



CONTRACT DOCUMENTS and TECHNICAL SPECIFICATIONS

Grand County

Jackson Street Storm Drain



Horrocks PN 313.0237990
45 E. 200 N. #107, Logan, UT 84321

Grand County

Jackson Street Storm Drain

Project Location:
Jackson Street, Moab, UT 84532

February 2026

CONTRACT DOCUMENTS and TECHNICAL SPECIFICATIONS

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DOCUMENT 00 10 00

ADVERTISEMENT FOR BIDS

GENERAL NOTICE

Grand County is requesting Bids for the construction of the following Project:

Jackson Street Storm Drain

Bids for the construction of the Project will be received at Grand County located at 125 E Center St, Moab, UT 84532 until Wednesday, March 18, 2026 at 3:00 PM local time. Alternatively, bids may be mailed to 125 E Center St, Moab, UT 84532. At that time the Bids received will be publicly opened and read.

The Work generally consists of 2,650 LF of 48-inch storm drain pipeline with associated structures, utility relocations, pavement overlay.

OBTAINING THE BIDDING DOCUMENTS

Information and Bidding Documents for the Project can be found at the following designated website:

<https://utah.bonfirehub.com/>

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

PRE-BID CONFERENCE

A pre-bid conference for the Project will be held on Friday, February 27, 2026 at 11:30 AM at Grand County Administrative Building, 125 E Center St, Moab, UT 84532. Attendance at the pre-bid conference is encouraged but not required.

INSTRUCTIONS TO BIDDERS

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

THIS ADVERTISEMENT IS ISSUED BY:

Owner: Grand County
By: **Gabriel Woytek**
Title: **County Clerk/Auditor**
Date: **February 19, 2026**

END OF DOCUMENT



DOCUMENT 00 20 00 INSTRUCTIONS TO BIDDERS

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Electronic Documents
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

**ARTICLE 3—QUALIFICATIONS OF BIDDERS**

- 3.01 Bidder is to submit the Bidder Qualification Statement with its Bid to demonstrate Bidder's qualifications to perform the Work:
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-Bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 Site and Other Areas
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 Existing Site Conditions
 - A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 - 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.



3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
4. *Geotechnical Baseline Report/Geotechnical Data Report*: The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).
 - a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.
 - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
 - c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
 - d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.
- B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 Other Site-related Documents

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:
 1. **Subservice Utilities Exploration summary sheets**Owner will make copies of these other Site-related documents available to any Bidder on request.
- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
- C. The other Site-related documents are not part of the Contract Documents.
- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

5.04 Site Visit and Testing by Bidders

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
- C. Bidders visiting the Site are required to arrange their own transportation to the Site.



- D. All access to the Site other than during a regularly scheduled Site visit must be during normal working hours.
 - E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- 5.05 Other Work at the Site
- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Express Representations and Certifications in Bid Form, Agreement
- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
 - B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
- A. Submit questions via the Bidding Documents Website.
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than ten days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond, certified check, or cashier's check issued by a surety meeting the requirements



of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.



- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. Storm drain pipeline installation and other underground utilities
 - B. Cast-in-place concrete structures
 - C. Construction traffic control
 - D. Asphalt paving
 - E. Imported aggregate materials
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.



- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

- 13.01 Unit Price
 - A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
 - B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
 - C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include a Bid Form, and, if required, the Bid Bond Form. An unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.



- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority



established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

- C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from Utah state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. **12259628-0023-STC**). Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

END OF DOCUMENT



**DOCUMENT 00 41 00
BID FORM**

**Grand County
Jackson Street Storm Drain**

Bids due and publicly read:

Wednesday, March 18, 2026 at 3:00 PM

Grand County
125 E Center St, Moab, UT 84532

or mailed to:

Grand County
125 E Center St, Moab, UT 84532



ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Grand County.
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids; and
 - D. Required Bidder Qualification Statement with supporting data.

This remainder of this page is left blank intentionally.

**ARTICLE 3—BASIS OF BID—UNIT PRICES****3.01 Unit Price Bids**

A. Bidder will perform the following Work at the indicated unit prices:

Base Bid

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	Mobilization	1	LS	\$	\$
2	Traffic Control	1	LS	\$	\$
3	Remove Existing 30-inch CMP	75	LF	\$	\$
4	30-inch CMP Pipe	80	LF	\$	\$
5	18-inch Profile Wall Polyethylene HDPE Pipe (AASHTO M294)	10	LF	\$	\$
6	24-inch Profile Wall Polyethylene HDPE Pipe (AASHTO M294)	70	LF	\$	\$
7	48-inch Profile Wall Polyethylene HDPE Pipe (AASHTO M294)	2,650	LF	\$	\$
8	18-inch ADS Inserta-Tee	1	EA	\$	\$
9	Drain Box with Frame and Grate	3	EA	\$	\$
10	72-inch Diameter Manhole	8	EA	\$	\$
11	96-inch Diameter Manhole	2	EA	\$	\$
12	Inlet Structure with Trash Rack	1	EA	\$	\$
13	Outlet Structure/Impact Basin	1	EA	\$	\$
14	8-inch C-900 (DR 18) Water Main	490	LF	\$	\$
15	8-inch Gate Valve	2	EA	\$	\$
16	Connect New Main to Existing Water Main	2	EA	\$	\$
17	Remove and Dispose Existing 8-inch Waterline	1	LS	\$	\$
18	Adjust Water Service Connection	3	EA	\$	\$
19	Asphalt Trench Patch – Outside UDOT R/W	17,500	SF	\$	\$
20	Asphalt Trench Patch – UDOT (US-191)	2,250	SF	\$	\$
21	2-inch Mill and 2-inch SMA – UDOT (US-191)	14,100	SF	\$	\$
22	Right of Way Fence	110	LF	\$	\$
23	Pavement Messages (Preformed Thermoplastic) UDOT (US-191)	53	EA	\$	\$
24	Boulder Excavation - Excavator with Hydraulic-Hammer/Breaker	40	HR	\$	\$
Total of All Unit Price Base Bid Items					\$
Total Unit Price Base Bid (in words): _____					

B. Bidder acknowledges that:



1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item,
2. the Contractor or Owner shall be entitled to an adjustment in Unit Price as indicated in Section 00 80 00 - Supplementary Conditions, SC-13.03E, and
3. estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

- 5.01 Bid Acceptance Period
- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 5.02 Instructions to Bidders
- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.
- 5.03 Receipt of Addenda
- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Bidder's Representations
- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.



5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no 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.
8. Bidder 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 Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder's Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.



BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable)

END OF DOCUMENT

EJCDC® C-410, Bid Form for Construction Contracts.

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DOCUMENT 00 43 00
BID BOND (PENAL SUM FORM)

Bidder Name: Address (<i>principal place of business</i>):	Surety Name: Address (<i>principal place of business</i>):
Owner Name: Grand County Address (<i>principal place of business</i>): 125 E Center St Moab, UT 84532	Bid Project (<i>name and location</i>): Jackson Street Storm Drain Jackson Street Moab, UT 84532 Bid Due Date: Wednesday, March 18, 2026
Bond Penal Sum Amount: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ (<i>Full formal name of Bidder</i>)	_____ (<i>Full formal name of Surety</i>) (<i>corporate seal</i>)
By: _____ (<i>Signature</i>)	By: _____ (<i>Signature</i>) (<i>Attach Power of Attorney</i>)
Name: _____ (<i>Printed or typed</i>)	Name: _____ (<i>Printed or typed</i>)
Title: _____	Title: _____
Attest: _____ (<i>Signature</i>)	Attest: _____ (<i>Signature</i>)
Name: _____ (<i>Printed or typed</i>)	Name: _____ (<i>Printed or typed</i>)
Title: _____	Title: _____
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.	



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 Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs 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 will 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 of 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 does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will 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 the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must 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 Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will 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 will 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 governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

END OF DOCUMENT



DOCUMENT 00 45 10 BIDDER QUALIFICATIONS STATEMENT

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
1.			
2.			
3.			
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		☐ Yes ☐ No ☐ Pending	

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			



Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$	
Name:		Title:		

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—SAFETY

3.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:			
Safety Certifications			
Certification Name	Issuing Agency		Expiration

3.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH



ARTICLE 4—FINANCIAL

- 4.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:			
Business address:			
Date of Business's most recent financial statement:		☐ Attached	
Date of Business's most recent audited financial statement:		☐ Attached	
Financial indicators from the most recent financial statement			
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)			
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)			

ARTICLE 5—SURETY INFORMATION

- 5.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?		☐ Yes ☐ No	
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

**ARTICLE 6—INSURANCE**

- 6.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		☐ Yes ☐ No	
Does provider have an A.M. Best Rating of A-VII or better?		☐ Yes ☐ No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—CONSTRUCTION EXPERIENCE

- 7.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

- 7.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:			
As a general contractor:		As a joint venturer:	
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:			
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No			
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No			
Been released from a bid in the past 5 years? ☐ Yes ☐ No			
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No			
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No			
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No			



Provide full details in a separate attachment if the response to any of these questions is Yes.

- 7.03 List all projects currently under contract in Schedule A and provide indicated information.
- 7.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.
- 7.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 8—REQUIRED ATTACHMENTS

- 8.01 Provide the following information with the Statement of Qualifications:
 - A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
 - B. Attachments providing additional information as required by Paragraph 7.02.
 - C. Schedule A (Current Projects) as required by Paragraph 7.03.
 - D. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 7.04.
 - E. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 7.05.
 - F. Additional items as pertinent.



This Statement of Qualifications is offered by:

Business:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(date signed)

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

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:



Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					



Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					



Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					



Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	



Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	



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Document 00 52 00

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT

This Agreement is by and between Grand County ("Owner") and [contractor] ("Contractor").

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

Owner and Contractor hereby 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 consists of 2,650 LF of 48-inch storm drain pipeline with associated structures, utility relocations, pavement overlay.

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Jackson Street Storm Drain.

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **Horrocks** ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 4—CONTRACT TIMES

- 4.01 Time is 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 Contract Times: Dates
- A. The Work will be substantially complete on or before Saturday, May 1, 2027, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before Saturday, May 15, 2027.
- 4.05 Liquidated Damages
- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. 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):
1. **Substantial Completion:** Contractor shall pay Owner \$1,500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. **Completion of Remaining Work:** After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted



pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1,500.00 for each day that expires after such time until the Work is completed and ready for final payment.

3. *Milestones:* Contractor shall pay Owner NA for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.
 4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

UNIT PRICE WORK					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
1				\$	\$
2				\$	\$
3				\$	\$
4				\$	\$
5				\$	\$
6				\$	\$
7				\$	\$
8				\$	\$
9				\$	\$
10				\$	\$
11				\$	\$
12				\$	\$
13				\$	\$
14				\$	\$
15				\$	\$
16				\$	\$



UNIT PRICE WORK					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
17				\$	\$
18				\$	\$
19				\$	\$
20				\$	\$
21				\$	\$
22				\$	\$
23				\$	\$
24				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- B. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the **15th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

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 Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- a. **95%** percent of the value of the Work completed (with the balance being retainage).

- 1) If **50** percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

- b. **95%** percent of cost of materials and equipment not incorporated in the Work (with



the balance being retainage).

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100%** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200%** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate at 2% per annum above the rate paid by the Internal Revenue Service on refund claims.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications as listed in the table of contents of the project manual.
 6. Drawings (not attached but incorporated by reference) consisting of **29** sheets with each sheet bearing the following general title: Jackson Street Storm
 7. The following Addenda:
 - a. [list addenda here with number and date]
 8. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.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 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in



the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. NOT USED
 5. NOT USED
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no 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.
 8. 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.
 9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to



deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.



IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

(If **[Type of Entity]** is a corporation, a partnership,
or a joint venture, attach evidence of authority

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____

Email: _____

License No.: _____
(where applicable)

State: _____

(If **[Type of Entity]** is a corporation, attach
evidence of authority to sign. If **[Type of Entity]**
is a public body, attach evidence of authority
to sign and resolution or other documents
authorizing execution of this Agreement.)



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**DOCUMENT 00 70 00
STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT**

Prepared By:



Endorsed By:





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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
 - b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4,



concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.
22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.



25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice 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.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.
36. *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.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *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.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections;



warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *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 of such Work.
43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.
46. *Technical Data*
 - a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.



1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* 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 Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. 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 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word "furnish," when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. *Contract Price or Contract Times:* References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.
- G. 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 Performance and Payment Bonds; Evidence of Insurance**

- A. *Performance and Payment Bonds:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner's Insurance:* After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 Before Starting Construction

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;
 - 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.

2.04 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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 the component parts of the Work.
4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.
- G. Nothing in the Contract Documents creates:
 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations



1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
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 part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters



arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 versions, or 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; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 Delays in Contractor's Progress

- A. If Owner, Engineer, 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 Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions;
 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such



cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.
- 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 permanent improvements are to be made 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.

5.02 Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas
1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. *Limitations of Other Data and Documents:* Except for such reliance on 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;
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 - 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 - 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is



uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
2. is of such a nature as to require a change in the Drawings or Specifications;
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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;



- b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
 1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
 1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.



During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. 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 Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 - 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 - 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as



defined in Paragraph 1.01.A.46.b. Except for such reliance on 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;
 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall



provide a copy of the payment bond to such person or entity.

- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the



Project.

- I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is 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; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;



3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
 1. Owner and Contractor waive all rights against each other and the 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, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, 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.
 2. None of the above waivers extends to the rights that any party making such waiver may have



to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
 - 1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense.



Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.



1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) 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;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:



- 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
- b. will state:
- 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
- c. will identify:
- 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
- d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 Concerning Subcontractors and Suppliers

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract



Documents.

- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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 will be disclosed 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.

7.09 Permits

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 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.

7.11 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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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 such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 Record Documents

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings,



Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 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.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (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).
- E. 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.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. 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.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to



conduct other tasks arising from the Contract Documents.

7.14 Hazard Communication Programs

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 Submittals

A. Shop Drawing and Sample Requirements

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. Shop Drawings

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings must 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 7.16.C.



2. Samples

- a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall 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 7.16.C.
3. 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. Engineer's Review of Shop Drawings and Samples

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless



the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 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 is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, or improper modification, 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.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 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;



6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 7.18.A will 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.

7.19 Delegation of Professional Design Services

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:



1. Checking for conformance with the requirements of this Paragraph 7.19;
 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 Other Work

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. 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.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 Coordination

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 3. The extent of such authority and responsibilities.



- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 Legal Relationships

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 Communications to Contractor

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



9.02 Replacement of Engineer

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 Furnish Data

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

9.04 Pay When Due

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 Lands and Easements; Reports, Tests, and Drawings

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 Insurance

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 Change Orders

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 Inspections, Tests, and Approvals

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 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.

9.10 Undisclosed Hazardous Environmental Condition

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 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 (including obligations under proposed changes in the Work).

9.12 Safety Programs

- 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.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

**ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION****10.01 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.

10.02 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 10.07. 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.

10.03 Resident Project Representative

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 Engineer's Authority

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 Determinations for Unit Price Work

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 Decisions on Requirements of Contract Documents and Acceptability of Work

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner,



Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in 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;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties,



subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 Work Change Directives

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 Field Orders

- A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.



11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.
- B. *Change Proposal Procedures*
 - 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
 - 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
 - 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 - 5. *Binding Decision:* Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change



Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 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.

ARTICLE 12—CLAIMS

12.01 Claims

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.



- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of 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, 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.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.
 - c. Construction Equipment Rental
 - 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses



will 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. 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.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent



Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 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:* Contractor agrees that:
 - 1. 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
 - 2. 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 for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance:* Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.
- E. *Adjustments in Unit Price*
 - 1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
 - 2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
 - 3. Adjusted unit prices will apply to all units of that item.

**ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK****14.01 Access to Work**

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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 with such procedures and programs as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.



- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages 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. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

**14.06 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, then 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 will 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.

14.07 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 defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. 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.
 2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of



which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; 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;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

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

E. Reductions in Payment by Owner

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the



written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- 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 preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. 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 punch list.



15.04 *Partial Use or Occupancy*

- 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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through 15.03.E for that part of the Work.
 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
 2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

- B. *Engineer's Review of Final Application and Recommendation of Payment:* 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 Waiver of Claims

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.



- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. 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.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.



- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.
- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 Owner May Terminate for Convenience

- A. Upon 7 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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 Contractor May Stop Work or Terminate

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.
- 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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other



matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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.

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

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DOCUMENT 00 80 00
SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 2—PRELIMINARY MATTERS

2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor **one** printed copy of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

ARTICLE 6—BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

SC-6.01A Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.03 Contractor's Insurance

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$
Bodily injury by disease—aggregate	\$
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$1,000,000



Workers' Compensation and Related Policies	Policy limits of not less than:
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$1,000,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
 - a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.



5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
6. Any limitation or exclusion based on the nature of Contractor's work.
7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance 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. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$5,000,000
General Aggregate	\$5,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit as stated above, such umbrella or excess policy may retain a minimum limit of \$10,000 prior to attribution of umbrella or excess limits due to underlying policies not paying and the umbrella or excess will pay.

M. 6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*



1. Contractor shall provide and maintain installation floater insurance on a broad form or "all risk" policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work ("Covered Property"). Coverage under the Contractor's installation floater will include loss from covered "all risk" causes (perils) to Covered Property:
 - a. of the Contractor, and Covered Property of others that is in Contractor's care, custody, and control;
 - b. while in transit to the Site, including while at temporary storage sites;
 - c. while at the Site awaiting and during installation, erection, and testing;
 - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable.
3. The installation floater coverage will be in an amount sufficient to protect Contractor's interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 Labor; Working Hours

SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:

- C. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

7.10 Taxes

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- A. Owner is exempt from payment of sales and compensating use taxes of the State of **Utah** 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.
 2. 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.



ARTICLE 9—OWNER'S RESPONSIBILITIES

9.13 Owner's Site Representative

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 Owner's Site Representative

- A. Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not Engineer's consultant, agent, or employee. Owner's Site Representative will be Sean Yeates, P.E. The authority and responsibilities of Owner's Site Representative follow: **Inspect work and determine compliance with project specifications and drawings.**

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

1. On this Project, by agreement with the Owner, the Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.01 Cost of the Work

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of the Rental Rate Blue Book for Construction Equipment.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

13.03 Unit Price Work

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to **5** percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) **and** the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than **25** percent from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner



and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 Arbitration

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;



3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 Attorneys' Fees

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

17.03 Attorneys' Fees

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

END OF DOCUMENT

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SECTION 01 00 50 ADMINISTRATIVE PROVISIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes reference standards, preconstruction conference, Contractor Submittals, Work sequence, Contractor use of premises, Owner-furnished services/products and field engineering.

1.2 RELATED SPECIFICATIONS

- A. Section 00 70 00 – General Conditions
 - 1. Article 2, Paragraph 2.04 – Preconstruction Conference . . .
 - 2. Article 3, Paragraph 3.02 – Reference Standards
 - 3. Article 4, Paragraph 4.03 – Reference Points
 - 4. Article 5, Paragraph 5.02 – Use of Site and Other Areas
 - 5. Article 5, Paragraph 5.05 – Underground Facilities
 - 6. Article 7, Paragraph 7.16 – Submittals
 - 7. Article 8 – Other Work at Site
 - 8. Article 9 – Owner's Responsibilities
 - 9. Article 15, Paragraph 15.04 – Partial Use or Occupancy
- B. Section 01 45 00 – Quality Control
- C. Section 01 57 00 – Construction Facilities and Temporary Controls
- D. Section 01 78 00 – Closeout Procedures

1.3 REFERENCE STANDARDS

- A. Obtain copies of standards when required by individual Specifications. Maintain copy at jobsite during progress of the specific work.
- B. Adhere to the following technical standards for construction. Where there is conflict between the different technical standards, follow in order of precedence as listed:
 - 1. UDOT Standard Drawings and Specification (limited to work located with UDOT Right-of-Way)
 - 2. As presented in the Contract Documents herein and Project Drawings.
 - 3. Utah 2025 APWA Standard Specifications (some of which are modified herein)

1.4 PRECONSTRUCTION CONFERENCE

- A. Before commencement of the Work, a preconstruction conference will be held at a mutually agreed time and place. Attendees will include:
 - 1. Contractor, its' superintendent and subcontractors as appropriate,
 - 2. Engineer,
 - 3. Representatives of Owner,
 - 4. Representatives of affected utility companies as appropriate,



5. Governmental representatives as appropriate, and
 6. Others as requested by the Contractor, Engineer or Owner.
- B. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The meeting agenda will be provided by the Engineer.

1.5 CONTRACTOR SUBMITTALS

A. Procedures

1. Transmit each Submittal to the Engineer with Contractor's standard Submittal form. Deliver Submittals electronically in .PDF format via email or hard copy to the Engineer as designated in the Preconstruction Conference.
2. If Contractor elects to submit a paper copy of a Submittal or Shop Drawing, an electronic copy shall accompany it.
3. Allow 7 days for the Engineer to review and return Submittals. All Submittals will be returned in .PDF format via email.

B. Identifying Information

1. Identify Project, Contractor, subcontractor or supplier; pertinent drawing sheet and detail number(s), and Specification section number, as appropriate.

C. Product Data

1. Mark product data to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work. Submit only pages which are pertinent.

D. Manufacturer's Instructions and Certificates

1. Submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for product data.
2. Provide certificates of compliance as requested by the Owner or as indicated in individual Specifications sections.

E. Samples

1. Provide samples of materials as required by individual Specification sections and in the quantity indicated.

1.6 WORK SEQUENCE

- A. Notify the Owner at least 48 hours prior to commencing any Work.
- B. Provide and coordinate construction schedule and operations with Owner.
- C. Coordinate Work of the various sections of specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
- D. Coordinate with the Owner regarding construction schedule and progress such that the Owner may record survey data for new construction such as waterlines, valves, sewer lines, manholes, and appurtenances prior to permanently backfilling or concealing work.

1.7 CONTRACTOR USE OF PREMISES

- A. Coordinate use of premises with the Owner.
- B. Owner, at their discretion, may occupy premises during entire period of construction for the conduct of their normal operations. Cooperate with Owner to minimize conflict and to



facilitate the Owner's operations.

1.8 FIELD ENGINEERING

- A. Provide field engineering services as required to establish grades, lines, and levels from construction stakes in order to complete the work in accordance with these drawings and specifications.

1.9 PERMITS

- A. The following permits will be required for the project:
 - 1. UDOT Encroachment Permit

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION



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SECTION 01 02 50 MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.

1.2 RELATED SPECIFICATIONS

- A. Section 00 41 00 – Bid Form
- B. Section 00 52 00 – Agreement, Article 6 – Payment Procedures
- C. Section 00 70 00 – General Conditions
 - 1. Article 7, Paragraph 7.10 - Taxes
 - 2. Article 13, Paragraph 13.03 – Unit Price Work
 - 3. Article 15, Paragraph 15.01 – Progress Payments

1.3 MEASUREMENT OF QUANTITIES

- A. Measurement Devices:
 - 1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.

1.4 PAYMENT

- A. Payment for each Bid item includes full compensation for all required labor, materials, products, tools, equipment, manufacturing, transportation, services and incidentals; application or installation; permits, taxes, royalties, import costs, overhead and profit.

1.5 DESCRIPTION OF BID ITEMS

- A. The work generally consists of the following, which are numbered according to the Bid schedule found in Article 5 of Section 00 41 00 – Bid Form:

ITEM 1: MOBILIZATION

- A. Measurement and payment for mobilization will be paid as a lump sum payment. As much as 50% of this item will be paid with the first progress payment. The remaining amount of this item will be paid with the subsequent progress payments as a percentage of work completed. Limit amounts included under mobilizations to the following items:
 - 1. Moving on site any equipment required for first month operations.
 - 2. Installing temporary construction power and wiring.
 - 3. Developing construction water supply.
 - 4. Providing on-site sanitary facilities and potable water facilities as specified.
 - 5. Arranging for and erection of Contractor's work and storage yard.
 - 6. Contractor and Subcontractor insurance and bonds.



7. Obtaining all required permits, licenses, and fees.
8. Developing construction schedule.
9. Construction Surveying
10. Contract closeout, site cleanup, and demobilization.

ITEM 2: TRAFFIC CONTROL

- A. Measurement and payment for Traffic Control shall be LUMP SUM. This item will be paid for as a percentage in relationship to the project footage percent complete. This item will be compensation in full for flagging, furnishing, installing and moving all traffic control devices. This item shall also include maintaining safe access to all residences.

ITEM 3: Remove Existing 30-inch CMP Pipe

- A. Measurement shall be made on a LINEAR FOOT basis for the removal of the CMP Pipe as shown on the plans and described in the specifications.
- B. Payment shall be compensation in full for removing the pipe, concrete box and appurtenances including all cost of saw cutting and removing asphalt, excavation, disposal of existing pipe and box, curb and gutter, sidewalk and landscaping. Includes proper disposal of existing materials and all other items necessary to complete the work. Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.

ITEMS 4 – 7: INSTALLATION OF CULVERT PIPE

- A. Measurement shall be made on a PER LINEAL FOOT basis for installing the pipe as shown on the plans and described in the specifications.
- B. Payment covers the cost of installing the pipe including all cost of excavation, saw cutting asphalt, bedding material, backfill, connections to existing pipes, locator wire, landscape restoration, and disposal of existing materials. Payment will also cover the cost of identifying and relocating conflicting utilities including coordination with utility owners. Payment will cover the cost of all labor, materials, equipment and tools to complete this item.
- C. Removal of rock by non-conventional means will be paid at direct cost.
- D. All construction to conform to UDOT, Grand County and Moab City Standards and Specifications as applicable.
- E. Payment covers the removal and reinstallation of the existing guardrail as needed for the installation of the pipe.
- F. Payment includes the protection of the existing sewer pipe (approximate Station 37+30). Contractor shall provide a protection plan to the Engineer for the proposed support/protection of the existing sewer pipe. The sewer is to remain in service at all times.

ITEM 8: ADS INSERTA TEE

- A. Measurement shall be paid on a PER EACH basis in accordance with the plans and specifications.
- B. Payment shall include furnishing and installing fitting, saw-cutting, excavation, sheeting and shoring, concrete encasement, backfill, road section and all other labor, materials, equipment and tools to complete these items.

ITEM 9: DRAIN BOX WITH FRAME AND GRATE

- A. Measurement shall be paid on a PER EACH basis in accordance with the plans and specifications.
- B. Payment shall include furnishing and installing drain box, saw-cutting, excavation, sheeting and shoring, box grate and frame, concrete encasement, backfill, road section and all other labor, materials, equipment and tools to complete these items.
- C. All construction to conform to Grand County Standards and Specifications as applicable.
- D. Payment includes grading the area around the box to drain.

ITEMS 10 & 11: INSTALL SEWER MANHOLE

- A. All manholes of various type, size, and depth shall be measured and paid on a PER EACH basis in



accordance with the plans and specifications.

- B. Payment shall include furnishing and installing manhole, saw-cutting, excavation, sheeting and shoring, manhole ring and cover, concrete encasement, backfill, road section and all other labor, materials, equipment and tools to complete these items.
- C. All construction to conform to UDOT, Grand County and Moab City Standards and Specifications as applicable.
- D. Payment includes bring the manhole to grade and installing concrete collars.

ITEM 12: INLET STRUCTURE WITH TRASH RACK

- A. Measurement shall be made on a PER EACH basis for installation of the structure as shown on the plans and described in the specifications.
- B. Payment shall be compensation in full for installing the structure including all cost of saw cutting asphalt, excavation, removal of obstructions, bedding material, import backfill (100% of backfill material to be import backfill), pipe stub outs, grate and frame or manhole lid, connection to pipes, grouting, concrete, sidewalk and driveway replacement, curb and gutter repair, and proper disposal of existing materials. Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.
- C. Existing rip rap shall be salvaged and reused in the area around the inlet structure.

ITEM 13: OUTLET STRUCTURE/IMPACT BASIN

- A. Measurement shall be made on a PER EACH basis for installation of the structure as shown on the plans and described in the specifications.
- B. Payment shall be compensation in full for installing the structure including all cost of saw cutting asphalt, excavation, removal of obstructions, bedding material, import backfill (100% of backfill material to be import backfill), pipe stub outs, grate and frame or manhole lid, connection to pipes, grouting, concrete, sidewalk and driveway replacement, curb and gutter repair, and proper disposal of existing materials. Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.
- C. Existing rip rap shall be salvaged and reused in the area around the outlet structure.

ITEM 14: 8-INCH C900 (DR 18) WATER LINE

- A. Water line shall be measured and paid on a PER LINEAR FOOT basis in accordance with the plans and specifications.
- B. Payment shall include the cost of materials including but not limited to; 8" C900 (DR 18) PVC Pipe, fittings, thrust blocks, and trench zone material. This item covers the cost of excavation, back filling, disinfection, testing, and all labor, materials, equipment, and tools required to complete this item as shown on the plans and specifications.

ITEM 15: 8-INCH GATE VALVE

- A. Measurement shall be made on a PER EACH BASIS for installation of the valves as shown on the plans and described in the specifications.
- B. Payment covers the cost of installing the valves including all cost of excavation, bedding material, connections, valve boxes, megalugs, thrust blocks, and proper disposal of existing materials (which includes but is not limited to the disposal of existing pipe, fittings, valves, asphalt, concrete, backfill, and bedding). Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.
- C. Payment includes installation of concrete collars.

ITEM 16: CONNECT NEW MAIN TO EXISTING WATER MAIN

- A. Measurement shall be made on a PER EACH BASIS for connection of the new main line to the existing as shown on the plans and described in the specifications.
- B. Payment shall be compensation in full for this item. Payment covers the cost of saw cutting asphalt and/or concrete, connections, fittings (tee, bends, long sleeves, megalugs, etc.), and pipe, including all cost of excavation, bedding material, sidewalk repair, curb and gutter repair, landscape restoration, and proper disposal of existing materials (which includes but is not limited to the disposal



- of existing pipe, fittings, valves, asphalt, concrete, backfill, and bedding).
- C. Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.
 - D. Mainline valve is not included in the cost of this item.

ITEM 17: REMOVE AND DISPOSE EXISTING 8 INCH WATERLINE

- A. Measurement shall be made on a LUMP SUM basis for removal and abandonment of existing waterlines where indicated on the plans.
- B. Payment covers the cost of removal and disposal of materials, including all cost of excavation, backfill, and surface repairs. Payment will cover the cost of all labor, materials, equipment and tools to complete this item.

ITEM 18: ADJUST WATER SERVICE CONNECTION

- A. Measurement shall be made on a PER EACH basis for installation of the water lateral connection as shown on the plans and described in the specifications.
- B. Payment shall be compensation in full for the complete reconnection of the water lateral connection including all cost of excavation, bedding material, saddle, connections and fittings, (corp. stop, etc.), locator wire, backfill and compaction and proper disposal of existing materials. Payment will cover the cost of all labor, materials, equipment and tools to complete this item.
- C. Payment covers complete installation of the water service from the water main line to the meter yoke. New water lateral pipe will be installed. No splices are allowed.

ITEM 19 & 20: ASPHALT TRENCH PATCH

- A. Trench patch repair shall be paid on a PER SQUARE FOOT basis in accordance with the plans and specifications.
- B. Payment for this item shall include sub grade preparation, hauling, rolling and compaction of HMA. Thickness shall follow jurisdictional requirements as shown on page D-02 of the plans. Payment will cover the cost of all labor, materials, equipment, and tools to complete this item.
- C. Payment shall be compensation in full for the replacement of pavement markings and striping outside the UDOT R/W affected by construction activities. Payment will cover the furnishing and placement as well as all labor, materials, equipment and tools to complete this item.
- D. Pavement Messages and Markings in the UDOT R/W are covered under separate items.
- E. Reference current UDOT Standard Specifications and Drawings

ITEM 21: 2 INCH MILL AND 2 INCH SMA-UDOT (US-91)

- A. Measurement shall be made on a PER SQUARE FOOT basis for material placed for mill and fill in accordance with the plans and specifications.
- B. This work is in the UDOT Right of Way of US-191. Current UDOT specifications apply to all work in the right of Way.
- C. Payment shall be compensation in full for this item including all fill material and installation. Payment will cover the cost of all materials, labor, equipment, and tools related to this item.
- D. This item is to occur after trench repair has been completed on US-191.
- E. Payment includes reinstalling pavement markings in the original location and size.
- F. Pavement Messages (prefomed thermoplastic) are paid under a separate item.

ITEM 22: RIGHT OF WAY FENCE

- A. Measurement shall be made on a PER LINEAR FOOT basis for installation of new right of way fence in accordance with the plans and specifications and as directed by the engineer.
- B. Payment shall be compensation in full for this item including removal and disposal of the existing fence and excess material.
- C. New fence to match type of existing fence.
- D. Payment will cover the cost of all materials, labor, equipment, and tools related to this item.

ITEM 23: PAVEMENT MESSAGES (PREFORMED THERMOPLASTIC) UDOT (US-191)



- A. Measurement shall be made on a PER MESSAGE basis for installation of pavement messages in accordance with the plans and specifications and as directed by the engineer.
- B. Measurement of messages:
 - 1. Letter = one message
 - 2. Arrow = one message
 - 3. Multi-headed arrow = one message per arrow
 - 4. Crosswalk = two messages per lane and two messages per shoulder
 - 5. Stop Line = one message per lane and one message per shoulder
 - 6. Include all costs for the Manufacturer's Service representative and other technical assistance as required.
- C. Payment shall be full compensation and will cover the cost of all materials, labor, equipment, and tools related to this item.
- D. Reference current UDOT Standard Specifications and Drawings.

ITEM 24: BOULDER EXCAVATION – EXCAVATOR WITH IMPACT BREAKER

- A. Measurement shall be made on a PER HOURLY basis for breaking large boulders encountered in the pipe trench excavation. This is a force account item to be used if large, unmovable rock is encountered.

END OF SECTION



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SECTION 01 45 00 QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes general quality control, workmanship, manufacturer's instructions and certificates, and testing services.

1.2 RELATED WORK

- A. Section 01 00 50 Administrative Provisions
- B. Section 01 70 00 – Contract Closeout

1.3 SUBMITTALS

- A. Before construction, identify testing agency including name, address, telephone number, licensed professional for testing agency who is to review services, names and levels of certification and years of experience of testing agency's laboratory and field technicians.
- B. During construction, submit all quality control test results to demonstrate that the work performed complies with the contract documents to Owners Representative within one week of each test.

1.4 QUALITY CONTROL - GENERAL

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with industry standards for workmanship except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- C. Should manufacturers' instructions conflict with the Contract Documents, request clarification from Owner before proceeding.

1.5 TESTING LABORATORY SERVICES

- A. Services will be performed in accordance with requirements of local jurisdiction having authority and with specified standards.
- B. Reports will be submitted to Owner and Engineer giving observations and results of tests, indicating compliance or noncompliance with specified standards and with Contract Documents.

END OF SECTION



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SECTION 01 55 50 TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Contractor's responsibilities to warn, guide and protect motorists and pedestrians affected by the construction zone.

1.2 REFERENCES

- A. AASHTO Roadside Design Guide, Current Edition
- B. American National Standards Institute (ANSI)
- C. Americans with Disabilities Act
- D. ATSSA: American Traffic Safety Services Association
- E. Quality Standards for Work Zone Traffic Control Devices
- F. International Safety Equipment Association (ISEA)
- G. Manual on Uniform Traffic Control Devices (MUTCD), Current Edition
- H. UDOT traffic control and safety requirements
- I. NCHRP – Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features

1.3 SUBMITTALS

- A. Contractor shall submit a Traffic Control Plan as necessary. The Traffic Control Plan must be signed and sealed by a professional engineer licensed in the state of Utah. The Traffic Control Plan must be accepted by the local authority / engineer prior to commencing work.
 - 1. Show how to provide the least amount of disruption to vehicular movement as construction work progresses.
 - 2. Show how to move pedestrians around or through the work site.
 - 3. Show how to handle signalized intersections.
 - 4. Show how to accommodate truck traffic that is high or extra wide (two lane width to pass truck) in a quick or immediate response time.
 - 5. Show placement, spacing and taper rates of traffic control devices.
- B. Submit copy of flagger or Traffic Control Technician certification when requested by Engineer.

1.4 SPECIAL TRAFFIC CONTROL REQUIREMENTS

- A. Jackson Street can be closed to all but local traffic to residents and businesses. Safe access to non-motorized trailhead at south end of Jackson Street should be maintained unless otherwise arranged with the Bureau of Land Management, Moab Field Office, Recreation Division.
- B. Highway 191 must remain open to traffic with at least one lane in each direction. Work within the UDOT Right-of-way is limited to Monday thru Thursday with all existing lanes reopened for Friday – Sunday. Any traffic control measures within UDOT Right-of-way must be approved in advance by UDOT Permits Officer and Traffic Operations.



- C. 400 East Street Local traffic and through traffic must be always accommodated unless otherwise approved by Moab City Police and Public Works Departments. Bi-directional travel can be reduced to a single lane with appropriate flagging or temporary control signal.

1.5 TRAFFIC CONTROL TECHNICIAN

- A. Technician must be Engineer approved or ATSSA certified.
- B. Make at least four inspections of traffic control devices each day as follows:
 - 1. Before beginning work shift.
 - 2. At mid-shift.
 - 3. Half an hour after the end of the shift.
 - 4. Once during the night.
- C. Submit inspection forms to the Owner's representative r at least weekly.
- D. Remain available to correct work zone signing within 5 minutes of need or notification.
- E. Coordinate traffic control with emergency services, transportation services, and local law enforcement.
- F. Update the traffic control plan when requested.
- G. Clean devices at least weekly.
- H. Replace devices missing any part of the message or background.
- I. Remove devices if they are no longer required.

1.6 FLAGGER

- A. Flagger must have a current Utah flagging certificate and must present proof of certification upon request by engineer.
- B. Equipment:
 - 1. 24" x 24" "Stop/Slow" sign.
 - 2. 6" to 8" long red wand for night flagging.
 - 3. Light plant for night flagging.
- C. Clothing:
 - 1. Clothed; full length pants and long or short sleeved shirt.
 - 2. Hard toed shoes
 - 3. Orange, red-orange hard hat and vest.
 - 4. Night clothing to be reflectorized.

PART 2 - PRODUCTS

2.1 PAVEMENT MARKINGS

- A. Refer to MUTCD requirements.

2.2 SIGNS, SIGNALING AND BARRICADES

- A. Refer to MUTCD requirements.



- B. Reflective Sheeting: ASTM D 4956.
- C. Use devices and systems that meet NCHRP-350 Report crash test requirements with the exception of arrow boards and portable variable message signs.

PART 3 - EXECUTION

3.1 TRAFFIC CONTROL PLAN

- A. Implement the Traffic Control Plan as approved.
- B. If changes to the Traffic Control Plan are desired submit a revised Traffic Control Plan to the engineer at least 10 working days prior to the requested changes.

END OF SECTION



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SECTION 01 57 00 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Requirements for controlling surface and subsurface environmental conditions at a construction site and related areas under the Contractor's responsibility. This includes temporary utilities, sanitary facilities, barriers and enclosures, surface water, erosion & sediment control, dust control, noise control, construction cleaning, groundwater control, pollution control, and removal of temporary facilities.

1.2 RELATED WORK

- A. Section 00 70 00 - General Conditions
 - 1. Paragraph 5.02 – Use of Site and Other Areas
 - 2. Paragraph 7.04 – Services, Materials and Equipment
 - 3. Paragraph 7.13 – Safety and Protection
- B. Section 01 00 50 - Administrative Provisions
- C. Section 01 70 00 - Contract Closeout

1.3 REFERENCES

- A. Utah DEQ Division of Air Quality rules.
- B. Utah DEQ Division of Water Quality rules.

1.4 SUBMITTALS

- A. Storm Water Permit as required by Utah DEQ Division of Water Quality.
- B. Layout of fences, barriers and enclosures.

1.5 TEMPORARY UTILITIES

- A. Set up and maintain in a neat and orderly manner temporary roads and paving, dewatering facilities, enclosures, identification signs and bulletin boards, waste disposal and temporary heat and lighting.

1.6 SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing restroom facilities shall not be used.

1.7 BARRIERS AND ENCLOSURES

- A. Provide barriers and enclosures as required to prevent public entry to construction areas while allowing for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Use local standards and codes for erection of adequate fences and barricades. Maintain all signing, barricades, fencing, drainage and other items as required to protect public and private property from damage caused by construction operations.



1.8 SURFACE WATER, EROSION AND SEDIMENT CONTROL

- A. Before work begins, obtain a Storm Water Permit as required by DEQ.
- B. Control surface water such that the construction area is not allowed to become wet from runoff from adjacent areas. Direct surface water away from these areas but not directed toward adjacent property, buildings, or any improvement that may be damaged by water. Do not allow surface water to enter sanitary sewers.
- C. Prevent erosion and sedimentation.
- D. Provide temporary measures such as berms, dikes, and drains.
- E. Do not start grading work until installation of all temporary control measures is complete.
- F. Complete installation and continue to maintain all erosion control in a timely manner.
- G. Do not pollute streams, canals, lakes and other water courses.
- H. Follow the more restrictive requirements when conflicts occur between erosion control specifications and federal, state, or local agencies laws, rules or regulations.
- I. Noxious weed free certification will be required for all straw, hay bales, fiver, mats, mulches, etc. used for erosion control.

1.9 DUST CONTROL

- A. Provide suitable equipment to control dust or air pollution caused by construction operations to all work areas, storage areas, haul and access roads, or other areas affected by construction.
- B. All work shall be in compliance with the Federal, State, and local air pollution standards, and not cause a hazard or nuisance to personnel and the public in the vicinity of the work.
- C. Execute work by methods to minimize raising dust from construction operations.

1.10 NOISE CONTROL

- A. Use equipment that is equipped with noise attenuation devices. Comply with local laws and regulations.

1.11 CONSTRUCTION CLEANING

- A. All public and private areas used as haul roads shall be continuously maintained and cleaned of all construction caused debris such as mud, sand, gravel, soils, pavement fragments, sod, etc. Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned.
- B. Public roads shall be maintained in accordance with applicable ordinances and regulations.
- C. Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work site clean and shall remove daily all refuse, dirt, damaged materials, unusable materials, and all other trash or debris that he has created from his construction activities.
- D. Materials and equipment shall be removed from the site as soon as they are no longer necessary; and upon completion of the work and before final inspection, the entire worksite shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All cleanup costs shall be included in the Contractor's Bid.



1.12 GROUND WATER CONTROL

- A. Provide a dewatering system sufficient to maintain excavations and foundations free of water as required in the Contract Documents.
- B. Remove all dewatering facilities when no longer required.
- C. Dispose of water in a manner that will not cause damage to adjacent or downstream areas or facilities.

1.13 POLLUTION CONTROL

- A. Soil: prevent contamination of soil from discharge of noxious substances (including engine oils, fuels, lubricants, etc.). Excavate and legally dispose of any such contaminated soil off-site, and replace with acceptable compacted fill and topsoil.
- B. Water: prevent disposal of wastes, effluent, chemicals, or other such substances adjacent to or into streams, waterways, sanitary sewers, storm drains or public waterways. Perform any emergency measures required to contain any spillage.

1.14 REMOVAL OF TEMPORARY FACILITIES

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of 2 feet; grade site as indicated. Restore existing facilities used during construction to specified, or to original, condition.

END OF SECTION



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SECTION 03 30 00 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section covers cast-in-place concrete, including formwork, reinforcement, concrete mixtures and handling, placing and constructing for flatwork, manhole collars and bases, and thrust blocks.

1.2 RELATED WORK

- A. Section 31 23 00 – Excavation, Backfilling and Compaction
- B. Section 33 11 00 – Water Distribution and Transmission

1.3 REFERENCES

- A. For concrete street improvements such as curb and gutter, sidewalk, drive approaches, etc. refer to the proper municipal or state standards.
- B. ACI 301 – Structural Concrete (latest revision)
- C. ACI 306 – Cold Weather Concreting (latest revision)
- D. NSF 61 – Drinking Water System Components (latest revision)
- E. ACI 305 – Hot Weather Concreting (latest revision)
- F. ACI 201.2R-01 – Guide to Durable Concrete (latest revision)

1.4 SUBMITTALS

- A. Concrete mixtures
 - 1. Mixture proportions and characteristics.
 - 2. Method and test data used to establish mixture proportions.
 - 3. Information on types, classes, producers' names and plant locations for cementitious materials; types, pit or quarry locations, producers' names, grading and properties required by ASTM C 33 for aggregates; types, brand names, and producer's names for admixtures.
- B. Reinforcement and reinforcement supports
 - 1. Certified test reports on materials.
 - 2. Placing drawings showing fabrication dimensions and locations for placement of reinforcement and supports.
 - 3. Copy of plant certifications.
 - 4. When Contractor finds it necessary to move reinforcement from locations specified to avoid interference with other reinforcement, submit the revised reinforcement arrangement.
- C. Formwork and formwork accessories
 - 1. Plan and procedures for installation and removal of reshoring and back shoring.
 - 2. Data on formwork release agent or formwork liners.



3. Shop drawings for formwork.

D. Handling, placing and constructing

1. The Engineer must be notified 24 hours in advance of placement of concrete.
2. When applicable or requested by the Engineer, hot weather or cold weather precautions must be submitted.
3. Proposed location and treatment of construction joints not shown on the project drawings.
4. Proposed methods of curing.
5. Specification and data and methods of use for any proposed repair material.

E. Repair

1. Proposed repair methods, materials, and modifications to the Work.
2. Description of repair work performed to bring strength-deficient concrete into compliance with the Contract Documents.
3. Description of repair performed to bring potentially nondurable concrete into compliance with the Contract Documents.

1.5 QUALITY STANDARD

- A. Work shall conform to all requirements of ACI 301-05 published by the American Concrete Institute, Farmington Hills, Michigan, except as modified by these Contract Documents.

1.6 TESTING

- A. Testing of concrete materials shall be in accordance with ACI 301.
- B. Payment for testing shall be in accordance with the General Conditions.

1.7 NOTICE TO PUBLIC

- A. Follow laws and regulations concerning when and to whom notices are to be given at least two days before work starts.
- B. Indicate when concrete work will take place and when driveway approach can be used.
- C. Warn of potential vehicle tow away and other construction issues affecting neighborhood
- D. Should work not occur on specified day, send a new notice.

PART 2 - PRODUCTS

2.1 FORMWORK AND FORMWORK ACCESSORIES

- A. Form materials shall be faced with material which will produce smooth and uniform texture on concrete, unless indicated otherwise. Do not use material with raised grain, patches, or other defects which will impair the texture of the concrete surface.
- B. Arrange facing material in a symmetrical manner, keeping number of seams to a minimum.
- C. Form ties:
 1. Use ties constructed so end fasteners can be removed without spalling concrete faces.
 2. After end fasteners of ties have been removed, embedded portion of ties are to terminate not less than two times the diameter or thickness of the fasteners from formed faces of concrete, but in no case greater than $\frac{3}{4}$ inch.



3. When formed face on concrete is not exposed, form ties may be cut off flush with formed surfaces. Use ties with $\frac{3}{4}$ inch diameter cones on both ends or approved equal for water retaining structures.
- D. Form release agents shall be a colorless material which will not stain concrete, absorb moisture, impair natural bonding or color characteristics of concrete.

2.2 REINFORCEMENT AND REINFORCEMENT SUPPORTS

- A. Reinforcing steel shall conform to ASTM A 615/A 615M, 60 ksi yield grade.
- B. Coated reinforcing bars shall be required as shown in the Project Drawings.
 1. Epoxy-coated bars shall conform to ASTM A 775/A 775M.
- C. Reinforcing steel shall be of the size specified in the Project Drawings.
- D. Reinforcement supports shall be plastic.
- E. Tie wire shall be minimum 16 gage annealed type or an acceptable patented system.

2.3 CONCRETE MIXTURES

- A. All materials shall be in accordance with NSF Standard 61.
- B. Concrete admixtures shall conform to ASTM C494 or C261.
- C. Portland cement shall meet ASTM C150, Type II or V, ASTM C1157, MH or ASTM C595.
- D. Fine aggregate shall conform to ASTM C33 with a fineness modulus greater or equal to 2.6.
- E. Fly ash shall meet ASTM C618, Class F or N.
- F. Silica fume shall conform to ASTM C1240.
- G. Slag cement shall conform to C989.
- H. The nominal maximum size of coarse aggregate shall be 1 inch and conform to ASTM C33.
- I. Performance of concrete for various portions of the work shall be as shown in the following table:

Class	Use	Max. W/CM Ratio	Average 7-Day Comp. Strength (psi)	Minimum 28-Day Comp. Strength (psi)
2000	Thrust blocks	-	1,675	2,500
4000	Manhole bases Manhole collars Flatwork	0.45	2,680	4,000

- J. Concrete shall meet the following performances requirements:
 1. Mixture shall have total alkalis less than 0.40% or meet the equivalent requirements of ASTM C441.
 2. Mixture shall conform to a value of less than 1500 coulombs when tested according to ASTM C1202 at or before 56 days.
 3. The shrinkage of the concrete mixtures shall be less than 500 $\mu\epsilon$ after 28 days when tested according to ASTM C157.



- K. Concrete shall be air entrained to withstand severe exposure as described in ACI 301-05.
- L. The ready-mix concrete production facility shall demonstrate that it meets the requirements of National Ready Mixed Concrete Association (NRMCA) certification.

2.4 HANDLING, PLACING AND CONSTRUCTING

- A. Concrete curing compound shall be styrene-acrylic, styrene butadiene, or alpha-methylstyrene conforming to ASTM C 1315, Type II Class A or B (white pigmented) or Type I Class A (clear with fugitive dye). Comply with local, state and federal requirements for volatile organic compounds (VOCs).

PART 3 - EXECUTION

3.1 FORMWORK AND FORMWORK ACCESSORIES

- A. Keyway depths shall be as shown on the Project Drawings.
- B. Chamfers and bevels on corners or edges of formed concrete shall be as shown on the Project Drawings.
- C. Construction joints shall be as shown on the Project Drawings.
- D. When removal of formwork or reshoring is based on concrete reaching a specified strength, it shall be assumed that concrete has reached this strength when either of the following conditions have been met:
 - 1. When test cylinders, field-cured along with the concrete they represent, have reached the specified strength.
 - 2. When concrete has been cured for the same maturity as the field-cured cylinders which reached specified strength as determined by the maturity method in ASTM C1074.

3.2 REINFORCEMENT AND REINFORCEMENT SUPPORTS

- A. Maintain minimum concrete cover around reinforcing as described in the Project Drawings, or if it is not specified, maintain minimum cover as described in ACI 301-05.
- B. Splicing:
 - 1. Furnish all reinforcement in the full lengths indicated unless otherwise permitted. Splicing of bars, except where indicated, is not permitted without written approval.
 - 2. Lap splice length shall be in accordance with ACI 318-05 and the International Building Code (IBC). Located reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on shop drawings. Stagger splices where possible.
 - 3. Unless indicated otherwise, overlap reinforcing bars a minimum of 30 diameters to make the splice. In lapped splices, place the bars and wire to maintain the minimum distance for clear spacing to the surface of the concrete.
 - 4. Do not use lap splices on bars greater in diameter than no. 11 unless otherwise approved.
 - 5. Weld reinforcing steel only if indicated or if authorized in writing. Weld in conformance to AWS D1.4.
 - 6. Do not bend reinforcement after embedding in hardened concrete.
 - 7. Do not permit reinforcement or other embedded metal items bonded to the concrete, to extend continuously through any expansion joint, except dowels in floors bonded on only one side of joints.



- C. All reinforcement to be free of loose mill scale, loose or thick rust, dirt, paint, oil or grease.
- D. Place all reinforcement in the exact position indicated. With tie wire, tie bars together at all intersections except where spacing is less than 12 inches in each direction, in which case tie alternate intersections.
- E. Maintain the distance from vertical forms and between layers of reinforcement by means of prefabricated chairs, ties, hangers or other approved devices. Placing and fastening of reinforcement in each section of the Work must be approved before concrete is placed.
- F. Overlap sheets of metal mesh one square plus 6 inches to maintain a uniform strength. Securely fasten at the ends, edges, and supports to maintain clearances.
- G. Flat slab work:
 - 1. Support reinforcing steel of formed flat slabs with metal chairs, precast concrete blocks or other slab bolsters.
 - 2. Size chairs or bolsters to position the steel in the exact location indicated.
 - 3. Space chairs for supporting the top steel and bolsters for supporting the bottom steel not more than 5 feet on centers in each direction.
 - 4. Plastic or epoxy coat the portion of the metal in contact with the forms to prevent rust.
 - 5. Tie down deck steel to beams or forms at regular intervals of not more than 5 feet on centers along the beams or forms to prevent movement of the steel during concrete placement.

3.3 CONCRETE MIXTURES

- A. Slump and air content shall be determined at the point of placement. Once slump and air loss during pumping can be determined, acceptance or rejection of concrete based on slump can then be determined at the delivery point.
- B. Slump adjustment by addition of water at the site is not permitted without the consent of the Engineer.

3.4 HANDLING, PLACING AND CONSTRUCTING

- A. The subgrade for slabs-on-ground shall be constructed of the material and compacted to the density shown on the Project Drawings or as specified in Section 31 23 00 – Excavation, Backfilling and Compaction.
- B. In cold weather, as defined in ACI 301-05, concrete shall be placed in accordance with ACI 306. Similarly, in hot weather, as defined in ACI 301-5, concrete shall be placed in accordance with ACI 305.
- C. Do not place concrete slabs or other flatwork if wind is greater than 5 mph unless a wind break is provided.
- D. The finish of formed portions of concrete work shall have a uniform surface appearance in color and texture. All formed work shall have a smooth form finish as defined in ACI 301.
- E. All flatwork shall have a float with broom finish as defined by ACI 301.
- F. Where pipes, castings or conduits are to pass through structures, the Contractor shall place such pipes or castings in the forms before placing the concrete. Additional reinforcement shall be provided around large openings as shown in the Project Drawings.

END OF SECTION.



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SECTION 31 23 00 EXCAVATION, BACKFILLING AND COMPACTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes preparation, excavation, backfilling, compaction, dewatering and/or runoff control measures, trench shoring, restoration of existing facilities damaged or displaced as a result of the work of the project, clean up, protection and maintenance.

1.2 RELATED WORK

- A. Section 33 11 00 - Water Distribution and Transmission
- B. Section 33 41 00 - Storm Drainage Systems

1.3 REFERENCES

- A. The applicable provisions of the latest editions of the References listed below shall govern the Work covered under this Section, unless there is a conflict between said References and the requirements of this Section. In the case of such a conflict, the requirements of this Section shall apply.
- B. Utah Occupational Safety and Health Division (UOSHD).
- C. American Association of State Highway and Transportation Officials (AASHTO):
- D. American Society for Testing and Materials (ASTM)
- E. American Public Works Association (APWA)

1.4 SUBMITTALS

- A. Submit evidence of materials conformance with applicable requirements as well as these specifications.

1.5 QUALITY ASSURANCE

- A. Comply with federal, state, and local codes and regulations as applicable. Permits shall be obtained and paid for by the Contractor.
- B. All working conditions shall be in accordance with the "Utah Occupational Safety and Health Division", Safe Practices for Excavation & Trenching Operations, latest edition, or other Laws or Regulations which apply.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Materials suppliers shall provide, upon request, verification of a consistent record of meeting or exceeding materials or performance standards as specified herein.

2.2 FOUNDATION MATERIALS

- A. All foundation materials shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the Owner may be objectionable or deleterious.



B. Undisturbed soil foundation material:

1. Shall be natural trench bottom soil unless unable to adequately support pipe or structures.
2. Shall not be lumpy or frozen.

2.3 BEDDING MATERIALS

A. Sand Bedding for Water Pipes:

1. Shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the Owner may be objectionable or deleterious.
2. Graded within the following limits:

Sand Bedding Gradation	
Sieve Size	% Passing
¾"	100
No. 4	80-100
No. 10	30-50
No. 40	10-30
No. 200	0-15

B. Gravel Bedding for Sewer and Storm Drain Pipes:

1. Shall be hard, durable, broken, angular, crushed stone or high quality mineral or combination thereof.
2. Shall be graded as follows:

Gravel Bedding Gradation	
Sieve Size	% Passing
1-1/2"	100
1"	95-100
½"	25-60
No. 4	0-10
No. 8	0-5

2.4 BACKFILL MATERIALS

A. Granular backfill:

1. Shall be readily compactable and shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the Owner may be objectionable or deleterious.

B. Shall be AASHTO M145 classification A-1-a: non-plastic, well-graded 3" minus material, graded within the following limits:

Granular Backfill Gradation	
Sieve Size	% Passing
3"	100
No. 10	50 max
No. 40	30 max
No. 200	15 max



1. May be select material from excavation if it will meet all requirements of granular backfill, including compaction requirements as specified for type of surface improvement above trench.
- C. Excavated Soil Backfill Material:
1. Shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the Owner may be objectionable or deleterious.
 2. Shall be select material from excavation, with no particle larger than 4 inches in diameter.
 3. Use on-site materials only if specified compaction requirements can be met.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. It shall be the Contractor's sole responsibility to locate all (whether or not shown on the Drawings) existing water, sanitary sewer, storm drain, and gas lines, electrical and telephone conduit, other underground utilities with their existing house service connections, and all other underground structures in order that no damage or loss of service will result from interference with existing lines.
- B. Review all available drawings, notes, and information on the location of these underground lines and structures in determining the location of the existing facilities.
- C. Blue Stakes Location Center shall be contacted 48 hours before any excavation is commenced. Mark and locate all utilities prior to excavation.
- D. All fences removed for excavation shall be returned to their original condition except that damaged portions will be replaced with new fencing at the Contractor's expense.
- E. Obtain all required permits.

3.2 METHODS AND PROCEDURES

- A. General Requirements
1. All gas, sanitary sewer, storm drain, water and other pipelines, flumes and ditches of metal, wood or concrete, underground electrical conduits and telephone cable, and all walks, curbs, and other improvements encountered in excavating trenches carefully shall be supported, maintained and protected from injury or interruption of service until backfill is complete and settlement has taken place.
 2. If any existing facility is damaged or interrupted, promptly after becoming aware thereof and before performing any Work affected thereby except in an emergency, identify the owner of such existing facility, and give written notice thereof to that owner and the Owner. Indemnify the Owner and Engineer from any and all damages resulting from damaged facilities.
 3. All damage, injury or loss resulting from lack of adequate sheeting, bracing, and shoring shall be the responsibility of the Contractor; and the Contractor shall effect all necessary repairs or reconstruction resulting from such damage.
 4. The trenches shall not be backfilled until the utilities systems as installed conform to the requirements of the Drawings and Specifications. Where, in the opinion of the Owner, damage is likely to result from withdrawing sheeting, the sheeting shall be left in place.
 5. Trenches shall be backfilled to the proper surface with material as shown or specified. Trenches improperly backfilled shall be reopened to the depth required for correction, then refilled and compacted as specified, or the condition shall be otherwise



corrected as approved.

6. Care shall be exercised so that when backfilling is complete and settlement has taken place, all existing pipes, flumes, ditches, conduits, cables, walks, curbs, and other improvements will be on the same alignment and grade as they were before work commenced.
7. Compaction shall be the responsibility of the Contractor. Select the methods to be used and carefully perform the work of backfilling and compaction so as to prevent damage to new or existing utilities. Any new or existing utilities damaged during the Contractor's work shall be replaced as directed by the Owner.

3.3 INSTALLATION

A. Excavation

1. Excavation for pipe lines, concrete valve boxes, manholes, vaults and appurtenant structures shall include the work of removing all earth, sand, gravel, quicksand, stone, loose rock, solid rock, clay, shale, cement, hardpan, boulders, and all other materials necessary to be moved in excavating the trench for the pipe. Maintain the excavation by shoring, bracing, and sheeting or well pointing to prevent the sides of the trench from caving in while pipe laying is in progress and remove sheeting from the trench after pipe has been laid.
2. Trench support system shall be suitable for the soil structure, depth of cut, water content of soil, weather conditions, superimposed loads, vibration. Select one of the following methods of ensuring the safety of workers in the trench, as approved by OSHA or its safety inspectors:
 - a. Sloping sides of trench to the angle of repose at which the soil will remain safely at rest.
 - b. Shoring trench sides by placing sheeting, timber shores, trench jacks, bracing, piles, or other materials to resist pressures surrounding the excavation.
 - c. Using a movable trench box built-up of steel plates and a heavy steel frame of sufficient strength to resist the pressures surrounding the excavation.

Trenches shall be of the necessary width for proper laying of pipe. Care shall be taken not to over-excavate. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each section of the pipe along the entire length of the barrel of the pipe.

3. Trenches shall be excavated to the depths shown on the Drawings, including any required allowances for the sewer rock foundation, when required, and for other pipe bedding requirements.
4. Minimum cover over the top of the pipe, including any paving, shall be as follows:
 - a. Water supply piping: 4 feet minimum from finish grade unless otherwise specified or required by the governing jurisdiction.
 - b. Sanitary sewer and storm drain: as indicated on the Drawings.
5. Grading of trenches shall be performed to avoid interference of water, storm drain and sewer lines with other underground utilities and structures:
 - a. Water supply piping: Unless otherwise indicated, trenches shall be graded to avoid high points with the necessity of placing vacuum and relief valves in the water lines.
6. The width of trench, measured at the top of the pipe, shall be as narrow as possible, but not wider than 15 inches on each side of sewer or water pipe.
7. Excavation for manholes, concrete valve boxes, and similar structures shall be sufficient to leave at least 12 inches in the clear between the outer surfaces and the



embankment or timber that may be used to hold and protect the banks.

8. Excess materials shall be hauled away from the construction site or otherwise disposed of by the Contractor as approved by the Owner.

B. Backfilling

1. Materials for trench backfill shall be as shown on the Drawings.
2. Pipe bedding:
 - a. Consists of preparing an acceptable pipe foundation, excavating the pipe groove in the prepared foundation and backfilling from the foundation to 12 inches above the top of the pipe. All piping shall be protected from lateral displacement and possible damage resulting from impact or unbalanced loading during backfilling operations by being adequately bedded.
 - b. Pipe foundation: Shall consist of natural soil in the bottom of the trench, or a built-up foundation if conditions so warrant. Wherever the trench subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and where groundwater must be drained, the trench shall be excavated below the bottom of the pipe to such depth as may be necessary, and this additional excavation filled with clean, compacted sewer rock.
 - c. Install pipe bedding materials from pipe foundation to 12 inches above top of pipe: Materials shall be deposited and compacted in layers not to exceed 8 inches in uncompacted depth. Deposition and compaction of bedding materials shall be done simultaneously and uniformly on both sides of the pipe. All bedding materials shall be placed in the trench with hand tools or other approved method in such a manner that they will be scattered alongside the pipe and not dropped into the trench in compact masses. Materials used shall be as shown in the Typical Trench Section in the Drawings and as specified in Part 2.
 - d. A pipe groove shall be excavated in the pipe foundation to receive the bottom quadrant of the pipe so that the installed pipe will be true to line and grade. Bell holes shall be dug after the trench bottom has been graded. Bell holes shall be excavated so that only the barrel of the pipe bears on the pipe foundation.
3. Each lift shall be evenly spread and moistened or dried by disk harrowing or other means so that the required density will be produced.
4. Backfill around valves, vaults and appurtenances with granular backfill material.

C. Compaction

1. Backfill Compaction Requirements:
 - a. Under pavements, or other surface improvements, the minimum density shall be 96% of laboratory maximum density as determined by ASTM D-1557 (Modified Proctor).
 - b. In shoulders and other unimproved areas, the minimum density shall be 90% of laboratory maximum density as determined by ASTM D-1557.
2. Compaction shall be performed in strict accordance with the manufacturer's recommendations for each type of pipe.
3. Mechanical compaction: Shall be accomplished by the use of a sheep-foot roller, pneumatic tire roller, vibrating roller, or other mechanical tampers of a size and type necessary to achieve the required degree of compaction.

D. Dewatering

1. The Contractor shall do all pumping, build all drains and do all the work necessary to



keep the trench and pipes free from water during the progress of the work.

2. In wet trenches, a channel shall be kept open along the side of the pipe for conducting the water to a sump hole, from which it shall be pumped out of the trench. No water shall be allowed to enter the pipe.

3.4 PROTECTION

- A. Provide barricades and restrict access as appropriate to prevent damage to Work in place.
- B. Contractor shall be responsible for protection of Work in place against displacement, damage, or loss until Owner's acceptance. Any work subsequently damaged, lost or displaced shall be repaired or replaced to the Owner's satisfaction at no additional cost to the Owner.

3.5 CLEANING

- A. Thoroughly clean, rake, wash, flush or sweep as required to clean adjacent improvements of materials covered as part of this Work prior to submitting for Owner's acceptance.
- B. Contractor shall provide all labor, equipment, materials and other items as required to perform clean up as required by the Owner, adjacent property owners and other jurisdictions.
- C. Finish grading of areas affected by this Work shall be required as part of clean up.
- D. The roadway including shoulders, slopes, ditches, and borrow pits shall be smoothly trimmed, and shaped by machinery, or other satisfactory methods, to the lines, grades and cross-sections, as established, and shall be so maintained until accepted. Any surplus material not suitable for spreading along the road to widen the existing shoulder or raise the grade shall be disposed of as specified above.

3.6 TESTING

- A. The Contractor shall employ a testing laboratory to perform field and laboratory density tests. The Contractor shall make such additional tests, at his expense, as deemed necessary by him to assure that the work of compaction is performed properly and determine any adjustments in compacting equipment, thickness of layers, moisture content and compactive effort or other means necessary to obtain the specified minimum relative density. Provide access to the work and all manpower and machinery necessary to aid the testing laboratory personnel in performing field density tests or taking samples for laboratory tests. In general, tests and samples shall be made as the work proceeds.
- B. Testing laboratory is to perform maximum density tests on materials to be compacted from samples submitted by Contractor taken from locations selected by the Owner.
- C. Testing laboratory is to perform field density tests of compacted backfill materials. The approximate location of such tests shall be as shown on the drawings or as selected by the Owner. Field density tests shall be taken every 200' along the pipeline alignment as follows:
 1. In planted or unimproved areas:
 - a. 18" above the top of the pipe
 - b. Finished grade
 2. In streets, roads, parking lots or other paved areas:
 - a. 18" above the top of the pipe
 - b. 24" to 36" below the gravel road base
 - c. Gravel road base subgrade
 - d. Top of gravel road base
 - e. Top of bituminous surface course



- D. Copies of test results prepared by the testing laboratory shall be transmitted to the Contractor at the same time they are transmitted to the Owner.
- E. Successful performance of compaction at the location of the field density test shall not relieve the Contractor of his responsibility to meet the specified density requirements for the complete project.

END OF SECTION



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SECTION 32 05 00 RESTORATION OF EXISTING IMPROVEMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Contractor shall provide all materials, labor, equipment, transportation, and other items required to restore existing improvements dislocated, damaged, or removed as indicated or as required to accomplish Work of other sections of these specifications. All restoration Work shall be in accordance with applicable regulations and as specified herein.
- B. Restoration of existing improvements includes, but is not limited to the following:
 - 1. General restoration requirements
 - 2. Restoration or replacement of gravel, asphaltic concrete, or Portland cement concrete pavements, including base course and striping.
 - 3. Portland cement concrete curbs, gutters, sidewalks, and driveways
 - 4. Landscaping improvements
 - 5. Miscellaneous improvements

1.2 RELATED WORK

- A. Section 31 23 16 – Excavation, Backfilling and Compaction

1.3 REFERENCES

- A. The applicable provisions of the latest editions of the References listed below shall govern the Work covered under this Section, unless there is a conflict between said References and the requirements of this Section. In the case of such a conflict, the requirements of this Section shall apply.
- B. Utah Department of Transportation Standard Metric Specifications for Road and Bridge Construction, latest edition including all addenda.
- C. American Society for Testing and Materials (ASTM)
- D. American Association of State Highway and Transportation Officials (AASHTO)
- E. American Concrete Institute (ACI)
- F. Concrete Reinforcing Steel Institute (CRSI)

1.4 SUBMITTALS

- A. Submit shop drawings, manufacturer's literature, certifications, and other product data in accordance with Section 01 00 50, Paragraph 1.5 – Contractor Submittals..
- B. Required submittals include, but are not limited to:
 - 1. Manufacturer's recommended transportation, unloading, and storage requirements as well as installation guides and instructions for materials provided as part of this Work.
 - 2. Evidence of materials conformance with applicable requirements as well as these specifications.
 - 3. Dimensional information for pipes, valves, fittings, castings, structures and other items provided as part of this Work.



- C. Contractor shall maintain accurate construction record drawings for items restored as part of this Work, but covered by subsequent landscaping, paving or as a result of Work of other sections of these specifications. These records shall be submitted to Engineer for approval prior to application for final payment.

1.5 QUALITY ASSURANCE

- A. Transportation, handling, storage and installation practices shall be in accordance with manufacturer's recommended practice for materials provided as part of this Work.
- B. Use adequate numbers of skilled workmen who are trained and experienced in the type of construction required.
- C. The quality of the finished restored improvement, as determined by the Owner, shall be of equal or better quality than was said improvement prior to being damaged or removed.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall be responsible for proper transportation, unloading, handling, storage, and security of all equipment and materials to be provided as part of this specification in accordance with manufacturer's recommendations.
- B. Materials shall be stored in such a manner as to prevent damage or degradation. Any materials damaged prior to installation shall be removed from the project and replaced with new materials at no additional cost. Lost or stolen materials shall be replaced at no additional cost.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers providing materials or equipment as part of this specification shall have a minimum of five years' experience in the design, manufacture, testing and support of such materials.
- B. Manufacturers shall provide, upon request, verification of a consistent record of meeting or exceeding materials or performance standards as specified herein.

2.2 MATERIALS - GENERAL

- A. Materials shall be as required to complete the restoration of existing improvements, and shall be at least equal to original improvement at the time of damage or removal, as determined by the owner of said improvement, and shall match original construction in finish and dimension.
- B. Materials shall be in accordance with requirements of local jurisdiction having authority. Obtain approval of all materials from local jurisdiction having authority prior to ordering.

2.3 BITUMINOUS SURFACE COURSE

- A. Asphaltic concrete surface course shall be plant mix in accordance with UDOT, ½" Gradation using PG 64-34 asphaltic cement. Refer to UDOT specifications Section 02741.
- B. Compaction requirements are no tests less than 93.5% percent of the density (determined in accordance with ASTM D2041), as determined by ASTM D2170.

2.4 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete for curbs, gutters, sidewalks and driveways shall be Class AA(AE) conforming to the requirements of Section 0355, UDOT Standard Specification for Road and Bridge Construction.



2.5 SOD AND VEGETATION

- A. All materials shall be from sources approved by the Owner; however, such approval does not relieve the Contractor from responsibilities for growth, maintenance and replacement has specified herein.
- B. Topsoil:
 - 1. Topsoil for backfill mixture for tree pits shall be fertile, friable, natural loam, surface soil, reasonably free of clay lumps, brush, weeds, and other litter, and free of rocks, stumps, stones larger than 2-inch in any dimension, and other extraneous or toxic matter harmful to plant growth. Obtain topsoil only from naturally well drained sites where topsoil occurs in a depth of not less than 4 inch.
 - 2. Do not obtain from bogs or marshes.
- C. Manure:
 - 1. Well dried, rotted, unleached, pulverized cattle manure reasonably free from refuse and harmful materials.
- D. Mulch:
 - 1. Fine grind bark mulch.
- E. Tree staking and guying:
 - 1. Steel T post stakes 8 feet long and steel ground stakes 18 inches long.
 - 2. All T post stakes shall be primed and painted a dark green color.
 - 3. Provide wire ties and guys of 2 strand, twisted, pliable, galvanized iron wire not lighter than 12 gauge.
 - 4. Provide new 2 ply garden hose not less than 5/8 inch diameter in size, cut to required lengths to protect tree trunks from damage by wires.
- F. Sod:
 - 1. Strongly rooted blend of Kentucky Blue Grass sod, not less than 2 years old and free of weeds and undesirable native grasses.
 - 2. Provide only sod capable of growth and development when planted (viable, not dormant).
 - 3. Recommended Kentucky Blue Grass mixture is 50 parts Baron, 25 parts Glade and 25 parts Touchdown, or approved equal.
- G. Commercial fertilizer:
 - 1. Agriform 20 10 5, 21 gram fertilizer tablets for trees and shrubs. Provide three tablets per tree.
 - 2. Ammonium sulfate fertilizer in pellet form for lawn areas at 40 actual pounds of nitrogen per acre.
- H. Trees:
 - 1. Trees shall be not less than indicated sizes, balled and burlapped or container grown, unless otherwise indicated, specified or required by Owner of tree removed.
- I. Shrubs:
 - 1. Shall be as removed, minimum 5 gallon can.



PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that Work covered under other sections of these specifications is complete to the point that Work covered under this section may properly commence without hindering or damaging Work of other trades. Do not proceed with construction until unsatisfactory conditions have been corrected.
- B. Verify that Work performed under other sections of these specifications has been adequately observed, tested and accepted prior to covering up that Work as part of the Work specified under this section.
- C. Carefully examine restoration areas, verifying dimensions, materials and other restoration requirements with Engineer and Owner prior to beginning Work covered under this section.

3.2 METHODS AND PROCEDURES

- A. General Requirements
 - 1. Contractor shall obtain all permits necessary for the restoration of existing surface improvements.
 - 2. Contractor shall protect all public and private property adjacent to the work. Exercise due caution to avoid damage to such property.
 - 3. All improvements damaged or removed shall be restored in accordance with local jurisdiction having authority. In case of conflict between these specifications and local authority specifications, the local authority shall govern.
 - 4. Repair or replace all existing surface improvements, which were damaged or removed as a result of operations of Work under this contract. Restoration shall be of at least equal quality and identical in dimension to original improvement unless specifically specified otherwise.

3.3 INSTALLATION

- A. Gravel Surfaced Areas
 - 1. Where trenches are excavated through gravel surfaced areas such as roads and driveways and other areas, the gravel surface shall be restored by placing untreated base course material upon a prepared subgrade.
 - 2. Subgrade preparation shall conform to the following:
 - a. Subgrade shall be proof-rolled by passing moderately-loaded rubber tire-mounted construction equipment uniformly over the surface continuously at least twice, or by other means acceptable to Engineer. If excessively soft, loose or disturbed soils are encountered, they shall be removed as directed by Owner, to a maximum depth of two feet, and replaced with stabilizing structural fill, compacted to 96% of the maximum laboratory dry density determined by ASTM D-1557 or AASHTO T-180.
 - b. Place structural fill in lifts not exceeding 8 inches in loose thickness.
 - 3. Base Course
 - a. Thickness of untreated base course surface shall be 6 inches or shall match existing, whichever is greater.
 - b. Base course shall be compacted to no less than 96% maximum Modified Proctor Density, as determined by ASTM D1557 (AASHTO T-180). Moisture content shall be maintained to within 1.5% of optimum throughout placing and compaction operations.



B. Asphaltic Concrete Surfaced Areas

1. Where trenches are excavated through asphaltic concrete surfaced areas such as roads, driveways or parking areas, the surface shall be restored by preparing the subgrade, placing base course, placing tack and prime coats, and placing the asphaltic concrete surface course(s).
2. Subgrade preparation shall conform to applicable parts of Section 02056, UDOT Standard Specifications for Road and Bridge Construction:
 - a. Average of field density determinations shall be 96 percent of the maximum dry density, with no determination lower than 92 percent.
 - b. The maximum dry densities shall be determined in accordance with the following:
 - (i) A-1 Soils: AASHTO Designation T-180, Method D.
 - (ii) All other Soils: AASHTO Designation T-99, Method D.
3. Thickness of base course shall be 6 inches, shall match existing, or shall be as required by local authority having jurisdiction, whichever is greater.
4. Placing and compaction of untreated base course shall conform to applicable parts of Section 02721, UDOT Standard Specifications for Road and Bridge Construction, excluding pay factor allowances.
5. Tack Coat
 - a. Tack coat shall be applied at the rate of 0.05 to 0.15 gal/SY. A hand sprayer or brush shall be used to apply tack coat to vertical faces of previously constructed bituminous pavement (over 1/2 hour hence) prior to placing an adjacent or parallel pass, curbs, gutters, slab edges, and all structures to be in actual contact with the bituminous pavement. Tack coat shall also be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.
 - b. Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material.
 - c. Protect all surfaces not required to receive tack coat from any inadvertent application.
 - d. The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D2170.
 - e. Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one way traffic over the remaining portion of the roadbed. If one way traffic is provided, the traffic shall be controlled in accordance with governing authority.
 - f. After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat shall be applied on only as many surfaces as will be paved against in the same day.
6. Mixing, placing, spreading and compaction of bituminous surface course shall conform to applicable parts of Section 02741, UDOT Standard Specifications for Road and Bridge Construction, excluding pay factor allowances.

C. Concrete Curbs, Gutter, Sidewalks and Driveways



1. Shall be removed and replaced to the next joint or scoring lining beyond the actually damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed by saw cutting full-depth.
2. All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lampblack or other pigments shall be added to the new concrete to obtain the desired results.
3. Concrete forms shall be true to line and of sufficient strength to ensure against bulging or displacement.
4. Contraction and expansion joints shall match original construction in placement and size, unless otherwise required by local jurisdiction having authority.
5. Reinforcement shall be replaced as in original construction, unless otherwise required by local jurisdiction having authority, and shall be installed in accordance with applicable CRSI and ACI Standards.
6. Finishing and curing shall be in accordance with local jurisdiction having authority.

D. Vegetated Areas

1. Prior to placing sod or other final vegetative cover, examine and repair the subgrade as necessary to assure a smooth and even surface which will match grade and contours of surrounding undisturbed ground. Finish grade construction areas to match grade prior to construction activities. Assure that a positive slope away from all building walls is maintained for at least 10 feet to prevent runoff from approaching walls.
2. Prepare soil under areas to receive vegetation by placing topsoil to a depth equal to surrounding conditions or to 6 inches, whichever is greater. Disk or till 3 cubic yards manure per 1000 square feet of surface area to a depth of 8 inches.
3. Roll and rake areas receiving vegetation to smooth, even surface, free of ridges, with loose, uniformly fine texture.
4. Allow for final vegetation thickness when preparing subgrade.
5. Restore raked areas to specified condition if eroded or otherwise disturbed after fine grading and prior to placing vegetative cover.
6. Remove stones over 1 1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.
7. Limit preparation to areas that will be planted promptly after preparation.
8. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before sodding. Do not create a muddy soil condition.

E. Trees and shrubs:

1. Layout individual tree locations.
2. Secure approval of Engineer and Owner prior to planting.
3. Excavate tree and shrub pits with vertical sides. Dispose of subsoil removed from landscape excavations. Do not mix with backfill. If tree or shrub is to be planted on excavation area, remove all impervious fill from tree and shrub pit down to pervious material.
4. Place three Agriform fertilizer tablets evenly around the perimeter of, and immediately adjacent to the root ball at a depth which is between the middle and the bottom of the root ball.
5. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final



layer of backfill.

6. Stake or guy trees immediately after planting. Stakes and guys should be evenly distributed around tree. All stakes must be driven so as not to disturb the root ball.

F. Sprinkling Systems:

1. Restore all sprinkling systems and fences disturbed, removed, or damaged by construction operations in a condition at least equal to that prior to construction.

G. Sodding:

1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass.
2. Secure sod on slopes with U-shaped wire clips as required to prevent slippage. Immediately after planting, sod shall be thoroughly watered with a fine spray. Watering shall occur as frequently as needed to keep sod constantly moist for a period of 14 days after planting. Two weeks after planting, apply ammonium sulfate in pellet form at 40 actual pounds of nitrogen per acre. Water thoroughly immediately after fertilizing.

H. Miscellaneous Restoration Items

1. All other improvements interrupted or removed to permit the construction specified herein shall be restored. Miscellaneous improvements to be restored shall include, but shall not be limited to, the following:
 - a. Culverts
 - b. Fences
 - c. Utilities

3.4 PROTECTION

- A. Provide barricades and restrict access as appropriate to prevent damage to Work in place.
- B. Contractor shall be responsible for protection of Work in place against displacement, damage, loss or theft until Owner's acceptance. Any Work installed and subsequently damaged, lost or displaced shall be repaired or replaced to the Owner's satisfaction at no additional cost.
- C. Planting Maintenance:
 1. Begin maintenance immediately after planting, and continue until observation and acceptance, in no case less than 30 days from the time of completion of Work.
 2. Maintain trees by pruning, cultivation and weeding as required for healthy growth. Restore planting saucers.
 3. Tighten and repair stake and guy supports and reset trees to proper grades or vertical position as required. Spray as required to keep trees free of insects and disease.
 4. Maintain lawns for not less than 30 days and longer as required to establish an acceptable lawn. To be acceptable, lawn must be past second mowing with no bare spots. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.

3.5 CLEANING

- A. Thoroughly clean, rake, wash and/or flush all restoration Work prior to submitting for Owner's



acceptance.

END OF SECTION



SECTION 33 11 00 WATER DISTRIBUTION AND TRANSMISSION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes water system transmission or distribution piping, valves, fittings and accessories, hydrants, thrust blocking, corrosion protection, installation, protection, cleaning, and hydrostatic and leakage testing for potable waters systems.

1.2 RELATED WORK

- A. Section 31 23 00 Excavation, Backfilling and Compaction.
 - 1. Excavation of trenches, pipe bedding and backfill, compaction of backfill
- B. Section 03 30 00 - Cast-in-Place Concrete
 - 1. Thrust blocks, vaults and other structures associated with water systems.

1.3 REFERENCES

- A. The applicable provisions of the latest editions of the References listed below shall govern the Work covered under this section, unless there is a conflict between said References and the requirements of this Section. In the case of such a conflict, the requirements of this section shall apply.
- B. American Water Works Association (AWWA)
- C. American Society for Testing and Materials (ASTM)
- D. American National Standards Institute (ANSI)
- E. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. Standard Specifications for Highway Bridges
- F. Ductile Iron Pipe Research Association (DIPRA)
- G. Uni-Bell PVC Pipe Association
- H. American Public works Association (APWA)

1.4 SUBMITTALS

- A. Required submittals include, but are not limited to:
 - 1. Evidence of materials conformance with these specifications.
 - 2. Manufacturer's recommended transportation, unloading and storage requirements. Manufacturer's installation guides and instructions.
 - 3. Dimensional information for pipe, valves, fittings, castings, and structures.
- B. Contractor shall maintain accurate construction record drawings of all as-built valve, fitting, and line locations, manhole locations, pipe lengths, and other relevant data and shall submit these records to the Owner for approval prior to application for final completion in accordance with Section 01 78 50 – Closeout Procedures.

1.5 QUALITY ASSURANCE

- A. Transportation, handling, storage and installation practices shall be in accordance with



- manufacturer's recommended practice for materials provided as part of this Work.
- B. Contractor's personnel shall be experienced in the installation of materials provided as part of the Work, and shall comply with manufacturer's recommended practices during handling, placement and installation of such materials.
 - C. Pipe, valve and appurtenant materials and Workmanship shall be in accordance with ANSI/NSF 61 and AWWA Standards as applicable.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall be responsible for proper transportation, unloading, handling, storage and security of all equipment and materials to be provided as part of this specification in accordance with manufacturer's recommendations.
- B. Materials shall be stored in such a manner as to prevent damage or degradation. Any materials damaged prior to installation shall be removed from the project and replaced with new materials at no additional cost. Lost or stolen materials shall be replaced at no additional cost.
- C. Load and unload pipe, fittings, specials, valves and accessories by lifting with hoists or skidding so as to avoid shock or damage. Do not skid or roll pipe on skidways against pipe already on the ground.
- D. Each length of pipe shall be unloaded opposite or near the place where it is to be laid in the trench.
- E. Polyvinyl Chloride (PVC) piping, fittings, and materials shall be protected during storage from ultraviolet and ozone degradation. Noticeably faded materials shall not be installed and shall be promptly removed from project site.
- F. At times when pipe laying is not in progress, the open end(s) of pipe in the trench shall be closed by a watertight plug.

1.7 PERFORMANCE REQUIREMENTS

- A. Depth of Cover
 - 1. Minimum cover shall be 48-inches from top of pipe to ground surface. Maximum shall be 72-inches unless the drawings indicate otherwise.
- B. Layout
 - 1. Comply with Utah Administrative Rules R309-550. As a minimum, locate potable water pipe at least 18 inches vertical and 10 feet horizontal edge to edge between water and sewer lines. Place water lines above sewer line.
 - 2. Where potable water pipe crosses under gravity-flow sewer lines, fully encase sewer pipe in concrete for a distance at least 10 feet each side of the crossing.
 - a. Do not locate any joint in the water line within 36 inches of the crossing.
 - 3. Encase water line if it is within 24 inches of a sewer force main or a sewer inverted syphon.
 - 4. Encase sewer main joints in concrete if joints are horizontally closer than 36 inches to the water line.
 - 5. Do not put potable water lines in the same trench with sewer lines, storm drains or electrical wires.



PART 2 - PRODUCTS

2.1 MANUFACTURERS AND FABRICATION

- A. Manufacturers providing materials or equipment as part of this specification shall have a minimum of five (5) years in the design, manufacture, and testing of such materials.
- B. Manufacturers shall provide, upon request, verification of a consistent record of meeting or exceeding materials or performance standards as specified herein.

2.2 POTABLE WATER SYSTEM PIPING

- A. Water system piping shall be of the size, type, and class indicated on the drawings and as specified herein.
- B. Tracer Wire
 - 1. Any non-metallic pipe, regardless of size or installation, shall have a 14-gauge insulated copper tracer wire installed within 6" directly above the top of the pipe.
 - 2. Wire is to be spliced in at all connections to other mains, and connections must be covered or coated with corrosion protection using gel caps or mastic pad.
 - 3. When a new main ends, such as at a dead end or where it connects to an old main that does not have a tracer wire, the locating wire shall be properly grounded either by connecting directly onto the metal pipe or by connecting onto a grounding rod. This connection shall also be covered or coating with corrosion protection as previously stated.
- C. Ductile Iron Pipe and Fittings
 - 1. Ductile iron pipe shall be designed and manufactured in accordance with the following requirements:
 - a. AWWA/ANSI C150/A21.50 - American National Standard for the thickness Design of Ductile Iron Pipe.
 - b. AWWA/ANSI C151/A21.51 - American National Standard for Ductile Iron Pipe, Centrifugally Cast, for Water and Other Liquids.
 - 2. Ductile iron fittings shall comply with the requirements of the following:
 - a. AWWA/ANSI C110/A21.10 - American National Standard for Ductile Iron and Grey Iron Fittings, 3 in. through 48 in., for Water and Other Liquids.
 - b. AWWA/ANSI C153/A21.53 - American National Standard for Ductile Iron Compact Fittings, 3 in. through 24 in. and 54 in. through 64 in. for Water Service.
 - 3. Ductile iron pipe and fittings shall be cement mortar lined and shall have a bituminous seal coat in accordance with the requirements of AWWA/ANSI C104/A21.4 - American National Standard for Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.
 - 4. Joints and gaskets shall be in accordance with AWWA/ANSI C111/A21.11 American National Standard for Rubber Gasketed Joints for Ductile Iron Pressure Pipe and Fittings.
 - 5. Flanged pipe shall be in accordance with AWWA/ANSI C115/A21.15 - American National Standard for Flanged Ductile Iron Pipe with Ductile Iron or Grey Iron Threaded Flanges.
- D. Polyvinyl Chloride Pipe
 - 1. PVC pipe shall be manufactured from virgin Class 12454A or 12454B materials as defined by ASTM D1784 .
 - 2. PVC pipe and fittings shall be designed and manufactured in accordance with the



following requirements:

- a. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 60 in., for Water Distribution.
- b. AWWA C907 - Polyvinyl Chloride (PVC) Pressure Fittings for Water - 4 in. Through 8 in.

E. Prefabricated Steel Loops

1. Steel water loops shall be fabricated using steel pipe A53 Grade B ERW.
2. Steel pipe fittings shall conform to ASTM A234.
3. All welding shall be full penetration butt welds per ASTM C200
4. Lining and Coating Specifications;
 - a. All fabricated steel pipe shall be sandblasted to "near white" (SSPC-SP10). Each section of pipe and or fittings shall be primed by the spraying method with Tnemec Series FC-20 Pota Pox (fast cure) Epoxy - Polyamide 20-1255 beige primer. This shall be 7 mils wet and 4 mils after drying. The minimum drying time shall be 3 hours at 77° F or 12 hours at 50° F before intermediate coats are applied. Proper curing will not occur under 35° F.
 - b. Intermediate and topcoat shall be Tnemec Series FC-20 Pota Pox (Fast Cure) epoxy Polyamide 20-AA83 Tank White applied by the spraying method. Each coat shall be 9.0 mils wet and 5.0 mils dry per coat. The minimum dry time shall be 3 hours at 77° F. or 12 hours at 50° F. before finish coat is applied. Proper curing will not occur under 35° F.
 - c. Total Dry Film Thickness shall be 14.0 mils (minimum).
 - d. All welded joints or other repairs shall be made in the same manner as listed above.
 - e. All underground loops, spools, and fabricated piping shall be double tape wrapped after the above coatings, with Polyken 934-35 Pipe Wrap or equal
 - f. All Tnemec products listed above are listed by the State of Utah, Board of Health, NSF and conforms to AWWA 1DO1 Inside System No. 1.

2.3 CORROSION PROTECTION

- A. Bolts: Apply 2 coats of Coal for Mastic (Kopper 50 or equal) to all exposed surfaces of bolts and to all bolt threads after installation of piping, fittings, valves, and couplings.
- B. Fittings, valves, and specialties shall be tape wrapped with Polyken 930 filler tape for filling voids and with Polyken 930 tape to cover.
- C. Polyethylene encasement, if required, shall conform to AWWA/ANSI C105/A21.5 - American National Standard for Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
- D. Buried ductile iron mechanical joints shall be covered in grease and 8 mil vinyl wrap plastic.

2.4 VALVES

- A. Gate valves:
 1. Shall be iron body fully bronze mounted, double disc parallel seat, or resilient seat non-rising bronze stem with mechanical joint ends, except as otherwise specified or shown on the Drawings.
 2. Gate valves shall conform to the following requirements:
 - a. AWWA C509 - Resilient Seated Gate Valves for Water Supply Service.



3. All valves shall be provided with a 2" square operating nut for key operation from ground surface and open to the left, unless hand wheels are indicated.
4. Valve body and gates shall be rated to a design working pressure of 200 psig for valves up to 12", and 150 psig for valves of 16" or greater. All valves shall be factory tested to twice the rated working pressure.
5. Gate valves for potable water service shall be epoxy lined in accordance with AWWA/ANSI C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.
6. Gate valves shall be similar and equivalent to that produced by the following manufacturers:
 - a. Mueller Series 2300
 - b. Clow Cat. Model No. 2639
 - c. American Darling Series 2500

B. Tapping valves and sleeves:

1. Tapping valves shall have large diameter seat rings to permit entry of tapping machine cutters. Inlet shall be flanged. Outlet shall suit branch piping and shall include the required flange for tapping machine adapter connection. Tapping valves shall conform to the applicable requirements for gate valves as specified herein.
2. Tapping sleeves shall be suitable for assembly around the existing main. Body shall be high strength ribbed construction. End gaskets shall be sized to suit the existing main.
3. Tapping valves and sleeves shall be similar and equivalent to those produced by the following manufacturers:
 - a. Mueller cast iron split tapping sleeve
 - b. JCM model 414 custom fabricated mechanical joint steel tapping sleeve

C. Butterfly Valves

1. Butterfly valves shall conform to the requirements of AWWA/ANSI C504 - Rubber Seated Butterfly Valves.
2. Butterfly valves for potable water service shall be epoxy lined in accordance with AWWA/ANSI C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.
3. Butterfly valves shall comply with the following requirements:
 - a. Valve bodies shall be ductile iron conforming to ASTM A126, Class B.
 - b. Discs shall be streamlined and shall have a continuous 360E seating surface of 18-8 stainless steel.
 - c. Shafts shall be 18-8 stainless steel of stub construction with at least 1-1/2 shaft diameter engagement into the disc and shall be fastened to the disc with upset pins.
 - d. Seats shall be Buna-N material and shall be bonded to the valve body. Seats shall provide tight shutoff
 - e. Mueller Lineseal III Series
 - f. Clow Style 4500

D. Check Valves

1. Check valves shall conform to the requirements of AWWA/ANSI C508 - Swing Check Valves for Waterworks Service - 2 in. through 24 in. NPS.
2. Check valves for potable water service shall be epoxy lined in accordance with AWWA/ANSI C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.



3. Check valves shall be weighted swing arm type unless otherwise noted, similar and equivalent to those produced by the following manufacturers:
 - a. Mueller Cat. No. A-2600 Series
 - b. Clow Cat. No. F-5300 Series

E. Air Relief/Vacuum Valves

1. Air relief/vacuum valves shall conform to the requirements of AWWA/ANSI C512 - Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.
2. Air and Vacuum Valves shall vent air from lines being filled and shall allow entry of air upon draining of lines. Design of valves shall be such that velocity of air passing through the valve will not blow float shut at design volumes.
 - a. Valve body shall be cast iron conforming to ASTM A126, Class B.
 - b. Float, and guide rod shall be stainless steel conforming to ASTM A240 and A582, respectively.
 - c. Valves shall be designed to withstand hydrostatic pressures of 300 psig.
 - d. Valve seat shall be BUNA-N Rubber.
 - e. Valve inlet shall be ANSI Class 125 or Class 250 flanged, or NPT as indicated.
 - f. Valve shall be of the size indicated and shall include vent piping of the size, type and configuration indicated.
 - g. Air and Vacuum Valves shall be similar and equivalent to Crispin AL Series as manufactured by Multiplex Manufacturing Co.
3. Air Relief Valves shall vent air from high points in lines under pressure.
 - a. Valve body shall be cast iron conforming to ASTM A126, Class B.
 - b. Float, float lever and operating linkages shall be stainless steel conforming to ASTM A240 or A582, bronze conforming to ASTM B62, or brass conforming to ASTM B16.
 - c. Valves shall be designed to withstand hydrostatic pressures of 300 psig.
 - d. Valve seat shall be PVC or stainless steel conforming to ASTM A276.
 - e. Valve inlet shall be ANSI Class 125 or Class 250 flanged, or NPT as indicated.
 - f. Valve shall be of the size indicated and shall include vent piping of the size, type and configuration indicated.
 - g. Pressure Air Relief Valves shall be similar and equivalent to Crispin P Series as manufactured by Multiplex Manufacturing Co.
4. Combination or Universal Air Relief Valves shall allow air to be vented from lines being filled, shall allow entry of air when lines are being drained, and shall allow venting of air from lines under pressure. Valve shall be a single unit (universal type) or dual unit (combination type) assembly as indicated.
 - a. Universal Air Relief Valves shall be similar and equivalent to Crispin UL Series as manufactured by Multiplex Manufacturing Co.
 - b. Combination Air Relief Valves shall consist of an Air and Vacuum Valve and a Pressure Air Release Valve and shall be similar and equivalent to Crispin C Series as manufactured by Multiplex Manufacturing Co.

F. Pressure Reducing Valves (PRV)

1. Pressure reducing valves shall be hydraulically operated, pilot controlled diaphragm operated, globe pattern regulating valves with the following function features.



- a. Reduce variable inlet pressure to constant downstream pressure regardless of flow rate.
 - b. Include pressure sustaining feature to maintain inlet pressure above a predetermined minimum.
 - c. Rate of opening/closing adjustment.
2. PRV unit shall consist of valve body, pilot controls, related piping and all other items required to provide a complete, operational installation. PRV unit shall be constructed of the following materials:
 - a. Valve body and cover shall be of ductile iron meeting the requirements of ASTM A536.
 - b. Trim shall be bronze meeting the requirements of ASTM B62.
 - c. Stem, nut and spring shall be of Type 304 stainless steel.
 - d. Disk shall be Buna-N rubber.
 - e. Diaphragm shall be of nylon reinforced Buna-N rubber.
 - f. Pilot assemblies shall consist of bronze (ASTM B62) pilot control, Type 303 stainless steel trim, and Buna-N synthetic rubber parts. Control assembly shall be provided with a strainer.
 - g. Control valves and piping shall be of bronze, copper, stainless steel or other non-corrosive metals.
3. Working pressure shall be 150 psi at maximum water temperature of 180° F.
4. Valve size, inlet/outlet pressures, and screwed/flanged designation shall be as indicated on the drawings.
5. Pressure reducing valves shall be similar and equivalent to the following:
 - a. CLA-VAL Model 92-01

2.5 VALVE BOXES

- A. Shall be suitable for HS-20 (AASHTO) traffic loading.
- B. Shall be furnished and installed over each line valve and over each auxiliary hydrant valve. All buried valves shall be installed complete with two-piece, cast iron, screw type, 5-1/4 inch shaft valve box.

2.6 HYDRANTS

- A. Hydrants shall be dry barrel type, of cast or ductile iron construction, with bronze glands, bushings, stems, stem nuts, valve seats, and nozzles.
- B. Hydrants shall conform to the requirements of AWWA/ANSI C502 - Dry Barrel Fire Hydrants.
 1. Hydrant rated working pressure shall be 200 psig.
- C. Hydrant features shall conform to the following requirements:
 1. Main valve opening shall be a minimum of 5-1/4".
 2. Pumper and hose nozzles shall be threaded in accordance with National Standard hose coupling thread specifications.
 - a. Provide one (1) pumper nozzle, 4-1/2" nom. ID., 7.5 threads per inch
 - b. Provide two (2) hose nozzles, 2-1/2" nom. ID., 6 threads per inch.
 3. Operating nut shall be National Standard, 1-1/2" pentagon, opening counter-clockwise.



4. Hydrants shall be warranted for ten (10) years against defects in materials and workmanship and shall be similar and equivalent to those produced by the following manufacturers:

- a. Mueller Super Centurion Series

- D. Hydrant appearance and paint scheme shall be in accordance with the requirements of the local jurisdiction.

2.7 INDICATOR POSTS

- A. UL 789, FM Approved, vertical type, cast iron body with operating wrench, extension rod, and adjustable cast iron barrel of length required for depth of bury of valve.

1. Mueller A-20806 for 4" - 14"
 2. Mueller A-20807 for 16" - 24"

- B. Supervisory Switches: SPDT designed to signal valve in other than full open position.

2.8 MECHANICAL JOINT SLEEVES / COUPLINGS

- A. AC pipe transition coupling to DI or PVC

1. PowerSeal, PowerMax Coupling
 2. Viking-Johnson MaxiFit Coupling

- B. Mechanical Joint Long Sleeve

1. Tyler, MJ "Long" Sleeve

2.9 MECHANICAL JOINT RESTRAINTS

- A. EBAA IRON Megalugs® Series 1100 mechanical joint restraint for ductile iron pipe, 3" - 12".

- B. EBAA IRON Megalug® Series 2000PV for restraining plain end PVC pipe at mechanical fittings and appurtenances, 3" - 36".

- C. Sigma One-Lok™

- D. Stargrip

2.10 SERVICE SADDLES

- A. Shall consist of a brass body and two flattened silicone bronze straps, meeting applicable sections of ANSI/AWWA C800 - Underground Service Line Valves and Fittings.

- B. Outlet shall be tapped with AWWA I.P. thread (F.I.P.T.). Outlet shall be o-ring sealed.

- C. Shall be rated for a maximum working pressure of 200 psi.

2.11 REPAIR CLAMPS

- A. Clamps shall provide a gasketed seal around the full circumference of the pipe. Bolts shall be high strength carbon steel.

- B. Gasket dimensions shall suit existing and new pipe, as required.

- C. Quality standard: Mueller series 540 (150 psig).

2.12 BOLTS

- A. Bolts shall be stainless steel, conforming to ASTM A193 B8 and the nut shall be Grade 8. Install with an anti-seize lubricant. Do not use an impact wrench. Torque in accordance with the pipe manufacturer's criteria so as to not crush the pipe. Grease and wrap as specified.



- B. Steel studs shall conform to ASTM A 193 B7 and the nut shall conform to ASTM A194 2H. The studs and nuts shall be treated with trivalent blue type 2 zinc coating. Grease and wrap as specified.

2.13 WATER MANHOLES

- A. Water manholes shall consist of concrete base, riser and cone sections as well as iron ring and cover.
- B. Manhole sections shall be manufactured in accordance with ASTM C478 and shall be designed to withstand AASHTO H20 loadings.
- C. Manholes shall be watertight, both in floor and full height of walls. Joints shall be made water tight by the use of Kent-Seal or approved equivalent. Manhole grade rings shall be set in a full bed of mortar.
- D. Manhole frames and covers shall be of domestic manufacture, suitable for AASHTO H20 loadings, manufactured of ductile or grey cast iron.
 - 1. The bearing surface between frame and cover shall be machined to prevent rocking or uneven bearing.
 - 2. Cover shall bear the lettering "WATER".

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that Work covered under other sections of these specifications is complete to the point that Work covered under this section may properly commence without hindering or damaging Work of other trades. Do not proceed with construction until unsatisfactory conditions have been corrected.
- B. Carefully examine all pipe fittings, valves and other appurtenances for damage and other defects immediately before installation.
- C. Mark and hold defective materials for inspection by Owner, who may prescribe corrective repairs or reject the materials.
- D. Prior to installation, observe valves for direction of opening, freedom of operation, tightness of pressure resisting bolts, cleanliness of valve ports and seating surfaces, handling damage and cracks. Hold defective valves for inspection by Owner.
- E. Verify installation or connection requirements prior to construction by potholing as necessary.

3.2 METHODS AND PROCEDURES

- A. General
 - 1. Prior to pipe installation, prepare trench in accordance with the Drawings and Section 31 23 00 - Excavation, Backfilling and Compaction.
 - 2. Proper implements, tools, and facilities shall be provided and used for the safe and convenient performance of the Work. All pipe, fittings, and valves shall be lowered carefully into the trench by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to materials, protective coatings and linings. Under no circumstances shall water system materials be dropped or dumped into the trench.
 - 3. Manufacturers' Installation Manual recommendations for handling and laying pipe, fittings and related materials shall be strictly adhered to. In no case shall these materials be dropped or dumped during transport, unloading, or handling.



3.3 INSTALLATION

A. Water Pipe Installation

1. Water pipe installation shall be in accordance with the applicable requirements of the following documents:
 - a. AWWA/ANSI C600 - Installation of Ductile Iron Water Mains and their Appurtenances.
 - b. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
 - c. AWWA/ANSI C105/A21.5 - Standard for Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
 - d. DIPRA - The Guide for the Installation of Ductile Iron Pipe
 - e. UNI-B-3-92 - Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch).
2. All lumps, blisters, and excess coating shall be removed from the bell and spigot ends of each pipe, and the outside of the spigot and the inside of the bell shall be wiped clean and dry so as to be free from dirt, sand, grit, or any foreign material before the pipe is laid. Bevel and file spigot of pipe to prevent gasket damage during joint assembly.
3. The water pipe shall be laid and maintained to lines and grades established by the Drawings and Specifications with fittings and valves at the required locations unless otherwise approved by Owner.
4. When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of Owner to provide clearance as required by federal, state, or local regulations or as deemed necessary by Owner to prevent future damage or contamination of either structure.
5. Lay all water lines on a continuous grade to avoid high points except as shown on the Drawings.
6. Prevent foreign material from entering the pipe while it is being placed in the trench. During laying operations, no soil, debris, tools, clothing, or other materials shall be placed in, or allowed to enter the pipe.
7. Assemble joints in accordance with manufacturer's recommendations.
8. The pipe shall be brought to correct line and grade, and shall be secured in place with approved backfill material in accordance with Section 31 23 00 Excavation, Backfilling and Compaction.
9. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that recommended by pipe manufacturer.
10. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Owner. When practical, the plug shall remain in place until the trench is pumped completely dry. Care must be taken to prevent pipe flotation should the trench fill with water.
11. Where necessary, cut pipe perpendicular to the pipe centerline. Grind cut ends and rough edges smooth. For push on joint connections, the cut end shall be beveled.
12. Fire hydrants shall be set plumb at proper finish grade as indicated on the drawings (see typical hydrant detail).

B. Valve Installation



1. Locate valves as shown on drawings.
2. Orient valve operating stems in a manner that will allow proper operation.
3. A valve box shall be provided for every valve that has no gearing or operating mechanism or in which the gearing or operating mechanism is fully protected with a gear case. The valve box shall not transmit shock or stress to the valve and shall be centered over the operating nut of the valve. Set box cover at grade shown on Drawings.
4. In no case shall valves be used to bring misaligned pipe into alignment during installation. Support pipe in such a manner as to prevent stress on the valve.

C. Thrust Block Installation

1. Provide thrust blocks at reducers, valves, tees, hydrants, plugs and caps, and at bends deflecting 11-1/4 degrees or more.
2. Place thrust block between solid ground and the component to be shored; the area of bearing on the pipe and on the ground in each instance shall be that shown on Drawings. Unless otherwise shown or directed, locate block so as to contain the resultant thrust force and so that the pipe and fitting joints will be accessible for repair.
3. Concrete for thrust blocks shall have a compressive strength of not less than 2500 psi at 28 days. Concrete mixes shall be provided in accordance with Section 03 30 00 –Cast-In-Place Concrete of these specifications.

3.4 PROTECTION

- A. Provide barricades and restrict access as appropriate to prevent damage to Work in place.
- B. Contractor shall be responsible for protection of Work in place against displacement, damage, loss, or theft until Owner's acceptance. Any Work installed and subsequently damaged, lost, or displaced shall be repaired or replaced to the Owner's satisfaction at no additional cost.

3.5 CLEANING

- A. Thoroughly clean all pipe lengths or units of all debris immediately after laying.
- B. Thoroughly clean by flushing and remove all debris from water mains and appurtenances. Observe and verify lines are clean prior to submitting facilities for Owner's acceptance.

3.6 TESTING

- A. Temporary connections for pressure testing shall be made by Contractor at his expense and removed by Contractor after satisfactory completion of the testing Work.
- B. Testing procedures shall as a minimum be in accordance with the most recent update of the following specifications and regulations.
 1. AWWA C600 - Pressure and Leak Testing
- C. Hydrostatic Pressure Test:
 1. After completion of the installation of the system, or any reasonable length thereof, after backfilling and after thorough flushing of the portion to be tested, pressure tests shall be made. The system to be tested shall be subjected to a hydrostatic pressure of 200 pounds per square inch, unless otherwise noted on the Drawings, for a period of not less than 2 hours duration.
 2. The portion to be tested shall be filled with water slowly and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Owner. The Contractor shall make the temporary connection for pressure testing.



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

D. Leakage Test:

1. A leakage test shall be conducted concurrently with the pressure test.
2. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.
3. No leakage shall be allowed.
4. All visible leaks, other than a minor amount of sweating, shall require immediate stoppage of the test and tightening of the joints so that, when pressure is again put on the system, there will be no leakage.

END OF SECTION



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SECTION 33 41 00 STORM DRAINAGE SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section includes:
 - 1. Storm drain piping;
 - 2. Cast-in-place and pre-cast concrete drainage structures including headwalls, catch basins, manholes and end sections;
 - 3. Grates, solid covers, frames and manhole steps.

1.2 RELATED WORK

- A. Section 03 30 00 – Cast-In-Place Concrete
- B. Section 31 23 00 – Excavating, Backfilling and Compaction

1.3 REFERENCES

- A. "Manual of Standard Practices", Concrete Reinforcing Steel Institute (CRSI)
- B. American Society for Testing and Materials (ASTM):
 - 1. A48, Gray Iron Castings
 - 2. A536, Ductile Iron Castings
 - 3. A615, Deformed and Plain Billet Steel Bars for Concrete Reinforcement
 - 4. C478, Precast Reinforced Concrete Manhole Section
 - 5. C891, Installation of Underground Precast Concrete Utility Structures
 - 6. C923, Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals
 - 7. D3212 Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
 - 8. F477, Elastomeric Seals (Gaskets) For Joining Plastic Pipe
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. M294, Standard Specification for Corrugated Polyethylene Pipe 12- to 60-in. Diameter
- D. American Welding Society
 - 1. D1.1, Structural Welding Code

1.4 SUBMITTALS

- A. Submit manufacturer's specifications for all products.

1.5 DEFINITIONS

- A. Catch Basin/Drop Inlet – A structure accepting drainage from gutters or medians or other channels and discharging the water through a conduit.
- B. End section – A structure commonly made of steel or concrete that is attached to one or both ends of a culvert or a pipe to retain the embankment, improve appearance, provide



anchorage, improve discharge, and limit scour at the opening

- C. Headwall – A structure commonly made of concrete, placed at the end of culvert inlet or outlet or storm drain outlet, to anchor the pipe, to retain the highway embankment near the pipe end, and to protect the pipe ends from bank erosion and channel bed scour.
- D. Inlet – A grated surface connection to a closed conduit such as a storm drain. A structure at the upstream end of a cross culvert. The upstream end of any structure through which water may flow.
- E. Manhole (access hole) – A circular structure for access and joining pipes.

1.6 DELIVERY AND HANDLING

- A. Load and unload pipe, fittings, and accessories in such a manner as to avoid shock or damage

1.7 QUALITY ASSURANCE

- A. Workmanship and methods employed in the handling, transportation, storage, bedding, and laying of pipe, fittings, associated structures and accessories shall conform to the appropriate manufacturers' recommendations and/or ASTM recommendations.
- B. All products shall be inspected by Contractor, prior to installation, for damage. No damaged products will be used, including damage to pipe or coatings.
- C. Pipe Alignment and Grade
 - 1. For design grades $\leq 1\%$:
 - a. Do not allow grade of pipe to vary more than $\frac{1}{4}$ inch in 10 feet and not more than $\frac{1}{2}$ inch total variance from true grade at any location.
 - 2. For design grades $> 1\%$:
 - a. Do not allow grade of pipe to vary more than $\frac{1}{2}$ inch in 10 feet and not more than 1 inch total variance from true grade at any location. These tolerances shall be acceptable provided that such variation does not result in a level or reserve sloping invert.
 - 3. The variation in the invert elevation between adjoining ends of pipe due to eccentricity of joining surface and pipe interior surfaces shall not exceed $\frac{1}{64}$ inch per inch of pipe diameter, or $\frac{1}{4}$ inch maximum.
- D. Pipe Distortions
 - 1. Do not allow ovaling or distortions greater than 5% of the nominal pipe diameter. Maximum reduction of internal diameter in any plane shall be 5%.
- E. Pipe Infiltration
 - 1. Maximum allowable infiltration is 50 gallons per inch diameter per mile per 24 hours.
- F. Concrete Drainage Structures
 - 1. Repair or replace any structure that has the following:
 - a. Fractures or cracks passing through the wall except for a single end crack that does not exceed the thickness of the precast unit.
 - b. Defects showing improper proportioning, mixing, or molding.
 - c. Honeycombing and open texture.
 - d. Damaged or cracked ends that prevent joining manhole or inlets grade rings and sections.



- e. Any continuous crack with a surface width of 0.01 inch or more that extends more than 12 inches anywhere on the wall.
- f. Limit cracks or fractures for grade rings or similar structures. Refer to ASTM C478.
- g. Verify the structures and pipe connections appear watertight.
- h. Furnish pre-cast structures that are plumb and square within $\frac{1}{8}$ inch per foot so that precast adjoining elements fit.
- i. Mark pre-cast structures with date of casting and supplier identification.

1.8 INSPECTION AND TESTING

- A. A video test is required for storm drain pipe. When video test shows non-compliance with the criteria in this section, the Engineer may require a mandrel and/or joint test.
- B. Repair or replace damaged or improperly installed pipes and joints at the direction of the Engineer.
- C. Pipe Video Test
 - 1. Run water through gravity system prior to video inspection.
 - 2. Conduct test at least 30 days after backfill and prior to installation of pavements.
 - 3. Inspect, measure and record host pipe conditions using digital video recording equipment in MPEG 1 format with 352x240/320x240x30 fps resolution and audio bit rate of 256 Kbps.
 - 4. Identify the date, pipe reach, slope, upstream and downstream manhole numbers, and manhole to manhole footage.
 - 5. Provide video inspection log as a computerized data report with a map of the system inspected with appropriate identification labels as referenced in the video.
- D. Pipe Mandrel Test
 - 1. Test all pipes that show signs of pipe deformation.
 - 2. Test pipe by hand pulling a fabricated mandrel through the pipe.
 - 3. Provide and use mandrels to verify that the installed pipes meet the requirements of this specification.
 - 4. Provide the following:
 - a. A mandrel acceptable to the Engineer.
 - b. A mandrel with an effective diameter equal to 95 percent of the nominal inside diameter
 - c. A proving-ring to verify mandrel size
 - d. A mandrel with a minimum of nine equally spaced runners (40 degree angles)
 - 5. Submit engineering analysis certifying the structural and hydraulic integrity of the pipe, signed and sealed by a professional engineer licensed in the State of Utah, for all pipes that fail the mandrel test and that do not exceed 10 percent deflections for the pipe acceptance.
 - 6. Remove and replace all pipes that exceed 10 percent deflections.
 - 7. Recommend an alternate method of measurement if mandrel testing would cause damage to internal pipe coating.
- E. Pipe Joint Test



1. Test all pipes that have joints showing visible gaps, defects, or any other problem according to one of the following methods:
 - a.
2. Exfiltration Test
 - a. Test all pipe material types according to ASTM F2487 and ASTM C969.
 - b. Maintain head for one hour.
 - c. Do not exceed leakage values as given in the table below:

Nominal Pipe Diameter (inches)	Maximum Leakage Allowed (Gallons/hr/100 ft)
18	4.5
24	6.0
30	7.5
36	9.0
42	10.5
48	12.0

- d. Locate source or sources of leakage and repair damaged storm drain that does not pass the test.

PART 2 - PRODUCTS

2.1 STORM DRAIN PIPE

- A. Corrugated Wall HDPE Pipe
 1. AASHTO M294 with smooth waterway for coupling joints.

2.2 PIPE JOINTS

- A. Furnish pipes with joints that can sustain 5 psi minimum pressure for all storm drains.
- B. Comply with manufacturer's recommendations for connecting pipes together and for connecting pipes to concrete headwalls, catch basins, and similar structures.

2.3 CONCRETE DRAINAGE STRUCTURES

- A. Concrete, forms and reinforcement shall be as specified in Section 03 30 00 – Cast-In-Place Concrete.
- B. Rings, lids and grates shall be as specified on the Drawings.

2.4 GRATES, SOLID COVERS, FRAMES, AND MANHOLE STEPS

- A. Grates, solid covers, frames and manhole steps shall be of the type, material and dimensions as indicated on the Drawings.
- B. Cast Grey Iron – Refer to ASTM A48.
- C. Ductile Iron – Refer to ASTM A536.
- D. Precast Grade Ring – Refer to ASTM C478.



PART 3 - EXECUTION

3.1 PREPARATION

- A. When connections are to be made to any existing pipe, conduit, or other improvement, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate for and expose the existing improvement before laying any pipe or conduit.
- B. Verify fit and function with field conditions before manufacturing or constructing any structure.

3.2 PIPE INSTALLATION

- A. Bedding:
 - 1. Bedding shall be prepared in accordance with Section 31 23 00 - Excavation, Backfilling and Compaction and as shown on the Drawings.
 - 2. Lay all pipes on a firm bed, true to the line and grade, and abutt the end and shoulder of each pipe against the other in such a manner that there is no unevenness of any kind along the bottom half of the pipe line.
- B. During all phases of pipe installation, dewater trench to prevent floating of pipe.
- C. Lay pipe in the uphill direction with the bell end pointing upgrade.
- D. Clean pipe joints prior to installing gaskets. Install gaskets in accordance with manufacturers' recommendations.
- E. Manufacturers' Recommendations: Perform all work in strict accordance with the manufacturer's recommendations for the type of pipe being installed.
- F. Prevent contact between the pipe and compaction equipment. Compaction of bedding and backfill material should generally be done in such a way so that compaction equipment is not used directly above the pipe until sufficient backfill has been placed to assure that such compaction equipment will not have a damaging effect on the pipe.
- G. Provide six (6) mil thick polyethylene sheet and tape wrap on steel materials for protection against corrosion after piping installation.

3.3 CONCRETE DRAINAGE STRUCTURES

- A. Bedding shall be prepared in accordance with Section 31 23 00 - Excavation, Backfilling and Compaction and as shown on the Drawings.
- B. Manholes
 - 1. Furnish precast concrete manholes according to ASTM C478 and use self-centering watertight joints that meet ASTM C443.
- C. Grade Rings/Catch Basin Grade Sections
 - 1. Furnish according to ASTM C478 with anchor bolt-holes.
- D. Precast Inlets and Boxes
 - 1. Attach and secure all inserts at the place of manufacture such as wall sleeves, gaskets or piping, sumps, steps, access hatches, and any other inserts as shown on the Drawings.
 - 2. Manufacture structures according to applicable requirements of ASTM C858 and as modified by this Section.
 - a. Meet ASTM C857 requirements.



3. Provide sufficient lifting points for a safe installation.
 - a. Locate lifting devices to avoid interference with the reinforcing steel.
4. Do not move precast units until after 28-day compressive strength has been attained.
 - a. Protect the unit from any damage. Replace unacceptable units at no additional cost to the Owner.
5. Refer to ASTM C891. Comply with manufacturer installation guidelines.
 - a. Observe precast drainage structures for defects before lowering into excavation.
 - b. Clean mating surfaces of all foreign materials such as dirt, mud, and stones and apply proper joint sealing material where applicable.
 - c. Assemble all joints tightly.
 - d. Use care when joining precast elements in cold weather. Do not force joints together with mechanical equipment.
 - e. Sufficiently warm all sealing materials to flow without causing damage to precast joint elements.
6. Furnish structures with appropriate openings for connecting pipe.
 - a. Cast or cut structure openings. Do not expose reinforcing steel or reduce reinforcing steel covering at openings.
 - b. Do not modify precast units in the field by cutting or enlarging holes or by making any other changes without the manufacturer's and Engineer's approval.
 - c. Modify precast units only according to manufacturer requirements.
7. Do not place precast drainage structure in excavation that has water and frozen surfaces.
8. Plug lift insert recesses with a 1:1 sand to cement grout mix. Finish flush with top, bottom, or both surfaces of concrete.

3.4 GRATES, SOLID COVERS, FRAMES, AND MANHOLE STEPS

- A. Fabricate according to AWS D1.1.
- B. Install according to the manufacturer's recommendations.

3.5 CLEANING AND FLUSHING OF STORM DRAINAGE SYSTEMS

- A. Thoroughly clean all pipe lengths or units laid of all debris immediately after laying.
- B. Thoroughly clean by flushing and remove all debris from the pipeline and drainage structures prior to acceptance of the work by the Engineer.

3.6 PROTECTION

- A. Protect all newly poured concrete from damage by placing barricades or enclosures in accordance with Section 01 57 00 - Construction Facilities and Temporary Controls.

END OF SECTION



Appendix A

Subsurface Utility Exploration – Test Hole Summary Sheets

Test Hole Summary Sheet



Test Hole #: TH-001 **HE Project #:** UT-CV-0008-22
Date: 10/14/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>1"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINION</u>		
Marker Type:	<u>Rebar & Cap</u>		
Marker Elevation:	<u>4205.03</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-12.00</u>		
Northing:	<u>6648687.048</u>		
Rod - Top Util:	<u>3.86</u>		
Rod - Marker:	<u>2.34</u>		
Depth to Top:	<u>1.52</u>		
Hand Meas. Top:	<u>1.50</u>		
Top Util. Elev.	<u>4203.51</u>		
Surface Type:	<u>Natural</u>		
Thickness:	<u>N/A</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200274.298</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-002 **HE Project #:** UT-CV-0008-22
Date: 10/14/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>PHONE</u>		
Utility Size (in):	<u>1/4"</u>		
Utility Material:	<u>RUBBER</u>		
Utility Owner:	<u>FRONTIER</u>		
Marker Type:	<u>Rebar & Cap</u>		
Marker Elevation:	<u>4203.21</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-5.00</u>		
Northing:	<u>6648708.307</u>		
Rod - Top Util:	<u>5.68</u>		
Rod - Marker:	<u>4.12</u>		
Depth to Top:	<u>1.56</u>		
Hand Meas. Top:	<u>1.50</u>		
Top Util. Elev.	<u>4201.65</u>		
Surface Type:	<u>Natural</u>		
Thickness:	<u>N/A</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200267.573</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-003 **HE Project #:** UT-CV-0008-22
Date: 10/14/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>1 1/2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINION</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4175.32</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-16.00</u>		
Northing:	<u>6649075.826</u>		
Rod - Top Util:	<u>6.29</u>		
Rod - Marker:	<u>4.80</u>		
Depth to Top:	<u>1.49</u>		
Hand Meas. Top:	<u>1.45</u>		
Top Util. Elev.	<u>4173.83</u>		
Surface Type:	<u>Natural</u>		
Thickness:	<u>N/A</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200270.385</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-004 **HE Project #:** UT-CV-0008-22
Date: 10/14/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINION</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4155.51</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-14.00</u>		
Northing:	<u>6649397.422</u>		
Rod - Top Util:	<u>8.86</u>		
Rod - Marker:	<u>4.98</u>		
Depth to Top:	<u>3.88</u>		
Hand Meas. Top:	<u>3.80</u>		
Top Util. Elev.	<u>4151.63</u>		
Surface Type:	<u>Natural</u>		
Thickness:	<u>N/A</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200262.206</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-005 **HE Project #:** UT-CV-0008-22
Date: 10/15/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINION</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4154.16</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-18.00</u>		
Northing:	<u>6649422.120</u>		
Rod - Top Util:	<u>10.47</u>		
Rod - Marker:	<u>6.35</u>		
Depth to Top:	<u>4.12</u>		
Hand Meas. Top:	<u>4.10</u>		
Top Util. Elev.	<u>4150.04</u>		
Surface Type:	<u>Natural</u>		
Thickness:	<u>N/A</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200265.264</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-006 **HE Project #:** UT-CV-0008-22
Date: 10/15/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>PHONE</u>		
Utility Size (in):	<u>1/2"</u>		
Utility Material:	<u>RUBBER</u>		
Utility Owner:	<u>FRONTIER</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4148.80</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-8.00</u>		
Northing:	<u>6649514.218</u>		
Rod - Top Util:	<u>7.64</u>		
Rod - Marker:	<u>5.15</u>		
Depth to Top:	<u>2.49</u>		
Hand Meas. Top:	<u>2.40</u>		
Top Util. Elev.	<u>4146.31</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>2"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200251.585</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-007 **HE Project #:** UT-CV-0008-22
Date: 10/15/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>ELECTRIC</u>		
Utility Size (in):	<u>(2) 6"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>RMP</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4143.30</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-16.00</u>		
Northing:	<u>6649640.727</u>		
Rod - Top Util:	<u>10.32</u>		
Rod - Marker:	<u>6.40</u>		
Depth to Top:	<u>3.92</u>		
Hand Meas. Top:	<u>4.00</u>		
Top Util. Elev.	<u>4139.38</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200244.733</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-008 **HE Project #:** UT-CV-0008-22
Date: 10/15/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>1"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINION</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4141.67</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-23.50</u>		
Northing:	<u>6649695.527</u>		
Rod - Top Util:	<u>10.09</u>		
Rod - Marker:	<u>5.64</u>		
Depth to Top:	<u>4.45</u>		
Hand Meas. Top:	<u>4.45</u>		
Top Util. Elev.	<u>4137.22</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200250.903</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-009 **HE Project #:** UT-CV-0008-22
Date: 10/15/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>WATER</u>		
Utility Size (in):	<u>1"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4141.72</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-23.00</u>		
Northing:	<u>6649694.662</u>		
Rod - Top Util:	<u>10.36</u>		
Rod - Marker:	<u>5.62</u>		
Depth to Top:	<u>4.74</u>		
Hand Meas. Top:	<u>4.75</u>		
Top Util. Elev.	<u>4136.98</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200250.987</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-010 **HE Project #:** UT-CV-0008-22
Date: 10/16/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>PHONE</u>		
Utility Size (in):	<u>(4) 2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>FRONTIER</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4140.39</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-19.00</u>		
Northing:	<u>6649743.560</u>		
Rod - Top Util:	<u>9.99</u>		
Rod - Marker:	<u>6.67</u>		
Depth to Top:	<u>3.32</u>		
Hand Meas. Top:	<u>3.40</u>		
Top Util. Elev.	<u>4137.07</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200246.017</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-011 **HE Project #:** UT-CV-0008-22
Date: 10/16/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Pleasant Grove, UT 84062
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Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>FIBER</u>		
Utility Size (in):	<u>(2) 1 1/2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>FRONTIER</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4140.27</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-22.00</u>		
Northing:	<u>6649751.117</u>		
Rod - Top Util:	<u>10.79</u>		
Rod - Marker:	<u>6.78</u>		
Depth to Top:	<u>4.01</u>		
Hand Meas. Top:	<u>4.05</u>		
Top Util. Elev.	<u>4136.26</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200246.846</u>		

Test Hole Plan View (NTS)

Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-012 **HE Project #:** UT-CV-0008-22
Date: 10/17/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>N/A</u>		
Utility Size (in):	<u>N/A</u>		
Utility Material:	<u>N/A</u>		
Utility Owner:	<u>N/A</u>		
Marker Type:	<u>Test Hole</u>		
Marker Elevation:	<u>4140.25</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-18.00</u>		
Northing:	<u>6649777.615</u>		
Rod - Top Util:	<u>N/A</u>		
Rod - Marker:	<u>N/A</u>		
Depth to Top:	<u>N/A</u>		
Hand Meas. Top:	<u>N/A</u>		
Top Util. Elev.	<u>N/A</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200237.886</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFF SET FACING NORTH, DRY HOLE, DUG 11' DEEP X 3' WIDE.

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-013 **HE Project #:** UT-CV-0008-22
Date: 10/17/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type: <u>COMM/ELECTRIC</u>	Rod - Top Util: <u>6.90</u>		
Utility Size (in): <u>(1) 1 1/2" (2) 2"</u>	Rod - Marker: <u>4.18</u>		
Utility Material: <u>PLASTIC</u>	Depth to Top: <u>2.72</u>		
Utility Owner: <u>UDOT</u>	Hand Meas. Top: <u>2.70</u>		
Marker Type: <u>PK Nail</u>	Top Util. Elev. <u>4133.80</u>		
Marker Elevation: <u>4136.52</u>	Surface Type: <u>Asphalt</u>		
Mkr Offset From: <u>Edge of Oil</u>	Thickness: <u>8"</u>		
Marker Offset: <u>RT-20.00</u>	Soil Conditions: <u>DIRT/ROCK</u>		
Northing: <u>6649915.348</u>	Easting: <u>2200227.825</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-014 **HE Project #:** UT-CV-0008-22
Date: 10/17/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>6"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINON</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4136.48</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-19.00</u>		
Northing:	<u>6649919.426</u>		
Rod - Top Util:	<u>9.95</u>		
Rod - Marker:	<u>4.33</u>		
Depth to Top:	<u>5.62</u>		
Hand Meas. Top:	<u>5.55</u>		
Top Util. Elev.	<u>4130.86</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200227.772</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-015 **HE Project #:** UT-CV-0008-22
Date: 10/17/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>PHONE</u>		
Utility Size (in):	<u>1/2"</u>		
Utility Material:	<u>RUBBER</u>		
Utility Owner:	<u>FRONTIER</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4133.43</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-14.00</u>		
Northing:	<u>6649977.743</u>		
Rod - Top Util:	<u>10.55</u>		
Rod - Marker:	<u>7.14</u>		
Depth to Top:	<u>3.41</u>		
Hand Meas. Top:	<u>3.35</u>		
Top Util. Elev.	<u>4130.02</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200226.819</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-016 **HE Project #:** UT-CV-0008-22
Date: 10/18/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMEY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type: <u>PHONE</u>	Rod - Top Util: <u>7.97</u>		
Utility Size (in): <u>3/4"</u>	Rod - Marker: <u>5.13</u>		
Utility Material: <u>RUBBER</u>	Depth to Top: <u>2.84</u>		
Utility Owner: <u>FRONTIER</u>	Hand Meas. Top: <u>2.80</u>		
Marker Type: <u>PK Nail</u>	Top Util. Elev. <u>4124.80</u>		
Marker Elevation: <u>4127.64</u>	Surface Type: <u>Asphalt</u>		
Mkr Offset From: <u>Edge of Oil</u>	Thickness: <u>8"</u>		
Marker Offset: <u>RT-14.00</u>	Soil Conditions: <u>DIRT/ROCK</u>		
Northing: <u>6650114.179</u>	Easting: <u>2200225.025</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-017 **HE Project #:** UT-CV-0008-22
Date: 10/18/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>1 1/2"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINON</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4125.24</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-15.00</u>		
Northing:	<u>6650197.717</u>		
Rod - Top Util:	<u>11.60</u>		
Rod - Marker:	<u>5.46</u>		
Depth to Top:	<u>6.14</u>		
Hand Meas. Top:	<u>6.10</u>		
Top Util. Elev.	<u>4119.10</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200223.832</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-018 **HE Project #:** UT-CV-0008-22
Date: 10/18/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>WATER</u>		
Utility Size (in):	<u>1"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4152.58</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-18.00</u>		
Northing:	<u>6649445.701</u>		
Rod - Top Util:	<u>11.35</u>		
Rod - Marker:	<u>6.94</u>		
Depth to Top:	<u>4.41</u>		
Hand Meas. Top:	<u>4.35</u>		
Top Util. Elev.	<u>4148.17</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>4"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200264.127</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-019 **HE Project #:** UT-CV-0008-22
Date: 10/18/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>WATER</u>		
Utility Size (in):	<u>1"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4159.82</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-6.00</u>		
Northing:	<u>6649321.568</u>		
Rod - Top Util:	<u>12.50</u>		
Rod - Marker:	<u>7.49</u>		
Depth to Top:	<u>5.01</u>		
Hand Meas. Top:	<u>5.00</u>		
Top Util. Elev.	<u>4154.81</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>4"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200254.922</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-020 **HE Project #:** UT-CV-0008-22
Date: 10/18/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

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 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>WATER</u>		
Utility Size (in):	<u>4"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4162.74</u>		
Mkr Offset From:	<u>Edge of Road</u>		
Marker Offset:	<u>RT-9.00</u>		
Northing:	<u>6649274.039</u>		
Rod - Top Util:	<u>8.75</u>		
Rod - Marker:	<u>4.77</u>		
Depth to Top:	<u>3.98</u>		
Hand Meas. Top:	<u>4.00</u>		
Top Util. Elev.	<u>4158.76</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>4"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200258.801</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet

Test Hole Summary Sheet

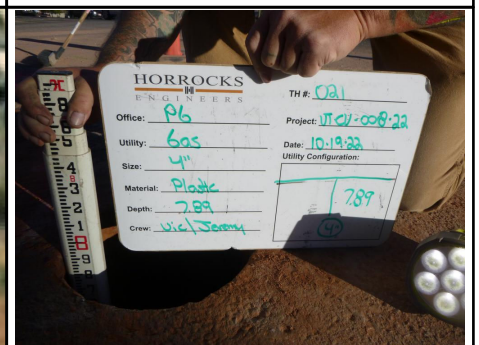
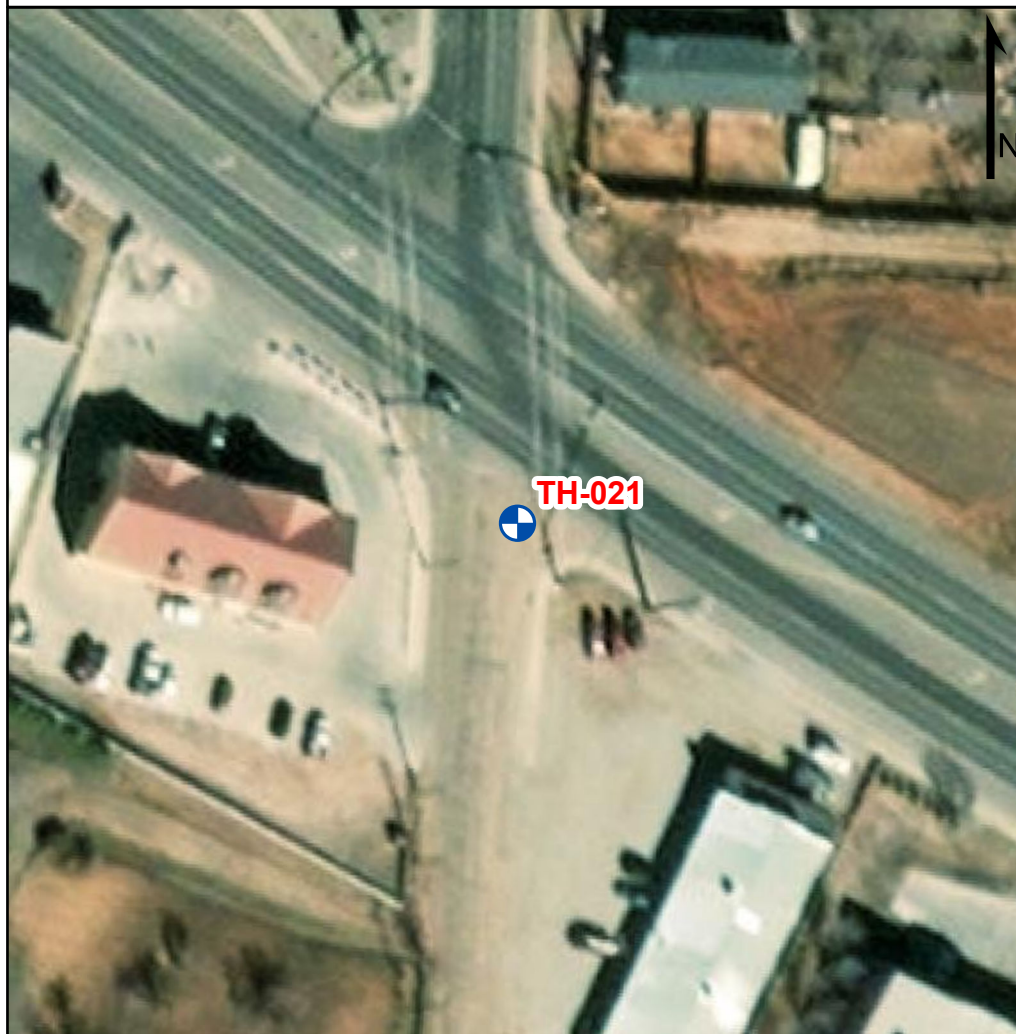


Test Hole #: TH-021 **HE Project #:** UT-CV-0008-22
Date: 10/19/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>GAS</u>		
Utility Size (in):	<u>4"</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>DOMINON</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4140.87</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-38.00</u>		
Northing:	<u>6649742.803</u>		
Rod - Top Util:	<u>14.54</u>		
Rod - Marker:	<u>6.65</u>		
Depth to Top:	<u>7.89</u>		
Hand Meas. Top:	<u>7.95</u>		
Top Util. Elev.	<u>4132.98</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200264.641</u>		

Test Hole Plan View (NTS)	Test Hole Pictures
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General Notes	Coordinate System:
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OFFSET FACING NORTH

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-022 **HE Project #:** UT-CV-0008-22
Date: 10/19/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
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 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>IRRIGATION</u>		
Utility Size (in):	<u>15"</u>		
Utility Material:	<u>CMP</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4136.85</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-14.00</u>		
Northing:	<u>6649904.579</u>		
Rod - Top Util:	<u>6.10</u>		
Rod - Marker:	<u>4.12</u>		
Depth to Top:	<u>1.98</u>		
Hand Meas. Top:	<u>1.90</u>		
Top Util. Elev.	<u>4134.87</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200227.710</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH, OWNER SAID THE 15" CMP IS CASING FOR 6" PVC IRR, BURIED IN 3' SLURRY

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-023 **HE Project #:** UT-CV-0008-22
Date: 10/19/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type: <u>PHONE</u>	Rod - Top Util: <u>6.70</u>		
Utility Size (in): <u>(1) 4" (1) 3"</u>	Rod - Marker: <u>3.75</u>		
Utility Material: <u>(1) Plastic (1) Rubber</u>	Depth to Top: <u>2.95</u>		
Utility Owner: <u>FRONTIER</u>	Hand Meas. Top: <u>2.90</u>		
Marker Type: <u>PK Nail</u>	Top Util. Elev. <u>4134.34</u>		
Marker Elevation: <u>4137.29</u>	Surface Type: <u>Asphalt</u>		
Mkr Offset From: <u>Edge of Oil</u>	Thickness: <u>8"</u>		
Marker Offset: <u>RT-15.00</u>	Soil Conditions: <u>DIRT/ROCK</u>		
Northing: <u>6649891.481</u>	Easting: <u>2200227.401</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-024 **HE Project #:** UT-CV-0008-22
Date: 10/20/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>FIBER</u>		
Utility Size (in):	<u>DUCT</u>		
Utility Material:	<u>PLASTIC</u>		
Utility Owner:	<u>EMERY TELECOM</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4137.98</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-21.00</u>		
Northing:	<u>6649869.871</u>		
Rod - Top Util:	<u>6.19</u>		
Rod - Marker:	<u>3.10</u>		
Depth to Top:	<u>3.09</u>		
Hand Meas. Top:	<u>3.05</u>		
Top Util. Elev.	<u>4134.89</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200232.725</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes

OFFSET FACING NORTH

Coordinate System:

Name: NAD83 State Plane Utah Central
 Projection: Lambert Conic Conformal
 Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0)
 Vertical Datum: NAVD88
 Scaled From: (0, 0) Scale Factor: 1.0000530663
 Units: US Survey Feet

Test Hole Summary Sheet



Test Hole #: TH-025 **HE Project #:** UT-CV-0008-22
Date: 10/20/2022 **Client Project #:** N/A
Project City: MOAB **Completed By:** JEREMY TANGREN
Project County: GRAND **QA/QC By:** Jim McCarty

2162 W. Grove Pkwy, Ste 400
 Pleasant Grove, UT 84062
 Phone: 801-763-5100

Test Hole Data		Cross Section (NTS)	Test Hole Location
Utility Type:	<u>WATER</u>		
Utility Size (in):	<u>15"</u>		
Utility Material:	<u>DUCTILE IRON</u>		
Utility Owner:	<u>MOAB</u>		
Marker Type:	<u>PK Nail</u>		
Marker Elevation:	<u>4137.75</u>		
Mkr Offset From:	<u>Edge of Oil</u>		
Marker Offset:	<u>RT-23.00</u>		
Northing:	<u>6649876.213</u>		
Rod - Top Util:	<u>9.93</u>		
Rod - Marker:	<u>3.36</u>		
Depth to Top:	<u>6.57</u>		
Hand Meas. Top:	<u>6.50</u>		
Top Util. Elev.	<u>4131.18</u>		
Surface Type:	<u>Asphalt</u>		
Thickness:	<u>8"</u>		
Soil Conditions:	<u>DIRT/ROCK</u>		
Easting:	<u>2200233.742</u>		

Test Hole Plan View (NTS)	Test Hole Pictures

General Notes	Coordinate System:
OFFSET FACING NORTH	Name: NAD83 State Plane Utah Central Projection: Lambert Conic Conformal Horizontal Datum: NAD83 (False Easting - 0, False Northing - 0) Vertical Datum: NAVD88 Scaled From: (0, 0) Scale Factor: 1.0000530663 Units: US Survey Feet



Appendix B

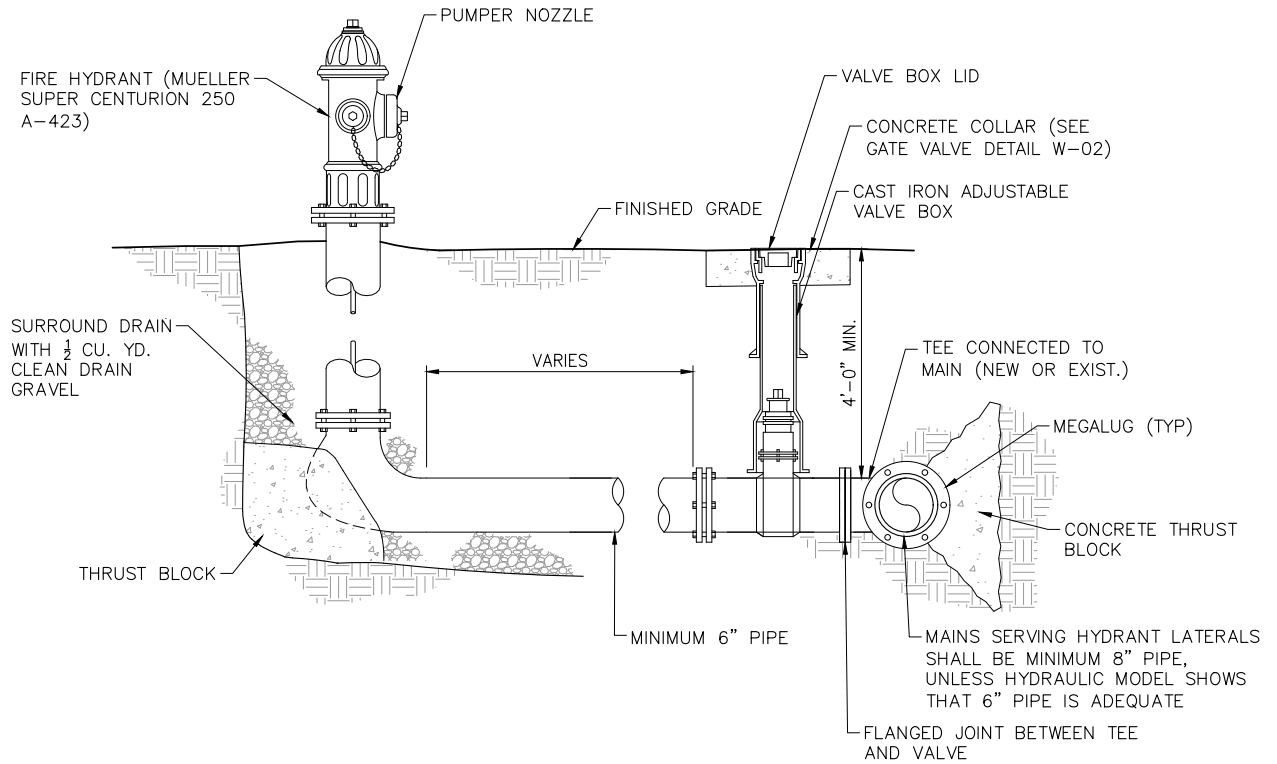
Grand Water & Sewer Service Agency (GWSSA) Standard Drawings
(Applies to relocation work on water and sewer)

Grand Water & Sewer Service Agency



Construction Standards

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NOTES:

1. FIRE HYDRANT BREAKAWAY FLANGE SHALL BE NO GREATER THAN 5in. ABOVE FINISHED GRADE OR 1in. BELOW FINISHED GRADE
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING AND MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF SANITARY SEWERS.
4. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - FIRE HYDRANT

N.T.S.

REV NO.	COMMENT	DATE



**SUNRISE
ENGINEERING**

25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

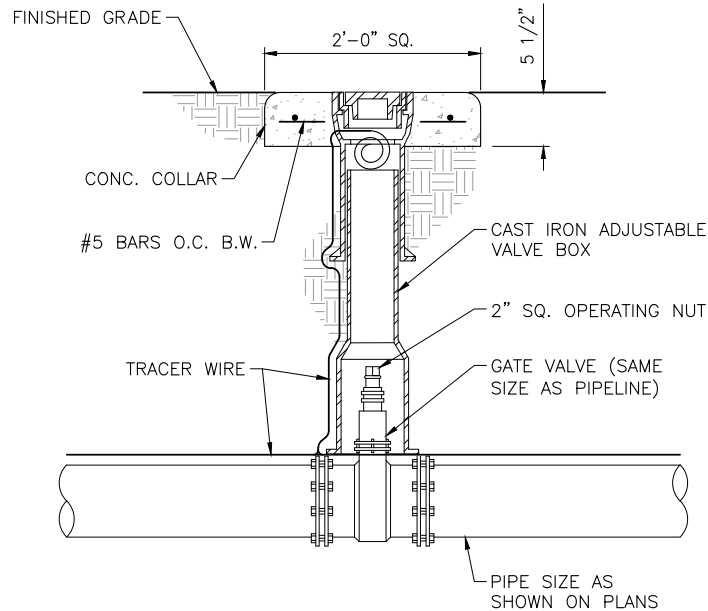
Grand Water & Sewer Service Agency

STANDARD DETAILS

WATER - FIRE HYDRANT

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	
6-9-2020	DJS	TRB	RWW	.	W-01

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NOTES:

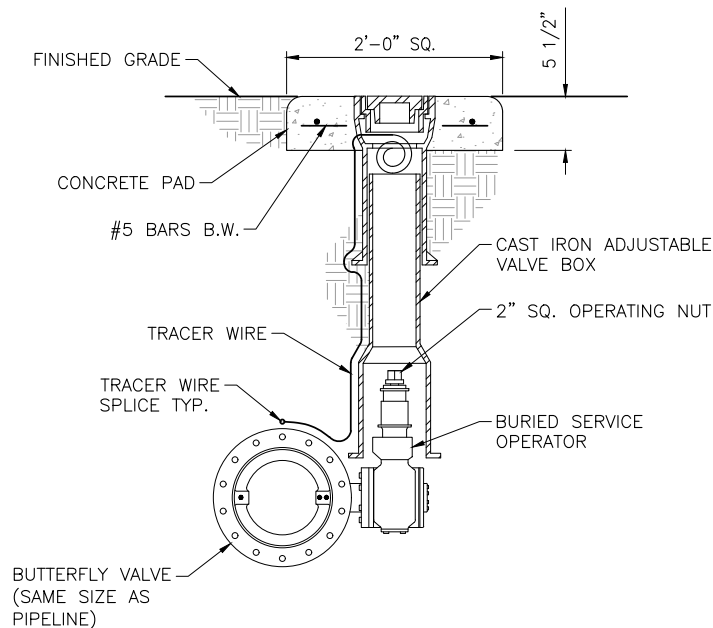
1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - TYPICAL GATE VALVE

N.T.S.

REV NO.	COMMENT	DATE	SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency					
				STANDARD DETAILS					
				WATER - GATE VALVE					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	W-02
				6-9-2020	DJS	TRB	RWW		

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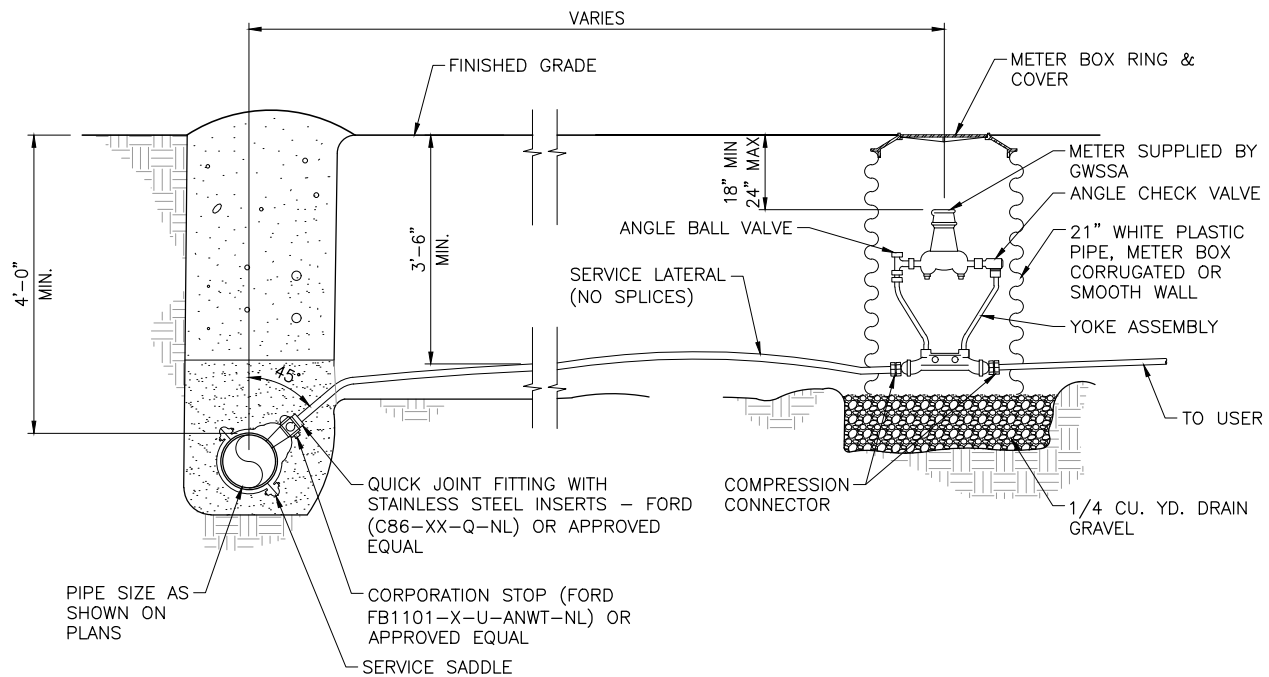
NOTES:

1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - BURIED BUTTERFLY VALVE

N.T.S.

REV NO.	COMMENT	DATE	SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency					
				STANDARD DETAILS					
				WATER - BUTTERFLY VALVE					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	W-03
				6-9-2020	DJS	TRB	RWW	.	



NOTES:

1. LOCATION OF WATER SERVICE SHALL GENERALLY BE ON THE HIGH SIDE OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE AND SHALL NOT BE INSTALLED IN DRIVE APPROACH.
2. ALL NEW SERVICE CONNECTIONS SHALL INCLUDE DUAL CHECK VALVE SETTER ASSEMBLIES.
3. SERVICE LATERALS $\frac{3}{4}$ " AND 1" SHALL BE 250 PSI SDR 9 AWWA C901 (IPS) CENTENNIAL PLASTICS CENCORE HDPE OR EQUIVALENT. SERVICE LATERALS 1 $\frac{1}{2}$ " AND 2" SHALL BE 250 PSI SDR 9 AWWA C901 (CTS) CENTENNIAL PLASTICS CENCORE HDPE OR EQUIVALENT. FUSION PIPE SHALL NOT BE ACCEPTED. SERVICE LINES LARGER THAN 2 INCH SHALL BE ASTM D2241 PVC (IPS), SERVICE LINES 4" AND LARGER SHALL BE AWWA C-900.
4. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.
6. NEW WATER SERVICE CONNECTIONS SHALL BE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED
7. SERVICE LATERAL FITTINGS SHALL HAVE NO COMPRESSION CONNECTIONS OUTSIDE OF THE METER BOX.

DETAIL - NEW WATER SERVICE CONNECTION

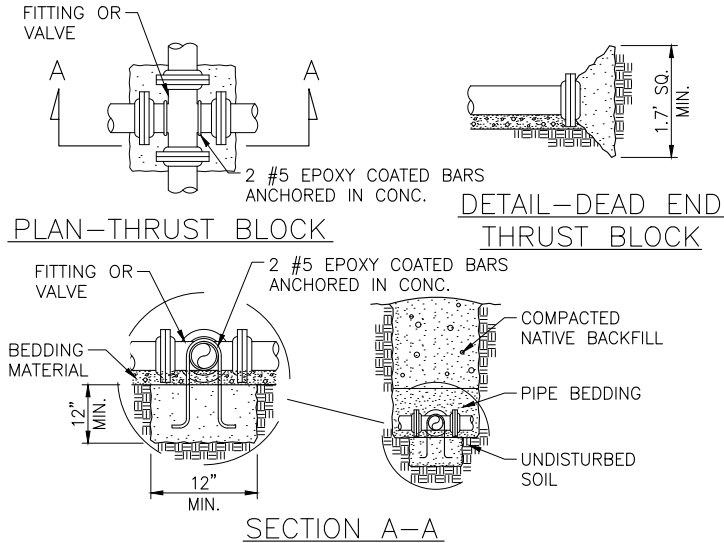
N.T.S.

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REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency					
				STANDARD DETAILS					
				WATER - NEW WATER SERVICE CONNECTION					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	W-05
				2/14/2025	DJS	TRB	RWW	.	

CONCRETE THRUST BLOCK RESTRAINING SYSTEM DETAILS

NOTE:
CONTRACTOR SHALL USE EITHER MECHANICAL
RESTRAINTS OR CONCRETE THRUST RESTRAINING
SYSTEM FOR WATERLINE INSTALLATION.



THRUST BLOCK BEARING AREA IN SQ. FT.									
PIPE SIZE	CROSS	TEE	WYE	DEAD END	VALVE	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	2.4	1.7	1.7	1.7	—	2.4	1.3	1.0	1.0
6	5.4	3.8	3.8	3.8	—	5.4	2.9	1.5	1.0
8	9.6	6.8	6.8	6.8	—	9.6	5.2	2.7	1.4
10	15.0	10.6	10.6	10.6	—	15.0	8.1	4.2	2.1
12	21.5	15.2	15.2	15.2	15.2	21.5	11.7	6.0	3.0
14	29.3	20.7	20.7	20.7	20.7	29.3	15.9	8.1	4.1
16	38.2	27.0	27.0	27.0	27.0	38.2	20.7	10.6	5.3
18	48.4	34.2	34.2	34.2	34.2	48.4	26.2	13.4	6.7
20	59.7	42.2	42.2	42.2	42.2	59.7	32.3	16.5	8.3
24	85.9	60.8	60.8	60.8	60.8	85.9	46.5	23.7	11.9
REDUCER									
D2 \ D1	6	8	10	12	14	16	18	20	24
4	2.1	5.1	8.8	13.4	—	—	—	—	—
6	—	3.0	6.7	11.3	16.8	23.1	—	—	—
8	—	—	3.8	8.4	13.8	20.1	27.2	—	—
10	—	—	—	4.6	10.1	16.3	23.5	31.4	—
12	—	—	—	—	5.5	11.7	18.8	26.8	45.2
14	—	—	—	—	—	6.3	13.4	21.3	39.8
16	—	—	—	—	—	—	7.1	15.1	33.5
18	—	—	—	—	—	—	—	8.0	26.3
20	—	—	—	—	—	—	—	—	18.4

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDIS-
TURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. SQUARE ALL EDGES TO RECEIVE CONCRETE.
3. CONCRETE SHALL BE CLASS C.
4. CALCULATED ON 200 PSI TEST PRESSURE AND ALLOWABLE BEARING
PRESSURE OF 1500 LBS. PER SQ. FT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. ALL FITTINGS AND VALVES SHALL BE ANCHORED WITH TWO EPOXY COATED
#5 REBAR. ONLY ONE REQ'D FOR REDUCER
7. CENTER ALL FITTINGS OVER THRUST BLOCKS.

REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency				
				STANDARD DETAILS				
				WATER - CONCRETE THRUST BLOCKS				
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
				6-9-2020	DJS	TRB	RWW	W-06

MECHANICAL

THRUST RESTRAINING SYSTEM DETAILS

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC VERTICLE BEND RESTRAINED LENGTHS IN FT.
(L₁—BEFORE CONNECTION/L₂, AFTER CONNECTION)

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	68/21	79/25

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND.
FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE L' ON BOTH SIDES OF FITTING.

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	—	*	*	*	*	*	*	*	*	*
8	—	—	*	*	*	*	*	*	*	*
10	—	—	—	*	*	*	*	*	*	*
12	—	—	—	—	*	*	*	*	*	*
14	—	—	—	—	—	*	*	*	*	*
16	—	—	—	—	—	—	7	*	*	*
18	—	—	—	—	—	—	—	20	4	*
20	—	—	—	—	—	—	—	—	34	3
24	—	—	—	—	—	—	—	—	—	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE
NOTES:

- RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
- ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.

PVC REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D1 \ D2	6	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	258/90	—	—	—	—	—
6	—	40/31	88/54	147/75	217/95	297/113	—	—	—
8	—	—	37/29	82/55	135/77	197/98	266/117	—	—
10	—	—	—	36/30	79/56	128/80	183/100	244/120	—
12	—	—	—	—	36/30	77/57	123/80	174/102	293/142
14	—	—	—	—	—	35/30	74/57	118/81	219/124
16	—	—	—	—	—	—	34/30	73/57	161/104
18	—	—	—	—	—	—	—	34/30	111/82
20	—	—	—	—	—	—	—	—	70/57

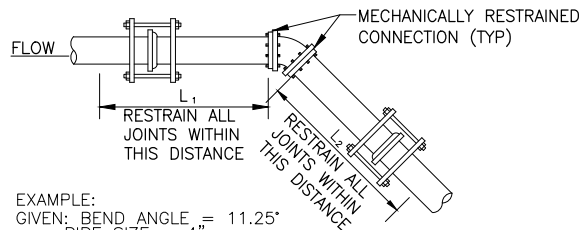
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE									
	4	6	8	10	12	14	16	18	20
	39	55	73	88	104	119	134	149	163

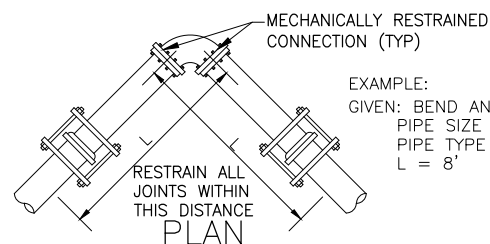
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

BASED ON:
TEST PRESSURE 200 PSI
SOIL TYPE: CM — SILTY GRAVEL, GRAVEL—SAND—SILT MIXTURE
BURIAL DEPTH: 4 FT.
TRENCH TYPE: 5 — PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE.
COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE.
(APPROX. 90% STANDARD PROCTOR, AASHTO T-99)
SAFETY FACTOR: 1.5



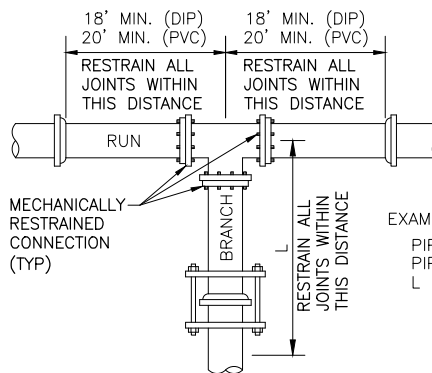
EXAMPLE:
GIVEN: BEND ANGLE = 11.25°
PIPE SIZE = 4"
PIPE TYPE = PVC
L₁ = 4'
L₂ = 1'

ELEVATION



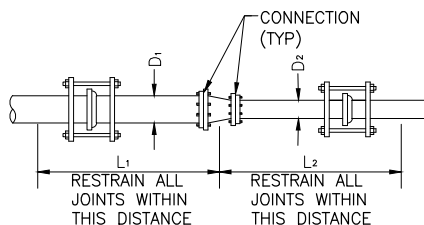
EXAMPLE:
GIVEN: BEND ANGLE = 45°
PIPE SIZE = 6"
PIPE TYPE = PVC
L = 8'

PLAN



EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 16"
L = 12'

PLAN



EXAMPLE:
PIPE TYPE = PVC
D₁ = 8"
D₂ = 6"
L₁ = 31'
L₂ = 40'

REV NO.	COMMENT	DATE



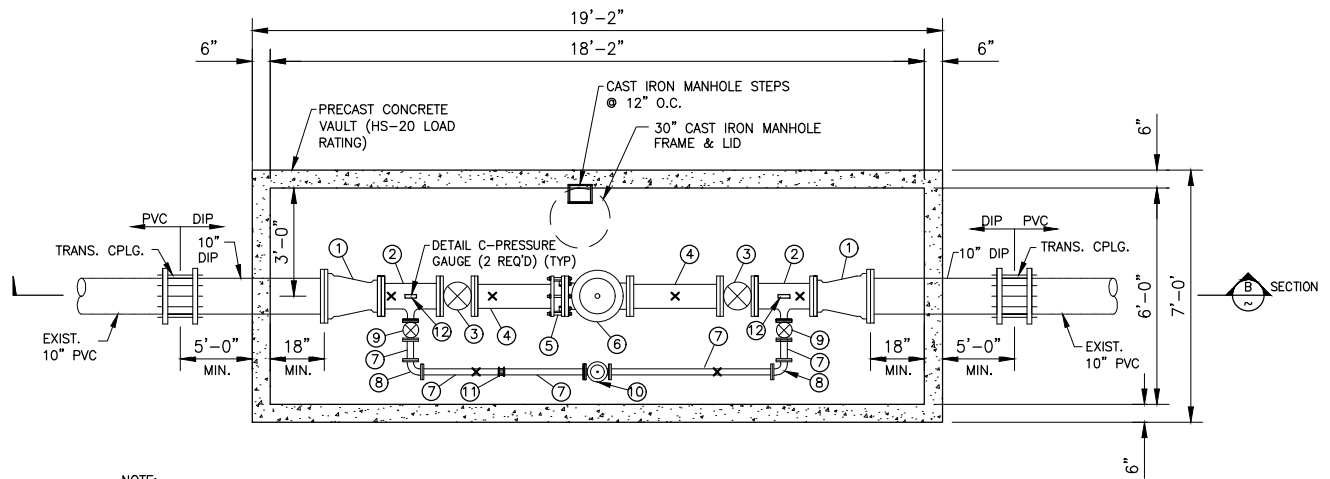
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency

STANDARD DETAILS

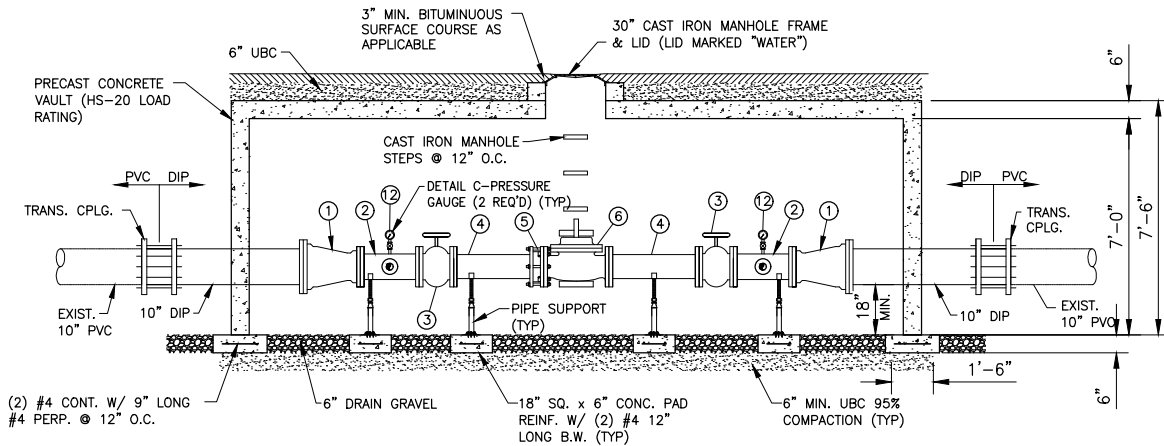
WATER - MECHANICAL RESTRAINING SYSTEM (PVC PIPE)

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-27-2020	DJS	TRB	RWW	W-07



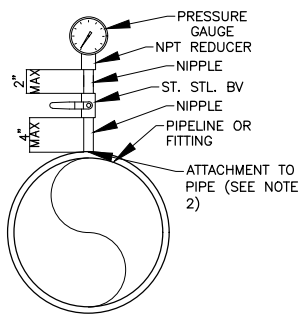
NOTE:
ALL PIPING PENETRATIONS SHALL BE
SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 10" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED
WITH PORTLAND CEMENT GROUT.

(B) SECTION - 10" PRV STATION
1/4" = 1'-0"



- NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP N.T.S.

EQUIPMENT SCHEDULE

NUMBER	DESCRIPTION	SIZE	REMARKS
1	10"x 8" REDUCER	-	
2	8"x 8"x 3" TEE	-	
3	GATE VALVE	8"	
4	SPOOL	8"	LENGTH AS REQ'D (2 REQ'D)
5	FLNG. CPLG. ADAPTER	8"	
6	PRESSURE REDUCING VALVE	8"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	3"	(GSP) LENGTH AS REQ'D
8	90° ELL.	3"	
9	GATE VALVE	3"	
10	PRESSURE REDUCING VALVE	3"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	COUPLING	3"	
12	PRESSURE GAUGE	-	2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
X	LOCATION OF PIPE SUPPORT	-	

REV NO.	COMMENT	DATE



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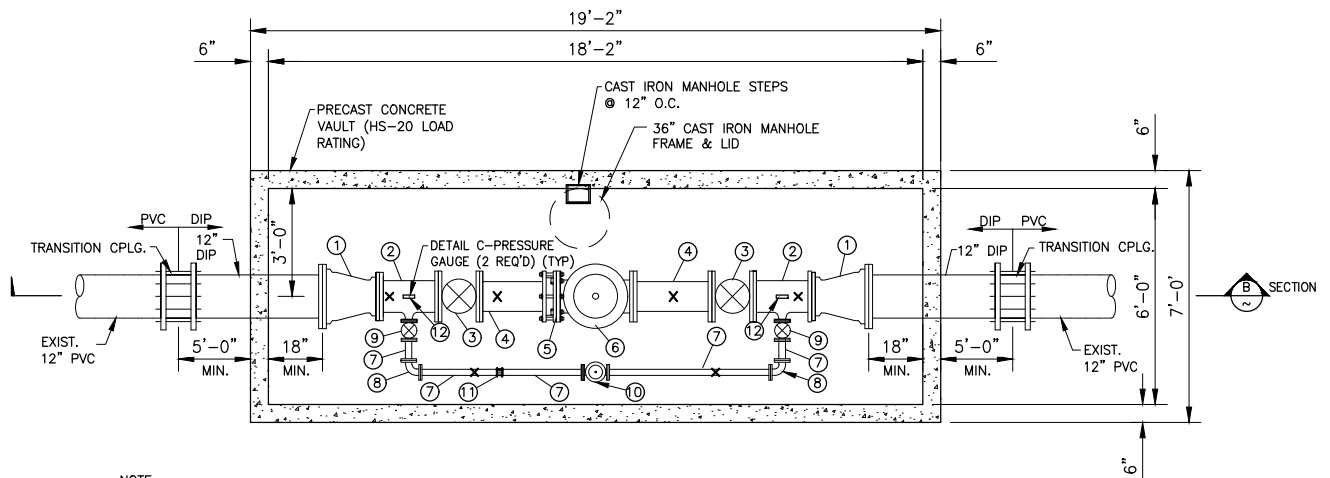
Grand Water & Sewer Service Agency

STANDARD DETAILS

WATER- 10" PRV STATION

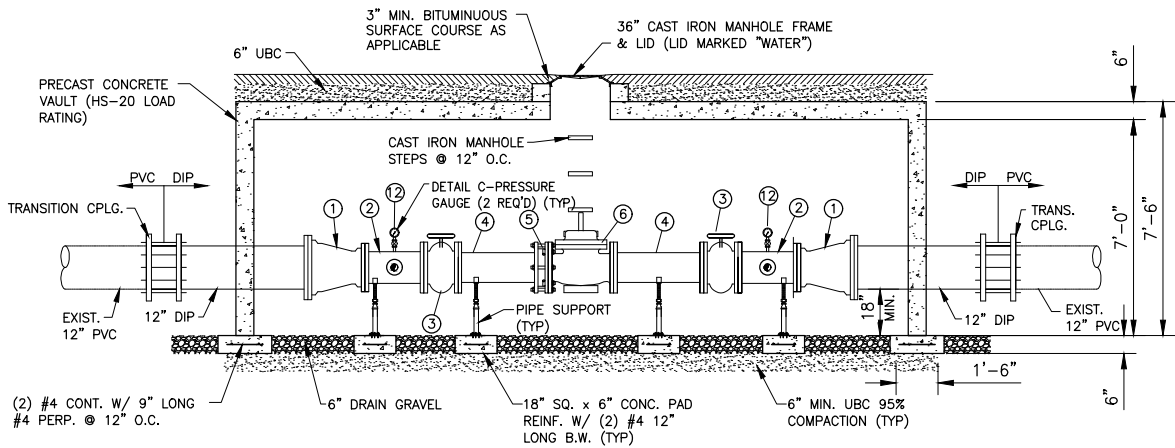
DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. W-08
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W-08



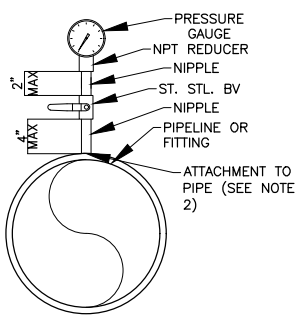
NOTE:
ALL PIPING PENETRATIONS SHALL BE
SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 12" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED
WITH PORTLAND CEMENT GROUT.

(B) SECTION - 12" PRV STATION
1/4" = 1'-0"



NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY
THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE
BY PIPE SADDLE OR BY DIRECT THREADING INTO THE
PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP. N.T.S.

EQUIPMENT SCHEDULE

NUMBER	DESCRIPTION	SIZE	REMARKS
1	12"x 10" REDUCER	-	
2	10"x 10"x 3" TEE	-	
3	GATE VALVE	10"	
4	SPOOL	10"	LENGTH AS REQ'D (2 REQ'D)
5	RESTRAINED FLNG. CPLG. ADAPTER	10"	
6	PRESSURE REDUCING VALVE	10"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	3"	(GSP) LENGTH AS REQ'D
8	90° ELL.	3"	
9	GATE VALVE	3"	
10	PRESSURE REDUCING VALVE	3"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	RESTRAINED COUPLING	3"	
12	PRESSURE GAUGE	-	2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-100 PSI)
X	LOCATION OF PIPE SUPPORT	-	

REV NO.	COMMENT	DATE

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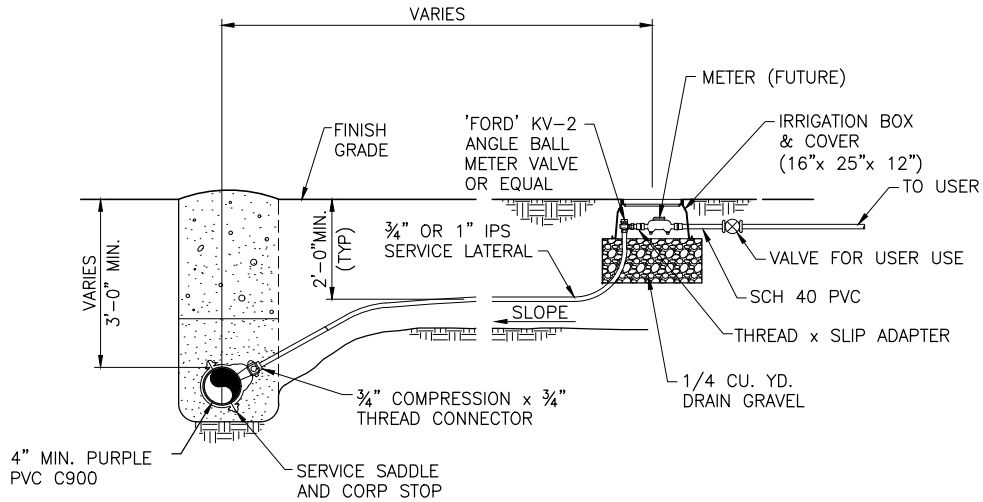
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STANDARD DETAILS

WATER- 12" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-11

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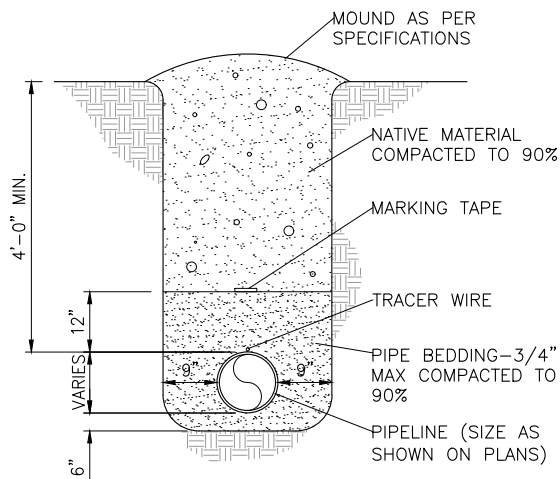
NOTES:

1. INSTALLATION OF PRESSURIZED IRRIGATION MAIN LINE, FITTINGS, VALVES, AND RESTRAINT SHALL CONFORM TO APPLICABLE CULINARY WATER DETAILS.
2. SERVICE LATERALS SHALL BE 3/4" OR 1" POLYETHYLENE PIPE (IPS) WITH COMPRESSION FITTINGS. LATERALS SHALL BE BLUE POLYETHYLENE WRAPPED WITH PURPLE LOCATOR TAPE.
3. PIPE, JOINTS, FITTINGS, AND VALVES SHALL CONFORM TO APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. TRENCH AND SURFACE REPAIR SHALL BE DONE PER DETAILS R-01 THROUGH R-03.
5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.

DETAIL - NEW IRRIGATION SERVICE CONNECTION

N.T.S.

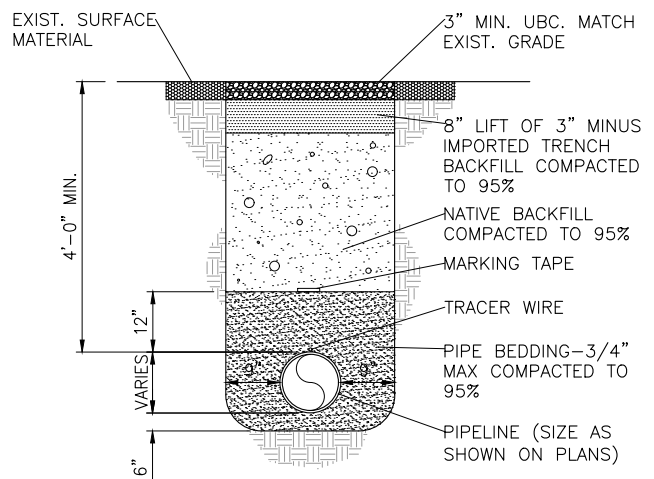
REV NO.	COMMENT	DATE	SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency				
				STANDARD DETAILS				
				SECONDARY SERVICE CONNECTION				
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
				6-9-2020	DJS	TRB	RWW	PI-01



NOTE:
TRENCH DETAIL OUTSIDE OF TRAVELED ROADWAY
OR DESIGNATED ROAD RIGHT-OF-WAY.

DETAIL - TYPICAL TRENCH

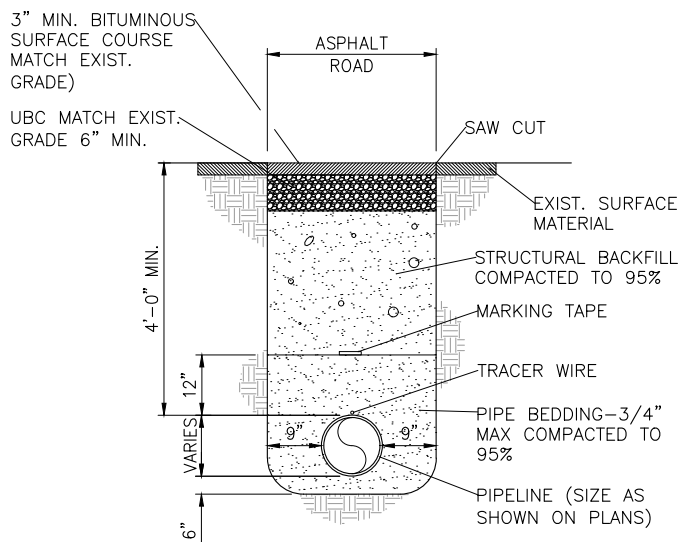
N.T.S.



NOTE:
TRENCH DETAIL INSIDE OF GRAVEL ROADWAYS.

DETAIL - UNPAVED ROADWAY TRENCH

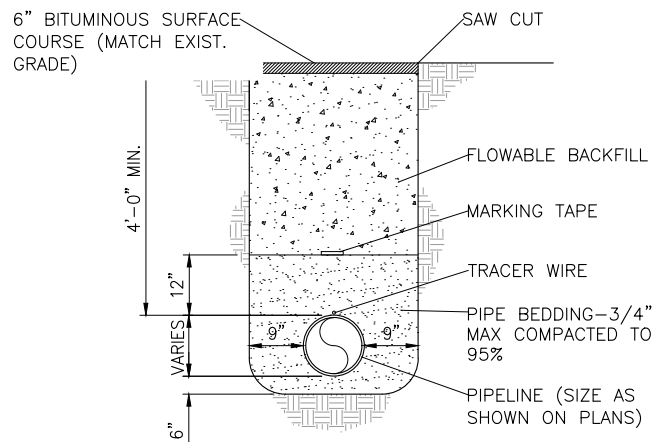
N.T.S.



NOTES:
1. TRENCH DETAILS INSIDE OF ROADWAYS
ASPHALT/GRAVEL ROADS.
2. ASPHALT ROADS SHALL BE SAW CUT.
3. MAX PAY WIDTH SHALL BE 5'-0".

DETAIL - PAVED ROADWAY TRENCH

N.T.S.



NOTE:
THIS SHALL BE USED ON ALL COUNTY AND STATE HIGHWAY CROSSINGS
AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL OBTAIN
PERMIT FROM UDOT OR COUNTY PRIOR TO CONSTRUCTION

DETAIL - TRENCH W/ FLOWABLE BACKFILL

N.T.S.

REV NO.	COMMENT	DATE



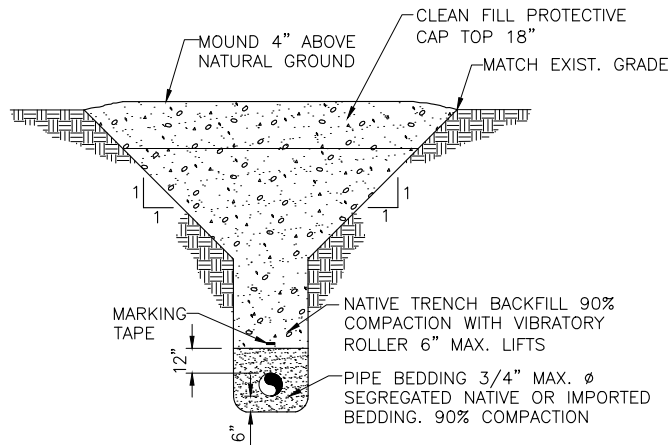
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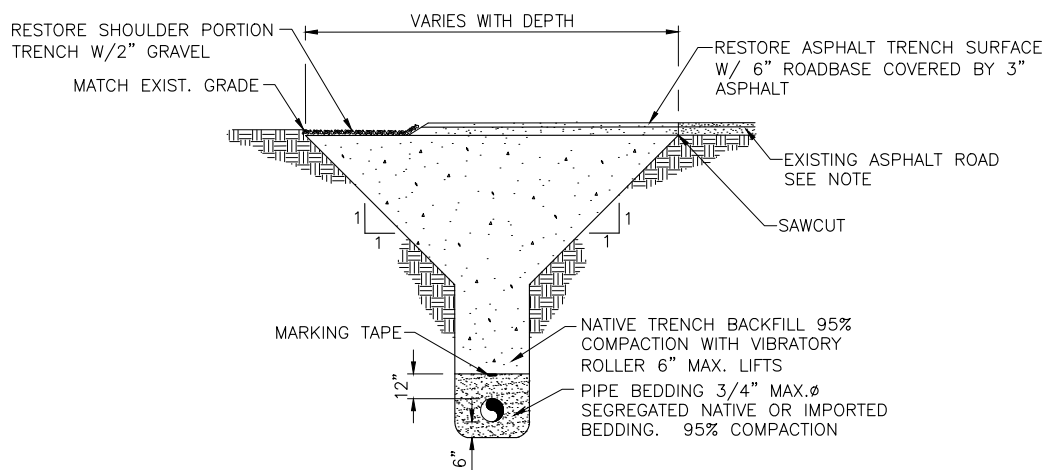
STANDARD DETAILS

ROADWAY - TRENCH DETAILS

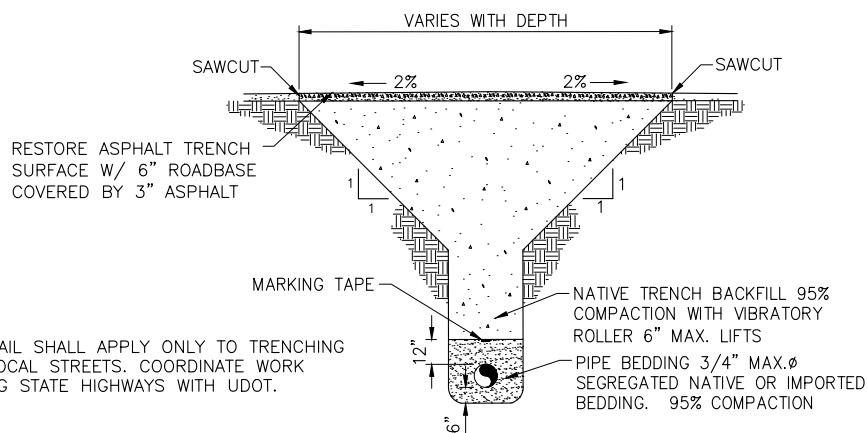
DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	
6-8-2020	DJS	TRB	RWW	.	R-01



DETAIL - TRENCH CONDITION 'A'
TRENCH OUTSIDE OF ROADWAYS



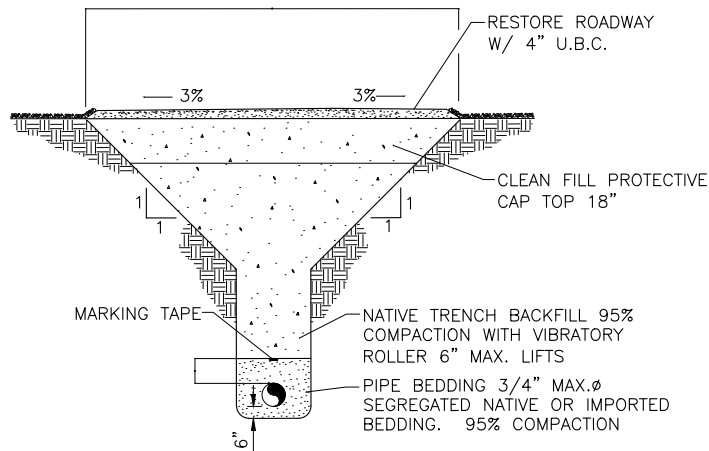
DETAIL - TRENCH CONDITION 'B'
TRENCH WITHIN SHOULDER



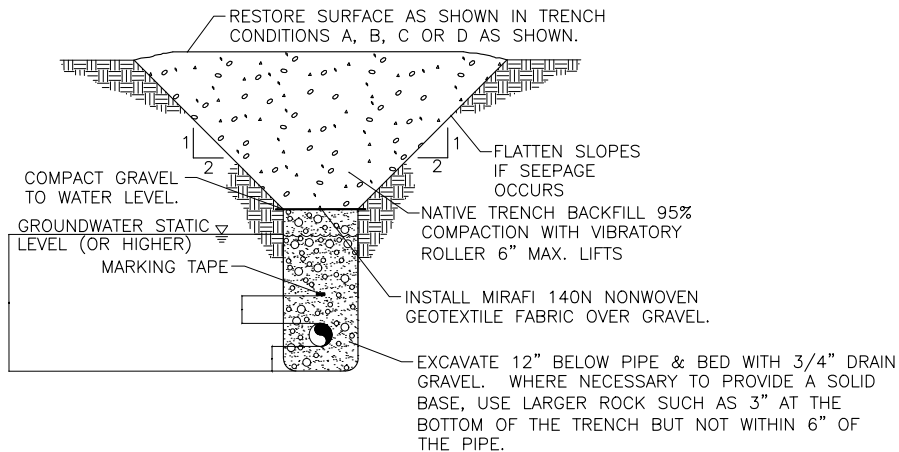
NOTE:
THIS DETAIL SHALL APPLY ONLY TO TRENCHING
WITHIN LOCAL STREETS. COORDINATE WORK
AFFECTING STATE HIGHWAYS WITH UDOT.

DETAIL - TRENCH CONDITION 'C'
TRENCH WITHIN ASPHALT ROADWAY -
LOCAL STREETS

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				STANDARD DETAILS					
				ROADWAY - TRENCH DETAILS					
				DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. .	R-02



D DETAIL - TRENCH CONDITION 'D'
TYP TRENCH WITHIN GRAVEL ROADWAY

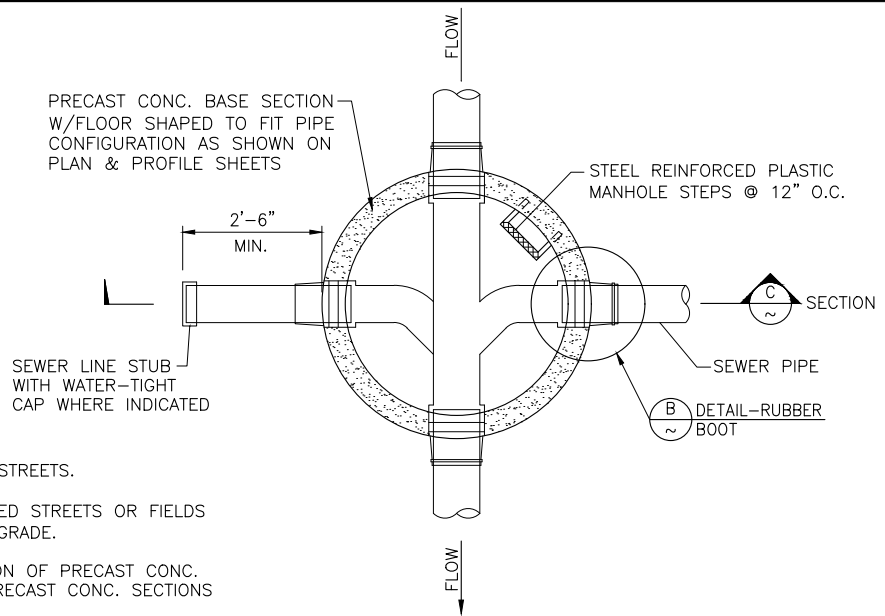


E DETAIL - TRENCH CONDITION 'E'
TYP WET TRENCHING

NOTES:

1. CONSTRUCTION AS SHOWN IS REQUIRED WHEN GROUNDWATER STATIC LEVEL IS EQUAL TO OR ABOVE SEWER INVERT ELEVATION OR AS DIRECTED BY THE ENGINEER.
2. CLAY CUT-OFF WALLS REQUIRED IN WET TRENCHING OR AS DIRECTED BY THE ENGINEER.
3. DEWATERING EFFORTS REQUIRED.
4. PLACE BACKFILL UP TO WATER LEVEL DURING CONSTRUCTION BEFORE DISCONTINUING THE DEWATERING.
5. DEWATERING OF EXCAVATIONS SHOULD BE FROM OUTSIDE THE EXCAVATED AREA TO MAINTAIN STABILITY.
6. THE FREE WATER LEVEL SHALL BE MAINTAINED AT LEAST 2ft. BELOW THE BASE OF THE EXCAVATION DURING CONSTRUCTION.

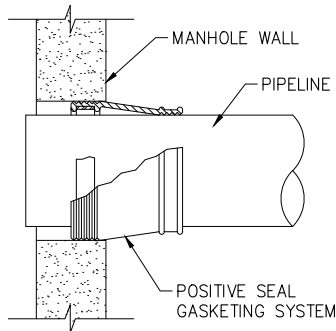
REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency					
				STANDARD DETAILS					
				ROADWAY - TRENCH DETAILS					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	R-03
				6-9-2020	DJS	TRB	RWW	.	



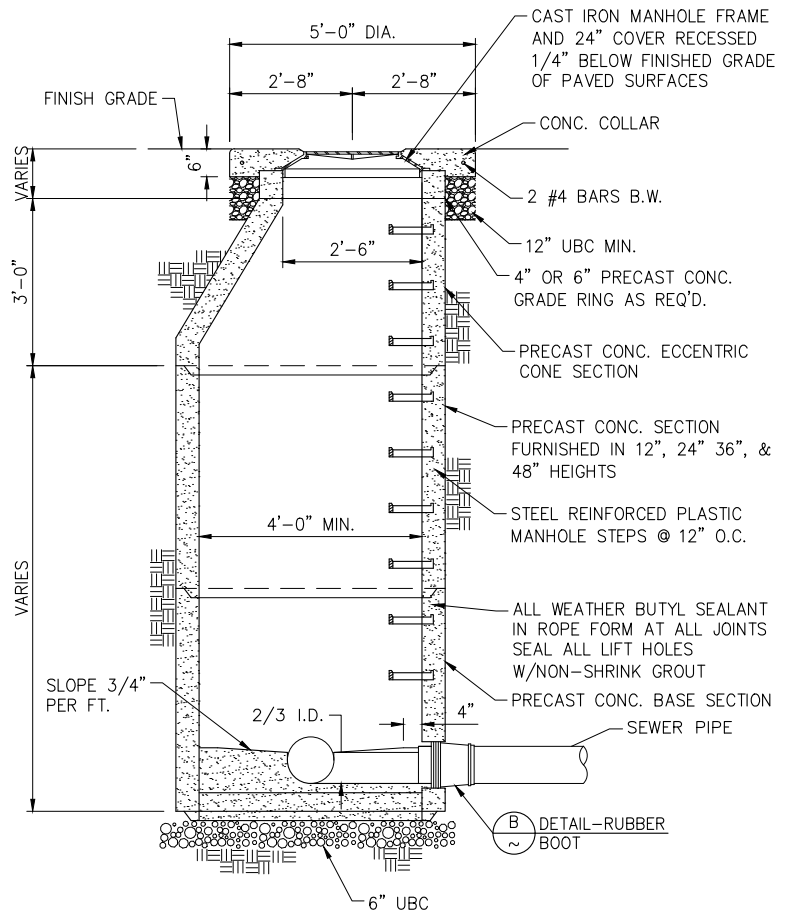
NOTES:

1. VENTED LIDS SHALL BE REQ'D. IN ALL PAVED STREETS.
2. NON-VENTED LIDS SHALL BE REQ'D. IN UNPAVED STREETS OR FIELDS WHERE RIM ELEVATION IS 6" OR LESS ABOVE GRADE.
3. WHERE FIELD CONDITIONS PROHIBIT COMBINATION OF PRECAST CONC. SECTIONS SHOWN, OTHER COMBINATIONS OF PRECAST CONC. SECTIONS MAY BE USED AS PER ENGINEER'S APPROVAL.
4. CONCRETE COLLAR REQ'D IN ASPHALT FINISH ROADS. THEY ARE NOT REQ'D. ON GRAVEL FINISH ROADS.
5. PATCH ALL MANHOLE SECTION JOINTS, OPENINGS AROUND PIPES, AND OTHER VOIDS WITH NON-SHRINK GROUT.

A PLAN - MANHOLE
TYP N.T.S.



B PLAN - RUBBER BOOT
TYP N.T.S.



C SECTION - MANHOLE
TYP N.T.S.

REV NO.	COMMENT	DATE



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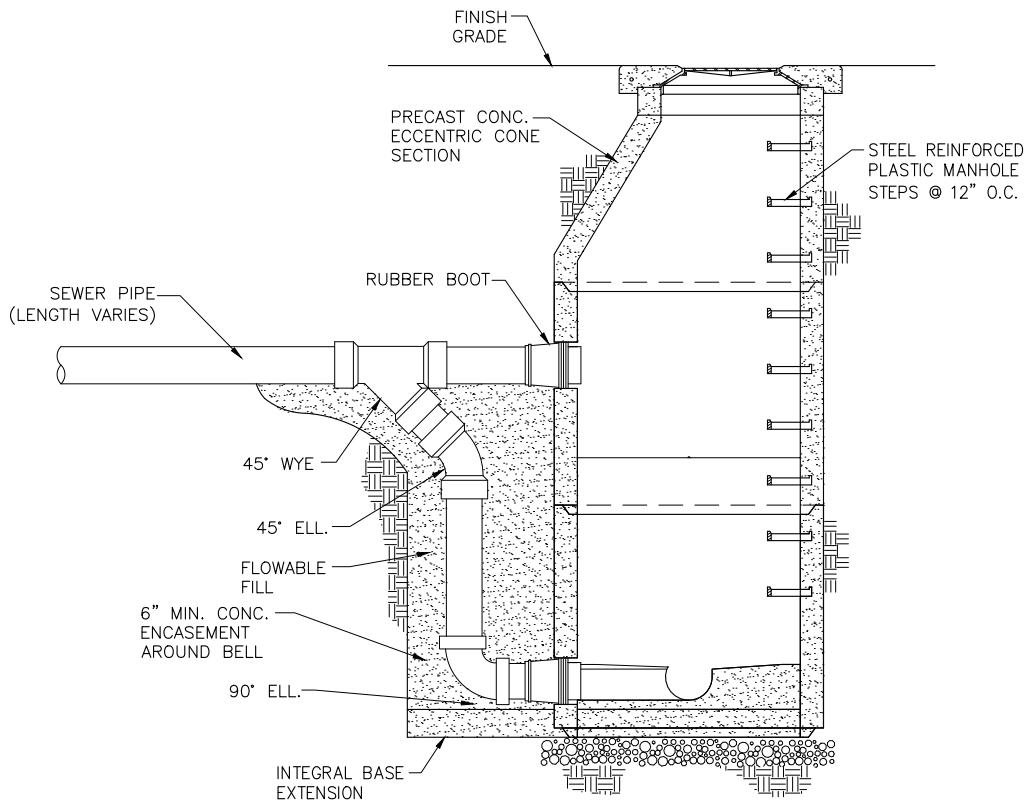
STANDARD DETAILS

SANITARY SEWER- STANDARD MANHOLE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	.

S-01

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SECTION - DROP MANHOLE

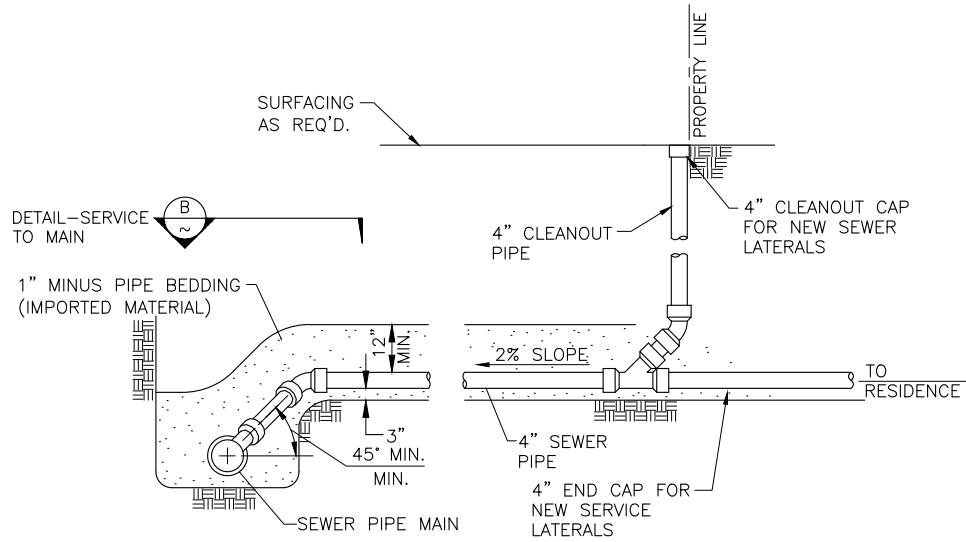
N.T.S.

NOTE:

FOR DROP DISTANCES LESS THAN 24" NO DROP MANHOLE SHALL BE USED. THE CONTRACTOR SHALL SLOPE THE TROUGHS IN THE BASE OF THE MANHOLE TO ACCOMMODATE THE DROP DISTANCES.

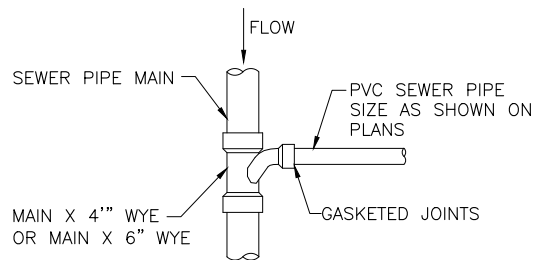
REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING				Grand Water & Sewer Service Agency				
							STANDARD DETAILS				
			25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com				SANITARY SEWER- STANDARD DROP MANHOLE				
							DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. S-02

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NOTE:
SEWER LATERALS ARE GENERALLY LOCATED ON THE LOW SIDE
OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE.

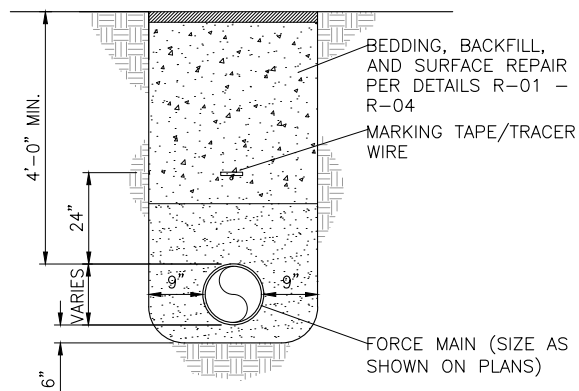
A
TYP **DETAIL - SEWER SERVICE LATERAL**
N.T.S.



B
TYP **DETAIL - SERVICE TO MAIN**
N.T.S.

REV NO.	COMMENT	DATE	 SUNRISE ENGINEERING				Grand Water & Sewer Service Agency				
							STANDARD DETAILS				
			25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com				SANITARY SEWER- STANDARD SERVICE CONNECTION				
							DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. S-03

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NOTES:

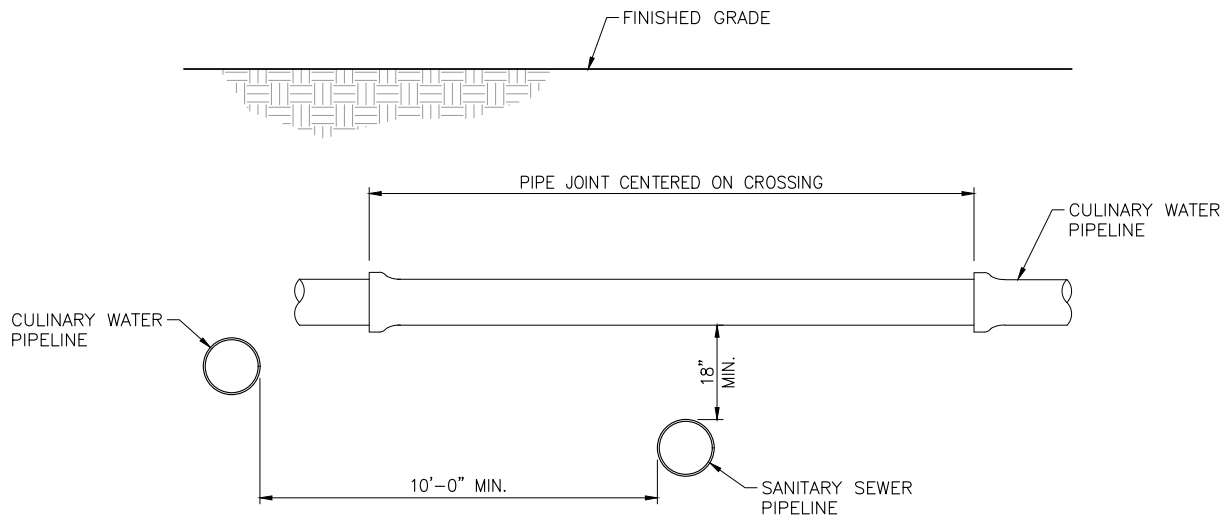
1. UNLESS GRINDER PUMPS ARE UTILIZED, FORCE MAINS SHALL BE A MINIMUM 4" HDPE.
2. FORCE MAINS SHALL ENTER THE GRAVITY SEWER SYSTEM AT A POINT NOT MORE THAN 24" ABOVE THE FLOWLINE OF THE RECEIVING MANHOLE.
3. AUTOMATIC AIR RELIEF VALVES SHALL BE PLACED AT HIGH POINTS IN THE FORCE MAIN TO PREVENT AIR LOCKING.
4. JOINT RESTRAINT MUST BE PROVIDED PER DETAILS W-06 AND W-07. JOINTS MAY ALSO BE FUSED.

DETAIL - FORCE MAIN CONSTRUCTION

N.T.S.

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				STANDARD DETAILS					
				SANITARY SEWER - FORCE MAIN CONSTRUCTION					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	S-04
				6-9-2020	DJS	BN	RWW	.	

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NOTES:

1. IF THE MINIMUM SEPARATION SHOWN HERE CANNOT BE MET, ADDITIONAL COORDINATION WITH GWSSA AND DIVISION OF DRINKING WATER APPROVAL ARE REQUIRED.
2. WATER TRANSMISSION LINES THAT MAY BECOME UNPRESSURIZED SHALL NOT BE INSTALLED WITHIN 20 FEET OF SEWER LINES.
3. WHEN A NEW SEWER FORCE MAIN CROSSES UNDER AN EXISTING WATER MAIN, ALL PORTIONS OF THE SEWER FORCE MAIN WITHIN 10 FEET (HORIZONTALLY) OF THE WATER MAIN SHALL BE ENCLOSED IN A CONTINUOUS SLEEVE.
4. WHEN A NEW WATER MAIN CROSSES OVER AN EXISTING SEWER FORCE MAIN, THE WATER MAIN SHALL BE CONSTRUCTED OF PIPE MATERIALS WITH A MINIMUM RATED WORKING PRESSURE OF 200 PSI OR EQUIVALENT PRESSURE RATING.
5. THE SEPARATION STANDARDS SHOWN ALSO APPLY TO SERVICE LATERALS.

DETAIL - WATER AND SEWER SEPARATION

N.T.S.

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				STANDARD DETAILS					
				WATER - WATER AND SEWER SEPARATION					
				DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	M-01
				6-9-2020	DJS	BN	RWW	.	

REV. NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com	Grand Water & Sewer Service Agency				
				STANDARD DETAILS				
				MISC - SERVICE LOCATION STAMP				
				DATE 6-8-2020	DESIGNED DJS	DRAWN BN	CHECKED RWW	SHEET NO. M-02