in the Contract Documents may also be assumed by the Owner's Authorized Representative.

**SC-12.02.A Amend paragraph 12.02.A to read:**

- A. The Contract Time shall only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than SEVEN (7) calendar 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 fourteen (14) calendar days after such occurrence (unless ENGINEER allows an additional period of time, by written notice to CONTRACTOR, to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustments in the Contract Time shall be determined by Engineer, if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time shall be valid if not submitted in accordance with the requirements of this paragraph 12.02.A.

**SC-12.02.C Add a new paragraph immediately after paragraph 12.02.B:**

- C. The Contract Time for the construction of all Work shall be Sixty (60) calendar days from the date of the Notice to Proceed.

**SC-12.03.F-G Add the following paragraphs immediately after paragraph 12.03.E:**

- F. In planning the construction schedule within the agreed Contract Time, Contractor represents and warrants that Contractor has anticipated the amount and nature of adverse weather conditions which are customary to the site of the Work for the season(s) of the year during which the Work is to be performed. Only those weather delays attributable to other than customary weather conditions will be considered by the Engineer for a change of Contract Time.
- G. When the Contract Time has been extended, such extension shall not be considered a justification for a change in the contract price or extra compensation to the Contractor for administrative costs, traffic control or any other reason whatsoever, regardless of its nature.

**SC-14.02.D.3 Delete Paragraph 14.02.D.3 in its entirety.**

**SC-14.07.C Amend Paragraph 14.07.C to read:**

- C. Upon presentation to the Owner of the Application for Final Payment and accompanying documentation, the Owner will publish notice that the Contractor has applied for Final Payment. Ninety days after the presentation of the application, the amount recommended by the Engineer, less any claims from subcontractors, liquidated damages, and/or any sum Owner is entitled to set off against Engineer's recommendation will become due and will be paid by Owner to Contractor.

**SC-15.03.A.3 Delete Paragraph 15.03.A.3 in its entirety.**

**SC-15.03.A.4 Delete Paragraph 15.03.A.4 in its entirety.**

**SC-16.01.C.3 Amend Paragraph 16.01.C.3 to read:**

1. gives written notice to the other party of the intent to submit the Claim to Rio Blanco County Colorado Court. Any litigation, reasonable attorney's fees, and costs will be awarded to the prevailing party.

**LIQUIDATED DAMAGES**

Liquidated damage will be Five Hundred Dollars (\$500.00) per calendar day beyond the authorized Contract Time.

It is understood and agreed by and between the OWNER and CONTRACTOR that should the completion of the Work be delayed beyond the specified Contract Time, the OWNER may suffer substantial damages, which damages would be impossible to accurately determine. The OWNER AND CONTRACTOR have considered the possible limits of damages and have agreed that a delay in the Contract Time of the work will cost the OWNER not less than Five Hundred Dollars (\$500.00) per calendar day. In view of these facts, the CONTRACTOR agrees to pay to the OWNER, as liquidated damages and not as a penalty, the sum of Five Hundred Dollars (\$500.00) for each and every calendar day or part thereof, which exceeds the Contract Time of the Work, except for such

permitted extensions of the Contract Time, as provided by the Agreement. In the event the CONTRACTOR fails to pay such liquidated damages upon the OWNER'S written demand, the OWNER shall hereby be authorized by CONTRACTOR and the OWNER hereby reserves the right to withhold all or part of such liquidated damages from any payment due to CONTRACTOR, as provided in the Agreement.

#### **REGULATIONS**

The Contractor shall at all times observe and comply with all Federal, State and local laws, ordinances, regulations, and safety requirements, and shall indemnify and save harmless the Owner against any claim arising from the violations of any such laws, ordinances, regulations, and safety requirements, whether by the Contractor or his employees.

#### **TAX EXEMPTION**

If the Work is to be performed for the government or other tax exempt agency, the Owner will provide the Contractor with a tax exemption number.

#### **WARRANTY INSPECTION**

At the Owner's discretion, a warranty inspection will be held during the sixty (60) calendar days prior to the expiration of the one-year warranty period. Contractor agrees to provide an authorized representative at such inspection to represent Contractor's interest at the Contractor's expense. All defects identified during the inspection shall be corrected at Contractor's expense at direction of Owner in a timely manner. Corrective work shall be commenced within ten (10) calendar days after written notice to Contractor.

#### **BID, PAYMENT, AND PERFORMANCE BONDS**

Bid bonds, payment and performance bonds are required for this project. Forms are included in this set of specifications. The Town will also accept bonding company's forms.

# TECHNICAL SPECIFICATIONS

## SECTION 01000

### GENERAL REQUIREMENTS

#### PART 1 - GENERAL

Work to be done under this Contract consists of furnishing all labor, materials, equipment and incidental items and performing all operations necessary to complete the work in accordance with the Drawings and Specifications.

The Bidder is required to examine carefully the site of the proposed work, the Proposal, Plans and Specifications. He shall satisfy himself as to the character, quality and quantities of work to be performed, materials to be furnished and the requirements of these Specifications. The submission of a Proposal shall be evidence that the Bidder has made such an examination.

#### PART 2 - ABBREVIATIONS

Wherever the following abbreviations are used in these Specifications or on the Plans, they shall be construed the same as the respective expressions represented:

AASHO or AASHTO	American Association of State Highway Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute, Inc.
ASTM	American Society of Testing & Materials
AWWA	American Water Works Association
CDOT	Colorado Department of Transportation
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard, U.S. Department of Commerce
FED. SPEC.	Federal Specification
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
OSHA	Occupational Safety and Health Act (Federal and/or State)
SSPC	Steel Structures Painting Council
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.

### PART 3 - STANDARD SPECIFICATION REFERENCE

Where reference is made in these Specifications to other Standard Specifications, it is the intent that the latest available revision of the Specification referenced be used. All portions of the Standard Specification referenced shall be considered a part of these Specifications unless specifically superseded herein.

### PART 4 - EASEMENTS

The Contractor shall be responsible for securing any and all access rights he may require for construction convenience with private individuals and landowners. The Contractor shall provide the Engineer evidence of agreements for such access rights, if requested.

The Contractor shall allow access through public and private rights-of-way to others as requested during construction.

### PART 5 - TEMPORARY FACILITIES AND STAGING AREA

The Contractor, at his expense, shall provide all necessary temporary facilities for his construction convenience or to meet local, state or federal requirements including but not limited to potable water, sanitary waste facilities, power, telephone, etc.

Coordinate with Russ Overton for staging areas provided by the Town to be used by the Contractor. Any other staging area may be used with written permission of the property owner on whose property the staging area will be located. Copies of all agreements with property owners are to be furnished to the town and the engineer. Water for construction activities shall be provided by the town. Coordinate with Russ Overton, cell # (970) 942-7555.

### PART 6 - TESTING

The Owner shall pay for bacteria, pressure, soil and asphalt testing. The Contractor shall pay for all costs associated with retesting required due to failing test results. The Contractor shall cooperate fully with testing personnel.

### PART 7 - MEASUREMENT AND PAYMENT

Payment for work done shall be based on the percentage of work completed for each Bid Item. Payment shall be complete compensation for the work unit completed and shall consist of furnishing and installing all materials, plant, equipment, labor and other items related to the work unless otherwise specified. All incidentals not specifically mentioned but required to complete the work shall be paid for as part of the work unit they are related to.



## PART 8 - MOBILIZATION

Mobilization is considered incidental. No specific payment will be made for mobilization.

## PART 9 - PUBLIC UTILITIES

The Contractor is responsible for coordinating with utility companies. Contact the appropriate representatives of utility companies prior to the commencement of work related to or which might affect utility installations, and secure from such representatives information as to the accurate location, size and type of such installations. If utility services must be interrupted, the Contractor shall notify the head of local administrative services, representatives of the utility company, and utility users to be affected by the interruption of service. Notice shall consist of publication in a local newspaper and/or announcement on local radio or television stations, at least 24 hours prior to interruption of service.

The Contractor shall assume all responsibility for the protection and repair of all utilities and appurtenances. Should repair or replacement be required, work shall be performed according to the requirements of the respective utility companies.

## PART 10 - CONSTRUCTION SURVEY

The Contractor is responsible for providing his own construction surveying services required for completion of this contract, for providing a survey and reproducible set of as-built drawings of all items installed per this contract, and any surveying necessary to verify pay request quantities. Survey field notes must be provided to the town and engineer upon request.

## PART 11 - QUALIFICATION

The Contractor is to have current CDOT qualifications for asphalt paving projects prior to submitting a bid for this project.

**END OF SECTION**

SECTION 01100  
TRAFFIC CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This work shall consist of furnishing, installing, moving, maintaining and removing temporary traffic signs, advance warning signs, barricades, channelizing devices, delineators, and flagmen as required by the latest revision of the "Manual on Uniform Traffic Control Devices for Streets and Highways" and the latest revisions of the Colorado Supplement thereto, in accordance with the Drawings and these Specifications.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.
- C. Comply with requirements of the governmental agencies having jurisdiction.
- D. Obtain all necessary permits.

1.3 REFERENCE STANDARDS

- A. State of Colorado, Division of Highways S-Standards, Sheets S-614-50 (pages 1-4), and S-614-51.
- B. "Manual on Uniform Traffic Control Devices for Streets and Highways" MUTCD.

1.4 SUBMITTALS

- A. Submit a "Traffic Control Plan" to the Town, and Engineer for acceptance prior to construction.

1.5 FIELD CONDITIONS

The traffic control through the construction areas is the responsibility of the Contractor. The Contractor's "Traffic Control Plan" shall include the proposed methods of handling traffic for each of the different stages of

construction within the guidelines of this Specification. The Contractor will prepare a schedule of traffic control devices necessary for each anticipated and identified construction operation. Control devices may be used at more than one location.

Approval of the proposed method of handling traffic shall constitute authorization to furnish the devices on the schedule. If, at any time, it is determined that unnecessary units are on the schedule or that additional units are required, the Town will furnish the Contractor with a revised schedule of authorized devices. Any change in the plans or the method of handling traffic shall be approved by the Town and the Engineer. Approval of the proposed method of handling traffic in no way shall relieve the Contractor of liability specifically provided for in the Contract. Before proceeding with construction, the Contractor shall have written approval from the Town of the proposed method of handling traffic.

## PART 2- PRODUCTS

### 2.1 GENERAL

All materials shall conform to the applicable portions of the Reference Standards.

## PART 3- EXECUTION

### 3.1 GENERAL

All methods and procedures shall conform to the approved "Traffic Control Plan" including all approved revisions.

### 3.2 FLAGMEN

Provide as needed, as directed by the Town or the Engineer or as stated on Drawings to control traffic encroaching in construction zone.

### 3.3 BARRICADES, FLASHING WARNING LIGHTS

Provide for all open trenches, equipment and Material storage, etc., and as called for on the Drawings and located within limits of construction. Protection to be in place 24 hours per day.

**END OF SECTION**

## SECTION 02100

### REMOVAL OF STRUCTURES AND ABANDONMENT

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. This Work shall consist of furnishing all labor, equipment, materials and miscellaneous items for the removal and satisfactory disposal or abandonment in place of all corp stops, meter boxes, valves, service lines, water mains, structures, pavement, roads, sidewalks, retaining walls and any other obstructions. It shall also include salvaging of materials; backfilling the resulting trenches, holes, and pits; and the restoration and clean-up of the affected area.

This Work shall include sawing concrete and asphalt in reasonably close conformity with the dimensions of these Specifications to create lines of weakness in order to facilitate controlled breaking for removal.

##### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the soil engineer.
- D. Obtain all necessary permits.

##### 1.3 SUBMITTALS

Copies of written agreements for disposal areas will be given to the Town and Engineer before work begins.

#### PART 2 - PRODUCTS

Not Applicable

### REMOVAL OF STRUCTURES AND ABANDONMENT

02100-1

## PART 3 - EXECUTION

### 3.1 GENERAL

The Contractor shall remove and dispose of all signs, structures, fences, old pavements, abandoned pipelines, and other obstructions. All salvageable materials shall be removed, without unnecessary damage, in sections or pieces which may be easily transported and stored.

### 3.2 DISPOSAL

Unusable material may be disposed of outside of the limits of view from the project with written permission of the property owner on whose property the material is placed. Copies of all agreements with property owners are to be furnished to the Town and the Engineer.

Where portions of structures are to be removed, the remaining portions shall be prepared to fit new construction. The work shall be done in accordance with Drawings, and in such manner that materials to be left in place shall be protected from damage; all damage to portions of structures to remain in place shall be repaired by the Contractor at his expense. Reinforcing steel projecting from the remaining structure shall be cleaned and aligned to provide bond with new extension.

### 3.3 SALVAGE

During demolition, Owner or his representatives may designate materials to be salvaged rather than disposed. All salvage materials shall be removed from the job site by the Contractor and stored at a site to be designated by the Owner.

### 3.4 PIPE TO BE LEFT IN PLACE

All pipes shall have the ends capped. All valves and corp stops shall be closed.

### 3.5 SAWING OF CONCRETE

The sawing of concrete shall be done carefully, and all damages to concrete remaining in place, due to Contractor's operations, shall be repaired by the Contractor at his expense. An effective dust control method must be utilized throughout concrete sawing operations.

### 3.6 SAFETY

Operations that may damage or constitute a hazard to the traveling public will not be permitted.

### 3.7 REMOVAL OF PAVEMENT, SIDEWALKS, CURBS, Etc.

All concrete pavement, sidewalks, curbs, gutters, etc., designated for removal, shall be broken into pieces, the size of which shall not exceed approximately 400 pounds or 3 square yards of surface area, and shall be disposed of in a suitable manner.

Where old concrete construction abuts new concrete construction, edges of pavement, sidewalks, curbs, etc., to be left in place shall be sawn to a true line with a vertical face.

Asphalt and bituminous pavements to be cut to the full depth of pavement with a vertical face in a straight line parallel to the limit of excavation. Cuts shall be made with a saw, or as approved in writing by the Town, so as to provide a straight, true cut. Concrete pavements, including curbs, gutters, and sidewalks, to be saw cut to the full depth of the pavement with a vertical face in a straight line parallel to the limit of excavation. An effective method of dust control shall be utilized throughout concrete sawing operations.

Feathering of new asphalt pavements onto old pavements will not be permitted under this Contract.

### 3.8 ABANDONMENT OF METER BOXES, CORP STOPS, VALVE BOXES

Remove all portions of structure to 24 inches below finish grade. Fill all voids with appropriate backfill to appropriate density. Backfill to surface and match final surface treatment with like kind and quality of surrounding surface treatment.

**END OF SECTION**

## SECTION 02150

### DUST SUPPRESSION

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

A. Work under this Section shall include furnishing all materials, labor, equipment and miscellaneous items necessary to provide dust control over the entire project site.

B. Related Work Specified Elsewhere

*All Division 02000 and 03000 Sections*

##### 1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.

C. Comply with requirements of governmental agencies having jurisdiction.

D. Obtain all necessary permits.

##### 1.3 SUBMITTALS

A. Chemical Products. Submit descriptive literature defining chemical constituents to the Town and Engineer for acceptance prior to construction.

## PART 2- PRODUCTS

### 2.1 MAGNESIUM CHLORIDE

<u>Constituents</u>	<u>Percentage by Weight</u>
Magnesium Chloride	Approximately 28%-36%
Sulphate	2.5%
Potassium, sodium, calcium	Less than 1%
Nitrate	-0-

## PART 3 - EXECUTION

### 3.1 DUST CONTROL

Dust control to be considered an integral part of the Work. Control shall be provided from the start of construction until the Work is complete. Fugitive dust as a result of construction shall be controlled at all times. Contractor shall be prepared to provide dust control until the final surface is completed.

### 3.2 CHEMICAL CONTROL

The Town is requiring that dust control shall be provided by the use of magnesium chloride chemical spray to the road surface.

After the surface has been prepared, the road shall be pre-wet to a very damp condition. The product shall be applied using a watering truck with spray applicator, providing an even distribution across the surface. Application rate shall be 1/3 - 1/2 gallon per square yard. The surface shall be re-sprayed until complete coverage is attained.

Water shall be provided by the town. Coordinate with Russ Overton, Cell # (970) 942-7555.

**END OF SECTION**



## SECTION 02221

### TRENCHING, DRILLING, BACKFILLING, AND COMPACTING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

###### A. Work included:

1. Trench, drill, backfill, and compact, as specified herein, and as needed for the installation of underground pipelines and utilities, including water, sewer, storm drain, electric, gas, telephone, and cable TV lines and appurtenances.

###### B. Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and other Sections of these Specifications.

##### 1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.

C. In addition to complying with the requirements of governmental agencies having jurisdiction, comply with the directions of the soil engineer.

##### 1.3 FIELD CONDITIONS

###### A. Existing Utilities:

1. Underground utilities, except service lines, known to the Engineer have been shown on the Drawings. Locations are approximate only and may prove to be inaccurate. The Engineer has contacted all entities who may have underground utilities in the project area; the utility companies have indicated the location of their utilities in the field. The

Contractor is responsible for verification of the existence, location and protection of all utilities in work area.

2. Before commencing work, the Contractor shall notify all public and private companies who may have utilities in the project area. The Contractor shall coordinate with these entities all excavation performed. The Contractor shall obtain all permits required by utility owners.
3. In the event of damage to any existing utility, the Contractor shall be solely responsible for the repair and payment for repair of all such damage.
4. Should utility obstructions, except service lines, not shown on the Drawings, be encountered and require relocation, the Contractor shall notify the Owner and the Engineer and shall make arrangements necessary for such relocation. The Owner or the utility shall pay the costs for such relocation.

B. Existing improvements:

1. The Contractor shall restore or protect from damage all existing improvements encountered in performance of the work. Improvements damaged as a result of this work shall be restored to original condition or better, as determined by the Engineer
2. Adjacent property shall be protected by the Contractor from any damage. The Contractor shall be held solely liable for any damage to adjacent property and shall be responsible for all costs resulting from repair of such damage.

C. Soil conditions:

1. It shall be the responsibility of the Contractor to examine soil conditions and characteristics, including the presence of groundwater and rock that will be encountered within the limits of excavation. Known locations of extra-ordinary soil types and anticipated presence of groundwater are shown on the Drawings. Absence of such information does not imply such conditions do not exist, but simply that they are not known to or expected to exist.

#### 1.4 PROTECTION OF WORK

A. Safety:

1. All excavations shall be protected by barricades, lights, signs, etc. as required by governing federal, state and local safety codes and regulations.

B. Sheeting, shoring and bracing:

1. Except where banks are cut back on a stable slope, provide and maintain all sheeting necessary to protect adjoining grades and structures from caving, sliding, erosion or other damage, and suitable forms of protection against bodily injury, all in accordance with applicable codes and governing authorities.
2. Remove sheeting and shoring as excavations are backfilled in a manner to protect the construction or other structures, utilities or property. Do not remove any sheeting after backfilling.
3. Sheeting and shoring systems shall be structurally designed and sufficiently braced to provide necessary restraining of retained backfill. Prior to installation of such system, methods of installation and materials proposed shall be discussed with and approved by Engineer. All systems shall be in strict compliance with local, state and federal safety regulations. Contractor is solely liable for non-compliance.

C. Site drainage:

1. Excavation to be protected from surface water at all times.

## 1.5 BLASTING

- A. Blasting for excavation will be permitted for rock excavation. Rock excavation shall be defined as the excavation of all hard, compacted or cemented materials, the accomplishment of which requires blasting or the use of excavators larger than defined for common excavation. Common excavation shall be defined the excavation of all materials that can be excavated and removed from the bottom of the trench, at design depth, by the use of backhoe equipment having a power rating equivalent to the ability of a Caterpillar 235 excavator-backhoe.
- B. When blasting rock in trenches, the Contractor shall cover the area to be shot with earth backfill or approved blasting mats that will prevent the scattering of rock fragments outside of the excavation.

The blasting procedures of the Contractor shall conform to all Federal, State and local laws, ordinances and regulations.

## 1.6 DRILLING

- A. Drilling shall mean drilling, jacking, boring, or other approved methods for trenchless installation of utility lines.
- B. Drilling rig shall be a Vermeer D24X40, with a thrust and pullback of 17,900/23,800 lbs, and a rotary torque of 4,000 ft. lbs or approved equal. Rig shall include parts, machinery, equipment maintenance, tools, instruments, or any other item necessary to complete the work, transpiration, setup, ect.

## 1.7 CONSTRUCTION IN STREETS AND RIGHT-OF-WAYS

- A. All construction within public streets and right-of-ways shall be in accordance with the requirements of the governing entity.

## PART 2 - PRODUCTS

### 2.1 EMBEDMENT MATERIAL

Pipeline embedment material shall comply with the appropriate types as listed below:

- A. Type 3 Embedment - Use for ductile iron pipe, reinforced concrete pipe, corrugated steel pipe, and high density polyethylene pipe.
  - 1. Bedding - 4-inch minimum of 3/4" CDOT Class 6 Aggregate Base Course to a depth of 1/8 pipe diameter, whichever is greater. Provide uniform longitudinal support under the pipe.
  - 2. Haunching - 3/4" CDOT Class 6 Aggregate Base Course to the springline of the pipe. Work the material under the sides of the pipe and tamp down to provide haunching support.
  - 3. Initial Backfill - 3/4" CDOT Class 6 Aggregate Base Course to 6 inches minimum above the top of the pipe. Compact with vibratory compactor.
  - 4. Backfill – CDOT Class 3 aggregate placed in lifts and compacted to the density specified. Native material may be used where approved by geotechnical engineer.
- B. Type 4 Embedment - Use for all PVC pipe.

1. Bedding - 4-inch minimum 3/4" CDOT Class 6 Aggregate Base Course to a depth of 1/2 pipe diameter. Provide uniform longitudinal support under the pipe.
  2. Haunching - 3/4" CDOT Class 6 Aggregate Base Course to the springline of the pipe. Work the material under the sides of the pipe and vibrate to provide haunching support.
  3. Initial Backfill – 3/4" CDOT Class 6 Aggregate Base Course to 12 inches above the top of the pipe. Compact with vibratory compactor.
  4. Final Backfill - Native material placed in layers and compacted as necessary to provide the specified density.
- C. Type 5 Embedment - Use for conditions where native soils do not meet the requirements for select material.
1. Bedding - 4-inch minimum of 3/4" CDOT Class 6 Aggregate Base Course to a depth of 1/2 pipe diameter whichever is greater. Provide uniform longitudinal support under the pipe.
  2. Haunching - 3/4" CDOT Class 6 Aggregate Base Course to the springline of the pipe. Work the material under the sides of the pipe and tamp down to provide haunching support.
  3. Initial Backfill - 3/4" CDOT Class 6 Aggregate Base Course to 6 inches minimum above the top of the pipe. Compact with vibratory compactor. .
  4. Backfill - CDOT Class 3 aggregate placed in lifts and compacted to the density specified. Native material may be used where approved by geotechnical engineer.

## 2.2 BACKFILL MATERIAL

- A. 3/4" CDOT Class 6 Aggregate Base Course – per description and gradation by CDOT.
- B. Screened Native Material - 3/4" maximum screened native soil materials free from rocks, clods, debris and organic material.
- C. Select Native Material - 2" maximum native soil materials free from rocks, clods, debris and organic material.

- D. Native Material - Native materials free from debris, organic matter and frozen material. Uniformly graded sufficient to allow proper compaction. No rocks greater than 4 inch diameter.
- E. Flowable Fill – Concrete backfill shall consist of the following materials and mix proportions:

<u>Material</u>	<u>Standard</u>	<u>Per Cubic Yard</u>
Cement	ASTM C-150	42 lbs.
Sand	ASTM C-33	1,845 lbs.
Aggregate #57	ASTM C-33	1,700 lbs.
Water	ASTM C-94	325 lbs. (39.0 gal.)
* AEA	ASTM C-260	5.0 oz.

\* Air entraining agent may be used to increase flowability.

The above weights are based on aggregates in a saturated, surface dry condition. Batch plant corrections must be made for moisture in aggregates.

Slump to be 6” to 8” and 28 day compressive strength shall not exceed 100 psi.

### 2.3 TOPSOIL

- A. Where and if shown on the Drawings or otherwise required, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoil, roots, heavy or stiff clay, stones larger than 2" in greatest dimension, noxious weeds, sticks, brush, litter, and other deleterious matter.
- B. Obtain topsoil from sources within the project limits, or provide imported topsoil obtained from sources outside the project limits, or from both sources.

## PART 3 EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Clearing:
  - 1. Remove all vegetation, stumps, roots, organic matter, debris and other miscellaneous structures and materials from work site. Dispose of off-site.

B. Topsoil removal:

1. Strip existing topsoil from all areas to be disturbed by construction. Topsoil to be stockpiled separately from excavated materials.

C. Pavement removal:

1. Asphalt Pavement Removals - Street pavement or existing road surfacing shall be removed within the limits of all construction excavations prior to proceeding with excavation operations of any nature. Surplus materials shall be properly discarded. Prior to removal of existing surfacing, pavement cuts shall be made as shown on the plans and/or specified herein. All pavement cuts shall be neat and straight along both sides of the trench and parallel to the alignment of the pipe to provide an unfractured and level pavement joint for bonding existing surfacing with pavement replacement. Where large irregular surfaces are removed, such trimming or cutting shall be parallel with roadway centerline or at right angles to the same. All cut edges shall provide clean, solid vertical faces free from all loose material.
2. Concrete Pavement Removal - Concrete pavement, including cross-gutters, curbs, and gutters, sidewalks, driveways and concrete surfaces of whatever nature, shall be saw cut to a minimum depth of 2 inches prior to removal in accordance with details shown on the plans or as specified herein. Said saw cuts shall be made at a point 9 inches beyond the edge of the trench and/or excavation. Pneumatic tools or other approved equipment may be used to cut concrete pavement prior to removal at the limits of the excavation. In such an event, the saw cut shall be made after backfilling, and the additional concrete pavement shall be removed and disposed of by the Contractor prior to resurfacing. Concrete removal will be allowed to the construction joint, if that construction joint is within 12" of proposed location of said saw cuts. Provisions will be made by the contractor to convey any water when a drainage way has been removed.

D. Preservation of trees:

1. Refer to plans for designation of all trees, shrubs, plants and other vegetation within the project site to remain. Do not remove trees outside of excavated or filled areas, unless their removal is authorized by the Engineer. Protect trees left

standing from permanent damage by construction operations. Where required, limbing of tree branches will be allowed as approved by the Engineer.

### 3.2 PROCEDURES

#### A. Utilities:

1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.
2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
3. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Engineer and secure his instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

#### B. Protection of persons and property:

1. Barricade open holes and depressions occurring as part of the Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

#### C. Dewatering:



1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.
2. Keep excavations and site construction area free from water.
3. Contractor responsible for obtaining all necessary permits.

D. Dust control:

1. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to adjacent areas at all times.

### 3.3 TRENCHING

A. TRENCH WIDTH

1. The minimum clear trench width measured at the top of the pipe barrel shall be not less than the outside pipe diameter, plus 16 inches.
2. For all pipe, the maximum clear trench width measured at a point 12 inches above the top of the pipe barrel shall be not greater than the trench width shown on the following table:

MAXIMUM TRENCH WIDTH TABLE

Pipe Diameter Inches	Maximum Trench Inches	Pipe Diameter Inches	Maximum Trench Inches
4	24	24	48
6	26	27	52
8	28	29	56
10	30	33	60
12	33	36	68
15	36	39	72
18	40	42	75
21	44	48	82

In the event the above-stated maximum trench widths are exceeded, either through accident or otherwise, and if the Engineer determines that the backfill will exceed the design loadings of the pipe, the Contractor will be required to either

cradle the pipe in concrete or gravel or to use a pipe of a stronger class, if such be available, as required by the Engineer. The cost of such remedial measures shall be entirely at the Contractor's own expense.

3. For underground electric, gas, telephone and cable TV lines, the trench width shall be as required by the respective utility representative.

#### B. TRENCH WALLS

1. Generally, all the trench side walls shall be considered to be vertical from the bottom to the top of the excavation.
2. The Contractor may request that the Engineer grant him permission to slope or bench the trench side walls. In the event the Engineer grants the Contractor permission to slope or bench the trench side walls, the sloping or benching shall terminate at a depth not less than one foot above the top of the pipe barrel, and from that point down, the trench wall shall be vertical.
3. In the event sloping of the trench side walls is permitted by the Engineer, the trenching operation, including the soil bank, shall be confined to the width of the permanent and temporary rights-of-way, if any.
4. A clear area shall be maintained a sufficient distance back from the top edge of the excavation to avoid overloading which may cause slides or caving of the trench walls. The excavated material shall be kept trimmed in such a manner as to be of as little inconvenience as possible to the public and adjoining property owners.

#### C. TRENCH DEPTH

1. The trenches shall be excavated to such depths that the pipeline will be laid at the elevation of the grade lines shown on the Drawings, or at such other depths or covers specified on the Drawings.

#### D. TRENCH PREPARATION

1. Each trench shall be excavated so that the pipe can be laid to the alignment and depth required, and it shall be excavated

only so far in advance of pipe laying as permitted by the Engineer. The trench wall shall be so braced that the workmen may work safely and efficiently. All trenches shall be drained so that pipe laying may take place in unwatered conditions. Trench preparation shall also conform to the details shown on the Drawings.

2. The width of the trench shall be ample to permit the pipe to be laid and jointed properly, and the backfill to be placed as specified. Trenches shall be of such extra width, when required, as will permit the convenient placing of timber supports, sheeting, and bracing, and the handling of special units as necessary.
3. After excavation and bedding (as required), the trench bottom shall be uniformly graded or thoroughly compacted granular material, throughout the length of the pipe. The trench grade shall permit the pipe spigot to be accurately centered in the preceding laid pipe joint, without lifting the pipe above the grade, and without exceeding the permissible joint deflection. If it is necessary to raise the pipe subgrade, approved, special compacted fill shall be used. In areas where large stones or rock excavation are encountered, so that shaping of the trench is impractical, the trench shall be over-excavated approximately 4 inches, and the trench bottom brought to correct grade with approved granular bedding up to the pipe invert.

### 3.4 SHORING

- A. As needed, all trench sidewalls shall be properly sheeted and braced to furnish safe working conditions. The shoring shall be arranged so as not to place any stress on portions of the completed work until the general construction thereof has proceeded far enough to provide ample strength. Any damage to pipes or structures occurring through settlements, heaving, water or earth pressures, slides, caving, or other causes, due to lack of sheeting or bracing, or due to failure of shoring, or due to improper shoring, or due to any other negligence on the part of the Contractor, shall be repaired by the Contractor at his own expense.
- B. Shoring shall be removed as the work progresses, unless left in place by written order of the Engineer. The Contractor will be paid for shoring so ordered left in place on the basis of invoice material cost only.

- C. If the Engineer is of the opinion that at any point the trench walls are not properly supported, he may order the placement of additional supports by, and at the expense of the Contractor, and compliance with such order shall not relieve or release the Contractor from his responsibilities for the safety of the work.

### 3.5 BLASTING

- A. Blasting for excavation will be permitted for rock excavation. Rock excavation shall be defined as the excavation of all hard, compacted or cemented materials, the accomplishment of which requires blasting or the use of excavators larger than defined for common excavation. Common excavation shall be defined as the excavation of all materials that can be excavated and removed from the bottom of the trench, at design depth, by the use of backhoe equipment having a power rating equivalent to the ability of a Caterpillar 235 excavator-backhoe.
- B. When blasting rock in trenches, the Contractor shall cover the area to be shot with earth backfill or approved blasting mats that will prevent the scattering of rock fragments outside of the excavation. The blasting procedures of the Contractor shall conform to all Federal, State and local laws, ordinances and regulations.

### 3.6 REMOVAL OF WATER

- A. The Contractor shall provide and maintain at all times ample means and devices with which to remove promptly and to properly dispose of all water entering the trench excavation.
- B. Water shall be disposed of in a suitable manner without damage to adjacent property or without being a menace to public health and convenience. No water shall be drained into work built or under construction without prior consent of the Engineer.
- C. Unwatering shall be accomplished by well points, sumping, or any other acceptable method which will insure an unwatered trench. Any unwatering method shall be subject to the approval of the Engineer.

### 3.7 DRILLING

- A. The sides of the drilling pi shall be supported in such a manner to prevent any movement or slippage of the earth during the jacking operations.

- B. The drilling operation shall be capable of maintaining the desired alignment and gradient throughout the operation. Each section of pipe shall be straight and true in alignment and grade from beginning to end.

### 3.8 BACKFILLING

- A. Backfilling Appurtenances. Backfilling to be done generally at same time as adjacent pipelines. Backfilling procedure to conform to this Section. Use special techniques or material as shown on Plans.
- B. Disposal of excess Excavation. Contractor to dispose of excess excavation on-site as approved by the Engineer or to haul excess material to a site designated by the engineer and place in lifts with a compactive efforts designated by the Engineer.
- C. Maintenance of Backfill. Contractor is to maintain all backfill in satisfactory condition during the extent of the contract and warranty period. All surface deterioration determined to be the responsibility of the Contractor and all settlement shall be repaired at once by the Contractor upon notice by the Owner. All costs for repair and all liability as a result of surface deterioration or settlement shall be the responsibility of the Contractor. The Contractor shall be responsible, at no expense to the Owner, for the repair of any settlement of the backfill material for a period of one year.
- D. Backfilling Underground Utilities. Backfilling of miscellaneous underground utilities shall be performed as per the respective utility requirements.
- E. Flowable Fill. After all pipe and appurtenances have been placed in the trench, bedded, and partially backfilled with the work approved in place, the trench shall be backfilled with the flowable fill to the base of the subgrade, pavement, or as otherwise specified. The flowable fill shall be rod vibrated as necessary to assure voids will not be present in the flow-fill concrete or around or under the pipe, fittings, and appurtenances.

Placement of subsequent lifts of sub-base, base course, and/or pavement shall not occur until the flowable fill has attained sufficient strength to support construction equipment without visible deformation.

### 3.9 COMPACTING

- A. Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined according to ASTM D 698 or AASHTO T99, (Standard Proctor).
- B. Tamping Equipment. Except immediately next to the pipe, mechanical or air operated tamping equipment is to be used. Hand equipment such as T-bar is to be used to nest pipe if necessary. Care is to be taken when compacting under, along-side and immediately above pipe to prevent crushing, fracturing or shifting of the pipe. The Contractor is to note densities required for materials being backfilled and shall use appropriate approved equipment to obtain those densities.

Wheel rolling is not considered to be an adequate compaction technique to meet these specifications and will not be allowed. Where 85% compaction is required, wheel rolling may be considered. Before acceptance, the Contractor shall backfill a portion of the trench for density testing to verify adequacy of the proposed backfill technique.

- C. Jetting. Jetting and water inundation are generally not permitted methods of compaction. The Engineer may allow jetting under certain field conditions. Techniques including depth of lifts, amount of water to be used, penetration of hose jet, etc., shall be at the direction of the Engineer. No jetting will be allowed on materials with a 200 minus gradation of greater than 15%. Contractor shall pay cost of all water used, soil classification testing and compaction testing and any retesting or recompaction required. No jetting shall be done prior to written approval and direction of the Engineer.
- D. Compactive Effort. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the soil engineer.
  - 1. Bedding Material, including material used for overexcavation of any kind: 95%
  - 2. Haunching and Initial Backfill Material: 95%
  - 3. Final backfill beneath existing or proposed pavement, roadways, sidewalks, curbs, utility lines and other improvements: 95%
  - 4. Final backfill beneath roadway shoulders: 95%

5. Backfill within undeveloped, green or undesignated areas:  
85%
- E. Moisture control:
1. Where subgrade or layer of soil material must be moisture-conditioned before compacting, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
  2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
  3. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the soil engineer.

### 3.10 FIELD QUALITY CONTROL

- A. Secure the Engineer's inspection and approval of subgrades and fill layers before subsequent construction is permitted thereon. Inspection and testing shall be performed at the direction of the Engineer.
- B. Provide samples of materials for density/moisture relationships to be developed for all soil types encountered according to ASTM D1557 or AASHTO T180. Testing to be paid for by the Owner.
- C. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- D. Frequency of Testing. Minimum of three (3) test every 100' of trench or as directed by Engineer for testing and backfill test holes to density specified. Testing to be paid for by Owner.
- E. Retesting. In the event of failure to meet compaction criteria, Contractor shall re-excavate and re-backfill at direction of Engineer. All retesting to be paid for by the Contractor and to be performed by soils testing firm approved by the Engineer. Retesting costs shall include travel time and all other miscellaneous costs related to the retesting.

### 3.11 MAINTENANCE

- A. Protection of newly graded areas:
  - 1. Protect newly graded areas from traffic and erosion, and keep free from trash and weeds;
  - 2. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

**END OF SECTION**



## SECTION 02222

### EMBEDMENT AND BASE COURSE AGGREGATE

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

###### A. Work included:

1. This work shall consist of furnishing and placing one or more courses of aggregate on a prepared surface in accordance with these specifications in reasonably close conformity with the lines, grades and typical cross sections shown on the Drawings or established by the Engineer in the field.

###### B. Related work:

Section 02200 - Earthwork

##### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the soil engineer.

##### 1.3 SUBMITTALS

###### A. Aggregate:

1. Submit a representative gradation and moisture/density analysis of all aggregate. Analysis report may be furnished by supplier of material.

## PART 2 - PRODUCTS

### 2.1 AGGREGATE MATERIALS

- A. Aggregate used for pipeline bedding, base course and sub-base course and specified by Class in other sections of this specification shall conform to the gradation schedule shown below.

CLASSIFICATION TABLE FOR AGGREGATE BASE COURSE*							
Sieve Designation	Percentage by Weight Passing Square Mesh Sieves						
	Class						
	1	2	3	4	5	6	7
4 inch	---	100	---	---	---	---	---
3 inch	---	95-100	---	---	---	---	---
2 1/2 inch	100	---	---	---	---	---	---
2 inch	95-100	---	---	100	---	---	---
1 1/2 inch	---	---	---	90-100	100	---	---
1 inch	---	---	---	---	95-100	---	100
3/4 inch	--	---	---	50-90	---	100	---
No. 4	30-65	---	---	35-50	30-70	30-65	---
No. 8	---	---	---	---	---	25-55	20-85
No. 200	3-15	3-15	20 max.	3-12	3-15	3-12	5-15

\*Reproduced from Colorado Department of Highways Standard Specifications for Road and Bridge Construction.

- B. Aggregate used for cast-in-place concrete shall conform to the gradation schedules shown below.

CONCRETE AGGREGATE GRADATION TABLE PERCENTAGES PASSING DESIGNATED SIEVES AND NOMINAL SIZE DESIGNATION										
	Coarse Aggregates (From AASHTO M 43)									Fine Aggregate
Sieve Size	*No.3	*No.4	No.6	No.7	No.8	*No.57	*No.67	**No.357	**No.467	AASHTO M6
	2" to 1"	1-1/2" to 3/4"	3/4" to 3/8"	1/2" to #4	3/8" to #8	1" to #4	3/4" to #4	2" to #4	1-1/2" to #4	#4 to #100
2-1/2"	100	.....	.....	.....	.....	.....	.....	100	.....	.....
2"	90-100	100	.....	.....	.....	.....	.....	95-100	100	.....
1-1/2"	35-70	90-100	.....	.....	.....	100	.....	.....	95-100	.....
1"	0-15	20-55	100	.....	.....	95-100	100	35-70	.....	.....
3/4"	.....	0-15	90-100	100	.....	.....	90-100	.....	35-70	.....
1/2"	0-5	.....	20-55	90-100	100	25-60	.....	10-30	.....	.....
3/8"	.....	0-5	0-15	40-70	85-100	.....	20-55	.....	10-30	100
#4	.....	.....	0-5	0-15	10-30	0-10	0-10	0-5	0-5	95-100
#8	.....	.....	.....	0-5	0-10	.....	0-5	.....	.....	.....
#16	.....	.....	.....	.....	0-5	.....	.....	.....	.....	45-80
#50	.....	.....	.....	.....	.....	.....	.....	.....	.....	10-30
#100	.....	.....	.....	.....	.....	.....	.....	.....	.....	2-10

\*Additional primary gradings may be permitted, when produced on the project, provided the theoretical combination meets the specifications for combined aggregate sizes. Size No.357 is a combination of No.3 and No.57. Size No.467 is a combination of No.4 and No.67.

- C. At least two weeks in advance of the beginning of placing any aggregates, the Contractor shall submit suitable samples of the proposed material to an approved Materials Testing Laboratory for tests to determine compliance with the requirements of this specification. The results of all tests shall be submitted to the Engineer for approval prior to the placement of any aggregate material. Tests shall be at the Contractor's expense.

### PART 3 - EXECUTION

#### 3.1 PLACING

- A. The base course material shall be placed on the previously prepared subgrade at the locations and in the proper quantities to conform to the typical cross sections as shown on the plans and as directed by the Engineer. Placing and spreading shall be done by means of spreader machine, moving vehicle, motor grader, or other approved equipment methods. The material shall be placed without segregation. Any segregated areas shall be removed and replaced with uniformly graded material at the Contractor's expense.
- B. The base material may be placed in lifts of up to 6 inches, providing that after compaction uniform density is obtained throughout the entire depth of the lift. If the required depth exceeds 6 inches, it shall be placed in two or more lifts of approximately equal thickness. If uniform density cannot be obtained by 6 inch lifts, the maximum lift shall not exceed 4 inches in final thickness.

### 3.2 COMPACTING

- A. Rolling will be continuous until the base material has been compacted to not less than 95% of maximum density as determined by AASHTO T-180, Method D (Modified Proctor). Water shall be uniformly applied as necessary during compaction to obtain optimum moisture content and to aid in consolidation. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture is produced and the aggregates are firmly keyed.
- B. The finished base course surface shall be smooth and free of ruts and irregularities and true to grade and crown as shown on the plans or as directed by the Engineer. The final surface shall be finished with a surface smoothness tolerance of 1/4 inch, measured as vertical ordinate from the face to a ten-foot straightedge laid parallel or 3/8 inch perpendicular to the station line. The Engineer shall make allowance for rounding at the crown line. The base course shall be maintained in this condition by watering, drying, rolling, or blading, as necessary or as the Engineer may direct, until the surface is placed.

### 3.3 FIELD QUALITY CONTROL

- A. Inspection and testing:
  - 1. Inspection and testing to be performed at the direction of the Engineer. Contractor to cooperate fully with all persons engaged in testing. Contractor to excavate as required to allow testing. Contractor to backfill all test excavations in accordance to these specifications.

B. Density testing and control:

1. Reference standards. Density/moisture relationships to be developed for all soil types encountered according to AASHTO T-180, Method D (Modified Proctor).
2. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
3. Frequency of testing. Conduct a minimum of one test for each layer of specified depth of fill or backfill as follows:

Foundations: For each 100 lineal feet or less of trench.

Slabs on Grade: For each 2,000 square feet or less of building area.

Pavement and walks: For each 2,000 square feet or less.

All Other Area: For each 5,000 square feet or less.

Utility Trenches: Minimum of three (3) tests every 100' of trench.

**END OF SECTION**

## SECTION 02223

### RESTORATION OF EXISTING CONDITIONS

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

###### A. Work included:

1. All existing surface improvements and site conditions disturbed or damaged during construction to be restored to a condition equal to pre-construction conditions, or as shown on the plans.

###### B. Related Work:

Section 2490 - Seeding, Fertilizer and Sodding

Section 2491 - Mulching

Section 2513 - Hot Bituminous Pavement

Section 2713 - Water Lines and Appurtenances

##### 1.2 QUALITY ASSURANCE

- ###### A.
- Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

- ###### B.
- Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.

#### PART 2 - PRODUCTS

##### 2.1 GENERAL

All materials shall conform to the applicable portions of the plans and specifications.

#### PART 3 - EXECUTION

##### 3.1 IMPROVEMENTS

- ###### A.
- Replace, repair or reconstruct all improvements as required. Work will not be accepted until restoration is accepted by Engineer and all affected property owners.

### RESTORATION OF EXISTING CONDITIONS

02223-1

### 3.2 FINAL GRADING

- A. The Contractor is to re-establish existing final grade or finish to final grades as modified and shown on the plans. The Contractor is to backfill to proper subgrade elevation with backfill material to allow placement of surface improvements or materials.

### 3.3 ROADWAYS

- A. All roadway, crossings, and damaged shoulders shall be restored to original condition with hot bituminous pavement. The pavement shall be constructed in accordance with the requirement of Colorado State Highway Department Standards.

### 3.4 LANDSCAPING

- A. All existing landscape improvements shall be restored to pre-construction conditions. Existing lawn areas shall be sodded, and all other disturbed area shall be seeded, fertilized and mulched.

Additional requirements are:

1. Minimum base course depth on gravel roadways or minimum depth beneath hard surface roadways to be 6".
2. Minimum asphalt pavement surfacing to be 4".
3. Minimum concrete pavement surfacing to be 6".

### 3.5 MANHOLES, CURB BOXES, AND WATER VALVES

- A. Risers shall be of the cast iron type. All manholes, curb boxes, and water valves shall be raised to a minimum of  $\frac{1}{4}$ " and a maximum of  $\frac{3}{4}$ " below the final grade.

### 3.6 MONUMENTS

- A. Schedule PVC shall be cut to fit existing monument box. PVC shall be flush with finished grade and filled with clean sand.

**END OF SECTION**

## SECTION 02224

### UNSUITABLE SUBGRADE

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

###### A. Work included

This work shall consist of the excavation, hauling, and disposal of material that is determined to be unsuitable for backfill and the import, hauling, and placement of replacement backfill material.

###### B. Related Work Specified Elsewhere

(Included but not necessarily limited to general conditions, supplemental conditions, technical specifications, and:

Section 02221 – Trenching, Drilling, Backfill, and Compacting

Section 02222 – Embedment and Base Course Aggregate

Section 02223 – Restoration of Existing Conditions

Section 02100 – Removal of Structures and Abandonment

##### 1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.

C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Geotechnical Engineer.

#### PART 2 - PRODUCTS

##### 2.1 GENERAL

All materials shall conform to the applicable portions of the plans and specifications.



## PART 3 - EXECUTION

### 3.1 DETERMINATION:

The Contractor shall contact the Geotechnical Engineer for determination of suitability of material excavated. Geotechnical Engineer shall determine the length of the material determined to be unsuitable, measured along the length of the trench.

### 3.2 PROCEDURE

Material determined to be unsuitable shall be removed, hauled, and disposed of as described in applicable portions of the specifications.

Replacement material shall be imported, hauled, and placed as described in applicable portions of the specifications. Replacement material shall be of a quality greater than or equal to the material specified in the plans and specifications.

**END OF SECTION**

## SECTION 02490

### SEEDING, FERTILIZER AND SODDING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included: This work shall consist of furnishing and spreading fertilizers; soil preparation; and furnishing and drilling or sowing seed in accordance with these specifications, accepted horticultural practice, and in reasonable close conformity with the locations and details shown on the plans or as designated.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

##### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

#### PART 2 - PRODUCTS

##### 2.1 MATERIALS

- A. Seed
  - 1. All seed shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, origin, the percent of weed seed content, the guaranteed percentage of purity and germination, and the pounds of Pure Live Seed of each seed species in the container. All brands furnished shall be free from such noxious seeds as Russian or Canadian Thistle, European Bindweed, Johnson Grass and Leafy Spurge. The Contractor shall furnish to the Engineer a signed statement certifying that the seed furnished is from a lot that has been tested by a recognized laboratory for seed testing within six months prior to the date of delivery. Seed which has become

wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

2. Seed types and amounts of pure live seed (PLS) required per acre for Grass Seed shall be as outlined in the following table:

<b>GRASS SEED MIX</b>			
Scientific Name:	Common Name:	Optimum Depth	Seed Rate PLS lbs/Acre
Bromus inermis	Smooth Brome	1/2"	5.0
Agropyron desertorum 'Ephraim'	'Edphraim' Crested Wheatgrass	1/2"	10.0
Agropyron intermedium 'Tegmar'	'Tegmar' Intermediate Wheatgrass	1/2"	5.0
Lolium multiflorum	Annual Ryegrass	1/2"	4.0
Linum perenne	Flax	1/4-1/2"	6.0
Total:			30.0

These rates are for out of season seeding.

3. Seed and seed labels shall conform to all current State and Federal regulations and will be subject to the testing provisions of the Association of Official Seed Analysis. Computations for quantity of seed required are based on the percent of purity and percent of germination.
4. If seed available on the market does not meet the minimum purity and germination percentages specified, the Contractor must compensate for a lesser percentage of purity or germination by furnishing sufficient additional seed to equal the specified product. Project comparison shall be made on the basis of pure live seed in pounds made on the basis of information received from each seed bag. The formula used for determining the quantity of pure live seed (PLS) shall be:

$$\text{Pounds of Seed} \times (\text{Purity} \times \text{Germination}) = \text{Pounds of Pure Live Seed (PLS)}.$$

**B. Fertilizer**

1. Coat Seed with Humectant Powder such as Hydrosorce at a rate of 1 pound per 100 bulk pounds of seed.

2. Triple superphosphate (46% minimum P<sub>2</sub>O<sub>5</sub>) shall be worked into the top four inches of soil at a rate of 200 bulk pounds per acre.
3. Commercial fertilizer shall conform to the applicable State fertilizer laws. It shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened container, each bearing the manufacturer's guaranteed analysis. Fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

C. Sod

1. Bluegrass sod shall be nursery grown, Kentucky Blue Grass blend and 99% weed free. Other sod types may be used only if approved in writing by the Engineer. The 1% allowable weeds shall not include any undesirable perennial or annual grasses or plants. Soil thickness of sod cuts shall not be less than  $\frac{3}{4}$  inch no more than 1 inch. Sod shall be cut in uniform strips with minimum dimensions of eighteen inches in width and forty eight inches in length. The contractor shall submit a sample of the sod he proposes to furnish. Said sample shall serve as a standard. Any sod furnished, whether in place or not, that is not up to the standard of the sample may be rejected. Sod that has been cut more than twenty four hours shall not be used. \
2. Each load of sod shall be accompanied by a certificate from the grower stating the type of sod, date and time of cutting.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

- A. Areas to be seeded shall be topsoiled and fertilized prior to seeding, with at least 4 inches of loose topsoil on the surface.

3.2 SEEDING SEASONS

- A. Seeding in areas that are unirrigated or not provided with sprinkling or watering systems shall be restricted to the first 30 days after spring thaw and the last 30 days prior to consistent ground freeze.

1. "Spring Thaw" shall be defined as the earliest date in a new calendar year in which seed can be buried ½ inch into the surface soil (topsoil) thru normal drill seeding methods.
2. "Consistent ground freeze" shall be defined as that time during the fall months in which the surface soil (topsoil), due to freeze conditions, prevents burying the seed ½ inch thru normal drill seeding operations. At no time shall seed be sown, drilled or otherwise planted when the surface soil or topsoil is in a frozen or crusted state.
3. Seeding at any time other than within the above seasons shall be allowed only when ordered by the Engineer or when the Contractor submits a written request for permission to do so and permission is granted. In the request, the Contractor must agree to apply the specified seed and mulch at a rate of not less than 25 percent greater per unit area than the rates specified for use within the seeding season. The additional materials shall be furnished and placed at the Contractor's expense. The Contractor must also agree to reseed, remulch and repair any areas seeded out-of-season which fail due to wind, erosion, lack of germination, and/or disturbance by the Contractor or his force at no expense to the Owner.
4. Where out-of-season seeding is ordered by the Engineer, the cost of additional material if required will be paid for by the Owner, and in this event, the Contractor will not be held responsible for damage or failure beyond his control due to out-of-season seeding.

### 3.3 LAWN SEEDING

- A. Normally, lawn grass seeding shall be accomplished in one or another of two seeding seasons within a calendar year; namely, the "Spring seeding season" and the "Fall seeding season" as described in subsection 3.2.
  1. Soil Preparation:
    - a. Preparatory to seeding lawn grass, all irregularities in the ground surface except the saucers for trees and shrubs, shall be removed. Necessary measure shall be taken to prevent the formation of low places and pockets where water will stand.

- b. Immediately prior to seeding, the ground surface shall be lightly tilled or hand worked into an even and loose seedbed and brought to the desired line grade.
2. Fertilizing:
- a. The first application of fertilizer shall be incorporated into the soil prior to seeding, and shall consist of Triple superphosphate tilled in the top four inches of soil, at the rate of 200 pounds per acre.
  - b. The second application of fertilizer shall consist of a commercial fertilizer having an available nutrient analysis of 20-10-5 applied at the rate of 200 lbs. per acre unless otherwise shown on the plans. It shall be uniformly broadcast over the seeded area after germination and the area thoroughly watered.
  - c. Fertilizer shall not be applied when the new lawn is sufficiently damp as to be burned by the fertilizer.
3. Seeding:
- a. Seed shall be drilled or sown in such a manner that after the surface is raked and rolled, the seed shall have about  $\frac{1}{4}$  inch of cover. Seeding may be accomplished by mechanical landscape type drills or approved equal. Broadcast type seeding will be permitted only on small areas not accessible to machine methods. Seed shall not be drilled or sown during windy weather or when the ground is frozen or otherwise untillable.
  - b. Hydraulic seeding is not permitted unless approved in writing. Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure, unless otherwise directed. The equipment shall have a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of estimating the volume used or remaining in the tank.
  - c. The Owner shall be responsible for maintaining and watering areas seeded with lawn grass for a period of five weeks after the time of seeding. Sprinkling of the

seeded areas shall be carefully done in such a manner to avoid standing water, surface wash, or scour. Areas seeded and so maintained shall be protected against damage by vehicle and pedestrian traffic by the use of barriers and appropriate warning signs.

- d. Areas in which there is not a satisfactory stand at the expiration of the five week period shall be reseeded once.

### 3.4 SODDING

#### A. Soil Preparation

1. Preparatory to sodding, all irregularities in the ground surface shall be removed. Sticks, stones, debris and other similar material more than one-half inch in diameter shall be removed. Any objectionable depressions or other variances from a smooth grade shall be smooth before any sodding is done.

#### B. Sodding

1. The sod shall be laid by staggering joints with all edges touching. On any slopes, the sod shall run approximately parallel to the slope contours. Where the sod abuts a drop inlet, the subgrade shall be adjusted so that when laid the sod shall be one and one-half inches above the top of the inlet.

#### C. Fertilizing

1. Prior to laying sod, the four inches of subsoil which is to underlie the sod shall be treated by thoroughly tilling in triple superphosphate, having a 0-46-0 chemical formulation. The rate of application will be 200 pounds per acre.
2. After laying, the sod shall be fertilized with a commercial fertilizer having an available nutrient analysis of 20-10-5 (this commercial fertilizer shall conform to the applicable State Department of Agriculture Regulations) at the rate of 200 pounds per acre unless otherwise shown on the plans. Fertilizer shall not be applied when sod is sufficiently damp as to be burned by the fertilizer.
3. After fertilizing, the sod shall be thoroughly soaked.

4. After soaking, the sod shall be permitted to dry to the point where it is still wet enough for effective rolling. It shall then be rolled in two directions with a lawn roller weighing not less than one hundred fifty pounds to secure a tight bond of sod to subgrade and between strips.

### 3.4 NATIVE SEEDING

#### A. Soil Preparation

1. Preparatory seeding, the top four inches to the surface shall be tilled and brought to the desired line and grade, except where, in the opinion of the Engineer, seeding follows so closely behind the initial grading or topsoil placement as to make special seed bed preparation unnecessary.

#### B. Fertilizing

1. Prior to seeding, triple superphosphate fertilizer (0-46-0) shall be applied uniformly at the rate specified and tilled into the top four inches of soil. Fertilizer shall be evenly distributed at the rate of 200 pounds per acre.

#### C. Seeding

1. All slopes 2:1 and flatter shall be seeded by mechanical power drawn drills followed by packer wheels or drag chains. Mechanical power drawn drills shall have depth bands set to maintain a planting depth of at least one-quarter inch and shall be set to space the rows not more than seven inches apart. Seed that is extremely small shall be sowed from a separate hopper adjusted to the proper rate of application.
2. Small areas not accessible to machine methods or areas requested by the Contractor and approved by the Engineer may be seeded by means of broadcast type seeders.
3. Seed shall not be drilled or sown during windy weather or when the ground is frozen or otherwise untillable.
4. All seed sown by broadcast-type seeders shall be "raked in" or otherwise covered with soil to a depth of at least one quarter inch. Hand method of broadcasting seed will be permitted only on small areas not accessible to machine methods. Water shall be applied when ordered.



5. Hydraulic seeding is not allowed.
6. If inspections indicate that strips wider than the specified space between the rows planted have been left or other areas skipped, the Engineer may require immediate resowing of seed in such areas at the Contractor's expense.
7. Seeded areas damaged due to circumstances beyond the contractor's control shall be repaired and reseeded as ordered. Payment for this corrective work, when ordered, shall be at the contract prices.
8. Seeding of portions of the areas designated may be permitted before the construction is completed in order to take advantage of growing conditions.

**END OF SECTION**

## SECTION 02491

### MULCHING

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included: This item shall consist of mulching all seeded areas. Lawn seeded areas shall be hydro-mulched with wood cellulose fibers and native seeded areas may be mulched by hand or straw blower using straw or by the hydraulic method using wood cellulose fiber mulch or by other acceptable mulching methods. This item shall also include the application of asphaltic materials (tackifier).
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

##### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

#### PART 2 - PRODUCTS

##### 2.1 MATERIALS

- A. Mulching
  - 1. Materials for straw mulching shall consist of straw of oats, barley, wheat or rye and shall not contain seed of noxious weeds.
  - 2. Wood cellulose fiber for hydraulic mulching shall not contain any substance or factor which might inhibit germination or growth of grass seed. It shall be dyed an appropriate color to allow visual metering of its application. The wood cellulose fibers shall have the property of becoming evenly dispersed and suspended when agitated in water. When sprayed uniformly on the surface of the soil, the fibers shall form a blotter-like ground cover which readily absorbs water, and allows infiltration to the underlying soil. Weight specifications from suppliers, and for all applications,

shall refer only to air dry weight of the fiber, a standard equivalent to 10 percent moisture. The mulch material shall be supplied in packages having a gross weight of not in excess of 100 pounds, and shall be marked by the manufacturer to show the air dry weight content. Suppliers shall certify that laboratory and field testing of their produce has been accomplished, and that it meets all of the foregoing requirements pertaining to wood cellulose fiber mulch.

3. Manure for mulch shall be barn or stable type animal droppings and shall be free of materials toxic to plant growth and reasonably free of refuse. It shall be well rotted and not have lost its strength by leaching or injurious fermentation. It shall not contain an excess amount of water and be of a consistency for readily mixing with soil to form a broken down or fine mixture.
4. Mulch areas at a rate of 2 tons/acre of dry mulch.

B. Tackifier

1. Apply tackifier over straw mulch with a hydro-mulcher at the following rate:
  - 100 pounds/acre M-binder
  - 150 pounds/acre Wood Cellulose Fiber
  - 700-1,000 gallons/acre Water

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 HAY OR STRAW MULCHING

- A. After seeding has been completed, hay or straw shall be uniformly applied at the rate of 2 tons/acre. Apply tackifier over the mulch with a hydro-mulcher as specified.
- B. Crimping the mulch may be allowed instead of tacking if approved by the Engineer. The Engineer may order the employment of hand-crimping operations on such areas where excessive ground slopes or confined areas would cause unsatisfactory crimping to result by mechanical methods.

- C. The seeded area shall be mulched within 24 hours after seeding. Area not mulched within 24 hours after seeding must be reseeded with the specified seed mix at the Contractor's expense prior to mulching.
- D. On slopes steeper than 2:1 or other specific areas as shown on the plans, which are difficult to mulch by conventional methods, burlap or other blanketing materials properly anchored and secured may be used when approved by the Engineer.

### 3.3 HYDRAULIC MULCHING

- A. Hydraulic mulching shall be required for lawn seeding and may be used in lieu of straw mulching for native seeding. Cellulose fiber mulch shall be added after the proportionate quantities of water and other approved materials have been placed in the slurry tank. All ingredients shall be mixed to form a homogenous slurry. Using the color of the mulch as a metering agent, the operator shall spray apply the slurry mixture uniformly over the designated seeded area. Unless otherwise ordered for specific areas, wood cellulose fiber mulch shall be applied at a rate of 1.5 tons per acre.
- B. Hydraulic mulching shall not be done in the presence of free surface water resulting from rain, melting snow or other causes.
- C. Hydroseeding may not be combined with hydraulic mulching by adding seed to mulch.

### 3.4 MANURE MULCHING

- A. Manure mulching is not permitted unless approved by the Engineer. Manure shall be uniformly spread by a manure spreader or other approved device at the rate shown on the plans or as directed.

### 3.5 GENERAL

- A. Areas not properly mulched or areas damaged due to the Contractor's negligence, shall be repaired and remulched in an acceptable manner at the Contractor's expense.
- B. Mulch removed by circumstance beyond the Contractor's control shall be repaired and remulched as ordered. Payment for this corrective work, when ordered, shall be at the contract prices.

- C. When the use of asphaltic material is called for on the plans, it shall be applied to the seeded area at the rate of .2 gallons per square yard by means of approved spraying equipment. Immediately preceding the application of the asphaltic material, the seeded surface shall be moistened with water.

**END OF SECTION**

## SECTION 02513

### HOT BITUMINOUS PAVEMENT

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

A. Work included: This work shall consist of constructing bituminous pavement in accordance with these specifications, and in reasonable close conformity with the lines, grades, thicknesses, and typical cross-sections shown on the plans or as directed by the Engineer.

B. Related work:

Section 02100 - Removal of Structures and Abandonment

Section 02222 - Embedment and Base Course Aggregate

Section 02221- Trenching, Drilling, Backfilling, and Compacting

Section 02223 - Restoration of Existing Compacting Conditions

##### 1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

##### 1.3 REFERENCE STANDARDS

A. All work is to be performed in accordance with the latest Edition of "State Department of Highways - Division of Highways - State of Colorado - Standard Specifications for Road and Bridge Construction," as revised herein. The reference specifications are not reproduced in their entirety.

B. All work is to be performed in accordance with the State Highway Utility Permit to be obtained. A draft copy of the Special Provisions is included in this document.

##### 1.4 SUBMITTALS

A. Mix Design. Provide complete mix design by independent testing laboratory, including certifications of all material compliance.

B. Prime Coat. Certification on material.

C. Tack Coat. Certification on material.

## PART 2 - PRODUCTS

### 2.1 COMPOSITION OF MIXTURE

Reference Section 401.02 through 401.06, Section 702, 703.04 and Section 407, with revisions and additions as follows:

- A. Use Grading S, SX or equivalent (Reference Section 703.04), graded to the finer side.
- B. Viscosity Graded Asphalt Cement PG 64-28 for overlay and PG 58-28 for leveling course, (AASHTO M226) 6.0% by weight of mix.
- C. No lime required unless it is need to meet acceptable TSR values. Liquid additives are acceptable. Alternative mix designs may be submitted, but their suitability for the Project shall be determined, upon prior written consent, by the Owner and the Testing Company. Durability will be favored over stability possibly increasing AC content to the high side of the mix design. If anti-stripping additive is required, the Town will pay the extra cost at the going market.

D. Marshall Property Requirements:

Stability, lbs.	500 min.
Flow, 0.01 inch	8-18
Voids, total mix %	3-11
Aggregate Voids Filled %	65-75
Compaction, blows ea. end	50

E. Immersion-Compression:

Voids in total mix %	6.0
Compressive strength psi	250 min.
Retained strength %	75 min.

F. Minimum temperature of mixture emptied from pugmill, 280° F.

G. Delete last sentence, second paragraph, Section 401.06.

### 2.2 PRIME COAT

- A. Reference Section 702.03.
- B. Prime coat shall be MC-70 (ASTM D2026)

### 2.3 TACK COAT

- A. Reference Section 702.04.
- B. Tack coat to be SS-1 or SS-1n (ASTM D977) or CSS-1h (AASHTO M208).

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the area and conditions under which the work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
  - 1. Kill and remove Vegetation.
  - 2. Fill Large Cracks.  

Fill cracks wider than ½" w/ AMZ machine or hot mix asphalt
  - 3. Sweep surface to remove foreign matter.
- B. The pavement shall be placed when the air temperature is a minimum of 40 degrees and rising or when weather conditions are not detrimental to the proper placement and finishing of the pavement.
- C. Tack coat required between passes and on all abutting old pavement surfaces. Application rate shall be 0.05 to 0.10 gallons per square yard diluted.
- D. All cut asphalt surfaces that are to butt new pavement sections shall be primed with a liberal application of prime coat prior to paving.

### 3.2 PLACEMENT OF PAVEMENT

- A. The hot bituminous pavement shall be laid upon the approved surface, spread and struck off to the grade and elevation established. Bituminous pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable. After the mixture has been spread, struck off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.
- B. The surface shall be rolled when the mixture is in the proper conditions and when the rolling does not cause undue displacement,



cracking or shoving. The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition.

- C. Rolling shall be continued until all roller marks are eliminated and a minimum density of 92% to 96% of the theoretical maximum voidless density has been obtained. Any displacement occurring as a result of the reversing of the direction of a roller, or from other causes, shall be corrected at once by the use of rakes and additions of fresh mixture when required. To prevent adhesion of the mixture to the rollers, the wheels shall be kept properly moistened with water or other approved material. Excess liquid will not be permitted.
- D. The material shall not be accepted unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 280 degrees F.
- E. Final HBP grade above lip of gutter shall average  $\frac{1}{4}$ " –  $\frac{1}{2}$ ". There may be areas where a damaged gutter will not make this possible. In these areas, basically, be above the gutter and place a smooth mat.

### 3.3 COMPACTION

- A. Minimum density of 92% to 96% of the theoretical maximum voidless density.
- B. Compaction is to be performed as per Section 401.17.

### 3.4 SURFACE TOLERANCES

Section 401.20. No skin patching will be allowed.

## PART 4 - FIELD QUALITY CONTROL

### 4.1 INSPECTION AND TESTING

Inspection and testing to be performed at the direction of the Owner and/or the Engineer. Contractor to cooperate fully with all persons engaged in testing.

### 4.2 DENSITY TESTING AND CONTROL

- A. Reference Standards. Density relationship to be developed in accordance with ASTM D2950.

- B. Field Testing. Testing for density during compaction operations to be done using nuclear density methods.
- C. Frequency of Testing. Minimum of one (1) test every 10,000 square feet or as directed. Testing to be paid for by Owner.
- D. Retesting. In the event of failure to meet compaction criteria, Contractor shall recompact and/or replace defective work at direction of Engineer. All retesting to be paid for by Contractor and to be performed by testing firm approved by the Engineer.

**END OF SECTION**

## SECTION 02713

### WATER LINES AND APPURTENANCES

#### PART 1 - GENERAL

##### 1.1 DESCRIPTION

- A. Work included: Provide water lines and appurtenances on Drawings, specified herein, and needed for a complete and proper installation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and other Sections of these Specifications.

Section 02221 - Trenching, Backfilling and Compacting

Section 02222 - Embedment and Base Course Aggregate

##### 1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section. All products shall be new.

##### 1.3 SUBMITTALS

- A. Product data including catalog sheets and descriptive literature shall be submitted for all materials and equipment specified. Submittals shall state manufacturer's compliance with all published standards referenced herein.

##### 1.4 PRODUCT HANDLING

- A. Comply with the manufacturers recommendations on product handling, storage and protection.
- B. Precaution shall be taken to prevent foreign matter from entering the pipe, fittings, and valves prior to and during installation. Place no debris, tools, clothing or other materials in the pipe during installation
- C. At such time as pipe installation is suspended, either temporarily or overnight, the open end of the pipe shall be sealed with a watertight plug to prevent entrance of trench water, debris or foreign matter.

### WATER LINES AND APPURTENANCES

- D. Under no circumstances shall trench water be allowed to enter the pipeline. When water is present in the trench, the seal shall remain in place until such time as the trench is pumped dry. Whenever trench water becomes evident, adequate measures shall be taken to prevent pipe flotation.
- E. If, in the opinion of the Engineer, the Contractor is incapable of keeping the pipe free of foreign matter during installation, the Engineer shall require the Contractor to cover the pipe ends with close woven bags until the start of the joining operation.

## PART 2 - products

### 2.1 Ductile Iron Pipe and Fittings

#### A. Ductile Iron Pipe

1. Reference Standard - ANSI 21.51/AWWA C151
2. Pressure Class - 350 psi
3. Pipe joints shall be push on joints, except where specifically shown or detailed otherwise.

#### B. Fittings

1. Type - All fittings shall be mechanical joint, except where specifically shown or detailed otherwise.
2. Reference Standard - ANSI/AWWA C153 for flanged, mechanical joint and push-on joints.
3. Material Rating - Grey iron or Ductile Iron
4. Pressure Rating - 250 psi
5. Flange - 125 lb.
6. Underground Service - Manufacturer's standard fusion bonded epoxy, 4 mil thickness, per ANSI/AWWA C116.

#### C. Joints

1. Mechanical, Reference Standard - ANSI A21.11/AWWA C111
2. Push-on, Reference Standard - ANSI A21.11/AWWA C111

3. Flanged, Reference Standard - ANSI B 16.1, Class 125

D. Gaskets

1. Type-rubbing ring gasket shall be suitable for the specified pipe sizes and pressure.
2. Reference Standard AWWA C-111
3. Lubricant - A non-toxic vegetable soap lubricant shall be supplied with the pipe.

E. Protective Coating

1. Underground Service - Manufacturer's standard bituminous coating - minimum 1 mil thickness.
2. Polyethylene film envelope - Polyethylene encasement shall conform to AWWA C-105 or ANSI A.21.5. Film shall be Class C with a nominal thickness of 8 mils. Tape for securing the film shall have a minimum thickness of 10 mils and a minimum width of 1 inch. The polyethylene film shall be free of streaks, pinholes, tears or blisters.

F. Protective Lining

1. Type - Cement mortar
2. Reference Standard - ANSI A.21.4/AWWA C104-64
3. Thickness - Standard

2.2 Polyvinyl Chloride (PVC) Pipe and Fittings

A. PVC Pipe

1. Materials - ASTM D1784, Type 1, Grade 1, PVC 1120, 2000 psi design stress.
2. Reference Standard - AWWA C-900.
3. Class - 250 (DR-14)
4. Markings - Manufacturer's name, nominal size, class pressure rating, PVC 1120, NSF logo, identification code.
5. Specialties - Electrical tracing wire, 10 gage solid copper insulated wire.

6. Size - Shall conform to outside diameter of DIP.

B. Fittings

1. Type - All fittings shall be mechanical joint except where specifically shown or detailed otherwise.
2. Reference Standard - ANSI/AWWA C-116/A.21.10.
3. Pressure Rating - 250 psi.
4. Gasket Reference Standard - AWWA C-111.
5. Underground Service - Manufacturer's standard fusion bonded epoxy, 4 mil thickness, per ANSI/AWWA C116.

C. Joints

1. Push-on rubber gasket.
2. Gasket Reference Standard - AWWA C-111.

2.3 PLASTIC IRRIGATION PIPE AND FITTINGS

A. Plastic Irrigation Pipe (PIP)

1. Materials - ASTM D-2241
2. Class - 100 (SDR 41)
3. Markings - Manufacturer's names, nominal size, pressure class; PIP designation, type of plastic material according to designation code.

B. Fittings

1. Type - As recommended by pipe manufacturer with use of the pipe.
2. Pressure Rating - 100 psi or better.

C. Joints

1. Push-on elastomeric gasket.
2. Gasket dimensions shall be according to the manufacturer's standard design dimensions and tolerances. The size and

shape of the gasket must insure a compressive force against the spigot and socket after assembly to effect positive seal under all combinations of joint and gasket tolerances.

3. Elastomer compounds must be noncrazing to pipe. The gasket in the cured state shall not cause craze marks, pits, or blisters when in contact with the plastic pipe. The plastic pipe can be stained in the area of gasket contact.
4. Lubricant, if required, shall be suitable for lubricating the parts of the joints in the assembly. The lubricant shall have no deteriorating effects on the gasket and pipe materials.
5. The joint shall be designed to provide a permanent seal.
6. The gasket shall be the sole element depended upon to make the joint flexible and watertight. The gasket shall be a continuous elastometric ring.
7. The joint design may provide for the axial deflection of a pipe joint by permitting one side of the outside perimeter of the joint to open wider than the compressed position without reducing its watertightness. If greater deflections than provided by the joint design are required, suitable fittings must be provided.
8. The joint components shall be of such design that they will withstand the forces caused by the compression of the gasket when joined without cracking or fracturing.
9. All surfaces of the joint upon or against which the gasket may bear shall be smooth, free of cracks, fractures, or imperfections that could adversely affect the performance of the joint.

## 2.4 Fire Hydrants

### A. Dry Barrel Type

1. Reference Standard - AWWA C502-80
2. Outlet Size - One 4 1/2 inch, two 2 1/2 inch
3. Hydrant Size - 5 1/4 inch, or greater, bronze to bronze seating.
4. Inlet Size - 6 inch
5. Operation - 1 1/2 inch pentagonal national standard operating nut, open counterclockwise, lubricating reservoir.

6. Special Features - Outlet hydrant shall open when turned to the left (counterclockwise)
7. Depth of Bury - as shown on Drawings
8. Additional Requirements - Furnish hydrant complete with pipe and tee, 6 inch (6") restrained mechanical joint gate valve and thrust blocks. Hydrant shall be restrained using mega-lug restraint.
9. Traffic Model with break-away bolts and coupling
10. Painting - Fire hydrant red enamel
11. Manufacturer and Model - Mueller Super Centurian 250 A423, 250 psi working pressure.

## 2.5 VALVES

### A. Gate Valves

1. Size as shown on drawings.
2. Reference Standard AWWA C500
3. Style - Iron body, bronze stem, resilient seat gate valves, lubrication free, unobstructed thru port to maximize flow, entire body encapsulated inside and out with epoxy coating.
4. Pressure Rating - 250 psi
5. Wrench Nut - 2 inch square with non-rising stem.
6. Manufacturer's Reference - Kennedy, Mueller, Pacific States, or approved equal.
7. Additional Requirements - Valves shall be furnished with 2 "O" ring stem seals each of which shall be so designed and located as to allow replacement under full line pressure when the valve is in the fully opened positions. Valve stems on valves 12 inches in size and smaller shall be threaded so that the number of turns to open shall be 3 times the nominal diameter in inches with a tolerance of plus 3 turns. Valve stems shall be threaded so that valves shall open by turning to the left (counter-clockwise), and arrow shall so indicate.

### B. Combination Air Release Valve



1. Material - Cast Iron
2. Size - 1 inch
3. Pressure Rating - 300 psi
4. Manufacturer's Reference - APCO #143C

## 2.6 VALVE BOXES

### A. Screw Type - Three piece

1. Material - Cast Iron, min. 1/4-inch thickness.
2. Size - 5 1/4 inch diameter
3. Type - Three piece adjustable screw or slide type
4. Cover - Buffalo type with the word "water" cast in the top
5. Base - flared to fit valve

## 2.7 Mechanical couplings

1. Style - Mechanical compression sleeve or solid sleeve are acceptable.
2. Manufacturer's Reference - Dresser Style 39, Smith Blair Type 411, Baker Series 400 or equal.

## 2.8 WATER SERVICE & TAP COMPONENTS

### A. Corporation Stops

1. Material - Brass or bronze
2. Reference Standard - AWWA C800-55
3. Valve - TFE coated ball valve, 300 psi rated
4. Manufacturer's Reference – Mueller 300 ball type, or equal

### B. Polyethylene Water Service Lines

1. Material - High density 3408 material with a white inner core.

2. Reference Standard - ASTM D2239 for SIDR pipe, ASTM D2737 for copper tube pipe, meet AWWA C901 requirements and be NSF listed.
3. Pressure Rating - 200 psi
4. Manufacturer's Reference - Pure-Core 200 by Eagle Plastics, Inc. or approved equal.

C. Curb Box

1. Material - Cast iron body with tar based enamel coating, complete with lid and red brass screw.
2. Type - Arch pattern base, extension type curb box
3. Size - 1 1/2" diameter upper section
4. Manufacturer's Reference - Mueller H-10308

D. Curb Stop

1. Reference Standard - AWWA C800-66
2. Materials - Cast bronze body, resilient O-ring seal, standard tee-head operator, ball valve type.
3. Inlet - Copper service thread for compression or flared fitting.
4. Manufacturer's Reference - Mueller 300 ball curb valve, or equal.

E. Service Saddles

1. Manufacturer's Reference - Mueller BR 25 series, or equal.

2.9 CONCRETE FOR thrust blocks and encasing of pipe

Concrete for thrust blocks and for encasing the sewer pipe line shall have 28-day compressive strength of not less than 3000 psi.

2.10 TRACER WIRE

Required for PVC pipe; 10 gage solid copper insulated wire. Splices shall be underground type.

Part 3 - Execution

### 3.1 Surface Conditions

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 VERIFICATION

- A. Verify Dimensions and class of all existing and proposed pipe, valves, fittings and equipment prior to installation to insure the piping system will fit together properly.

### 3.3 Handling

- A. Handle pipe accessories so as to ensure delivery to the trench in sound, undamaged condition.
  - 1. Carry pipe into position; do not drop.
  - 2. Use pinch bars or tongs for aligning or turning the pipe only on the bare end of the pipe.
- B. Thoroughly clean interior of pipe and accessories before lowering pipe into trench. Keep clean during laying operations by plugging or other method approved by the Engineers.
- C. Before installation, inspect each piece of pipe and each fitting for defects.
  - 1. Material found to be defective before or after laying: Replace with sound material meeting the specified requirements, and without additional cost to the Owner.

### 3.4 Locating

- A. Locate the water line as shown on the plans and as staked in the field. Do not disturb the property located outside of the easements and right-of-ways. Notify the Engineer in the event of obstructions that may require changing the location of the pipeline.

### 3.5 Trenching, Backfilling and Compaction

- A. Refer to Section 02221 for the requirements regarding trenching, backfilling and compaction for the pipeline.

### 3.6 PIPELINE EMBEDMENT

- A. Refer to Section 02222 Embedment and Base Course Aggregate for pipeline embedment requirements.

### 3.7 JOINT DEFLECTION

- A. Unless a lesser amount is recommended by the pipe manufacturer, maximum allowable deflections from a straight line or grade, or offsets, will be five degrees.

### 3.8 PLACING and LAYING PIPE

- A. Methodology - Pipe shall be laid in straight section with bell ends facing the direction of laying unless otherwise directed by the Engineer. Where pipe is laid on a grade of ten percent (10%) or greater, the installation shall proceed uphill with the bell ends facing upgrade. The pipeline shall be installed so that a continuous positive or negative grade is maintained between high and low points to avoid air pockets. Jointing of the pipe shall be made in accordance with the directions of the manufacturer of the pipe and the manufacturer of the coupling.

The pipe shall be brought to correct line and grade, and secured in place with the specified bedding material as directed in Section 02221.

- B. Pipeline Depth - as indicated on Drawings
- C. Concrete Encasement - Install concrete encasement where indicated on the Drawings or as required by other sections of the specification. Concrete shall have a three thousand (3000) psi compressive strength. Reinforcing shall consist of four (4) evenly spaced longitudinal No. 4 rebars.
- D. Installation of Ductile Iron Pipelines
  - 1. Pipe Handling - Pipe should be lowered into the trench with ropes, slings or machinery. Under no circumstances should the pipe be pushed off the bank and allowed to fall into the trench.
  - 2. Pipe Laying - Water lines and appurtenances shall be constructed in conformity with this section of the Specifications and manufacturer's recommendations where applicable.

Excavation and backfill shall conform to specifications for "Excavation, Trenching, and Backfilling for Pipe Lines", Section 02221.

Before installation, the pipe shall be inspected for defects and tapped with a light hammer to detect cracks. Defective, damaged or unsound pipe shall not be installed. Deflections from a straight line or grade, as required by vertical curves, horizontal curves or offsets, shall not exceed the manufacturer's recommendations with 5 degrees at the joint being the maximum. If the alignment requires deflections in excess of these limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth, as approved. Any pipe that has the grade or joint disturbed after laying shall be taken up and relaid. Pipe shall not be laid in water, or when trench or weather conditions are unsuitable for the work, except when otherwise expressly permitted. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth or other substance will enter the pipe or fittings.

3. Jointing of Push-on Joints - In joining the pipe, the exterior four inches of the pipe at the spigot end and the inside of the adjoining bell shall be thoroughly cleaned to remove oil, grit, tar (other than standard coating) and other foreign matter. The gasket shall be placed in the bell with the large round side of the gasket pointing inside the pipe so it will spring into its proper position inside the pipe bell. A thick film of the pipe manufacturer's joint lubricant shall be applied to the gasket over its entire surface. The spigot end of the pipe shall then be wiped clean and inserted into the bell to contact the gasket. The pipe shall be forced all the way into the bell by crowbar or by jack and choker slings.
4. Pipe Cutting - The cutting of pipe for fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining and so as to leave a smooth end at right angles to the axis of the pipe. The flame cutting of pipe by means of an oxyacetylene torch will not be allowed.
5. Polyethylene Film Envelope - The polyethylene wrap tubing shall be cut to provide for a minimum of one foot of lap over both the adjoining pipes. The ends of the tubing shall be wrapped using three (3) circumferential turns of plastic adhesive tape.

The loose wrap on the barrel is to be pulled snugly around the barrel of the pipe and the excess folded over at the top. This fold will be held in place by means of six-inch (6") strips of the

plastic tape, placed at intervals of three feet (3') along the pipe barrel.

Bends, reducers and offsets shall be wrapped in the same manner as pipe.

Valves shall be wrapped by bringing the tube wrap on the adjacent pipe over the bells of the valve and sealing with adhesive tape. The valve bodies are then wrapped with flat sheets passed under the valve bottom and brought up around the body to the stem, and fastened with the tape.

#### E. Installation of Polyvinyl Chloride (PVC) Pipe

1. Pipe Handling - Pipe should be lowered into the trench with ropes, slings or machinery. Under no circumstances should the pipe be pushed off the bank and allowed to fall into the trench.
2. Pipe Laying - Water lines and appurtenances shall be constructed in conformity with this section of the Specifications and manufacturer's recommendations where applicable.

Excavation and backfill shall conform to specifications for "Excavation, Trenching, and Backfilling for Pipe Lines", Section 02221.

Before installation, the pipe shall be inspected for defects and tapped with a light hammer to detect cracks. Defective, damaged or unsound pipe shall not be installed. Deflections from a straight line or grade, as required by vertical curves, horizontal curves or offsets, shall not exceed the manufacturer's recommendations with 5 degrees at the joint being the maximum. If the alignment requires deflections in excess of these limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth, as approved. Any pipe that has the grade or joint disturbed after laying shall be taken up and relaid. Pipe shall not be laid in water, or when trench or weather conditions are unsuitable for the work, except when otherwise expressly permitted. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth or other substance will enter the pipe or fittings.

3. Jointing of Push-on Joints - In joining the pipe, the exterior four inches of the pipe at the spigot end and the inside of the

adjoining bell shall be thoroughly cleaned to remove oil, grit, tar (other than standard coating) and other foreign matter. The gasket shall be placed in the bell with the large round side of the gasket pointing inside the pipe so it will spring into its proper position inside the pipe bell. A thick film of the pipe manufacturer's joint lubricant shall be applied to the gasket over its entire surface. The spigot end of the pipe shall then be wiped clean and inserted into the bell to contact the gasket. The pipe shall be forced all the way into the bell by crowbar or by jack and choker slings.

4. Pipe Cutting - The cutting of pipe for fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining and so as to leave a smooth end at right angles to the axis of the pipe. The flame cutting of pipe by means of an oxyacetylene torch will not be allowed.

### 3.9 INSTALLATION OF PIPELINE APPURTENANCES

- A. General - Install all valves, meters, manholes and other equipment appurtenant to pipeline at the locations indicated on the drawings or as otherwise designed by the Engineer to accommodate field conditions. Record "as-built" measurements prior to backfill referencing all appurtenant equipment to the nearest permanent surface improvement or roadway station.
- B. Installation of Valves - Install valves in the pipeline in the same manner specified for laying and jointing the pipe and in accordance with details included in Drawings.
- C. Valve Boxes - Except where specified otherwise, install valve boxes on all buried valves. Install boxes such that no stress is transmitted to the valve. Set boxes plumb and directly over the valve with the top of the box placed flush with the finished grade. Backfill and thoroughly compact around each box. Provide extended stems on valves where required such that the operating nut is not lower than seven feet below finished grade.
- D. Fire Hydrants - Install hydrants in accordance with the standard details on the Drawings. All tie rods and appurtenances to be completely covered with a bitumastic coating prior to backfill. Hydrant to be set plumb and true to grade.
- E. Reaction Anchor and Blocking - Concrete thrust blocks or mega-lug joint restraints shall be provided, as shown in the details included with the Drawings, for all tees, elbows, plugs, reducers, valves, fire hydrants and crosses if one or more sides of the cross is plugged.

### 3.10 CONNECTION TO EXISTING WATER FACILITIES

- A. All main line connections between existing and proposed piping shall be made during non-business hours or at a time which is acceptable. All shut-offs shall be planned 24 hours in advance and all persons affected by the shut-off shall be given a 24 hour notice.
- B. Use special end fittings to suit the actual conditions where connections are made between new work and existing mains. Temporarily expose the locations where the connections are to be made to determine which fittings will be required.
- C. Take all precautions to prevent contamination when making connections to existing potable water lines. No trench water, mud or other contaminating substances shall be permitted to enter the pipeline.
- D. Swab the interior of all new pipe, fittings and valves installed in the existing pipeline with a 5 percent (50,000 ppm) chlorine solution prior to installation. After the connection is completed, flush the main to remove all contaminated water.

### 3.11 PROTECTION OF WATER SUPPLIES

Water lines shall be located a minimum of ten feet (10') horizontally from existing or proposed sewer mains. Wherever the sewer line crosses above or within twenty-four inches (24") beneath the water mains, the sewer line shall be made impervious by either of the two methods listed below:

- 1. Twenty feet of ductile iron water pipe shall be used for sewer pipe and centered over the water main. The joints between the sewer pipe and the cast iron pipe shall be encased in a concrete collar at least six inches (6") on either side of the joints.
- 2. The sewer pipe shall be reinforced with concrete encasement. The encasement shall be at least six inches (6") thick on either side of the water main.

### 3.12 THRUST BLOCKS

- A. General:
  - 1. Provide thrust blocks, or metal tie rods and clamps or lugs, on plugs, caps, tees, and bends deflecting 11 1/4 degrees or more either vertically or horizontally, and on water lines 4" in diameter or larger.



2. Provide concrete thrust blocking with a compressive strength of 3000 psi in 28 days.

B. Installation:

1. Locate thrust blocking between solid ground and the fitting to be anchored normal to the direction of the thrust.
2. Unless otherwise shown or directed by the Engineer, place the base and thrust bearing sides of thrust blocking directly against undisturbed earth.
3. Sides of thrust blocking not subject to thrust may be placed against forms.
4. Place thrust blocking so the fitting joints will be accessible for repair.
5. Protect steel rods and clamps by galvanizing or by coating with bituminous paint.

C. Bearing Area:

1. The bearing area of thrust blocks shall be at least equal to that shown on the plan sheets.

### 3.13 TESTING AND INSPECTION

A. Hydrostatic tests:

1. Where any section of a water line is provided with concrete thrust blocking for fittings, do not make hydrostatic tests until at least five days after installation of the concrete thrust blocking, unless otherwise directed by the Engineer.
2. The Contractor shall provide all pumps, pipe, connections, gauges, measuring devices and all other apparatus necessary to conduct the tests.
3. All tests shall be conducted in the presence of the Engineer.
4. Duration of each leakage test: At least two hours.
5. During the test, subject water lines to a pressure of 150 psi, or 1.5 times working pressure, whichever is greater.
6. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section thereof,

necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

- a. No piping installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:  
$$L = SD\sqrt{P/133,200}$$
- b. L = allowable leakage in gallons per hours;
- c. S = length of pipe in feet;
- d. D = nominal diameter of pipe in inches; and
- e. P = average test pressure in lbs. per sq. inch.
- f. Should any test of pipe disclose leakage greater than that specified, locate and repair the defective joint or joints and retest until the leakage is within the specified allowance, and at no additional cost to the Owner.

B. Time for making test:

1. Except for joint material setting, or where concrete reaction backing necessitates a five day delay, pipelines jointed with rubber gaskets, mechanical, or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected and tested for leakage at any time after partial completion of backfill.

## PART 4 - DISINFECTION OF POTABLE WATERLINES

### 4.1 General

Flush and disinfect potable waterlines in accordance with the procedure set forth in AWWA C601-68, Disinfecting Water Mains.

Provide all temporary blowoffs, pumps, chlorination equipment, chlorine and all other necessary apparatus required.

### 4.2 Pipe Cleaning

If the pipe contains dirt or heavy encrusted matter that, in the opinion of the Engineer, will not be removed during the flushing operation, the Contractor shall clean and swab the interior of the pipe with a five percent (50,000 ppm) chlorine solution.

- A. Preliminary Flushing - Flush pipeline prior to disinfection, except when the tablet method is used, to remove all remaining foreign material. The flushing operation shall develop a minimum velocity of 2.5 ft/sec.

#### 4.3 Chlorine Application

In general, chlorine shall be applied using the continuous feed method. However, on large diameter lines where this would not be practical, the slug method may be used. The tablet method may be used on short extensions (up to 2,500 ft.) of small diameter mains (12 inch and smaller).

- A. Continuous Feed Method - Introduce water into the line at a constant rate while adding chlorine at a minimum concentration of 50 mg/l. Maintain the chlorinated water in the pipeline for a minimum of 24 hours after which period the treated water shall contain no less than 25 mg/l of chlorine throughout the entire length. Repeat the above procedure if the residual at the end of 24 hours fails to meet the minimum concentration.
- B. Slug Method - Introduce water with a minimum chlorine concentration of 300/mg/l at a constant measured rate into the pipeline. Apply the chlorine for a sufficient length of time to develop a solid column or slug of chlorinated water that will, as it passed along the line, expose all interior surfaces for a period of 3 hours. Check the application at the upstream end of the line.
- C. Tablet Method - This method shall not be used if trench water or foreign material has entered the line or if the water is below 5# C (41# F). Because preliminary flushing cannot be used, this method shall only be used when scrupulous cleanliness has been exercised.

Place tablets in each section of pipe in sufficient number to produce a dose of 50 mg/l. Refer to Table 3 of AWWA C601 for the required minimum number of tablets. All tablets within the main must be attached at the top of the pipe. Introduce water into the pipeline at a rate no greater than 1 ft./sec. and retain the water in the pipeline for a period of 24 hours.

#### 4.4 Final Flushing

After the required retention period, flush all heavily chlorinated water from the main until the chlorine concentration is no higher than that prevailing in the system, or less than 1 mg/l.

#### 4.5 Bacteriologic Tests

After completion of the final flushing and prior to placing the pipeline in service, collect samples from the end of the line and test for bacteriologic quality to show the absence of coliform organisms. The number and frequency of samples shall conform to the requirements of the public health authority having jurisdiction but in no case shall the number be less than one for chlorinated supplies.

Collect samples in sterile bottles from a standard corporation stop furnished and installed by the Contractor in the main. Do not collect samples using a hose or fire hydrant.

#### 4.6 Repetition of Procedure

If the original disinfection fails to produce satisfactory samples, repeat the disinfection procedure until satisfactory results are obtained.

**END OF SECTION**

