Set # _____

City of Santa Fe, New Mexico

"REQUEST FOR BIDS"

BID '17/15/B

CITY OF SANTA FE WATER DIVISION
BUCKMAN PARALLEL PIPELINE PROJECT
CIP 3047

BIDS DUE:
January 5, 2017
2:00 P.M.
PURCHASING OFFICE
CITY OF SANTA FE
2651 SIRINGO ROAD – BUILDING "H"

BIDDING / CONTRACT DOCUMENTS

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PRE-BID INFORMATION
SECTION 00010

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A business (contractor, subcontractor, or supplier) that has either been debarred or suspended pursuant to the requirements of City Purchasing Manual or Section 13-1-177 through 13-1-180, and 13-4-17 NMSA 1978 as amended or City Purchasing provisions, shall not be permitted to do business with the City and shall not be considered for award of Contract during the period for which it is debarred or suspended.

CITY OF SANTA FE
CAPITAL IMPROVEMENTS PROGRAM

ADVERTISEMENT FOR BIDS

SEALED BIDS FOR:	INVITATION FOR BID NO.'17/15/B CIP PROJECT 3047 CITY OF SANTA FE WATER DIVISION BUCKMAN PARALLEL PIPELINE PROJECT
TO BE OPENED AT:	PURCHASING OFFICE 2651 SIRINGO ROAD, BUILDING H SANTA FE, NEW MEXICO 87505 (505) 955-5711
TIME:	2:00 P.M. LOCAL PREVAILING TIME
DATE:	January 5, 2017
ADDRESSED TO:	CITY PURCHASING OFFICER CITY OF SANTA FE 2651 SIRINGO ROAD, BUILDING H SANTA FE, NEW MEXICO 87505

Bids will be received until the above time, then opened publicly at the Purchasing Director's office or other designated place, and read aloud. BIDS RECEIVED AFTER THE ABOVE TIME WILL BE RETURNED UNOPENED.

Bidding Documents may be obtained **(CD format at no cost)** at the Sangre De Cristo Water Division offices, located at 801 W. San Mateo Road, Santa Fe, New Mexico 87505. Bidding Documents may also be obtained **(purchased)** at Albuquerque Reprographics Inc. located at 4716 McLeod Road NE, Albuquerque, NM 87109, upon **non-refundable** payment for each complete set. No refunds will be made upon return of Bid Documents; the City encourages recycling. An electronic version of the document may be downloaded from the following web site: http://www.santafenm.gov/bids.aspx Please note that if you do download the Bid Document and do not notify Kristin Johansen at the Water Division in writing by email at kgjohansen@ci.santa-fe.nm.us you risk not being notified of any changes or addenda. However, all changes and addenda will be posted on the same web page and it will be the contractors responsibility (prior to bidding) to ensure he/she has the most current changes and addenda. The City will not be responsible for any issues arising from missed communications due to downloaded Bid Documents.

Bidding documents are also available at the following plan rooms:

Builders News 3435 Princeton, NE Albuquerque, NM 87107	Construction Reporter 1609 Second, NW Albuquerque, NM 87102	F. W. Dodge 1615 University Blvd., NE, Ste. 1 Albuquerque, NM 87102

ADVERTISEMENT FOR BIDS

BID NO. '17/15/B

Bids for the Contract will be presented in the form of a unit price bid. The bidder shall bid all items listed. Award will be made to the responsible bidder providing the lowest total base bid. Bidder shall include in the signed documents their license(s) and classification(s).

Bid security, made payable to the City of Santa Fe, the "Owner", in the amount of 5% of the proposal sum shall be submitted with the Bid. Bid security shall be in the form of a Bid Bond issued by Surety licensed to conduct business in the State of New Mexico, or by certified check. The successful Bidder's security shall be retained by the Owner until the Contract is signed; the other Bidders' security shall be returned as soon as practicable. Failure or refusal by the successful Bidder to enter into Contract with the Owner will constitute Liquidated Damages in favor of the Owner. The bid shall also include a signed "Non-Collusion Affidavit of Prime Bidders", signed "Certificate of Non-Segregated Facilities", a signed "Certificate of Bidder Regarding Equal Employment Opportunity", a Subcontractor's Listing and; if applicable, a Local Preference Application. The project is subject to the New Mexico Department of Workforce Solutions, Minimum Wage Rates for the State of New Mexico. Such wage rates are bound into the Contract Documents. The successful Bidder shall, upon notice of award of contract, secure from each of his Subcontractors a signed "Non-Collusion Affidavit of Subcontractors".

The Owner reserves the right to reject any and all Bids, to waive technicalities, and to accept the Bid it deems to be in the best interest of the City of Santa Fe.

Contracting services are required for the Buckman Parallel Pipeline Project. The work is designated as City of Santa Fe Project, Buckman Parallel Pipeline Project. The work consists of, but is not limited to the construction of a 24 inch diameter water transmission pipeline, fiber optic conduit, valve and meter stations, connections to existing pipelines, bore and jack casings, and reseeding in accordance with the drawings, specifications, and other contract documents. The pipeline project is located within and adjacent to the northwest quadrant of the City of Santa Fe, NM.

Contractor shall be responsible for any and all permits, fees, compliance with City and County Codes, and State, City, and County inspections associated with the construction.

The City of Santa Fe is an Equal Opportunity Employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation or national origin. The successful Bidder will be required to conform to the Equal Opportunity Employment Regulations.

Bids will be received by the City of Santa Fe and will be delivered to City of Santa Fe, Purchasing Office, 2651 Siringo Road, Bldg. H Santa Fe, New Mexico 87505 **until 2:00 P.M. local prevailing time, January 5, 2017. Any bid received after this deadline will not be considered.**

ATTEST:

Robert Rodarte, Purchasing Officer
City of Santa Fe, New Mexico

Received by the Santa Fe New Mexican on: 11/28/16
To be published on: 12/02/16

Received by the Albuquerque Journal on: 11/28/16
To be published on: 12/02/16

BID SCHEDULE

1)	ADVERTISEMENT:	December 2, 2016
2)	ISSUANCE OF BID PACKET:	December 2, 2016
3)	MANDATORY PRE-BID CONFERENCE: This pre-bid conference **shall** be attended by the Bidding Contractors	December 13, 2016 10:00 AM local prevailing time Water Division – 2nd Floor 801 W. San Mateo Road Santa Fe, New Mexico, 87505
4)	BID SUBMITTAL DEADLINE:	January 5, 2017
5)	OPENINGS OF BIDS RECEIVED:	January 5, 2017 2:00 PM local prevailing time City of Santa Fe – Purchasing Division 2651 Siringo Road, Bldg. H Santa Fe, New Mexico 87505 (505) 955-5711
6)	RECOMMENDATION OF AWARD:	March 1, 2017
	PUBLIC UTILITIES COMMITTEE: FINANCE COMMITTEE: CITY COUNCIL:	February 1, 2017 February 13, 2017 February 22, 2017

DATES OF CONSIDERATION BY PUBLIC UTITLITIES COMMITTEE, PUBLIC WORKS/CIP AND LAND USE COMMITTEE, FINANCE COMMITTEE AND CITY COUNCIL ARE TENTATIVE AND SUBJECT TO CHANGE WITHOUT NOTICE.

INSTRUCTIONS TO BIDDERS (SECTION 00100)

1.0 DEFINITIONS AND TERMS

1.1 Terms used in these Bidding Documents which are defined in the Conditions of the Contract for Construction (General, Supplementary, and other conditions) have the meanings assigned to them in those Conditions.

2.0 EXAMINATION OF BIDDING DOCUMENTS AND SITE

2.1 Before submitting a Bid, each Bidder must (a) examine the Bidding Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the work, (c) familiarize himself with Federal, State, and local laws, ordinances, rules, and regulations that may in any manner effect cost, progress, or performance of the work, and (d) study and carefully correlate the Bidder's observations with the Bidding Documents.

2.2 On request, the City of Santa Fe, the "Owner", will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

2.3 The lands upon which the work is to be performed, rights-of-way for access thereto, and other lands designated for use by the Contractor in performing the work are identified in the Bidding Documents.

2.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Section and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

3.0 BIDDING DOCUMENTS

3.1 COPIES OF BIDDING DOCUMENTS

3.1.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Invitation may be obtained from the Owner (unless another issuing office is designated in the Invitation for Bid). The deposit, if any, will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good and complete condition within ten (10) calendar days after opening of Bids.

3.1.2 Complete sets of Bidding Documents shall be used in preparing Bids; the Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 The Owner, in making copies of Bidding Documents available on the above terms, does so only for the purpose of obtaining Bids on the work and does not confer a license or grant for any other use.

3.2 INTERPRETATIONS

3.2.1 All questions about the meaning or intent of the Bidding Documents shall be submitted to the Purchasing Officer in writing. Replies will be issued by Addenda provided to all parties recorded by the Owner as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

3.3 SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute of "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that substitute an "or-equal" item of material or equipment may be furnished or used by the Contractor if acceptable to the Owner, application for such acceptance will not be considered by the Owner until after the "effective date of the Contract." Application to utilize substitute material or equipment shall be made to the Owner's Representative in writing, stating the request and the justification. If the substitution is accepted, the agreement between Contractor and Owner shall be documented in writing.

3.4 ADDENDA

3.4.1 Addenda will be provided to all who are known by the Owner to have received a complete set of Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than four days prior to the date for receipt of Bids, except an addendum with drawings or Request for Bids or one which includes postponement for the date for receipt of Bids.

3.4.4 Each Bidder shall ascertain, prior to submitting the Bid, that the Bidder has received all Addenda issued, and shall acknowledge their receipt in the Bid.

3.4.5 The City reserves the right to not comply with these time frames if a critical addendum is required or if the proposal deadline needs to be extended due to a critical reason in the best interest of the City of Santa Fe.

4.0 BIDDING PROCEDURES

The person or persons opening the bids will adhere to the following procedure and check for the following:

4.0.1 Bid – Name of the Bidder and the Number of the Bidder's New Mexico Contractor's License with a check for proper signatures.

4.0.2 Bid Bond.

4.0.3 Non-Collusion Affidavit of Prime Bidder.

4.0.4 Submittal, acknowledgement of Addenda, if any.

4.0.5 Properly executed Bid Form.

4.0.6 Certification of Equal Employment Opportunity

4.0.7 Certification of Non-segregated Facilities.

4.0.8 Subcontractor's Listing (as applicable).

4.0.9 Bidder's Qualifications Form

TWO COMPLETE COPIES OF THE BID SUBMITTAL ARE REQUIRED

If any of the above requirements have not been met, the bid shall be disqualified and considered a non-responsive bid. Any disqualified bids will not be read.

4.1 FORM AND STYLE OF BIDS

4.1.1 Bids shall be submitted on forms identical to the form included with the Bidding Documents.

4.1.2 All blanks on the Bid Form shall be filled in by typewriter or manually in ink.

4.1.3 Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and, in case of discrepancy between the two, the amount written in words shall govern.

4.1.4 Any interlineations, alteration, or erasure must be initialed by the signer of the Bid.

4.1.5 All requested Additive or Deductive Alternate Bids shall be Bid. If no change in the Base Bid is required, enter "No Change."

4.1.6 Where there are two or more major items of work (identified as "Bid Lots") for which separate quotations are requested, the Bidder may, at his discretion, submit quotations for any or all items, unless otherwise specified. Additionally, the Bidder may submit a lump sum price for all lots for which the Bidder has submitted separate quotations.

4.1.7 Each copy of the Bid shall include the complete name of the Bidder and a statement that the Bidder is an individual, a sole proprietor, a partnership, a corporation or joint venture. The Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the applicable New Mexico Certificate of Incorporation number or Certificate of Authority number. The Bid shall include the current Contractor's license number and type, and the current Contractor's preference number. A Bid submitted by an agent shall have a current Power of Attorney attached certifying the agent's authority to bind the Bidder.

4.1.8 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

4.1.9 The address, to which communications regarding the Bid are to be directed, must be shown.

4.2 BID SECURITY

4.2.1 Bid security in an amount equal to at least 5% of the amount of the Bid shall be a bond provided by a Surety company authorized to do business in this State, or the equivalent in the form of a certified check, or otherwise supplied in a form satisfactory to the Owner. All Bonds shall be executed by such sureties as are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies.

4.2.2 The Bid security shall be in the amount of five percent (5%) of the highest Bid amount submitted, unless otherwise stipulated, pledging that the Bidder will enter into a Contract with the Owner in the terms stated herein and will furnish bonds covering the faithful performance of the Contract and payment of all obligations arising there under. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

4.2.3 The Owner will have the right to retain the Bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

4.2.4 When the Bidding Documents require Bid security, noncompliance by the Bidder requires that the Bid be rejected.

4.2.5 If a Bidder is permitted to withdraw his Bid before award, no action shall take place against the Bidder or the Bid security.

4.3 PRE-BID CONFERENCE

4.3.1 The Owner of Record shall conduct a Pre-Bid Conference approximately twenty-three (23) calendar days prior to the Bid opening date stated in the Invitation for Bid.

4.3.2 The Owner of Record and his consultants, as applicable, shall be represented. Prospective Bidders and Prospective Subcontractors should ask questions regarding substitutions and/or request clarification of the Bidding Documents. The failure of a Bidder, Subcontractor, or Vendor to attend shall preclude them from bidding on the project.

4.3.3 Questions and requests for clarification are to be presented in written form. Responses will be written and issued as Addenda. No verbal response shall be binding.

4.4 RESIDENT PREFERENCE & LOCAL PREFERENCE & RESIDENT VETERANS PREFERENCE

INTENT AND POLICY

The City of Santa Fe recognizes that the intent of the state resident preference statute is to give New Mexico businesses and contractors an advantage over those businesses, manufacturers and contractors from outside the State of New Mexico. The underlying policy is to give a preference to those persons and companies who contribute to the economy of the State of New Mexico by maintaining businesses and other facilities within the state and giving employment to residents of the state (1969 OP. Att'y Gen. No. 69-42). The City also has adopted a policy to include a local preference to those persons and companies who contribute to the economy of the County of Santa Fe by maintaining businesses and other facilities within the county and giving employment to residents of the county.

APPLICATION-IN-STATE AND OUT OF STATE BIDDERS

With acknowledgment of this intent and policy, the preference will only be applied when bids are received from in-state and county businesses, manufacturers and contractors that are within 5% of low bids received from out-of-state businesses, manufacturers and contractors (13-1-21 (A) -1-21 (F) and 13-4-2 (C) NMSA 1978).

To be considered a resident for application of the preference, the in-state bidder must have included a valid state purchasing certification number with the submitted bid.

Thus it is recommended that in-state bidders obtain a state purchasing certification number and use it on all bids, in order to have the preference applied to their advantage, in the event an out-of-state bid is submitted. In submitting a bid, it should never be assumed that an out-of-state bid will not be submitted.

For information on obtaining a state purchasing certification number, the potential bidder should contact the State of New Mexico General Services Department-Purchasing Office. The process involves a short application and certification by the applicant of the information requested by the state resident preference statute. The certificate is generally issued immediately.

All resident preferences shall be verified through the State Purchasing Office. Applications for resident preference not confirmed by the state Purchasing Office will be rejected. The certification must be under the bidder's business name submitting the bid.

NON-APPLICATION-COMPETING IN-STATE BIDDERS

If the lowest responsive bid and the next responsive bids within 5% of the lowest bid, are all from the state of New Mexico, then the resident preference will not be applied and the state purchasing certification number will not be considered. To be considered an in-state bidder in this situation, the bidders must meet the definition criteria of Chapter 13-1-21 (A)(1) and Chapter 13-4-2 (A) NMSA 1978. After examining the information included in the bid submitted, the city Purchasing Director may seek additional information of proof to verify that the business is a valid

New Mexico business. If it is determined by the city Purchasing Director that the information is not factual and the low responsive bid is actually an out-of-state bidder and not a New Mexico business, then the procedures in the previous section may be applied.

If the bidder has met the above criteria, the low responsive "resident" bid shall be multiplied by .95. If that amount is then lower than the low responsive bid of a "non-resident" bidder, the award will be based taking into consideration the resident preference of 5%.

APPLICATION FOR LOCAL PREFERENCE

For the purposes of this section, the terms resident business and resident manufacturer shall be defined as set out in Section 13-1-21 NMSA 1978; the term local as applied to a business or manufacturer shall mean:

Principal Office and location must be stated: To qualify for the local preference, the principal place of business of the enterprise must be physically located within the Santa Fe County Geographic Boundaries. The business location inserted on the Form must be a physical location, street address or such. DO NOT use a post office box or other postal address. Principal place of business must have been established no less than six months preceding application for certification.

The PREFERENCE FACTOR for resident and local preferences applied to bids shall be .95 for resident and .90 for local. The local preference for proposals shall be 1.10.

New Mexico Resident Veteran Business Preference. New Mexico law, Section 13-1-22 NMSA 1978, provides a preference in the award of a public works contract for a "resident veteran business". Certification by the NM Department of Taxation and Revenue for the resident veteran business requires the Offeror to provide evidence of annual revenue and other evidence of veteran status.

An Offeror who wants the veteran business preference to be applied to its proposal is required to submit with its proposal the certification from the NM Department of Taxation and Revenue and the sworn affidavit.

If an Offeror submits with its proposal a copy of a valid and current veteran resident business certificate, 7%, 8%, or 10% of the total weight of all the evaluation factors used in the evaluation of proposal may be awarded.

The local preference or resident business preference is not cumulative with the resident veteran business preference.

Bids for Goods and Services. When bids for the purchase of goods or services pursuant to Section 22 are received, the lowest responsive bid received from those bidders in the first category listed below shall be multiplied by the Preference Factor. If the resulting price of that bid receiving the preference is lower than or equal to the lowest bid of all bids received, the contract shall be awarded to that bidder receiving the preference. If no bids are received from bidders in the first category, or if the bid receiving the preference does not qualify for an award after multiplication by the Preference Factor, the same procedure shall be followed with respect to the next category of bidders listed to determine if the bid qualifies for award. The priority of categories of bidders is:

(1) Local business.
(2) Resident business.

Proposals for Goods and Services. When proposals for the purchase of goods or services pursuant to Section 23 are received, the evaluation score of the proposal receiving the highest score of all proposals from those proponents in the first category listed above shall be multiplied by the Preference Factor. If the resulting score of that proposal receiving the preference is higher than or equal to the highest score of all proposals received, the contract shall be recommended to that proponent receiving the preference. If no proposals are received from proponents in the first category, or if the proposal receiving the preference does not qualify for an award after multiplication by the Preference Factor, the same procedure shall be followed with respect to the next category of proposals listed to determine if a proponent qualifies for award.

Qualifications for Resident Preference. No resident business or manufacturer, as defined, shall be given any preference in the awarding of contracts for furnishing goods or services to the city, unless it shall have qualified with the State

Purchasing Agent as a resident business or manufacturer and obtained a certification number as provided in Section 13-1-22 NMSA 1978. The certification number must be submitted with its bid for an offeror to qualify for this preference. The Central Purchasing Office shall determine if a resident preference is applicable to a particular offer on a case by case basis.

Qualifications for Local Preference. The Central Purchasing Office shall have available a form to be completed by all bidders/proponents who desire to apply for the local preference as a local business. The completed form with the information certified by the offeror must be submitted by the bidders/proponents with their bid or proposal to qualify for this preference.

Limitation. No offeror shall receive more than a 5% for resident and 10% for local preference pursuant to this section on any one offer submitted. A bidder may not claim cumulative preferences.

Application. This section shall not apply to any purchase of goods or services when the expenditure of federal and/or state funds designated for a specific purchase is involved and the award requirements of the funding prohibit resident and/or local preference(s). This shall be determined in writing by the department with the grant requirements attached to the Purchasing Office before the bid or request for proposals is issued.

Exception. The City Council at their discretion can approve waiving the Local Preference requirements for specific projects or on a case by case basis if it is the City's best interest to do so.

New Mexico Resident Preference Number (if applicable) _____

4.5 SUBCONTRACTORS

4.5.1 The threshold amount for this project is $5,000.00. The General Contractor must list all Subcontractors who will perform work in excess of this threshold. Only one Subcontractor may be listed for each category as defined by the Contractor. The Subcontractor Fair Practice Act (13-4-31 through 13-4-43 NMSA 1978) shall apply.

The Bidder shall list the Subcontractors or material suppliers he proposes to use for all trades or items on the Subcontractor Listing Form attached to the Bidding Document. If awarded the contract, the Bidder shall use the firm listed, or himself if "General Contractor" has been listed, unless a request for a change or substitution is approved by the Owner for any reason as outlined herein.

4.5.2 The Owner shall consider any request for a change in the listed forms if the Bidder can furnish evidence of being able to perform the work in a manner more satisfactory and beneficial to both the Owner and the Bidder by not using the listed subcontractor. Satisfactory reasons for a substitution may include the inability to bond or lack of evidence of being able to furnish acceptable materials on schedule. Also, if the Bidder has made a legitimate error in listing a low Subcontractor, a request for substitution, made after the Bid Opening with the Owner's approval, will be considered. The proof of error must be conclusive, based upon the approval of said evidence by the listed Subcontractor or material supplier and/or any other confirmation satisfactory to the Owner.

4.5.3 The Bidder shall not list himself as the supplier or as the Subcontractor for any trade unless he has previously performed work of this type or can prove to the Owner's satisfaction that he actually has or will obtain, fully adequate facilities and plans to perform the work with his own forces.

4.5.4 Omission or non-compliance with the intent of the Subcontractor Listing will be grounds for considering a Bid as non-responsive.

4.5.5 Prior to the award of the Contract, the Owner will notify the Bidder in writing if, after due investigation and written findings of fact, the Owner has reasonable and substantial objection to any person or organization on such list and refuses in writing to accept such person or organization, the Bidder may, at his option, (1) withdraw his Bid, or (2) submit an acceptable substitute Subcontractor with no increase in his Bid Price. In the event of withdrawal under this paragraph, Bid security will not be forfeited.

4.5.6 The successful Bidder shall, within seven (7) calendar days of notification of selection for the award of Contract for the work, submit the following information to the Owner:

(A) A signed list of the proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the work; and

(B) A list signed by all Subcontractors proposed for the principal portions of the work in accordance with the Subcontractors Listing Form submitted with the Bid.

4.5.7 The successful Bidder will be required to establish to the satisfaction of the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the work described in the Bidding Documents.

4.5.8 Persons and organizations proposed by the Bidder and to whom the Owner has made no reasonable objection under the provisions of Paragraph 4.5.5 must be used on the work for which they were proposed and shall not be changed except with the written consent of the Owner.

4.5.9 No successful Bidder shall be required to employ any Subcontractor, other person, or organization against whom he has reasonable objection.

4.6 SUBMISSION OF BIDS

4.6.1 Bids shall be submitted at the time and place indicated in the Invitation for Bid and shall be submitted in a sealed envelope marked with the Project title and name and address of the Bidder, New Mexico License # _____, and accompanied by the Bid Security, Subcontractors Listing, and other required documents listed in the Bid Documents.

4.6.2 The envelope shall be addressed to:

Purchasing Officer
City of Santa Fe
2651 Siringo Road, Building H
Santa Fe, NM 87505

The following information shall be provided on the front of the Bid envelope: Invitation for Bid number, date of opening, time of opening, and New Mexico License Number. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BIDS ENCLOSED" on the face thereof.

4.6.3 Bids received after the date and time for receipt of Bids will be returned unopened.

4.6.4 The Bidder shall assume full responsibility for timely delivery of Bids at the office of the City's Purchasing Division, including those Bids submitted by mail. Hand-delivered Bids shall be submitted at the front desk of the City Purchasing Division and will be clocked in at the time received, which must be prior to the time specified. Bids will then be held for public opening.

4.6.5 Oral, telephonic, or telegraphic Bids are invalid and will not receive consideration.

4.7 CORRECTION OR WITHDRAWAL OF BIDS

4.7.1 A Bid containing a mistake discovered before Bid Opening may be modified or withdrawn by a Bidder prior to the time set for Bid Opening by delivering written or telegraphic notice to the location designated in the Invitation for Bid as the place where Bids are to be received.

4.7.2 Bid security, if required, shall be in an amount sufficient for the Bid as modified or resubmitted in conformance with Section 4.2.

4.7.3 Withdrawn Bids may be resubmitted up to the time and date designated for the receipt of Bids, provided they are then fully in conformance with the Bid Documents.

4.7.4 After Bid Opening, no modifications in Bid prices or other provisions of Bids shall be permitted. A low Bidder alleging a material mistake of fact which makes his Bid non-responsive may be permitted to withdraw his Bid if:

(A) The mistake is clearly evident on the face of the Bid document; or

(B) The Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made.

Any decision by the Owner to permit or deny the withdrawal of a Bid on the basis of a mistake contained therein shall be supported by a determination setting forth the grounds for the decision. If withdrawal is permitted, Bid security will not be forfeited.

4.8 NOTICE OF CONTRACT REQUIREMENTS BINDING ON BIDDER

4.8.1 In submitting this Bid, the Bidder represents that he has familiarized himself with the nature and extent of the following requirements of the Conditions of the Construction Contract (General, Supplementary, and Other Conditions).

(A) Definitions – General Conditions, Sections 1.1 to 16.1;
(B) Supplementary Conditions, Sections 1.0 to 1.17;
(C) Bribes, Gratuities, and Kickbacks – Supplementary Conditions, Section 4.0;
(D) Contract Bond Requirements – Supplementary Conditions, Section 6.0
(E) Equal Employment Opportunity – Labor Standards Provisions and other listed within the Contract Documents.

4.9 REJECTION OR CANCELLATION OF BIDS

4.9.1 An Invitation for Bid may be canceled, or any or all Bids may be rejected in whole or in part, when it is in the best interest of the Owner. A determination containing the reasons shall be made part of the Project file. Bid security for rejected Bids shall be returned to the Bidder.

4.10 PROTESTS

4.10.1 Any Bidder, Offeror, or Contractor who is aggrieved in connection with this procurement (Bid) may protest to the City Purchasing Agent and the Owner in accordance with the requirements. The protest should be made in writing within twenty-four (24) hours after the facts or occurrences giving rise thereto, but in no case more than within fifteen (15) calendar days after the facts or occurrences giving rise thereto.

4.10.2 The complete procedures and requirements regarding protest are available from the Purchasing Office upon request.

4.11 COMPETITIVE SEALED BIDS

4.11.1 Contracts solicited by competitive sealed Bids shall require that the base Bid amount exclude the applicable state gross receipts taxes or applicable local option taxes, but that the contracting agency shall be required to pay the applicable taxes including any increase in the applicable tax which becomes effective after the date the Contract is entered into. The applicable gross receipts taxes or local option taxes shall be shown as a separate amount on each billing or request for payment made under the contract.

5.0 CONSIDERATION OF BIDS

5.1 RECEIPT, OPENING, AND RECORDING

5.1.1 Bids received on time will be opened publicly and will be read aloud, and an abstract of the amounts of the Base Bids and Alternates or Bid items, if any, will be made available to the Bidders. Each Bid shall be open to public inspection. The Owner shall have the right to waive any informalities or irregularities in any Bid or Bids received and to accept the Bid or Bids which are in the Owner's best interest.

5.2 BID EVALUATION AND AWARD

5.2.1 It is the intent of the Owner to award a Contract to the responsible Bidder submitting the lowest base bid provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The unreasonable failure of a Bidder to promptly supply information in connection with an inquiry with respect to responsibility is grounds for a determination that the Bidder is not a responsible Bidder.

5.2.2 Discrepancies in the Bid Form between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

5.3 NOTICE OF AWARD

A written Notice of Award shall be issued by the Owner after review and approval of the Bid and related documents by the Governing Authority, "as defined in the Supplementary Conditions", with reasonable promptness.

5.4 IDENTICAL BIDS

5.4.1 When two or more of the Bids submitted are identical in price and are the low Bid, the City Purchasing Agent or the Owner may:

(A) Award pursuant to the identical low bid provisions of the City Purchasing Manual;

(B) Award to a resident local business if the identical low Bids are submitted by a resident or local business and a non-resident business;

(C) Award to resident or local manufacturer if the identical low Bids are submitted by a resident or local manufacturer and a resident business;

(D) Award by lottery to one of the identical low Bidders; or

(E) Reject all Bids and re-solicit Bids or proposals for the required services, construction, or items of tangible personal property.

5.5 CANCELLATION OF AWARD

5.5.1 When in the best interest of the public, the Owner may cancel the award of any Contract at any time before the execution of said Contract by all parties without any liability against the Owner.

6.0 POST-BID INFORMATION

6.1 RETURN OF BID SECURITY

All Bid security in the form of checks, except those of the two lowest Bidders, will be returned immediately following the opening and checking of the Bids. The retained Bid security of the unsuccessful of the two lowest Bidders, if in the form of a check, will be returned within fifteen (15) days following the award of contract. The retained Bid security of the successful Bidder, if in the form of a check, will be returned after a satisfactory Contract bond has been furnished and the Contract has

been executed. Bid securities in the form of Bid bonds will be returned only upon the request of the unsuccessful Bidder, but will be released by the City Purchasing Agent after the Notice of Award is sent by the Owner.

6.2 NOTICE TO PROCEED

The Owner will issue a written Notice to Proceed to the Contractor stipulating the date from which Contract Time will be charged and the date Contract Time is to expire, subject to valid modifications of the Contract authorized by Change Order.

6.3 FAILURE TO EXECUTE CONTRACT

Failure to return the signed Contract with acceptable Contract Bonds and Certificate of Insurance within fifteen (15) calendar days after the date of the Notice of Award shall be just cause for the cancellation of the award and the forfeiture of the Bid security, which shall become damages sustained. Award may then be made to the next lowest responsible Bidder, or the work may be re-advertised and constructed under Contract or otherwise, as the Owner may decide.

6.4 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit information and data to prove that their financial resources, production or service facilities, personnel and service reputation and experience are adequate to make satisfactory delivery of the services, construction, or items of personal property described in the Bid Documents and form of Statement of Bidder's Qualifications.

6.5 CONTRACT BONDS REQUIREMENTS

6.5.1 The successful Bidder, where the Contract price exceeds twenty five thousand dollars ($25,000.00), shall post a one hundred percent (100%) Performance Bond and one hundred percent (100%) Labor and Material Payment Bond. Bonds shall be executed on Performance Bond and Labor and Material Payment Bond forms attached hereto, with amount payable conforming to the terms of the Contract. Surety shall be a company licensed to do business in the State of New Mexico and acceptable to the Owner.

6.6 INSURANCE REQUIREMENTS

6.6.1 The selected Bidder shall purchase and maintain, in a company or companies licensed to do business in the State of New Mexico, Liability and Property Insurance as required by law.

6.6.2 The insurance shall be in limits not less than those stated in the General Conditions, enclosed in the Bid package, or greater if required by law.

6.6.3 The insurance coverage shall include worker's compensation, employers liability, comprehensive general liability (Premises Operations, independent contractual liability, explosion and collapse hazard, underground hazard, personal injury), Comprehensive automobile liability (owned and hired), excess liability (umbrella form), and all-risk builder's risk.

6.6.4 All insurance coverage must be maintained for the entire life of the project. Products and completed operations coverage shall be maintained for a minimum period of one (1) year after final payment.

6.6.5 A valid certificate of insurance must be submitted to the Owner prior to issuance of a Notice-to-Proceed.

7.0 MINIMUM WAGE RATES

7.1 Pursuant to the requirements of any Contract entered into in excess of sixty thousand dollars ($60,000) for construction, alteration, demolition, or repair, or any combination of these, including painting and decorating of public buildings or public works, Contract may be subject to the minimum wage rate determination issued by the New Mexico Department of Workforce Solutions for this project.

7.2 **COMPLIANCE WITH CITY'S MINIMUM WAGE RATE ORDINANCE (LIVING WAGE ORDINANCE)**

A copy of the City of Santa Fe Ordinance No. 2002-13, passed by the Santa Fe City Council on March 1, 2016 is attached. The proponent or bidder will be required to submit the proposal or bid such that it complies with the ordinance to the extent applicable. The recommended Contractor will be required to comply with the ordinance to the extent applicable, as well as any subsequent changes to the Ordinance throughout the term of this contract. This project is subject to Determination **SF-16-1643-A**.

8.0 OTHER INSTRUCTIONS TO BIDDERS

8.1 The Owner will make copies of available reports available to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Bidding Documents. Before submitting his Bid, each Bidder shall, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the work in accordance with the time, price, and other terms and conditions of the Bidding Documents.

8.2 It shall be the responsibility of the successful Bidder to secure from the New Mexico Regulations & Licensing Department, Construction Industries Division (CID) such permits or licenses required to carry out the construction. The City will also be responsible for the inspection of all work during construction and to issue a Certificate of Occupancy upon completion and acceptance of the construction by the City of Santa Fe.

9.0 STATE OF NEW MEXICO, DEPARTMENT OF WORKFORCE SOLUTIONS, LABOR RELATIONS, PUBLIC WORKS BUREAU CONTRACTOR AND SUBCONTRACTOR REGISTRATION

9.1 A contractor or subcontractor that submits a bid valued at more than fifty thousand dollars ($50,000) for a city project that is subject to the Public Works Minimum Wage Act (13-4-10 NMSA 1978) shall be registered with the State of New Mexico, Department of Workforce Solutions, Labor Relations, Public Works Bureau. The registration number shall be provided in the bid submitted for the Contractor in the space provided and for subcontractors with work proposed over $50,000 on the subcontractor form. After the bid opening, the registration number(s) will be verified by the City and the Bid will be determined to be non-responsive and disqualified if the registration number(s) appear to be not valid and the Contractor does not provide proof of the required registration for itself or its subcontractors with work proposed over fifty thousand dollars ($50,000). It is the responsibility of the Contractor and the Subcontractor to ensure that the registration is completed prior to the Bid Opening.

INFORMATION AVAILABLE TO BIDDERS

(SECTION 00200)

INFORMATION AVAILABLE TO BIDDERS

Notice-to-Proceed	**March 15, 2017**
Initial Construction Time	**240 Calendar Days**

Contracting services are required for the Buckman Parallel Pipeline Project. Contracting services are required for the Buckman Parallel Pipeline Project. The work is designated as City of Santa Fe Project, Buckman Parallel Pipeline Project. The work consists of, but is not limited to the construction of a 24 inch diameter water transmission pipeline, fiber optic conduit, valve and meter stations, connections to existing pipelines, bore and jack casings, and reseeding in accordance with the drawings, specifications, and other contract documents. The pipeline project is located within and adjacent to the northwest quadrant of the City of Santa Fe, NM.

EXISTING CONDITIONS

The Buckman Parallel Pipeline runs between the existing Buckman Booster Station No. 4 located at the intersection of Camino La Tierra and East Sunrise Drive and the Buckman 10 MG Tank which is located at 1048 Camino De Las Montoyas. The Buckman Parallel Pipeline alignment is in an existing utility easement that has existing 16 and 24 inch City water transmission pipelines as well and other existing utility lines such as natural gas, electric, and communications lines. A portion of the pipeline alignment traverses City open space which has bicycle and hiking trails.

OPERATIONAL TIME FRAME

Substantial completion of all construction operations, except landscaping and seeding, shall be achieved no later than (240) two-hundred and forty calendar days after the written Notice to Proceed, except as extended by valid written Change Order by the Owner. Landscape and seeding operations shall be complete no later than March 15, 2018, except as extended by valid written Change Order by the Owner.

(Instructions: Owner of Record to provide a description of existing site, existing buildings, or other existing conditions if information is necessary and not included elsewhere in the Bidding Documents.)

BID FORMS

(SECTION 00300)

FIXED UNIT PRICE BID SCHEDULE

Note: Gross receipts tax not included

Bid Item	Item ID	Item Description	Qty	Unit	Unit Price	Amount
1	4.01	Construction Staking and As-Built Preparation, compl.	1	LS		
2	6.01	Construction Project Sign, per Contract Special Provisions, cip	4	EA		
3	6.05	Construction Mobilization, compl.	1	LS		
4	6.06	Potholing, compl.	1	LS		
5	6.07	Construction Demobilization, compl.	1	LS		
6	19.01	Construction Traffic Control & Barricading, compl.	1	LS		
7	30.02	NPDES Permitting, compl.	1	LS		
8	201.01	Site Clearing and Grubbing, compl.	4.0	AC		
9	301.02	Subgrade Prep. 12" at 95% compaction, cip.	364	SY		
10	302.01	Aggregate Base Course, crushed, 6" at 95%	364	SY		
11	336.12	Tack Coat, cationic emulsified asphalt, cip.	364	SY		
12	336.023	Asphalt Concrete, 2-1/2 inch thick, superpave	728	SY		
13	343.03	Existing Pavement, Asphalt Concrete, more than 4" thick, sawcut, remove & dispose, compl.	364	SY		
14	410.03X	Existing fence, remove and replace in like kind, cip.	247	LF		
15	710.05X	County Road 77: 40" Outer Dia. Jack and Bore, including steel casing (STD, t=0.375"), excavation and support of bore and receiving pits, casing spacers & end seals, complete for all soil conditions. Excl 24" carrier pipe.	435	LF		
16	710.05X	Arroyo Crossing: 40" Outer Dia. Jack and Bore, including steel casing (STD, t=0.375"), excavation and support of bore and receiving pits, casing spacers & end seals, complete for all soil conditions. Excl 24" carrier pipe.	65	LF		
17	800.003	6" Waterline Pipe incl. fittings and pipe restraint, (std. spec. sec. 801), incl. trench, & compacted backfill, any depth, cip.	27	LF		
18	801.0X	20" Ductile Iron Pipe Class 250 incl. fittings, polyethylene encasement, bonded wires and pipe restraint, incl. trench, & compacted backfill, any depth, cip.	65	LF		
19	801.0X	24" Ductile Iron Pipe Class 250 incl. fittings, polyethylene encasement, bonded wires and pipe restraint, incl. trench, & compacted backfill, any depth, cip.	17,240	LF		
20	801.058	Non-Pressurized Waterline Connection (excl blow off hydrants), all sizes, incl. fittings, compl. SD 2301	4	EA		
21	801.08X	20" Butterfly Valve in Vault, cip.	7	EA		
22	801.XXX	Install with 16" Pressure Sustaining Valve at Buckman Tank Transfer Pump incl. electrical and instrumentation	1	LS		

Bid Item	Item ID	Item Description	Qty	Unit	Unit Price	Amount
23	801.1XX	Combination Air Release Valves including tapping saddle, DI piping, isolation ball valve (FLxFL), manhole, access way, gravel and concrete supports incl. trench excavation and compacted backfill, cip.	10	EA		
24	801.113	Blow-off Hydrant including gate valve and connection to existing line (if applicable), cip.	2	EA		
25	801.13X	Isolation Valve Vault, incl. fittings, piping, 12" drainline, riprap pad, trenching, backfill and compaction, cip.	1	EA		
26	801.15X	Expose and restrain joint(s) on existing 20" WL	25	EA		
27	801.XXX	Casing Test Stations and Fiberglass Marking Posts	4	EA		
28	801.XXX	Test Stations and Fiberglass Marking Posts	38	EA		
29	801.XXX	20" Flow Meter Valve Station, incl. fittings, piping, electrical, instrumentation, trenching, backfill and compaction, cip.	1	EA		
30	1001.XXX	Two (2) Parallel 4" PVC SCH 40 Conduit, including nylon pull string in each conduit and marker tape, trenching, backfill and compaction, cip.	17,334	LF		
31	1001.XXX	Fiber optic connections from junction box to RTU in building, cip.	3	EA		
32	1001.XXX	Tools/Spare Parts	1	LS		
33	1006.2	Gabion retaining walls, complete	437	CY		
34	1011.01	Seeding, Class "A", native, cip.	4.0	AC		
35	-	20" DI Waterline Horizontal or Vertical Deflection (Reference Detail E, Dwg D-02)	1	EA		
36	-	24" DI Waterline Horizontal or Vertical Deflection (Reference Detail E, Dwg D-02)	1	EA		
37	-	Utility Relocation	1	Allow	$25,000.00	$25,000.00
38	-	Geotechnical Testing	1	Allow	$60,000.00	$60,000.00
39	-	SCADA and I&C Integration	1	Allow	$100,000.00	$100,000.00
BID ALTERNATE A		County Master Flow Meter Valve Station, incl. *but not limited to* connection to existing main, meters, valves, vaults, fittings, piping, electrical, instrumentation, trenching, backfill compaction, and all associated site work (Reference Dwg D-07, D-08)	1	EA		
					Subtotal Base Bid Items No. 1 – 39:	$
					NMGRT (8.3125%):	$
					TOTAL BASE BID ITEMS NO. 1 - 39:	$
					UNIT PRICE - BID ALTERNATE A (excluding NMGRT):	$

CITY OF SANTA FE, NEW MEXICO
BID FORM (SECTION 00310)

UNIT PRICE BID
Section 00310

Invitation No: '17/15/B

Project: City of Santa Fe Water Division
Buckman Parallel Pipeline Project

Project No: CIP 3047

Date:

This Bid is submitted to:

CITY OF SANTA FE
PURCHASING DIRECTOR
2651 SIRINGO ROAD, BUILDING H
SANTA FE, NEW MEXICO 87505

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Owner in the form included in the Bidding Documents to perform and furnish all work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. The Bidder accepts all of the terms and conditions of the Invitation for Bid and Instructions to Bidders, including, without limitation, those dealing with the disposition of Bid security and other Bidding Documents. This Bid will remain subject to acceptance for sixty (60) days after the day of Bid opening. The Bidder shall sign and submit the Agreement between Owner and Contractor (hereinafter called Agreement) with the bonds and other documents required by the Bidding Requirements within fifteen (15) calendar days after the date of the Owner's Notice to Award.

3. In submitting this Bid, the Bidder represents, as more fully set forth in the Agreement, that:

   A. The Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all of which is hereby acknowledged):

   No. _____ Date _____ No. _____ Date _____
   No. _____ Date _____ No. _____ Date _____
   No. _____ Date _____ No. _____ Date _____

   B. The Bidder has familiarized himself with the nature and extent of the Bidding Documents, work, site, locality, and all local conditions, laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of the work.

   C. The Bidder has carefully studied all reports and drawings of subsurface conditions which are identified in the Information Available to Bidders and accepts the determination set forth in the Information Available to Bidders of the extent of the technical data contained in such reports and drawings upon which the Bidder is entitled to rely.

   D. The Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Bidding Documents.

   E. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is submitted in conformity with any agreement or rules of any group, association, organization, or corporations. The Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; the Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and the Bidder has not sought by collusion to obtain for himself any advantage over any

other Bidder or over the Owner. It is understood that the Owner reserves the right to reject any or all Bids and to waive any technical irregularities in the bidding.

F. It is the intent of the City to award a Contract to the responsible Bidder submitting the lowest total base bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents.

4. Contracting services are required for the Buckman Parallel Pipeline Project. The work is designated as City of Santa Fe Project, Buckman Parallel Pipeline Project. The work consists of, but is not limited to the construction of a 24 inch diameter water transmission pipeline, fiber optic conduit, valve and meter stations, connections to existing pipelines, bore and jack casings, and reseeding in accordance with the drawings, specifications, and other contract documents. The pipeline project is located within and adjacent to the northwest quadrant of the City of Santa Fe, NM.

Contractor shall be responsible for verifications of all items, measurements and dimensions for bidding.

Contractor shall be responsible for all permits, fees, and State, County, and City inspections associated with the construction.

(All prices listed below are for a complete installed product and include all labor, materials, equipment, bonding, insurance, etc.)

The Bidder shall complete the work for the following prices:

Total **Base Bid** Amount (Excluding Gross Receipts Tax, Excluding Bid Alternate):

_____ ($ _____)
use words use numbers

Base Bid Gross Receipts **Tax** (8.3125%):

_____ ($ _____)
use words use numbers

Total **Base Bid, Plus Tax**:

_____ ($ _____)
use words use numbers

BID ALTERNATE:

The Owner may accept any or all of the additive alternates in any order. All alternate work shall be completed within the same time frame as indicated on the Contract Documents for associated work. Alternate prices shall be inclusive of the costs of materials, labor, balancing and testing of systems as required, any and all other costs in connection therewith for work in place and accepted or omitted as the cost may be, and shall hold for the period of time established in the General Conditions.

Unit Price for **BID ALTERNATE A** (Excluding Gross Receipts Tax):

_____ ($ _____)
use words use numbers

TWO COMPLETE COPIES OF THE BID SUBMITTAL ARE REQUIRED

5. The Bidder agrees that:

   A. The work to be performed under the Contract shall be commenced not later than ten (10) consecutive calendar days after the date of written Notice to Proceed, and that completion shall be achieved not later than thirty (30) calendar days after the date of written "Notice to Proceed", except as hereafter extended by valid written Change Order by the Owner.

   B. Should the Contractor neglect, refuse, or otherwise fail to complete the work within the time specified, the Contractor agrees, in partial consideration for the award of this Contract, to pay the Owner the amount of One-Thousand Dollars ($1,000.00) per consecutive calendar day that passes until the work is complete, not as a penalty, but as liquidated damages for such breach of the Contract.

   C. The above process shall include all labor, profit, insurance, taxes, etc., to cover the finished work of the several kinds called for. Changes shall be processed in accordance with the Contract Documents.

   D. It is understood that the Owner reserves the right to reject any or all Bids and to waive any technical irregularities in the bidding.

6. The following documents are attached to and made a condition of this Bid:

   A. Bid Bond
   B. Non-Collusion Affidavit of Prime Bidder
   C. Submittal, acknowledgement of Addenda, if any
   D. Properly executed Bid Form
   E. Certification of Equal Employment Opportunity
   F. Certification of Non-segregated Facilities
   G. Subcontractor's Listing (as applicable)
   H. Bidder's Qualifications Form

   If any of the above requirements have not been met, the bid will be considered to be non-responsive.

7. The terms used in this Bid and the Bidding and Contract Documents are defined in the Conditions of the Construction Contract (General, Supplementary, and Other Conditions)

8. If the Bidder is:

   A. AN INDIVIDUAL:

   By:_____
   (Individual's Name)

   doing business as:
   _____

   Business address:
   _____

   Telephone:
   _____

   (SEAL)

B. A PARTNERSHIP:

By:_____
(Firm Name)

_____
(General Partner)

Business address:
_____

_____

Telephone:
_____

(SEAL)

C. A CORPORATION

By: _____
(Corporation Name)

_____
(State of Incorporation)

By: _____
(Name of person authorized to sign)

_____
(Title)

If a New Mexico Corporation: _____
Certificate of Incorporation No.

If a Foreign Corporation: _____
Certificate of Authority No.

Attest: _____
(Secretary)

Business address:
_____

Telephone:
_____

D. A JOINT VENTURE

By: _____
(Name)

Address: _____

By: _____
(Name)

Address: _____

Each joint venture must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated in the appropriate category.

Bidder must fill in the following: (If none, write none)

NM License No.: _____ Classification: _____

NM Taxation and Revenue CRS No.: _____

City of Santa Fe Business Registration No.: _____

NM Resident Preference Number (if applicable): _____

TWO COMPLETE COPIES OF THE BID SUBMITTAL ARE REQUIRED

SUPPLEMENT
TO BID FORMS

(SECTION 00400)

BID BOND

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PENAL SUM FORM

BID BOND

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

BIDDER *(Name and Address)*:

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

OWNER *(Name and Address)*:

BID
Bid Due Date:
Description *(Project Name— Include Location)*:

BOND
Bond Number:
Date:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
Title	Title

Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.

INSTRUCTIONS RELATING TO LOCAL PREFERENCE CERTIFICATION FORM

1. **All information must be provided.** A 10% local preference may be available for this procurement. To qualify for this preference, an offeror **must** complete and submit **the local preference certification form with its offer.** If an offer is received without the form attached, completed, notarized, and signed or if the form is received without the required information, the preference will not be applied. **The local preference form or a corrected form will not be accepted after the deadline for receipt of bids or proposals.**

2. **Local Preference precedence over State Preference:** The Local Preference takes precedence over the State Resident Preference and only one such preference will be applied to any one bid or proposal. If it is determined that the local preference applies to one or more offerors in any solicitation, the State Resident Preference will not be applied to any offers.

3. **Principal Office and location must be stated: To qualify for the local preference, the principal place of business of the enterprise must be physically located within the Santa Fe County Geographic Boundaries. The business location inserted on the Form must be a physical location, street address or such. DO NOT use a post office box or other postal address. Principal place of business must have been established no less than six months preceding application for certification.**

4. **Subcontractors do not qualify:** Only the business, or if joint venture, one of the parties of the joint venture, which will actually be performing the services or providing the goods solicited by this request and will be responsible under any resulting contract will qualify for this preference. A subcontractor may not qualify on behalf of a prime contractor.

5. **Definition:** The following definition applies to this preference.

   A local business is an entity with its Principal office and place of business located in Santa Fe County.
   A Principal office is defined as: The main or home office of the business as identified in tax returns, business licenses and other official business documents. A Principal office is the primary location where the business conducts its daily operations, for the general public, if applicable. A temporary location or movable property, or one that is established to oversee a City of Santa Fe project does not qualify as a Principal office.

Additional Documentation: If requested a business will be required to provide, within 3 working days of the request, documentation to substantiate the information provided on the form. Any business which must be registered under state law must be able to show that it is a business entity in good standing if so requested.

LOCAL PREFERENCE CERTIFICATION FORM

RFP/RFB NO: _____

Business Name: _____

Principal Office: _____
Street Address City State Zip Code

City of Santa Fe Business License #_____ (Attach Copy to this Form)

Date Principal Office was established: _____ (Established date must be six months before date of Publication of this RFP or RFB).

CERTIFICATION

I hereby certify that the business set out above is the principal Offeror submitting this offer or is one of the principal Offerors jointly submitting this offer (e.g., as a partnership, joint venture). I hereby certify that the information which I have provided on this Form is true and correct, that I am authorized to sign on behalf of the business set out above and, if requested by the City of Santa Fe, will provide within 3 working days of receipt of notice, the necessary documents to substantiate the information provided on this Form.

Signature of Authorized Individual: _____

Printed Name: _____

Title: _____ Date: _____

Subscribed and sworn before me by_____ this____, day of _____

My commission expires_____ _____
Notary Public

SEAL

YOU MUST RETURN THIS FORM WITH YOUR OFFER

RESIDENT VETERANS PREFERENCE CERTIFICATION

_____ (NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement.

Please check one box only:

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is less than $1M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than $1M but less than $5M allowing me the 8% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than $5M allowing me the 7% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

I agree to submit a report or reports to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate:

In conjunction with this procurement and the requirements of this business application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, which awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be.

I understand that knowingly giving false or misleading information on this report constitutes a crime.

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

_____ _____
(Signature of Business Representative)* (Date)

*Must be an authorized signatory of the Business.

The representation made by checking the above boxes constitutes a material representation by the business. If the statements are proven to be incorrect, this may result in denial of an award or un-award of the procurement.

SIGNED AND SEALED THIS_____DAY OF _____, 2012.

_____
NOTARY PUBLIC

My Commission Expires:

_____

THIS FORM MUST BE
ATTACHED TO BOND

BID SECURITY FORM

Section 00420

Review and Approval: This Bond has been executed by a Surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, United States Treasury Department.

Approved:

_____ DATE:

_____
Owner's Representative or Governing Authority

00440

THIS FORM MUST BE
USED BY SURETY

AGENT'S AFFIDAVIT

BID SECURITY FORM

(To be filled in by Agent)

STATE OF)
) ss.
COUNTY OF)

_____ being first duly sworn deposes and says:

that he is the duly appointed agent for

_____

and licensed in the State of New Mexico. Deponent further states that a certain bond given to indemnify the City of Santa Fe in connection with the construction of

_____

dated _____ day of _____, 20___, executed by

_____

contractor, as principal and _____, as surety, signed by this deponent; and deponent further states that said bond was written, signed, and delivered by him; that the premium on the same has been or will be collected by him; and that the full commission thereon has been or will be retained by him.

_____

Subscribed and sworn to before me, a notary public in and for the County of _____, this _____ day of _____, 20_____.

My Commission expires: _____

Agent's Address: _____

_____

Telephone: _____

SUBCONTRACTOR LISTING

NOTE: A subcontractor that submits a bid valued at more than fifty thousand dollars ($50,000) for a city project that is subject to the Public Works Minimum Wage Act 13-4-10 NMSA 1978 shall be registered with the State of New Mexico, Department of Workforce Solutions, Labor Relations, Public Works Bureau.

Section 00430

TRADE	NAME	ADDRESS	TELEPHONE#	LICENSE #	NM DEPT. OF LABOR REGISTRATION	SUBCONTRACTOR SIGNATURE – TO BE OBTAINED AFTER AWARD OF CONTRACT

STATEMENT OF BIDDER'S QUALIFICATIONS

SUPPLEMENTS TO BID FORMS
Section 00440

Instructions: All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information desired.

1. Name of Bidder: _____

2. Permanent main office address: _____

_____

3. When organized: _____

4. If a corporation, where incorporated: _____

5. How many years have you been engaged in the contracting business under your present firm or trade name? _____

6. Contracts on hand (schedule these, showing amount of each Contract and the appropriate anticipated dates of completion): _____

_____

_____

7. General character of work performed by your company: _____

_____

_____

8. Have you ever failed to complete any work awarded to you? _____

If so, where and why? _____

_____

9. Have you ever defaulted on a contract?_____

If so, where and why? _____

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed:

_____

_____

_____

11. List your major equipment available for this contract:

_____

_____

12. Describe your organization's experience in construction work similar in importance to this project:_____

_____

_____

13. Background and experience of the principal members of your organization, including the officers: _____

_____

_____

14. Credit Available: _____

15. Give bank reference: _____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? __

_____

17. The undersigned authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder Qualifications

Dated at _____

this _____ day of _____, 20_____.

_____ Bidder

By: _____

Title: _____

STATE OF NEW MEXICO)
)ss
COUNTY OF)

_____, being duly sworn, deposes and

says that he is _____ of

_____
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

Section 00450

STATE OF)
)ss.
COUNTY OF)

_____, being first duly sworn, deposes and says that:

1) He is the _____ of _____, the Bidder that has submitted and attached Bid;

2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

3) Such Bid is genuine and is not a collusive or sham Bid;

4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with the Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract or has in any manner directly or indirectly, sought by agreement or collusion or communications or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Santa Fe, or any person interested in the proposed Contract; and

5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affront.

By: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

CERTIFICATION OF NONSEGREGATED FACILITIES

Section 00460

(Applicable to construction contracts and related subcontracts exceeding $10,000 which are not exempt from the Equal Opportunity Clause.)

The construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means: any waiting room, work areas, rest rooms and wash rooms, restaurants and other eating areas; time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin because of habit, local custom, or otherwise. The construction contractor agrees that (except where he has obtained identical certifications from proposed Subcontractors for specific time periods) he will obtain identical certifications from proposed SUBCONTRACTORS prior to the award of subcontracts exceeding $10,000 which are not exempt from the provision of the Equal Opportunity Clause and that he will retain such certifications in his files.

By: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Section 00470

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any Bidder or perspective contractor, or any of their proposed Subcontractors, shall state as an initial part of the Bid or negotiations of the Contract whether he has participated in any previous Contract or subcontract subject to the equal opportunity clause; and, if so, whether he has filed all compliance reports due under applicable instructions.

Where the certification indicates that the Bidder has not filed a compliance report due under applicable instructions, such Bidder shall be required to submit a compliance report within seven calendar days after Bid opening. No Contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: _____

Address: _____

_____

1. Bidder has participated in a previous Contract or subcontract subject to the Equal Opportunity Clause.

   _____ Yes _____ No

2. Compliance reports were required to be filed in connection with such Contract or subcontract.

   _____ Yes _____ No

Certification - The information above is true and complete to the best of my knowledge and belief.

_____
Name and Title of Signer (please type)

_____ _____
Signature Date

AGREEMENT FORMS

(SECTION 00500)

CITY OF SANTA FE
CAPITAL IMPROVEMENTS PROGRAM

AGREEMENT BETWEEN OWNER
AND CONTRACTOR

This Agreement is entered into this _____ day of _____, 2016, by and between the CITY OF SANTA FE, herein known as the Owner, and _____ herein known as the Contractor.

For the following:

PROJECT: City of Santa Fe Water Division Buckman Parallel Pipeline Project

PROJECT NO.: 3047

RECITALS:

WHEREAS, the Owner, through its Governing Body, is authorized to enter into a Construction Contract for the project; and

WHEREAS, the Owner has let this Contract according to the established State and Local Purchasing procedures for contracts of the type and amount let; and

WHEREAS, construction of this Project was approved by the Governing Body of the City of Santa Fe at its meeting of _____.

The OWNER and the CONTRACTOR agree:

ARTICLE 1
THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, the Conditions of the Contract (General, Supplementary, and other Conditions), the Specifications, all Addenda issued prior to and all Modifications issued after execution of this Agreement. These documents form the Contract, and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

ARTICLE 2
THE WORK

The Contractor shall perform the work designated as City of Santa Fe Water Division Buckman Parallel Pipeline Project. The work is designated as City of Santa Fe Project, Buckman Parallel Pipeline Project. The work consists of, but is not limited to the construction of a 24 inch diameter water transmission pipeline, fiber optic conduit, valve and meter stations, connections to existing pipelines, bore and jack casings, and reseeding

in accordance with the drawings, specifications, and other contract documents. The pipeline project is located within and adjacent to the northwest quadrant of the City of Santa Fe, NM.

Contractor shall be responsible for any and all permits, fees, compliance with City and County Codes, and State, City, and County inspections associated with the construction.

ARTICLE 3
TIME OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

The work to be performed under this Contract may commence no later than ten (10) consecutive calendar days after the date of written Notice to Proceed. Substantial completion of all construction operations, except landscaping and seeding, shall be achieved no later than (240) two-hundred and forty calendar days after the written Notice to Proceed, except as extended by valid written Change Order by the Owner. Landscape and seeding operations shall be complete no later than XXXXX, 2017, except as extended by valid written Change Order by the Owner. This Agreement may be terminated by the City upon 10 days written notice to the Contractor.

ARTICLE 4
CONTRACT SUM

The Owner shall pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change Order as provided in the Contract Documents, the Contract Sum of _____($ _____) inclusive of NMGRT. The Contractor agrees that if it ever receives a partial or total refund of Gross Receipts Taxes (GRT) it will transmit the refund to the City immediately. The GRT amount of _____ ($ _____) is [$8.3125]% of Base Bid and is being paid by the Owner to the Contractor so that the Contractor can pay the GRT to the New Mexico Taxation and Revenue Department (NMTRD). It is not compensation for services rendered. The Contractor agrees to timely remit this GRT to NMTRD.

The Contract Sum is determined as follows:

Base Bid	$_____
Gross Receipts Tax	$_____
TOTAL	$_____

ARTICLE 5
PROGRESS PAYMENTS

Based upon Application for Payment submitted to the Owner by the Contractor and Certificates for Payment issued by the Owner, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Contract documents for the period ending the last day of the month as follows:

Not later than twenty-one (21) days following the end of the period covered by the Application for Payment, ninety five percent (95%) of the portion of the Contract Sum properly allocable to labor, materials, and

equipment incorporated in the work and ninety five percent (95%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or some other location agreed upon in writing for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner; and upon substantial completion of the entire work, a sum sufficient to increase the total payments to ninety eight percent (98%) of the Contract Sum, less such amounts as the Owner shall determine for all incomplete work and unsettled claims as provided in the Contract documents.

ARTICLE 6
LIQUIDATED DAMAGES

Should the Contractor neglect, refuse, or otherwise fail to complete the work within the Contract Time or any extension in the Contract thereof, the Contractor agrees to pay to the Owner the amount of One Thousand dollars ($1,000) per consecutive calendar days of delay until the work is completed and accepted or until voided pursuant to the provisions of the General Conditions of the Contract, not as a penalty, but as liquidated damages for such breach of the Contract.

ARTICLE 7
FINAL PAYMENT

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be paid by the Owner to the Contractor within twenty-one (21) calendar days after all deficiencies to the Contract document that were noted during the Substantial Completion Inspection and listed on the attachment to the Certificate of Substantial Completion have been corrected, and provided the Contract has been fully performed and a final Certificate for Payment has been issued by the Owner. In addition, the Contractor shall provide to the Owner a certified statement of Release of Lien (AIA Document G706A or approved form), Consent of Surety, Warranty from Prime Contractor, Warranties from Suppliers and Manufacturers, training sessions, equipment/operating manuals, and as-built drawings.

ARTICLE 8
SCHEDULE

The Contractor shall, within five (5) days after the effective date of Notice to Proceed, prepare and submit five (5) copies of a progress schedule covering project operations for the (240) two hundred and forty calendar day contract period including landscape and seeding operations. This progress schedule shall be of the type generally referred to as a Critical Path Method (CPM), Critical Path Schedule (CPS), and Critical Path Analysis (CPA), and other similar designations. The CPM shall be used to control the timing and sequences of the project. All work shall be done in accordance with the CPM Planning and Scheduling. A written statement of explanation shall be submitted with the progress schedule. All costs incurred by the contractor to implement the CPM shall be borne by the Contractor, and are part of their Contract (See Article 4.10, Progress Schedules of Section 00700, General Conditions of the Contract).

ARTICLE 9
GENERAL AND SPECIAL PROVISIONS

9.1 This Agreement shall be governed exclusively by the provisions hereof and by the laws of the State of New Mexico as the same from time to time exist.

9.2 Terms used in this Agreement which are defined in the Conditions of the Contract shall have the meanings designated in those Conditions.

9.3 The Contractor shall defend, indemnify, and hold harmless the Owner against any and all injury, loss, or damage, including, without limitation, costs of defense, court costs and attorney's fees, arising out of the acts, errors, or omissions of the Contractor.

9.4 An enumeration of the Contractor's Liability Insurance requirements appears in the General Conditions of the Contract for construction. Insurance requirements are also described in the Instructions to the Bidder section of the Project Manual. Contractor shall maintain adequate insurance in at least the aggregate maximum amounts which the Owner could be liable under the New Mexico Tort Claims Act and shall provide proof of such insurance coverage to the City. It is the sole responsibility of the Contractor to be in compliance with the law.

9.5 This Agreement shall not become effective until: (1) approved by the Governing Body; and (2) signed by all parties required to sign this Agreement.

9.6 The Contractor and the Contractor's agents and employees are independent contractors performing professional and technical services for the Owner and are not employees of the Owner. The Contractor and the Contractor's agents and employees shall not accrue leave, retirement, insurance, bonding, use of Owner's vehicles, or any other benefits afforded to employees of the Owner as a result of this Agreement.

9.7 The Contractor shall not subcontract any portion of the services to be performed under this Agreement without prior written approval of the Owner.

9.8 The Contractor shall maintain detailed time records which indicate the date, time and nature of services rendered. These records shall be subject to inspection by the Owner, the Department of Finance and Administration and the State Auditor. The Owner shall have the right to audit billings both before and after payment; payment under this Agreement shall not foreclose the right of the Owner to recover excessive illegal payments.

9.9 The terms of this Agreement are contingent upon sufficient appropriations and authorization being made by the Owner for the performance of this Agreement. If sufficient appropriations and authorization are not made by the Owner, this Agreement shall terminate upon written notice being given by the Owner to the Contractor. The Owner's decision as to whether sufficient appropriations are available shall be accepted by the Contractor and shall be final.

9.10 The Contractor warrants that the Contractor presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance or services required under this Agreement.

9.11 The Contractor hereby warrants that the Contractor is in compliance with the Americans with Disabilities Act, 29 CFR 1630.

9.12 The Contractor, upon final payment of the amounts due under this Agreement, releases the Owner, the Owner's officers and employees, and the City of Santa Fe from all liabilities and obligations arising from or under this Agreement, including, without limitation, all damages, losses, costs, liability, and expenses, including, without limitation, attorney's fees and costs of litigation that the Contractor may have.

9.13 The Contractor agrees not to purport to bind the Owner to any obligation not assumed herein by the Owner, unless the Contractor has express written authority to do so, and then only within the strict limits of that authority.

9.14 Notices. Any and all notices provided for hereunder shall be in writing and shall be deemed delivered, given and received when (i) personally delivered, or (ii) 5 days after the same are deposited in the United States mail, postage prepaid, registered or certified mail, return receipt requested, addressed to the applicable party at the address indicated below for such party or at such other address as may be designated by either party in a written note to the other party.

OWNER	City of Santa Fe Sangre De Cristo Water Division P.O. Box 909 Santa Fe, New Mexico 87504-0909
CONTRACTOR	_____ _____ _____

9.15 Gender, Singular/Plural. Words of any gender used in this Agreement shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires.

9.16 Captions and Section Headings. The captions and section headings contained in this Agreement are for convenience of reference only, and in no way limit, define, or enlarge the terms, scope and conditions of this Agreement.

9.17 This document shall be executed in no less than five (5) counterparts, each of which shall be deemed an original.

9.18 Certificates and Documents Incorporated. All certificates and documentation required by the provisions of the Agreement shall be attached to this Agreement at the time of execution, and are hereby incorporated by reference as though set forth in full in this Agreement to the extent they are consistent with its conditions and terms.

9.19 Separability. If any clause or provision of this Agreement is illegal, invalid or unenforceable under present or future laws effective during the term of this Agreement, then and in that event, it is the intention of the parties hereto that the remainder of this Agreement shall not be affected thereby.

9.20 Waiver. No provision of this Agreement shall be deemed to have been waived by either party unless such waiver be in writing signed by the party making the waiver and addressed to the other party; nor shall any custom or practice which may evolve between the parties in the administration of the terms hereof be construed to waive or lessen the right of either party to insist upon the performance by the other party in strict accordance with the terms hereof. Further, the waiver by any party of breach by the other party of any term, covenant, or condition hereof shall not operate as a waiver of any subsequent breach of the same or any other term, covenant, or condition thereof.

9.21 Entire Agreement. This Agreement represents the entire Contract between the parties and except as otherwise provided herein, may not be amended, changed, modified, or altered without the written consent of the parties hereto. This Agreement incorporates all of the conditions, agreements, and understandings between the parties concerning the subject matter of this Contract, and all such conditions, understandings, and agreements have been merged into this written Agreement. No prior conditions, agreement, or understanding, verbal or otherwise, of the parties or their agents shall be valid or enforceable unless embodied in this written Agreement.

9.22 Interchangeable Terms. For purposes of all provisions within this Agreement and all attachments hereto, the terms "Agreement" and "Contract" shall have the same meaning and shall be interchangeable.

9.23 Words and Phrases. Words, phrases, and abbreviations which have well-known technical or trade meanings used in the Contract documents shall be used according to such recognized meaning. In the event of a conflict, the more stringent meaning shall govern.

9.24 Relationship of Contract Documents. The Contract Documents are complementary, and any requirement of one Contract Document shall be as binding as if required by all.

9.25 Pursuant to Section 13-1-191, NMSA 1978, reference is hereby made to the Criminal Laws of New Mexico (including Sections 30-14-1, 30-24-2, and 30-41-1 through 30-41-3, NMSA 1978) which prohibit bribes, kickbacks, and gratuities, violation of which constitutes a felony. Further, the Procurement Code (Sections 13-1-28 through 13-1-199, NMSA 1978) imposes civil and criminal penalties for its violation.

9.26 By entering into this Agreement, the parties do not intend to create any right, title or interest in or for the benefit of any person other than the Owner and the Contractor. No person shall claim any right, title or interest under this Agreement or seek to enforce this Agreement as a third party beneficiary of this Agreement.

ARTICLE 10
NEW MEXICO TORT CLAIMS ACT

Any liability incurred by the City of Santa Fe in connection with this Agreement is subject to the immunities and limitations of the New Mexico Tort Claims Act, Section 41-4-1, et. seq. NMSA 1978, as amended. The City and its "public employees" as defined in the New Mexico Tort Claims Act, do not waive sovereign immunity, do not waive any defense and do not waive any limitation of liability pursuant to law. No provision in this Agreement modifies or waives any provision of the New Mexico Tort Claims Act.

This Agreement is entered into as of the day and year first written above.

ATTEST:

_____
YOLANDA Y. VIGIL, CITY CLERK

APPROVED AS TO FORM:

_____ 9/16/16
KELLEY A. BRENNAN, CITY ATTORNEY

APPROVED:

_____
FINANCE DIRECTOR
FINANCE DEPARTMENT

OWNER:

_____
JAVIER M. GONZALES, MAYOR

_____
DATE

CONTRACTOR:

BY: _____

TITLE: _____

DATE: _____

NM Taxation and Revenue CRS
No _____
City of Santa Fe Business Registration
No. _____

BONDS, CERTIFICATES, AND NOTICES (Sample Forms)

(SECTION 00600)

PERFORAMNCE BOND

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	SURETY
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

PAYMENT BOND

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CERTIFICATE OF INSURANCE

CERTIFICATE OF INSURANCE

AIA DOCUMENT G705

This certificate is issued as a matter of information only and confers no rights upon the addressee. It does not amend, extend or alter the coverage afforded by the policies listed below.

Name and Address of Insured	COMPANIES AFFORDING COVERAGE	
	A	
Covering (Project Name and Location)	B	
	C	
Addressee: (Owner)	D	
	E	
	F	

This is to certify that the following described policies, subject to their terms, conditions and exclusions, have been issued to the above named insured and are in force at this time.

TYPE OF INSURANCE	CO. CODE	POLICY NUMBER	EXPIRATION DATE	LIMITS OF LIABILITY IN THOUSANDS	EACH OCCURRENCE	AGGREGATE
1. (a) Workers' Compensation				Statutory		
(b) Employer's Liability					$	Each Accident
2. Comprehensive General Liability including: ☐ Premises - Operations ☐ Independent Contractors ☐ Products and Completed Operations ☐ Broad Form Property Damage ☐ Contractual Liability ☐ Explosion and Collapse Hazard ☐ Underground Hazard ☐ Personal Injury with Employment Exclusion Deleted				Bodily Injury	$	$
				Property Damage	$	$
				Bodily Injury and Property Damage Combined	$	$
				*Applies to Products and Completed Operations Hazard		$ (Personal Injury)
3. Comprehensive Automobile Liability ☐ Owned ☐ Hired ☐ Non-Owned				Bodily Injury (Each Person)	$	
				Bodily Injury (Each Accident)	$	
				Property Damage	$	
				Bodily Injury and Property Damage Combined	$	
4. Excess Liability ☐ Umbrella Form ☐ Other than Umbrella				Bodily Injury and Property Damage Combined	$	$
5. Other (Specify)						

1. Products and Completed Operations coverage will be maintained for a minimum period of ☐ 1 ☐ 2 year(s) after final payment.
2. Has each of the above listed policies been endorsed to reflect the company's obligation to notify the addressee in the event of cancellation or non-renewal? ☐ Yes ☐ No

CERTIFICATION

I hereby certify that I am an authorized representative of each of the insurance companies listed above, and that the coverages afforded under the policies listed above will not be cancelled or allowed to expire unless thirty (30) days written notice has been given to the addressee of this certificate.

Name of Issuing Agency — Signature of Authorized Representative

Address — Date of Issue

DATE

NAME
ADDRESS
CITY/STATE/ZIP

RE:

Dear:

"OFFICIAL NOTICE-TO-PROCEED"

On _____, the City Manager awarded a Construction Contract to your firm for Capital Improvements Program Project No. 3047C, CITY OF SANTA FE WATER DIVISION – BUCKMAN PARALLEL PIPELINE – Bid Number '17/15/B.

This letter shall serve as official Notice-to-Proceed with the work described for this project in the Contract Documents and Request for Bids_____.

The award of the Contract is based on your Bid proposal dated _____, in the amount of $_____.

Based on the date of issuance of this notice, as starting date, _____, and the _____ ( ) contract work time limit, the entire work under this Contract shall be substantially completed by _____.

Attached are two (2) signed copies of the Agreement between Owner and Contractor. These are for your files and Surety Company.

Please comply with the requirements for filing payroll statements with the State Labor Commission and the City Contract Compliance Officer.

Please acknowledge receipt of this notice and return signed copies to the Owner (City of Santa Fe, Capital Improvements Program) and Engineer (Kristin Johansen; kgjohansen@ci.santa-fe.nm.us).

Sincerely,

RECEIPT ACKNOWLEDGED:

_____

By
_____
Nick Schiavo, P.E.
Acting Public Utilities and Water Division Director
Sangre De Cristo Water Division

Date

xc: Project/Book File

GENERAL CONDITIONS OF THE CONTRACT

(SECTION 00700)

NOTICE

This document has been prepared by the Capital Improvements Program (CIP) and Contract Compliance staff of the City of Santa Fe for use in construction projects.

DOCUMENT - SECTION 00710

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

(THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES;
CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH
RESPECT TO ITS COMPLETION OR MODIFICATION.)

TABLE OF ARTICLES

ARTICLE 1

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary, and Other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a written interpretation issued by the Owner's Representative, or (4) a written order for a minor change in the work issued by the Owner's Representative. The Contract Documents do not include Bidding Documents such as the Advertisement or Invitation to Bid, the Instructions to Bidders, sample forms, the Contractor's Bid, or portions of Addenda relating to any of these, or any other documents, unless specifically enumerated in the Owner-Contractor Agreement.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Owner's Representative and the Contractor, but the Owner's Representative shall be entitled to performance of obligations intended for his benefit, and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner or the Owner's Representative and any Subcontractor or Sub-subcontractor.

1.1.3 THE WORK

The work comprises the design and completed construction required by the Contract Documents, and includes design specifications, and all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 THE PROJECT

The Project is the total design and construction of which the work performed under the Contract Documents may be the whole or a part.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 No fewer than five (5) copies of the Contract Documents shall be signed by the Owner and the Contractor. If either the Owner or the Contractor or both do not sign the Conditions of the Contract, Drawings, Specifications, or any of the other Contract Documents, the Owner's Representative shall identify such Documents.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such

recognized meanings. In the event of a conflict between the Contract Documents, the more stringent requirements shall govern.

1.2.4 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the work among Subcontractors or in establishing the extent of work to be performed by any trade.

ARTICLE 2

ENGINEER

2.1 DEFINITION

2.1.1 The Engineer is the person lawfully license to practice engineering, or an entity lawfully practicing engineering identified as such in the Owner-Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Engineer" means the Engineer or his authorized representative.

2.2 ADMINISTRATION OF CONTRACT – SANGRE DE CRISTO WATER DIVISION

2.2.1 The Engineer will provide administration of the Contract as hereinafter described.

2.2.2 The Engineer will be the Owner's representative during construction and until final payment is due. The Engineer will advise and consult with the Owner. The Owner's instructions to the Contractor shall be forwarded through the Engineer. The Engineer shall have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with Subparagraph 2.2.17.

2.2.3 The Engineer shall submit to the Owner, for approval, a list of critical inspection points based upon the construction schedule furnished by the Contract (Paragraph 4.10.1). The Engineer and his staff (including the on-site representative, if agreed upon) shall make at least three (3) weekly visits to the site at those critical points and at other times as the Engineer deems appropriate during the progress of the work. Additionally, the Engineer shall familiarize himself with the progress and quality of the work and determine if the work is proceeding in accordance with the Contract Documents. On the basis of on-site observations, as an Engineer, he shall guard the Owner against defects and deficiencies in the construction. Should the Engineer determine that any portion of the work varies from the intent of the Contract Documents he shall immediately notify the Contractor and the Owner of the non-compliance and the nature of the work required to correct such non-compliance. The Engineer shall recommend to the Owner, in writing, to issue a "stop work order" for any portion of the work that does not substantially comply with the intent of the Contract Documents, except as follows.

2.2.4 The Engineer shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Additionally, the Engineer shall not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Engineer shall reject work which does not meet or exceed the standards established by the Contract Documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of any work in accordance with the provisions of the Contract Documents whether or not such work be then fabricated, installed or completed.

2.2.5 The Engineer shall at all times have access to the work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the Engineer may perform his functions under the Contract Documents.

2.2.6 Based on the Engineer's observations and an evaluation of the Contractor's Application for Payment, the Engineer will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in Paragraph 9.4.

2.2.7 The Engineer will be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder by both the Owner and the Contractor.

2.2.8 The Engineer will render interpretations necessary for the proper execution or progress of the work, with reasonable promptness and in accordance with any time limit agreed upon. Either party to the Contract may make written request to the Engineer for such interpretations.

2.2.9 Claims, disputes, and other matters in question between the Contractor and the Owner relating to the execution or progress of the work or the interpretation of the Contract Documents shall be referred to the Engineer for decision which he will render in writing within a reasonable time.

2.2.10 All interpretations and decisions of the Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. In his capacity as interpreter and judge, he will endeavor to secure faithful performance by both the Owner and the Contractor, will not show partiality to either, and will not be liable for the result of any interpretation or decision rendered in good faith in such capacity.

2.2.11 The Engineer's decisions in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents.

2.2.12 The Engineer will have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work in accordance with Subparagraph 7.6.2 whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act under this Subparagraph 2.2.12, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the work.

2.2.13 The Engineer will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and samples, but only for conformance with the design concept of the work and with the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Engineer's approval of a specific item shall not indicate approval of an assembly of which the time is a component.

2.2.14 The Engineer will prepare Change Orders in accordance will Article 12 and will have authority to order minor changes in the work as provided in Subparagraph 12.3.1.

2.2.15 The Engineer will conduct inspections to determine the dates of Substantial Completion and Final Completion will receive and forward to the Owner for the Owner's review of written warranties and related documents required by the Contract and assembled by the Contractor and will issue a final Certificate of payment upon compliance with the requirements of Paragraph 9.9

2.2.16 If the Owner and Engineer agree, the Engineer will provide one or more Project Representatives to assist the Engineer in carrying out his responsibilities at the site. The duties, responsibilities and limitations of authority of any such Project Representative shall be as set forth in an exhibit to be incorporated in the Contract Documents.

2.2.17 The duties, responsibilities and limitations of authority of the Engineer as the Owner's representative during construction as set for in the Contract Documents will not be modified or extended without written consent of the Owner, the Contractor and the Engineer.

2.2.18 In case of the termination of the employment of the Engineer, the Owner shall appoint an Engineer whose status under the Contract Documents shall be that of the former Engineer.

ARTICLE 3

OWNER

3.1 DEFINITION

3.1.1 The Owner is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Owner" means the Owner or his authorized representative.

3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

3.2.1 The Owner shall, at the request of the Contractor, at the time of execution of the Owner-Contractor Agreement, furnish to the Contractor reasonable evidence that he has made financial arrangements to fulfill his obligations under the Contract. Unless such reasonable evidence is furnished, the Contractor is not required to execute the Owner-Contractor Agreement or to commence the work.

3.2.2 The Owner shall furnish all surveys describing the physical characteristics for the site for the Project.

3.2.3 Except as provided in Subparagraph 4.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments, and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

3.2.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the work.

3.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, all copies of Drawings and Specifications reasonably necessary for the execution of the work.

3.2.6 The Owner shall forward all instructions to the Contractor through the Owner's Representative.

3.2.7 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to work by Owner or by Separate Contractors, Payments and Completion, and Insurance in Articles 6, 9 and 11 respectively.

3.3 OWNER'S RIGHT TO STOP THE WORK

3.3.1 If the Contractor fails to correct defective work as required by Paragraph 13.2 or persistently fails to carry out the work in accordance with the Contract Documents, the Owner, by a written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the work, or any portion thereof, until the cause of such order has been eliminated; however, this right of the Owner to stop the work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

3.4 OWNER'S RIGHT TO CARRY OUT THE WORK

3.4.1 If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents and fails within seven days after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, after seven days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy he may have, make good such deficiencies. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Owner's Representative's additional services made necessary by such default, neglect or failure. Such action by the Owner and the amount charged to the Contractor are both subject to the prior approval of the Owner's Representative. If the payments then or thereafter due to the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

ARTICLE 4

CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Contractor" means the Contractor or his authorized representative.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner's Representative any error, inconsistency or omission he may discover. The Contractor shall be liable to the Owner or the Owner's Representative for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall perform no portion of the work at any time without Contract Documents or, where required, approved Shop Drawings, Product Data or Samples for such portion of the work.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the work under a contract with the Contractor.

4.3.3 The Contractor shall not be relieved from his obligations to perform the work in accordance with the Contract Documents either by the activities or duties of the Owner's Representative in his administration of the Contract, or by inspections, tests or approvals required or performed by persons other than the Contractor.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the work, whether or not incorporated or to be incorporated in the work.

4.4.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the task assigned to him.

4.5 WARRANTY

4.5.1 The Contractor warrants to the Owner and Owner's Representative that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and conforming to these requirements. Substitutions not properly approved and authorized, may be considered defective. If required by the Owner's Representative, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions in Paragraph 13.2.

4.5.2 The Contractor shall and hereby does warrant and guarantee all workmanship, labor, and materials performed and supplied by him or his Subcontractors for a period of one (1) year from the date of completion as evidenced by the date of the Owner's Representative's Final Certificate of Payment of this Contract. This also includes all labor required for replacing materials or equipment found to be defective within the one (1) year period. All guarantees for a longer period of time required by the work sections of these Specifications shall be secured by the Contractor

from Subcontractors and delivered to the Owner's Representative and are hereby warranted by the Contractor as much as if countersigned by him.

4.5.3 The Contractor shall and hereby does warrant and guarantee all asphalt and concrete installed for roadway and trail paving, curb and gutter, including all workmanship, labor, and materials performed and supplied by him or his Subcontractors for a period of two (2) years from the date of completion as evidenced by the date of the Owner's Representative's Final Certificate of Payment of this Contract. This also includes all labor required for replacing roadway and trail paving, curb and gutter found to be defective within the two (2) year period. All guarantees for a longer period of time required by the work sections of these Specifications shall be secured by the Contractor from Subcontractors and delivered to the Owner's Representative and are hereby warranted by the Contractor as much as if countersigned by him.

4.6 TAXES

4.6.1 The Contractor shall pay all sales, consumer gross receipts tax, use and other similar taxes for the work or portions thereof provided by the Contractor which are legally enacted at the time Bids are received, whether or not yet effective.

4.7 PERMITS, FEES AND NOTICES

4.7.1 The Contractor shall secure and pay for the building permit and for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the Contract and which are legally required at the time the Bids are received.

4.7.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the work.

4.7.3 It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Owner's Representative in writing, and any necessary changes shall be accomplished by appropriate Modification.

4.7.4 If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner's Representative, he shall assume full responsibility therefore and shall in turn notify the Owner's Representative of such action.

4.8 ALLOWANCES

4.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.

4.8.2 Unless otherwise provided in the Contract Documents:

A. These allowances shall cover the cost to the Contractor, less any applicable trade discount of the materials and equipment required by the allowance delivered at the site, and all applicable taxes;
B. The Contractor's costs for unloading and handling on the site, labor, installations costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in this allowance;
C. Whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

4.9 SUPERINTENDENT

4.9.1 The Contractor shall employ a competent Superintendent and necessary assistants who shall be in attendance at the project site during the progress of the work. The Superintendent shall represent the Contractor, and all communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

4.10 PROGRESS SCHEDULES

4.10.1 The Contractor shall, within ten (10) days after the effective date of Notice to Proceed, furnish five copies of a preliminary progress schedule describing his operations for the two-hundred and forty (240) day contract period. The preliminary progress schedule shall be a bar graph or an arrow diagram showing the items the Contractor intends to commence and complete the various work stages, operations, and contract means planned to be started during the two-hundred and forty (240) day contract period.

4.10.2 Unless otherwise specified in the Special Provisions, the Contractor shall submit for approval by the Owner's Representative, within five (5) days after the effective date of Notice to Proceed, traffic control plans prepared by a qualified individual for this project.

4.10.3 Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration. The graphic network diagram shall consist of an arrow diagram or a geometric figure and connector diagram which clearly depicts the major subdivisions of the work, the order and interdependencies of activities planned by the Contractor, as well as, activities by others which affect the Contractor's planning. The intended time for starting and completing each activity shall be shown for each construction operation. For those activities lasting more than 30 days, either the estimated time for 25-50 and 75 percent completion or other significant milestones in the course of the activity, shall be shown. In addition to the actual construction operations, the network diagram shall show such items as submittal of samples and Shop Drawings, delivery of materials and equipment, construction in the area by other forces, traffic detour controls, and other significant items related to the progress of construction. The graphic network diagram shall be printed or neatly and legibly drawn to a linear scale.

4.10.4 Activities shown shall be coordinated insofar as possible with the Contract Bid items, types of work and maximum number of activities of each type.

4.10.5 The computer printout or list of activities shall show for each activity the estimated duration, the earliest starting and finishing dates, the latest starting and finishing dates, and float or slack time. Activities which constitute the critical sequence shall be identified showing a total job duration equal to the Contract Time.

4.10.6 The written explanation shall contain sufficient information to describe the construction methods to be used and to enable the Owner's Representative to evaluate the schedule and supporting analysis for validity and practicability. If the schedule or written explanation is not accepted by the Owner's Representative, the Contractor shall resubmit the rejected items within ten (10) days after rejection.

4.10.7 The analysis may employ the use of an electric computer or may consist of a non-computer analysis if the latter is suitable to analyze the number of activities required. The adequacy of the system selected shall be acceptable to the Owner's Representative.

4.10.8 The Contractor shall submit to the Owner's Representative monthly progress status reports on dates directed by the Owner's Representative. Such reports shall list those uncompleted activities which have less than 30 days' float and which are either in progress or scheduled to be started within the next reporting period. For each of the listed activities, the following shall be shown:

A. Starting date scheduled in last critical-path-analysis.
B. Actual or intended starting date.
C. Revised activity duration, if any.

If the noted starting dates or duration delay the scheduled project completion date, the delay shall be named. Reasons for the delay shall be given with an explanation of the Contractor's proposed corrective action. The Contractor shall also note each activity completed during the report period.

4.10.9 A revised critical-path-type analysis shall be submitted when one or more of the following conditions occur:

A. When an approved Change Order significantly affects the contract completion date, or the sequence of activities.
B. When progress of any critical activity falls significantly behind the scheduled progress.
C. When delay on a non-critical activity is of such magnitude as to change the course of the critical path.
D. At any time the Contractor elects to change any sequence of activities affecting the critical path.
E. When an Application for Payment is submitted.

The revised analysis shall be made in the same form and detail as the original submittal and shall be accompanied by an explanation of the reasons for the revisions. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.

4.10.10 The Contractor shall prosecute the work in accordance with the latest critical path type analysis. Deviations therefrom shall be submitted to the Owner's Representative for review. In the event that the progress of items along the critical path is delayed, the Contractor shall revise his planning to include additional forces, equipment, shifts or hours necessary to meet the Contract completion date. All additional cost resulting therefrom will not be borne by the Owner.

4.10.11 Indicate within the progress schedule, the delivery dates for Owner furnished products and products identified under Allowances.

4.11 DOCUMENTS AND SAMPLES AT THE SITE

4.11.1 The Contractor shall maintain at the site, for the Owner, one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Owner's Representative and shall be delivered to him for the Owner upon completion of the work.

4.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

4.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.

4.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.

4.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

4.12.4 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the work or in the work of the Owner or any separate Contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents.

4.12.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the Contract Documents.

4.12.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Owner's Representative's approval of Shop Drawings, Product Data or Samples unless the

Contractor has specifically informed the Owner's Representative in writing of such deviation at the time of submission and the Owner's Representative has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Owner's Representative's approval thereof.

4.12.7 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Owner's Representative on previous submittals.

4.12.8 No portion of the work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Owner's Representative as provided in Subparagraph 2.2.13. All such portions of the work shall be in accordance with approved submittals.

4.12.9 See additional Shop Drawing and Product Requirements in Basic Requirements Section 01 00 00.

4.13 USE OF SITE

4.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not reasonably encumber the site with any materials or equipment.

4.13.2 The Contractor shall hold and save the Owner free and harmless from liability of any nature or kind arising from use, trespass or damage occasioned by third persons.

4.14 CUTTING AND PATCHING OF WORK

4.14.1 The Contractor shall be responsible for all cutting, fitting, patching or grading that may be required to complete the work or to make its several parts fit together properly.

4.14.2 The Contractor shall not damage or endanger any portion of the work or the work of the Owner or any separate contracts by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and of such separate Contractor. The Contractor shall not unreasonably withhold from the Owner or any separate Contractor his consent to cutting or otherwise altering the work.

4.15 CLEANING UP

4.15.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all his waste materials and rubbish from and about the Project as well as all his tools, construction equipment, machinery and surplus materials.

4.15.2 If the Contractor fails to clean up at the completion of the work, the Owner may do so as provided in Paragraph 3.4, and the cost thereof shall be charged to the Contractor.

4.15.3 The Contractor shall be solely responsible for performance of the following clean up:

A. Debris: Regardless of the nature of the debris, it shall be immediately cleared form the work area. Each trade shall cooperate with other trades in the removal of debris and in keeping a clean job throughout.

B. Cleaning of All Painted, Decorated, and Stained Work: The Contractor shall remove all marks, stains, finger prints, and other soil or dirt from all painted, decorated, and stained work.

C. Removal of all Temporary Protections: The Contractor shall remove all temporary protections and shall clean all floors, furnishings and structures at completion.

D. Removal of all Spots, Soils, and Other Contaminants for Paved Surfaces: The Contractor shall remove all spots, soil and debris from all paved surfaces and shall wash the same upon completion.

E. Cleaning of all Fixtures and Equipment: The Contractor shall clean all fixtures and equipment, removing all stains, paint, dirt, and dust.

4.16 COMMUNICATIONS

4.16.1 The Contractor shall forward all communications to the Owner through the Owner's Representative.

4.16.2 The Contractor shall designate a contact person to establish and maintain communication with all residents who will be affected by this construction. The Contractor shall contact all affected residents and businesses at least one week prior to commencing work and will provide updates at least weekly to the residents. Residents and businesses whose ingress and egress from their property will be temporarily blocked shall be given notice at least 48 hours prior to the blockage. Those residents and businesses shall be provided with a start and finish time when the blockage will occur. All access to properties will be restored each evening by 5 pm. Work on the project shall not commence before 8 am.

4.17 ROYALTIES AND PATENTS

4.17.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified; but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner's Representative.

4.18 INDEMNIFICATION

4.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Owner's Representative and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission by the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such negligence shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 4.18.

4.18.2 In any and all claims against the Owner or the Owner's Representative or any of their agents or employees by an employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.18 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

4.18.3 The obligation of the Contractor under this Paragraph 4.18 shall not extend to the liability of the Owner's Representative, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITION

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and

masculine in gender and means a Subcontractor or his authorized representative. The term "Subcontractor" does not include any separate Contractor or his Subcontractors.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Contractor to perform any of the work at the Site.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, shall furnish to the Owner and the Owner's Representative in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the work. The Owner's Representative will promptly reply to the Contractor in writing stating whether or not the Owner or the Owner's Representative, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or the Owner's Representative to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with any such proposed person or entity to whom the Owner or the Owner's Representative has made reasonable objection under the provisions of Subparagraph 5.2.1. The Contractor shall not be required to contract with anyone to whom he has a reasonable objection.

5.3 SUBCONTRACTUAL RELATION

5.3.1 By an appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and the Owner's Representative. Said agreement shall preserve and protect the rights of the Owner and the Owner's Representative under the Contract Documents with respect to the work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Subcontractors.

ARTICLE 6

WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or similar Conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, he shall make such claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner will provide for the coordination of the work of his own forces and of each separate Contractor with the work of the Contractor, who shall cooperate therewith as provided in paragraph 6.2.

6.1.4 The Owner will contract with a design engineer for work during this Project. The Contractor shall plan to work around and with this other firm.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and the separate Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate his work with theirs as required by the Contract Documents.

6.2.2 If any part of the Contractor's work depends for proper execution or results upon the work of the Owner or any separate Contractor, the Contractor shall, prior to proceeding with the work, promptly report to the Owner's Representative any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acceptance of the Owner's or the separate Contractor's work as fit and proper to receive his work, except as to defects which may subsequently become apparent in such work by others.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible thereof.

6.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner, or to other work on the site, the Contractor shall promptly remedy such damage as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate Contractor, the Contractor shall upon due notice promptly attempt to settle with such other Contractor by agreement, or otherwise to resolve the dispute. If such separate Contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate Contractors as to their responsibility for cleaning up as required by Paragraph 4.15, the Owner may clean up and charge the cost thereof to the Contractors responsible therefore as the Owner's Representative shall determine to be just.

ARTICLE 7

MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the State of New Mexico.

7.1.2 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him thereunder, without the previous written consent of the Owner.

7.2 WRITTEN NOTICE

7.2.1 Written notice shall be deemed to have been dully served if delivered in person to the individual or member of the firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice.

7.3 CLAIMS FOR DAMAGES

7.3.1 Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the other party or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

7.4 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.4.1 The Contractor to whom the Contract is awarded shall furnish and pay for reputable and approved Performance and Labor and Material Payment Bonds, each for the full amount of the Contract Sum. Bonds shall be executed on standard AIA forms.

7.5 RIGHTS AND REMEDIES

7.5.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.5.2 No action or failure to act by the Owner, the Owner's Representative, or the Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

7.6 TESTS

7.6.1 This work shall consist of compaction testing, material testing, and other testing in accordance with the plans and specifications. If the Contract Document, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the work to be inspected, tested or approved, the Contractor shall give the Owner's Representative timely notice of its readiness so the Owner's Representative may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals. Tests specifically called for by specifications shall be made by a professional testing laboratory acceptable to the Owner's Representative, and the Contractor shall employ same and pay all charges in connection therewith. Records of tests shall be delivered to the Engineer, contract administrator for Owner.

7.6.2 If the Owner's Representative determines that any work requires special inspection, testing, or approval which Subparagraph 7.6.1 does not include, he will, upon written authorization from the Owner, instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Subparagraph 7.6.1. If such special inspection or testing reveals a failure of the work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for the Owner's Representative's additional services made necessary by such failure; otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.

7.7 INTEREST

7.7.1 The Owner will not pay interest on payments due and unpaid under the Contract Documents.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial Completion of the work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

8.1.2 The date of commencement of the work is the date established in a Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

8.1.3 The date of Substantial Completion of the work or designated portion thereof is the date certified by the Owner's Representative and approved by the Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the work or designated portion thereof for the use for which it is intended.

8.1.4 The term "day" as used in the Contract Document shall mean calendar day unless otherwise specifically designated.

8.2 PROGRESS AND COMPLETION

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

8.2.2 The Contractor shall begin the work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is delayed at any time in the progress of the work by any act or neglect of the Owner or the Owner's Representative or by any employees of either, or by any separate Contractor employed by the Owner or by changes ordered in the work, or by labor disputes, fire, unusual delay in unavoidable casualties, or any causes beyond the Contractor's control or by delay authorized by the Owner pending arbitration, or by any other cause which the Owner's Representative determines may justify the delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner's Representative may determine.

8.3.2 Any claim for extension of time shall be made in writing to the Owner's Representative not more than twenty days after the commencement of the delay; otherwise it shall be waived. In the case of a continuing delay, only one claim is necessary. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the work.

8.3.3 If written agreement is made stating the dates upon which interpretations shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen days after written request is made for them, and not then unless such claim is reasonable.

8.3.4 This Paragraph 8.3 does not exclude the recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner's Representative a schedule of values allocated to the various portions of the work, prepared in such form and supported by such data to substantiate its accuracy as the Owner's Representative may require. This schedule, unless objected to by the Owner's Representative, shall be used only as a basis for the Contractor's Applications for payment. Submit

schedule of values on the Construction Progress sheet within the Application for Payment forms provided in the Construction Contract Documents, or on other form acceptable to the Engineer. Contractor's standard form or electronic media printout will be considered.

9.2.2 Base structure of Schedule of Values on Bid Schedule with identical item numbering, quantities, and values.

9.2.3 Contractor shall prepare a schedule of values breakdown for lump sum bid items on the Bid Form and submit to Owner and Engineer for approval.

9.2.4 Submit Schedule of Values in duplicate at least 15 days prior to first Progress Meeting.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten days before the date for each progress payment established in the Owner-Contractor Agreement, the Contractor shall submit to the Owner's Representative an itemized Application for Payment, or Partial Payment Estimate, notarized if required, supported by such data substantiating the Contractor's right to payment as the Owner or the Owner's Representative may require and reflecting retainage, if any, as provided elsewhere in the Contract Documents. On the Owner's Representative's recommendation, and after the Project is 50% or more complete, and if the Project is on schedule, the retainage may be reduced with the approval of the Owner. The full Contract retainage may be reinstated if the manner of completion of the work and its progress do not remain satisfactory to the Owner's Representative and the Owner. Submit one (1) electronic copy of each application on the Partial Payment Estimate form provided in the Contract Documents, together with updated Schedule of Values identifying fully the list of items in the Application for Payment.

9.3.2 The Contractor warrants that title to all work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interest or encumbrances hereinafter referred to in this Article 9 as "liens"; and that no work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing work at the site or furnishing materials or equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

9.3.3 The Partial Payment Estimate forms consist of four sections: Cover Sheet, Construction Progress spreadsheet, Materials-On-Hand form, and Monthly Construction Progress Certificate. The purpose of the Monthly Construction Progress Certificate is to provide a complete account of all change orders/claims for the corresponding contract period, and all outstanding change orders/claims from previous contract periods, and waives any rights to further adjustments in contract times or price for any change orders/claims that originated in the current contract period.

9.3.4 Engineer will take measurements and compute quantities accordingly. The Contractor will assist in taking of measurements and determination of work completed prior to preparation of corresponding Application for Payment.

9.3.5 Submit revised progress schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Owner's Representative will, within ten (10) days after the receipt of the Contractor's Application for Payment, either issue a Certificate for Payment to the Owner with a copy to the Contractor for such amount as the Owner's Representative determines is properly due, or notify the Contractor in writing of his reasons for withholding a Certificate as provided in Subparagraph 9.6.1.

9.4.2 The issuance of Certificate for Payment will constitute a representation by the Owner's Representative to the Owner, based on his observations at the site and the data comprising the Application for Payment, that the work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the work is in accordance with the Contract Documents (subject to an evaluation of the work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the

Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the Contractor is entitled to payment in the amount certified. However, by issuing a Certificate for Payment, the Owner's Representative shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the work or that he has reviewed the construction means, methods, techniques, sequences or procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum.

9.5 PROGRESS PAYMENTS

9.5.1 After the Owner's Representative has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

9.5.2 The Contractor shall promptly pay each Subcontractor upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payment to his Subcontractors in similar manner.

9.5.3 The Owner's Representative may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Owner's Representative on account of work done by such Subcontractor.

9.5.4 Neither the Owner nor the Owner's Representative shall have any obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.

9.5.5 No Certificate for progress payment, no progress payment, nor any partial or entire use of occupancy of the Project by the Owner shall constitute an acceptance of any work not in accordance with the Contract Documents.

9.6 PAYMENT WITHHELD

9.6.1 The Owner's Representative may decline to certify payment and may withhold his Certificate in whole or in part, to the extent necessary to reasonably protect the Owner, if in his opinion he is unable to make representations to the Owner as provided in Subparagraph 9.4.2.

9.6.2. If the Owner's Representative is unable to make representations to the Owner, as provided in Subparagraph 9.4.2 and to certify payment in the amount of the Application, he will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and Owner's Representative cannot agree on a revised amount, the Owner's Representative will promptly issue a Certificate for Payment for the amount for which he is able to make such representations to the Owner. The Owner's Representative may also decline to certify payment, or because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Certificate for Payment previously issued, to such extent as may be necessary in his opinion to protect the Owner from loss because of:

A) Defective work not remedied;

B) Third party claims filed or reasonable evidence indicating probable filing of such claims;

C) Failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

D) Reasonable evidence that the work cannot be completed for the unpaid balance of the Contract Sum;

E) Damage to the work of another Contractor;

F) Reasonable evidence that the work will not be completed within the Contract Time; or,

G) Failure to carry out the work in accordance with the Contract Documents.

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed or remedied, payment shall be made for amounts withheld because of them.

9.7 FAILURE OF PAYMENT

9.7.1 If the Owner's Representative does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents any amount certified by the Owner's Representative, then the Contractor may, upon seven additional days' written notice to the Owner and the Owner's Representative, stop the work until payment of the amount owing has been received. The Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be effected by appropriate Change Order in accordance with Paragraph 12.3.

9.8 SUBSTANTIAL COMPLETION

9.8.1 When the Contractor considers that the work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for submission to the Owner's Representative a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents. When the Owner's Representative, with the Owner, on the basis of an inspection determines that the work or designated portion thereof is substantially complete, he will then prepare a Certificate of Substantial Completion Form, AIA Document G704-1978, which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security and maintenance, and the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the date of Final Completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Contractor and the Owner for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 Upon Substantial Completion of the work or designated portion thereof and upon application by the Contractor and certification by the Owner's Representative, the Owner shall make payment, reflecting adjustment in retainage, if any, for such work or portion thereof, as provided in the Contract Documents.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner's Representative will promptly make such inspection and, if he finds the work acceptable under the Contract Documents and the Contract fully performed, he will promptly issue final Certificate for Payment stating that, to the best of his observations and inspections, the work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Certificate, is due and payable. The Owner's Representative's Final Certificate of payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.2 have been fulfilled.

9.9.2 Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Owner's Representative (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Owner or his property might in any way be responsible have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, and (3) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designed by the Owner. If any Subcontractor refuses to furnish a release or waiver required by the Owner the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.9.3 If, after Substantial Completion of the work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of Change Orders affecting final completion, and the Owner's Representative so confirms, the Owner shall, upon application by the Contractor and certification by the Owner's Representative and without terminating the Contract, make payment of the balance for that portion of the work fully completed and accepted. If the remaining balance for work not fully completed or corrected is less than the retainage stipulated in the Contract Document, and if bonds have been furnished as provided in Paragraph 7.4, the written consent of the surety to the payment of the balance due for that portion of the work fully completed and accepted shall be submitted by the Contractor to the Owner's Representative prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.9.4 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

A) Unsettled liens;
B) Faulty or defective work appearing after Substantial Completion;
C) Failure of the work to comply with the requirements of the Contract Documents; and
D) Terms of any special warranties required by the Contract Documents.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

9.10 RETAINAGE

9.10.1 Progress Payments will be made to the Contractor in accordance with Article 9 "Payments and Completion". The Owner will pay 100% of the value of Work performed and Materials complete in place, until the sum of the Progress Payments made equals 95% of the Total Original Contract Amount as amended by Change Order. The five percent (5%) retained when the Progress Payments equals 95% of the Total Original Contract Amount as amended by Change Order is the amount considered necessary to protect the interests of the public and the Owner; those interests include ensuring that the Work is Acceptable, on schedule, in compliance with the Contract, and that the Work reaches Substantial Completion and final Acceptance. Subject to other deductions, the amount retained shall be provided to the Contractor in accordance with Section 9.9 "Final Completion and Final Payment".

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible in initiating, maintaining and supervising all safety precautions and programs in connection with the work.

10.2. SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

10.2.1.1 All employees on the work and all other persons who may be affected thereby;
10.2.1.2 All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and
10.2.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy all damage or loss (other than damage or loss insured under paragraph 11.3) to any property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to the acts or omissions of the Owner or the Owner's Representative or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligations under Paragraph 4.18.

10.2.6 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Owner and the Owner's Representative.

10.2.7 The Contractor shall not load or permit any part of the work to be loaded so as to endanger its safety.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at his reasonable discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for changes in the work.

ARTICLE 11

INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1. The Contractor shall carry insurance to protect the City of Santa Fe from and against all claims, demands, actions, judgments, costs, expenses and liabilities which may arise or result directly or indirectly from or by reasons of loss, injury or damage related to the Project. The Contractor shall file with the City of Santa Fe current certificates evidencing public liability insurance with limits as provided in the New Mexico Tort Claims Act, Section 41-4-19 NMSA 1978, and as that section or successors section may be amended from time to time. The contractor shall also carry such insurance as it deems necessary to protect it from all claims under any workmen's compensation law in effect that may be applicable to the Contractor. All insurance required by this Agreement shall be kept and remain in full force and effect for the entire life of this Agreement.

11.1.2. The insurance coverage shall include worker's compensation, employer's liability, comprehensive general liability (Premises-Operations, independent contractors, products and completed operations, broad form property damage, contractual liability, explosion and collapse hazard, underground Hazard, personal injury) comprehensive automobile liability (owned and hired), excess liability (umbrella form), and all-risk builder's risk.

11.1.3. All insurance coverage must be maintained for the entire life of the Project. Products and completed operations coverage shall be maintained for a minimum period of one (1) year after final payment.

11.1.4. A valid certificate of insurance must be submitted to the Owner prior to issuance of a Notice-to-Proceed.

Type of Required Coverage	Minimum Limits of Liability
Workman's compensation (including accident and occupational disease coverage)	Statutory
Employer's Liability	$100,000
Comprehensive General Liability (including endorsements providing broad form property damage coverage, personal injury coverage, and contractual assumption of liability coverage for all liability the Contractor has assumed under his Contract).	Bodily injury liability: $500,000 each occurrence; $1,000,000 aggregate. Property damage liability: $500,000 each occurrence; $1,000,000 aggregate.
Auto Liability (including non-owned auto coverage)	Bodily injury liability: $500,000 each person; $1,000,000 each occurrence. Property damage liability: $1,000,000 each occurrence

11.1.5 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the work. These Certificates shall contain a provision that coverage afforded under the policies will not be canceled until at least thirty days' prior written notice has been given to the Owner. The Contractor shall furnish one (1) copy of each of the Certificates of insurance herein required for each copy of the Contract.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for purchasing and maintaining his own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against all claims which may arise from operations under the Contract.

11.3 PROPERTY INSURANCE

11.3.1 The Contractor shall maintain traditional course of construction insurance upon the work at the site for at least the actual cash value thereof. The traditional course of construction insurance shall cover the interests of the Owner, the Contractor, Subcontractors, and Sub-subcontractors in the work. The insurance shall insure against at least the following perils: fire extended coverage, vandalism, malicious mischief, and flood insurance with a deductible of no more than $25,000. The Contractor shall bear the cost of such insurance and include its cost in the Bid.

11.3.2 Any loss insured under Subparagraph 11.3.1 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear subject to the requirements of any applicable mortgage clause. The Owner shall deposit the proceeds in a separate account and shall distribute them in accordance with such agreement as the parties in interest, including the Owner, may reach. The Contractor shall pay each Subcontractor a just share of any insurance proceeds which the Contractor receives and shall require by written agreement signed by the Subcontractor that the Subcontractor will make payments to his Sub-subcontractors in a similar manner. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate order.

11.3.3 To the extent permitted under their respective property insurance policies, the Owner and the Contractor hereby waive all rights, each against the other, for damages caused by fire or other perils to the extent covered by Insurance obtained pursuant to this Article 11 or any other property insurance applicable to the work, except such rights as they may have to the proceeds of such Insurance held by the Owner as trustee. The Owner or the Contractor, as appropriate, shall require the Owner's Representative, other Contractors, Subcontractors, and Sub-subcontractors to similarly waive rights of subrogation or property insurers.

11.3.4 If the Owner finds it necessary to occupy use of any portion of the work prior to Substantial Completion, such occupancy or use shall not commence prior to the time mutually agreed to by the Owner and the Contractor and, if

required by the applicable insurance or self-insurance coverage not prior to the time the builder's risk property insurer has consented to such occupancy or use. The Contractor's consent to such occupancy or use shall not be unreasonably withheld.

11.4 LOSS OF USE INSURANCE

11.4.1 The Owner, at his option, may purchase and maintain such insurance as will insure him against loss of use of his property due to fire or other hazards, however caused.

ARTICLE 12

CHANGES IN THE WORK

12.1 CHANGE ORDERS

12.1.1 A Change Order is a written order to the Contractor signed by the Owner's Representative and the Contractor and approved in writing by the Owner. A Change Order may be issued only after the execution of the Contract and shall be the only means used to order changes in the work for which the Contractor requires additional compensation, changes to the Contract Time, or changes to the Contract Sum. Minor changes in the work for which the Contractor requires no additional compensation or time shall be executed in accordance with the provision of Subparagraph 12.3.1. All Change Orders shall be prepared on the form provided in these Contract Documents.

12.1.2 The Owner, without invalidating the Contract, may order changes in the work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the work shall be authorized by Change Order and shall be performed under the applicable conditions of the Contract Documents.

12.1.3 The cost or credit to the Owner resulting from a change in the work shall be determined in one or more of the following ways:

A) By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
B) By unit prices stated in the Contract Documents or subsequently agreed upon;
C) By cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
D) By the method provided in Subparagraph 12.1.4.

12.1.4 If none of the methods set forth in Clauses 12.1.2 or 12.1.3 is agreed upon, the Contractor, provided he receives a written order signed by the Owner, shall promptly proceed with the work involved. The cost of such work shall the be determined by the Owner's Representative on the basis of the reasonable expenditures and savings of those performing the work attributable to the change, including, in the case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, the Contractor shall keep and present, in such form as the Owner's Representative may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits, required by agreement or custom, workers' or workmen's compensation insurance; bond premiums; rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost to the Owner payments on account shall be made on the Owner's Representative's Certificate for payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract Sum will be the amount of the actual net cost as confirmed by the Owner's Representative. When both additions and credits covering related work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.

12.1.5 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of work proposed will cause substantial inequity to the Owner or the Contractor, the applicable unit prices shall be equitably adjusted.

12.1.6 By submission of a Bid, the Contractor agrees and binds himself to the following method of calculating Change Order costs. The Owner also agrees to the following method of calculating the cost of any changes to the Contract. With each proposal for a change in the amount of the Contract, the Contractor shall submit an itemized breakdown of all increases or decreases in the cost of the Contractor's and all Subcontractor's and Sub-subcontractor's work to include at least the following detail in the general order listed:

A) Material quantities and unit costs;

B) Labor amounts and hourly rates (identified with specific items of material to be placed or operation to be performed);

C) Costs inherent in use of Contractor/Sub-subcontractor owned equipment;

D) Equipment rental, if any;

E) Workmen's compensation and public liability insurance;

F) General administration, overhead, supervision, project insurance and profit, based on the following schedule:

Subtotal before Applying the Percentage Shown	$500 & Less	Over $500
Contractor for work performed by his own forces	22%	19%
Contractor for work performed by Subcontractor	10%	8%
Subcontractor for work performed by his own forces	18%	15%
Subcontractor for work performed by Sub-subcontractor	10%	8%
Sub-subcontractor for work performed by his own forces	18%	15%

G) Employment taxes under FICA and FUTA; and

H) State gross receipts tax (Contractor only).

12.1.7 The quotation for work under a Change Order shall be binding for sixty (60) days from the date submitted by the Contractor.

12.2 CONCEALED CONDITIONS

12.2.1 Should concealed conditions encountered in the performance of the work below the surface of the ground or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, or should unknown physical conditions below the surface of the ground or should concealed or unknown conditions in an existing structure of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the Character provided for in this Contract, be encountered, the Contract Sum shall be equitably adjusted by Change Order upon verified claim by either party made within twenty days after the first observance of the conditions.

12.2.2 If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Owner's Representative written notice thereof within twenty days after the occurrence of the event giving rise to such claim.

This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property, in which case the Contractor shall proceed in accordance with Paragraph 10.3. No such claim shall be valid unless so made. If such claims are justified and the Owner authorizes an increase in the Contract Sum, the Owner and the Contractor shall proceed to negotiate the amount of the adjustment in the Contract Sum. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Owner's Representative. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.2.3 If the Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation, (2) any order by the Owner to stop the work pursuant to Paragraph 3.3 where the Contractor was not at fault, (3) any written order for a minor change in the work issued pursuant to Paragraph 12.3.1or (4) failure of payment by the Owner pursuant to Paragraph 9.7, the Contractor shall make such claims as provided in Subparagraph 12.2.2.

12.3 MINOR CHANGES IN THE WORK

12.3.1 The Owner's Representative will have authority to order minor changes in the work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 13

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the work should be covered contrary to the request of the Owner's Representative or to requirements specifically expressed in the Contract Documents, it must, if required by the Owner's Representative, be uncovered for his observation and shall be replaced at the Contractor's expense.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly correct all work rejected by the Owner's Representative as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected work, including compensation for the Owner's Representative's additional services made necessary thereby.

13.2.2 If, within one year after the Date of Substantial Completion of the work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a specific written acceptance of such condition. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

13.2.3 The Contractor shall remove from the site all portions of the work which are defective or non-conforming and which have not been corrected under Subparagraphs 4.5, 13.2.1 and 13.2.2, unless removal is specifically waived in writing by the Owner.

13.2.4 If the Contractor fails to correct defective or non-conforming work as provided in Subparagraph 4.5.1, 13.2.1 and 13.2.2, the Owner may correct it in accordance with Paragraph 3.4.

13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming work within a reasonable time fixed by written notice from the Owner's Representative, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage

within ten days thereafter, the Owner may upon ten additional days' written notice sell such work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor including compensation for the Owner's Representative's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate Contractors destroyed or damaged by such correction or removal.

13.2.7 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of one year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the Contractor to correct the work and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or non-conforming work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 14

TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 If the work is stopped for a period of thirty days under an order of court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or a Sub-contractor or their agents or employees or any other persons performing any of the work under a contract with the Contractor, or because the Owner's Representative has not issued a Certificate for payment as provided in Paragraph 9.7, or because the Owner has not made payment thereon as provided in paragraph 9.7, then the Contractor may, upon seven additional days' written notice to the Owner and the Owner's Representative, terminate the Contract and recover from the Owner payment for all work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery, including reasonable profit and damages.

14.2 TERMINATION BY THE OWNER

14.2.1 If the Contractor is adjudged bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he fails to make prompt payment to Subcontractors for material or labor, or persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contract Documents, then the Owner, upon certification by the Owner's Representative that sufficient cause exists to justify such action, may without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven days written notice, terminate the employment of the Contractor and take possession of the site and of all material, tools, construction equipment and machinery thereon owned by the Contractor and may finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished.

14.2.2 If the unpaid balance of the Contract Sum exceeds the costs of finishing the work, including compensation for the Owner's Representative's additional services made necessary thereby, and any damages sustained by the Owner as a result of the Contractor's breach, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or to the Owner, as the case may be, shall be certified by the Owner's Representative upon application, in the manner provided in paragraph 9.4 and this obligation to the Contractor or to the Owner, as the case may be, shall be certified by the Owner's Representative upon application, in the manner provided in Paragraph 9.4 and this obligation for payment shall survive the termination of the Contract.

14.2.3 In the event that the Project is abandoned by the Owner, the Owner may terminate this contract at any time by giving at least seven (7) days' notice to the Contractor. In the event of termination, all work completed shall become the property of the Owner. The Contractor shall be entitled to receive compensation for actual work satisfactorily completed hereunder, including reimbursable expense authorized by the Owner which are then due.

14.2.4 In the event the Contractor fails to perform the work in accordance with the Contract Documents, the Owner may terminate the Contract after giving the Contractor five (5) working days' notice.

ARTICLE 15

EQUAL OPPORTUNITY

15.1 The Contractor shall maintain policies of employment as follows:

15.1.1 The Contractor, all Subcontractors, and all Sub-subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated without discrimination during employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous place, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

15.1.2 The Contractor, all Subcontractors, and all Sub-subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf, state that all qualified applicant will receive consideration for employment without regard to race, religion, color, sex, or national origin.

ARTICLE 16

MINIMUM WAGE RATES

16.1 The project is subject to ***New Mexico Wage Decision # SF-16-0292-H*** and the City of Santa Fe's Minimum Wage Ordinance both attached.

SUPPLEMENTARY CONDITIONS

(SECTION 00800)

SUPPLEMENTARY CONDITIONS (SECTION 00800)

SUPPLEMENTARY CONDITIONS

This document is intended to be used in conjunction with the General Conditions of the Contract.

ADDITIONAL CONDITIONS

1.0 DEFINITIONS - The following definitions shall apply through the Bidding Documents or Contract Documents unless otherwise specified.

1.1 ADDENDUM: Written or graphic instrument issued prior to the execution of the Contract which modifies or interprets the Bidding Documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed. Plural: ADDENDA

1.2 ADDITIVE OR DEDUCTIVE ALTERNATE BID: Amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in project scope or alternate materials and/or methods of construction is accepted.

1.3 BASE BID: Amount of money stated in the Bid as the sum for which the Bidder offers to perform the work, not including that work for which Alternate Bids are also submitted.

1.4 BID: A complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein, supported by data called for by the Bidding Documents.

1.5 BID LOT: A major item of work for which a separate quotation or proposal is requested.

1.6 BIDDER: One who submits a Bid for a prime contract with the Owner, as distinct from a Subcontractor, who submits a Bid to a Bidder. Technically, a Bidder is not a Contractor on a specific project until a contract exists between him and the Owner.

1.7 BIDDING DOCUMENTS: Documents that include the Invitation for Bid, Instructions to Bidders, the Bid Form, other sample bidding and contract forms, and the proposed Contract Documents, including any Addenda issued prior to receipt of Bids. The Contract Documents proposed for the work consist of the Owner-Contractor Agreement, the Conditions of the Construction Contract (General, Supplementary, and Other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract.

1.8 DAY: Calendar day, which is every day shown on the calendar, beginning and ending at midnight.

1.9 CENTRAL PURCHASING OFFICE: The Central Purchasing Office is the City of Santa Fe Purchasing Department.

1.10 GOVERNING AUTHORITY: The Governing Authority of the City of Santa Fe for the execution of construction contracts is the Mayor and City Manager.

1.11 INVITATION FOR BID: The Bidding Documents utilized for soliciting sealed Bids. "Invitation to Bid" shall have the same meaning as "Invitation for Bid".

1.12 OWNER: The City of Santa Fe, New Mexico.

1.13 PROCUREMENT OFFICER: The Director of the Purchasing Division, or a designee authorized to enter into or administer contracts and make written determination with respect thereto.

1.14 RESPONSIBLE BIDDER: A Bidder who submits a responsive Bid and who has furnished, when required, information and data to prove that his financial resources, production or service facilities, personnel, service reputation, and experience are adequate to make satisfactory delivery of the services, construction, or items of tangible personal property described in the Bidding Documents (13-1-82, NMSA 1978).

1.15 SUCCESSFUL BIDDER: The lowest qualified and responsible Bidder to whom the Owner, on the basis of the Owner's evaluation, makes an award.

1.16 UNIT PRICES: Amounts stated in the Contract as prices per unit of measurement for materials or services as described in the Contract Documents.

1.17 USER: The City of Santa Fe or agencies or designated entity for whose use the Project is being constructed.

2.0 CONTRACT AUDIT

The Owner shall be entitled to audit the books and records of a Contractor or any Subcontractor under any negotiated contract or subcontract other than a firm fixed-price contract to the extent that such books and records relate to the performance of such contract or subcontract. Such books and records shall be maintained by the Contractor for a period of three years from the date of final payment under the prime contract and by the Subcontractor for a period of three years from the date of final payment under the subcontract unless a shorter period is otherwise authorized in writing (13-1-161, NMSA 1978).

3.0 DEBARRED OR SUSPENDED CONTRACTORS

A business (Contractor, Subcontractor, or Supplier) that has either been debarred or suspended pursuant to the requirements of Sections 13-1-177 through 13-1-180, and 13-4-11 through 13-4-17, NMSA 1978, or City Purchasing provisions shall not be permitted to do business with the City and shall not be considered for award of contract during the period for which it is debarred or suspended.

4.0 BRIBES, GRATUITIES, AND KICK-BACKS

4.1 It is illegal in the State of New Mexico for any public employee to solicit or accept anything of value in connection with award of this Bid and for any person to offer or pay anything of value to any such public employee (30-24-1 through 30-24-2, NMSA 1978).

4.2 Pursuant to Section 13-1-191, NMSA 1978, reference is hereby made to the Criminal Laws of New Mexico (including 30-24-1, 30-23-2, and 30-41-1 through 3-41-3, NMSA 1978), which prohibit bribes, kick-backs, and gratuities and violation of which constitutes a felon. Further, the Procurement Code (13-1-28 through 13-1-199, NMSA 1978), imposes civil and criminal penalties for its violation

5.0 PROTESTS (CITY PURCHASING MANUAL)

5.1 Any Contractor who is aggrieved in connection with a procurement may protest to the City Purchasing Agent and the Owner. The protest should be made in writing within twenty-four (24) hours after the facts or occurrences; giving rise thereto, but in no case, not more than fifteen (15) calendar days after the facts or occurrences giving rise thereto.

5.2 In the event of a timely protest under the City Purchasing Manual, the City Purchasing Agent and the Owner shall not proceed further with the procurement unless the City Purchasing Agent or the Owner makes a determination that the award of contract is necessary to protect substantial interests of the Owner.

5.3 The City Purchasing Agent or his designee shall have the authority to take any action reasonably necessary to resolve a protest of an aggrieved Contractor concerning a procurement.

5.4 This authority shall be exercised in accordance with adopted regulations, but shall not include the authority to award money damages or attorneys' fees.

5.5 The City Purchasing Agent or his designee shall promptly issue a determination relating to the protest. The determination shall:

A) State the reasons for the action taken; and,
B) Inform the protestant of the right to judicial review of the determination pursuant to the City Purchasing Manual.

5.6 A copy of the determination issued under the City Purchasing Manual shall be mailed to the protestant.

6.0 CONTRACT BOND REQUIREMENTS

6.1 The Successful Bidder, where the Contract Price exceeds twenty five thousand dollars ($25,000), shall post a one hundred percent (100%) Performance Bond and a one hundred percent (100%) Labor and Material Payment Bond. Bonds shall be executed on Performance Bond and Labor and Material Payment Bond forms attached hereto, with amount payable conforming to the terms of the Contract. Surety shall be a company licensed to do business in the State of New Mexico and acceptable to the Owner.

6.2 Personal sureties may be accepted if the Owner so determines in advance, but in such case the amount of the Bond shall be the full Contract Price, and the sureties shall justify under oath in amounts above liabilities and exemptions aggregating double the amount of the Bond.

6.3 Special attention of Bidders is called to the requirements of Section 13-4-18 through 13-4-20, NMSA 1978 regarding a Contractor who does not have his principal place of business in the State of New Mexico for all taxes due arising out of construction services rendered under the Contract.

6.3.1 The right to sue on this Bond accrues only to the Owner and the parties to whom Sections 13-4-18 through 13-4-20, NMSA 1978 grant such right; and any such right shall be exercised only in accordance with the provisions and limitations of said statues.

7.0 NON-RESIDENT CONTRACTOR'S REQUIREMENTS REGARDING GROSS RECEIPTS TAX SURETY BOND

7.1 Section 7-1-55A, NMSA 1978 provides that any person (as defined in Section 7-1-3, NMSA 1978) engaged in the construction business who does not have his principal place of business in New Mexico and enters into a prime construction contract to be performed in this State shall, at the time such contract is entered into, furnish the Director of the Revenue Division, Taxation and Revenue Department, or his delegate with a surety bond or other acceptable security in a sum equivalent to the gross receipts to be paid under the contract multiplied by the applicable rate of the gross receipts tax imposed by Section 7-9-4, NMSA 1978 to secure payment of the tax imposed on the gross receipts from the contract, and shall obtain a certificate from the Director of the Revenue Division, Taxation and Revenue Department, or his delegate that the requirements of this paragraph have been met.

7.2 If the total sum to be paid under the contract is changed by ten percent or more after the date the surety bond or other acceptable security is furnished, to the Director or his delegate, such person shall increase or decrease, as the case may be, the amount of the bond or security within fourteen days after the change (7-1-55B, NMSA 1978).

7.3 In addition to the above requirements, the Contractor will be subject to all the requirements of the City Procurement Code.

8.0 CONTRACTOR'S GROSS RECEIPTS TAX REGISTRATION

8.1 Section 7-10-4, NMSA 1978 provides that any person (as defined in Section 7-10-3, NMSA 1978) performing services for the City of Santa Fe, as those terms are used in the Gross Receipts and Compensating Tax Act (Section 7-10-1 to 7-10-5, NMSA 1978), must be registered and be issued an identification number with the Revenue Division of the Taxation and Revenue Department to pay the gross receipts tax.

8.2 The identification number is needed to properly complete the approval process of the contract; therefore, so as to cause no delay in the processing, the Contractor must register with the State of New Mexico, Taxation and Revenue Department. For information contact:

Revenue Division
Taxation and Revenue Department
Manual Lujan Building
1200 St. Francis Drive
Santa Fe, New Mexico 87503
(505) 988-2290

8.3 If any person who performs services for the City of Santa Fe is not registered to pay the gross receipts tax, the City shall withhold payment of the amount due until the person has presented evidence of registration with the Taxation and Revenue Department to pay the gross receipts tax.

9.0 CONTRACT WITH NONRESIDENT PERSON OR PARTNERSHIPS OR UNADMITTED FOREIGN CORPORATIONS; AGENT FOR SERVICE OF PROCESS

9.1 Special attention of Bidders is called to requirements of Sections 13-4-21 through 13-4-24, NMSA 1978, whereby a public works contract with a nonresident person or partnership or foreign corporation not authorized to do business in the State shall contain a specific provision designating an agent resident within the State, and his address, upon whom process and writs in any action or proceeding against such business may be served in any action arising out of such contract.

10.0 STATE ALLOWANCES

10.1 The Contractor shall purchase the "Allowed Materials" as directed by the Owner through the Owner's Representative/Engineer on the basis of the lowest and the best Bid of at least three competitive Bids. If the actual price for purchasing the "Allowed Materials" is more or less than the "Cash Allowance", the Contract Price shall be adjusted accordingly. The adjustment in Contract Price made on the basis of the purchase price without additional charges for overhead, profit, insurance, or any other incidental expenses. The cost of installation of the "Allowed Materials" shall be included in the applicable section of the Specifications covering the work.

11.0 MINIMUM WAGE RATES

11.1 This project is subject to New Mexico State Wage Rate ***Wage Decision # SF-16-0292-H*** and the City of Santa Fe's Minimum Wage Ordinance both of which are attached.

12.0 FORM OF CHANGE ORDER AND CHANGE ORDER NOTICE TO PROCEED

12.1 The provided forms issued by the Owner are to be utilized by the Contractor, Owner's Representative/Engineer, and the Owner pursuant to the requirements of the General Conditions.

13.0 STATE OF NEW MEXICO, CONSTRUCTION INDUSTRIES DIVISION (CID)

13.1 The Contractor, at his own expense, shall secure the required building permits from the State CID as required for this Project. Contractor shall adhere to the requirements established for inspections.

14.0 CITY OF SANTA FE REQUIREMENTS

14.1 The General Contractor shall include in the Bid the cost of all landfill dumping fees; additionally, the Contractor shall be responsible that all rubble, excess materials, etc., are disposed of at an approved, legal dumping site.

14.2 Construction debris and human debris must be cleaned from the site before contractor leaves site daily.

14.3 The Contractor shall adhere to any applicable City of Santa Fe ordinances, resolutions, guidelines, and other requirements to complete the work.

CONTRACT EXHIBITS

Exhibit I – Wage Rates and Labor Enforcement Fund Registration

Exhibit II – City of Santa Fe Minimum Wage Ordinance Information

Exhibit III – Construction Administration Forms

Exhibit IV – Technical Specifications

Exhibit V – Geotechnical Report

Exhibit VI – Specifications for Materials and Equipment

Exhibit VII – Construction Drawings

EXHIBIT I – WAGE RATES AND LABOR ENFORCEMENT FUND REGISTRATION

1.0 WAGE RATES

This project is subject to the Minimum Wage Rates as determined by the New Mexico State Labor & Industrial Commission pursuant to Chapter 13, Section 13-14-11, NMSA 1978. The Minimum Wage Rates to be paid by the Contractor and any Subcontractors to their employees on this project are as listed in the New Mexico State Labor and Industrial Commission Minimum Wage Rate Decision Number ***SF-16-1643-A***.

A copy of this decision is bound in these documents immediately following this page. The Contractor shall submit within three days of the notice of award, a complete sub-contractor list and Statements of Intent (SOI) to pay Prevailing Wages for each contractor and subcontractor. In addition, all Contractors and sub-contractors shall submit one (1) certified copy of the project bi-weekly payroll, as required, to the City of Santa Fe Water Division, 801 W. San Mateo Road, Santa Fe, NM 87505, C/O Project Engineer, not later than five (5) working days after the close of each payroll period. The prime contractor shall be responsible for the submission of copies of payrolls of all sub-contractors. In addition, the contractor must ensure that when the project has been completed, the Affidavits of Wages Paid (AWP) is sent to the City of Santa Fe, Water Division at the same address as provided above.

This project is subject to the City of Santa Fe Minimum Wage Rate Ordinance Compliance: under Ordinance No. 2002-13, passed by the Santa Fe City Council on March 1, 2016 as well as any subsequent changes to the ordinance throughout the term of this contract.

(New Mexico State Labor & Industrial Commission Wage Rate Decision **WGD** & City of Santa Fe Minimum Wage Ordinance 2003-8 Following This Sheet)

Effective immediately, The Contracting Agency is accountable for ensuring compliance with 11.1.2 NMAC of its agents, contractors and sub-contractors.

Per 11.1.2.9 B(3) NMAC, the Contracting Agency or its agent shall provide the Notice of Award and Sub-Contractor lists to the New Mexico Department of Workforce Solutions (NMDWS), Labor and Industrial Bureau promptly after award of the project.

Per 11.1.2.9 C(1) NMAC, the Contracting Agency is required to obtain the Statement of Intent to Pay Prevailing Wages and the Affidavit of Wages Paid from the general contractor and all sub-contractors. Payments are not to be made until the intent form is filed.

Per 11.1.2.9 B(6) the Contracting Agency is required to obtain certified payroll records from the general contractor for all sub-contractors on a bi-weekly basis. The Contracting Agency must present the documents to the NMDWS, Labor and Industrial Bureau upon request by the Director or designee.

STATE OF NEW MEXICO
NEW MEXICO DEPARTMENT OF
WORKFORCE SOLUTIONS
Labor Relations Division,
121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
www.dws.state.nm.us

Wage Decision Approval Summary

1) Project Title: Buckman Well Field Parallel Pipeline
Requested Date: 09/08/2016
Approved Date: 09/09/2016
Approved Wage Decision Number: SF-16-1643-A

Wage Decision Expiration Date for Bids: 01/07/2017

2) Physical Location of Jobsite for Project:
Job Site Address: Near Camino La Tierra and, Day Flower Drive
Job Site City: Santa Fe
Job Site County: Santa Fe

3) Contracting Agency Name (Department or Bureau): CITY OF SANTA FE
Contracting Agency Contact's Name: City of Santa Fe
Contracting Agency Contact's Phone: (505) 955-6949 Ext.

4) Estimated Bid Opening Date: 11/15/2016

5) Estimated total project cost: $4,362,659.22
a. Are any federal funds involved?: No
b. Does this project involve a building?: No
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No
d. Are there any other Public Works Wage Decisions related to this project?: No
e. What is the ultimate purpose or functional use of the construction once it is completed?: This parallel waterline will increase the capacity of the Buckman Well Field system.

6) Classifications of Construction:

Classification Type and Cost Total	Description
Highway/Utilities (A) **Cost:** $4,362,659.22	Connection to existing 20 waterlines installation of approximately 17,400 LF of 24 inch ductile iron pipe and appurtenances, installation of appurtenances including ten (10) Air Release / Vacuum Valves, three (3) blow-off hydrants, and eight (8) buried butterfly valves, two Jack and Bore Operations including a bore underneath Camino La Tierra and a bore underneath an arroyo crossing, miscellaneous construction activities such as pavement removal and replacement, fence removal and replacement.

STATE OF NEW MEXICO
NEW MEXICO DEPARTMENT OF
WORKFORCE SOLUTIONS
Labor Relations Division
121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
www.dws.state.nm.us

PUBLIC WORKS PROJECT REQUIREMENTS

As a participant in a Public Works project valued at more than $60,000 in the State of New Mexico, the following list addresses many of the responsibilities that are defined by statute or regulation to each project stakeholder.

Contracting Agency

- Ensure that all Contractors wishing to bid on a Public Works project when the project is $60,000 or more are actively registered with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa (Contractor Registration) prior to bidding.
- Please submit Notice of Award (NOA) and Subcontractor List(s) to the PWAA website promptly after the project is awarded.
- Please update the Subcontractor List(s) on the PWAA website whenever changes occur.

General Contractor

- Provide a complete Subcontractor List and Statements of Intent (SOI) to pay Prevailing Wages for each Contractor to the Contracting Agency within 3 (three) days of award.
- Ensure that all Subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Submit bi-weekly certified payrolls to the Contracting Agency.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- Confirm the Wage Rate poster, provided in PWAA, is displayed at the job site in an easily accessible place.
- Make sure, when a project has been completed, the Affidavits of Wages Paid (AWP) is sent to the Contracting Agency.

Subcontractor

- Ensure that all Subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Submit bi-weekly certified payrolls to the General Contractor(s).

STATE OF NEW MEXICO
NEW MEXICO DEPARTMENT OF
WORKFORCE SOLUTIONS
Labor Relations Division
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- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.

Additional Information

Reference material and forms may be found at New Mexico Department of Workforce Solutions Public Works web pages at: http://www.dws.state.nm.us/new/Labor_Relations/publicworks.html.

CONTACT INFORMATION

Contact the Labor Relations Division for any questions relating to Public Works projects by email at public.works@state.nm.us or call (505) 841-4400.

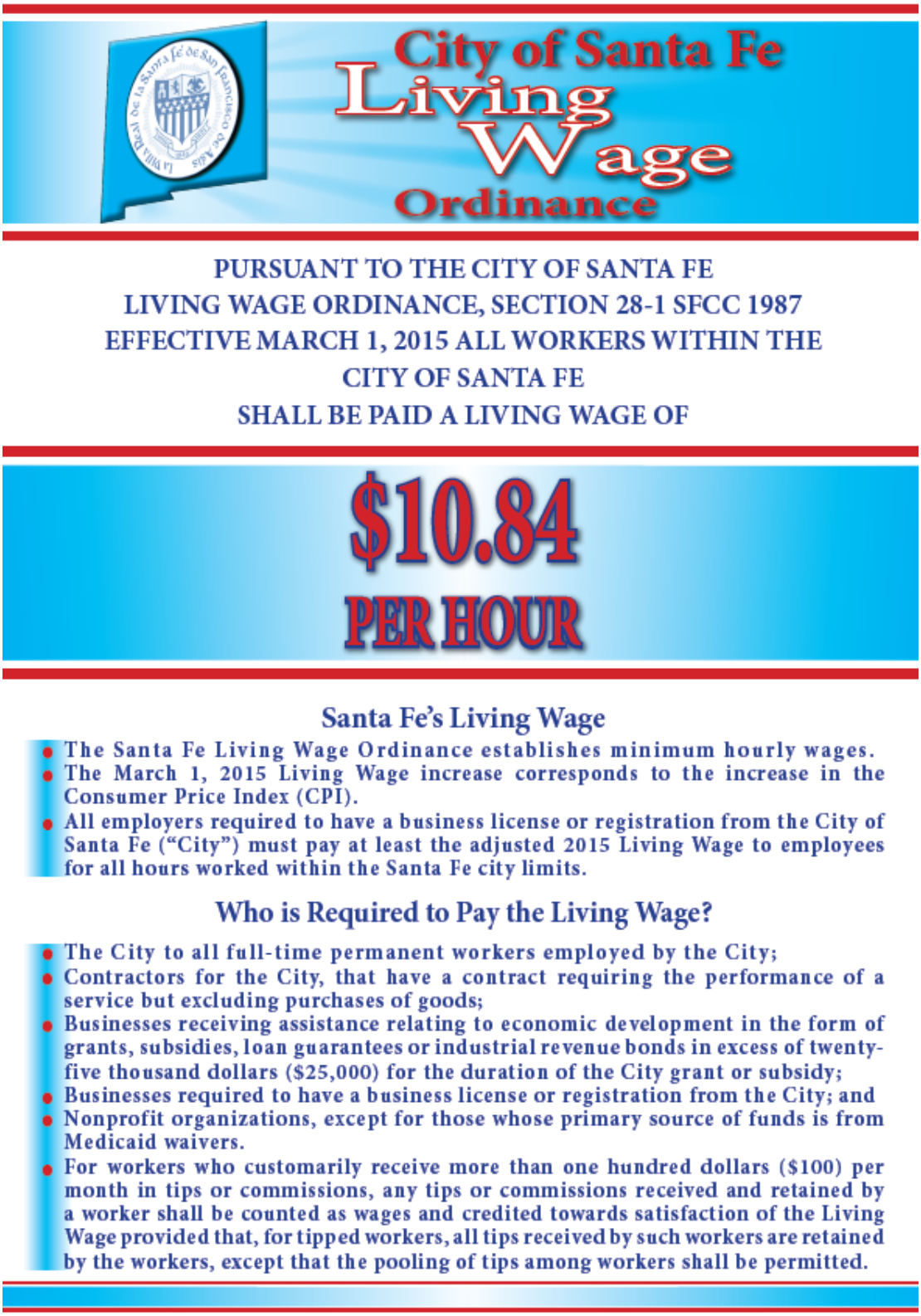
TYPE "A" - STREET, HIGHWAY, UTILITY & LIGHT ENGINEERING

Effective January 1, 2016

Trade Classification	Base Rate	Fringe Rate
Bricklayer/Blocklayer/Stonemason	23.32	8.04
Carpenter/Lather	23.40	9.02
Cement Mason	17.11	6.32
Ironworker	26.50	14.32
Painter (Brush/Roller/Spray)	16.00	5.58
Electricians (outside)		
Groundman	21.28	10.53
Equipment Operator	30.54	12.94
Lineman/Wireman or Tech	35.94	14.34
Cable Splicer	39.52	15.28
Plumber/Pipefitter	28.30	4.07
Laborers		
Group I	12.20	5.30
Group II	12.50	5.30
Group III	12.90	5.30
Operators		
Group I	16.69	6.16
Group II	17.44	6.16
Group III	17.55	6.16
Group IV	17.63	6.16
Group V	17.75	6.16
Group VI	17.89	6.16
Group VII	18.27	6.16
Group VIII	18.50	6.16
Group IX	25.45	6.16
Group X	28.35	6.16
Truck Drivers		
Group I	13.32	0.26
Group II	13.52	0.26
Group III	13.72	0.26
Group IV	13.92	0.26

NOTE: SUBSISTENCE, ZONE AND INCENTIVE PAY APPLY ACCORDING TO THE PARTICULAR TRADES COLLECTIVE BARGAINING AGREEMENT. DETAILS ARE LOCATED AT WWW.DWS.STATE.NM.US.

EXHIBIT II – CITY OF SANTA FE MINIMUM WAGE ORDINANCE INFORMATION



City of Santa Fe Minimum Wage Ordinance 2003-8

CITY OF SANTA FE, NEW MEXICO

LIVING WAGE ORDINANCE

AMENDED*: 11/28/07 (Ord. 2007-43)

EFFECTIVE DATE OF AMENDMENT: 1/1/08

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* Ord. No. 2007-43 amended Section 28-1.2 and Section 28-1.5 of the Santa Fe City Code, the remainder of Article 28-1 remained the same

28-1 LIVING WAGE.

28-1.1 Short Title.

This section may be cited as the "Living Wage Ordinance". (Ord. #2002-13, §1)

28-1.2 Legislative Findings.

The governing body of the city has determined that:

A. The public welfare, health, safety and prosperity of Santa Fe require wages and benefits sufficient to ensure a decent and healthy life for workers and their families;

B. Many Santa Fe workers earn wages insufficient to support themselves and their families;

C. Many Santa Fe workers cannot participate in civic life or pursue educational, cultural, and recreational opportunities because they must work such long hours to meet their households' most basic needs;

D. Minimum wage laws promote the general welfare, health, safety and prosperity of Santa Fe by ensuring that workers can better support and care for their families through their own efforts and without financial governmental assistance;

E. The average earnings per job in Santa Fe County is twenty-three percent (23%) below the national average and the cost of living is eighteen percent (18%) higher than the national average;

F. Housing costs in Santa Fe are much higher than in most other parts of New Mexico, and low income workers must therefore spend a disproportionate percentage of their income sheltering themselves and their families;

G. Livable wages also benefit employers and the economy as a whole by improving employee performance, reducing employee turnover, lowering absenteeism, and thereby improving productivity and the quality of the services provided by employees;

H. When businesses do not pay a livable wage, the community bears the cost in the form of increased demand for taxpayer-funded social services including homeless shelters, soup kitchens and healthcare for the uninsured. Coupled with high real estate values, low wages reduce the ability of low- and moderate-income residents to access affordable housing. As a result, the city has had to invest significant tax dollars to support affordable housing including funding to nonprofit organizations, purchasing land, building infrastructure and waiving fees. In addition, the city has allocated significant tax dollars to operate after school and summer recreation programs and to support nonprofit organizations offering an array of human services and children and youth services, all of which are needed by very low-income residents and their families;

I. It is in the public interest to require certain employers benefiting from city actions and funding, and from the opportunity to do business in the city, to pay employees a minimum wage, a "living wage", adequate to meet the basic needs of living in Santa Fe;

J. According to the 2000 Census, approximately twelve and three-tenths percent (12.3%) of the Santa Fe community lives below the poverty level; and

K. According to the New Mexico department of labor, twenty-three and one-half percent (23.5%) of Santa Feans who are employed in the nongovernmental sector earn hourly wages of ten dollars and fifty cents ($10.50) per hour or less.

L. The governing body has reviewed the impact of previous minimum wage increases, relevant studies and other appropriate data, and finds that the city's minimum wage should be upwardly adjusted each year to keep pace with increases in the cost of living.

M. The governing body has found that limiting coverage of the minimum wage just to businesses with twenty-five (25) or more employees has hindered compliance and has created an uneven playing field among local businesses.
(Ord. #2002-13, §2; Ord. #2003-8, §1; Ord. #2007-43, §1)

28-1.3 Authority of the City of Santa Fe.

This Living Wage Ordinance is adopted pursuant to the general welfare and police powers conferred upon the city of Santa Fe by §3-17-1 et seq. and §3-18-1 et seq. NMSA 1978, pursuant to the powers conferred upon the city of Santa Fe by New Mexico Constitution, Article X §§6(D) and 6 (E) and the Municipal Charter Act §3-15-1 et seq. NMSA 1978, which have been exercised by the city's adoption of its "Santa Fe Municipal Charter". (Ord. #2002-13, §3; Ord. #2003-8, §2)

28-1.4 Purpose.

The purposes of this section are:

A. To have the city of Santa Fe set an example for the public and private sectors by paying its employees a minimum wage adequate to meet the basic needs of living in Santa Fe.

B. To raise the income of low-income employees of employers who contract with the city, receive grants, subsidies or other benefits from the city or benefit from the opportunity to do business in Santa Fe.
(Ord. #2002-13, §4; Ord. #2003-8, §3)

28-1.5 Minimum Wage Payment Requirements.

A. The following shall pay the minimum wage:

(1) The city of Santa Fe to all full-time permanent workers employed by the city. However, the provisions of this section are expressly limited by and subject to future union negotiations in compliance with the Fair Labor Standards Act and subsequent appropriations by the governing body in compliance with the Bateman Act;

(2) Contractors for the city, that have a contract requiring the performance of a service including construction services but excluding purchases of goods, shall pay the

minimum wage to their workers and subcontractors performing work under the contract if the total contract amount with the city is, or by way of amendment becomes, equal to or greater than thirty thousand dollars ($30,000.); and

(3) Businesses receiving assistance relating to economic development in the form of grants, subsidies, loan guarantees or industrial revenue bonds in excess of twenty-five thousand dollars ($25,000.) to those employed by such entity for the duration of the city grant or subsidy; and

(4) Businesses required to have a business license or business registration from the city of Santa Fe and nonprofit organizations shall pay the minimum wage to their workers for all hours worked within the city of Santa Fe that month. For purposes of this paragraph, worker shall not include any person who is related by blood or by marriage to any person who may have or possess any ownership interest in the business that employs them. For purposes of identifying persons entitled to be paid the minimum wage, all individuals employed by or providing work to the business for compensation, whether on a part-time, full-time or temporary basis, during a given month shall be counted as a worker. This definition shall include contingent or contracted workers, and persons made available to work through the services of a temporary service, staffing or employment agency or similar entity. However, interns working for a business for academic credit in connection with a course of study at an accredited school, college or university or persons working for an accredited school, college or university while also attending that school, college or university, or persons working for a business in connection with a court-ordered community service program such as teen court or workers who are in an apprenticeship program in a 501C(3) organization (such as the Santa Fe Opera) shall not be counted as a worker for such purposes.

B. Beginning January 1, 2004, the minimum wage shall be an hourly rate of eight dollars and fifty cents ($8.50). In computing the wage paid for purposes of determining compliance with the minimum wage, the value of health benefits and childcare shall be considered as an element of wages. On January 1, 2006, the minimum wage shall be increased to an hourly rate of nine dollars and fifty cents ($9.50). Beginning January 1, 2009, and each year therafter, the minimum wage shall be adjusted upward by an amount corresponding to the previous year's increase, if any, in the consumer price index for the western region for urban wage earners and clerical workers.

C. For workers who customarily receive more than one hundred dollars ($100.) per month in tips or commissions, any tips or commissions received and retained by a worker shall be counted as wages and credited towards satisfaction of the minimum wage provided that, for tipped workers, all tips received by such workers are retained by the workers, except that the pooling of tips among workers shall be permitted.

D. Nonprofit organizations whose primary source of funds is from Medicaid waivers are exempt.

E. Staff shall contract for a study or studies to review the impact of changes made to the Living Wage Ordinance approved as Ordinance No. 2007-43 on businesses of less than ten employees and on the student drop-out rate. The study shall be presented to the governing body no later than July 1, 2009.
(Ord. No. 2002-13, §5; Ord. #2003-8, §4; Ord. #2005-40; Ord. #2007-43, §2)

28-1.6 Prohibitions Against Retaliation and Circumvention.

A. It shall be unlawful for any employer or employer's agent or representative to take any action against an individual in retaliation for the exercise of or communication of information regarding rights under this section. This section shall also apply to any individual that mistakenly, but in good faith, alleges noncompliance with this section.

B. Taking adverse action against an individual within sixty (60) days of the individual's assertion of or communication of information regarding rights shall raise a rebuttable presumption of having done so in retaliation for the assertion of rights.

C. It shall be unlawful for any business or employer to intentionally circumvent the requirements of this section by contracting portions of its operation or leasing portions of its property. (Ord. #2002-13, §6; Ord. #2003-8, §5)

28-1.7 Reserved.

Editors Note: Former subsection 28-1.7, Compliance Through Collective Bargaining Process, previously codified herein and containing portions of Ordinance No. 2002-13, was repealed in its entirety by Ordinance No. 2004-38.

28-1.8 Enforcement; Remedies.

A. *Administrative Enforcement.* The city manager, or his/her designee, is authorized, as appropriate and as resources permit, to enforce this section. The city manager is authorized to investigate possible violations of this section. Where the city manager, after a proceeding that affords a suspected violator due process, concludes that a violation has occurred, the city manager may issue orders to the employer appropriate to effectuate the complaining person's rights, including but not limited to back pay and reinstatement. The city manager also has the power to order termination of any and all economic benefit derived by any offending party from the city and has the power to revoke the employer's business license or registration.

B. *Criminal Penalty.* A person violating this section shall be guilty of a misdemeanor and, upon conviction, for each offense may be subject to fines and imprisonment as set forth in Section 1-3 SFCC 1987. A person violating any of the requirements of this section shall be guilty of a separate offense for each day or portion thereof and for each worker or person as to which any such violation has occurred.

C. *Other Remedies.* The city, any individual aggrieved by a violation of this section, or any entity the members of which have been aggrieved by a violation of this section, may bring a civil action in a court of competent jurisdiction to restrain, correct, abate or remedy any violation of this section and, upon prevailing, shall be entitled to such legal or equitable relief as may be appropriate to remedy the violation including, without limitation, reinstatement, the payment of any wages due and an additional amount as liquidated damages equal to twice the amount of any wages due, injunctive relief, and reasonable attorney's fees and costs.

D. *Nonexclusive Remedies and Penalties*. The remedies provided in this section are not exclusive, and nothing in this section shall preclude any person from seeking any other remedies, penalties, or relief provided by law.
(Ord. #2002-13, §8; Ord. #2003-8, §6)

28-1.9 Effect.

Nothing in this Living Wage Ordinance shall be deemed to nor shall be applied in such a manner so as to have a constitutionally prohibited effect as an ex post facto law or impairment of an existing contract within the meaning of New Mexico Constitution, Article II, §19. (Ord. #2002-13, §9)

28-1.10 Severability.

The requirements and provisions of this section and their parts, subparts and clauses are severable. In the event that any requirement, provision, part, subpart or clause of this section, or the application thereof to any person or circumstance, is held by a court of competent jurisdiction to be invalid or unenforceable, it is the intent of the governing body that the remainder of the section be enforced to the maximum extent possible consistent with the governing body's purpose of ensuring a living wage for persons covered by the section. (Ord. #2002-13, §10; Ord. #2003-8, §7)

28-1.11 Notice; Posting; and Publication.

Any business subject to the provisions of this section shall as a condition to obtaining and holding a city of Santa Fe business license or registration, post and display in a prominent location next to its business license or registration on the business premises a notice, in English and Spanish, that the business is in compliance with the provisions of this section and in particular post the text of subsections 28-1.5, 28-1.6 and 28-1.8 SFCC 1987. Failure to comply with this subsection shall be construed a violation of this section and, in addition, shall be considered grounds for suspension, revocation, or termination of the business license or registration. (Ord. #2003-8, §8)

28-1.12 Living Wage Review.

The city shall conduct a review of this section on or before July 1, 2005. In conducting said review the governing body may, at its discretion and pursuant to a duly-adopted resolution, appoint an ad hoc committee to advise and assist in making recommendations regarding this section and to investigate the economic and social effects of this section on Santa Fe. The city will contract with an independent third party to develop an evaluation that will generate objective measures on the effect of the Living Wage Ordinance on the health, security, and livelihood of Santa Feans by March 31, 2003. Data necessary for such an evaluation on Santa Fe city businesses will be compiled and presented to the governing body for their review on or before July 1, 2003. In compiling the data, consideration should be given to potential impacts on youth employment and possible recommendations that might prevent unforeseen consequences hurting children in the community. (Ord. #2003-8, §9)

EXHIBIT III – CONSTRUCTION ADMINISTRATION FORMS

The following forms included within the present Exhibit III shall be used during the construction process, as needed/applicable:

- Work Change Directive Form (EJCDC C-940)
- Change Order Form (EJCDC C-941)
- Field Order Form (EJCDC C-942)

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

WORK CHANGE DIRECTIVE NO. ____

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

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

☐ Non-agreement on pricing of proposed change.

☐ Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price $ _____ [increase] [decrease].

Contract Time _____ days [increase] [decrease].

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price

☐ Cost of the Work ☐ Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____

Title: _____

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

CHANGE ORDER NO. ____

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

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

Description:

Attachments: *[List documents supporting change]*

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

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title _____	Title _____
Date: _____	Date _____	Date _____

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

FIELD ORDER NO. ____

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

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____ (Specification(s)) _____ (Drawing(s) / Detail(s))

Description:

Attachments:

ISSUED:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____
Date: _____	Date: _____

Copy to: Owner

EXHIBIT IV – TECHNICAL SPECIFICATIONS

CITY OF SANTA FE WATER DIVISION
BUCKMAN PARALLEL PIPELINE PROJECT

Table of Contents

STANDARD SPECIFICATIONS

Incorporation of New Mexico Standard Specifications for Public Works Construction (2006 Edition)

The City of Santa Fe Public Utilities Department Water Division Construction Standards and Specification and New Mexico Standard Specifications for Public Works Construction, 2006 Edition, General Conditions and Technical Specifications, as updated and amended, are incorporated by reference, the same as if fully written herein and shall govern this Project except where revised, updated or supplemented by the Supplemental Special Provisions, Special Provisions and/or the Supplemental Technical Specifications.

The City of Santa Fe Public Utilities Department Water Division Construction Standards and Specifications can be found at the following webpage:

http://www.santafenm.gov/media/files/Public_Utilities_WATER/2014_Construction_Standards_and_Specifications.pdf

The New Mexico Standard Specifications for Public Works Construction, 2006 Edition, may be purchased in bound book format or in CD ROM format by contacting:

Albuquerque Reprographics
4716 McLeod NE
Albuquerque, NM 87109
(505) 884-0862
FAX (505) 883-6452
www.abqrepro.com

Supplemental Technical Specifications

The following revisions and/or additions to the Technical Specifications of the Standard Specifications are hereby made a part of the Contract Documents.

Spec Section	Title/Description	
01010	Summary of Work	01010-1 – 01010-19
09900	Painting and Coating	09900-1 – 09900-9
09954	Polyethylene Sheet Encasement	09954-1 – 09954-2
11400	Electromagnetic Flow Meter – County Master Meter	11400-1 – 11400-3
11410	Electromagnetic Flow Meter – Supply Meter at BS4	11410-1 – 11410-3
13420	Hydraulic Control Valves	13420-1 – 13420-7
15100	Butterfly Valves – Water System	15100-1 – 15100-1
15108	Air Release & Vacuum Relief Valves	15108-1 – 15108-3
15240	Ductile Iron Pipe	15240-1 – 15240-8
16640	Corrosion Control and Monitoring	16640-1 – 16640-8

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL

The Work to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including: fuel, power, water, and essential communications, and performing all Work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. Note: By submitting a bid for this project, the CONTRACTOR hereby acknowledges and assures the OWNER that it has sufficient experience in constructing this type of work and therefore is familiar with all combinations of materials, labor, and equipment that are required for the successful completion of this project. The Work shall be complete, and all Work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete, safe and proper construction of the Work in good faith shall be provided by the CONTRACTOR at no increase in cost to the OWNER.

1.02 CONTRACTOR'S REPRESENTATIVES

A. At the Pre-Construction Conference, the CONTRACTOR shall provide the OWNER an Organizational Chart of the CONTRACTOR'S PROJECT TEAM for the project, including responsibilities of all related personnel. At a minimum, this organizational chart should include the Project Manager, Project Superintendent, Safety Representative, Scheduler and Owner or Partner of the CONTRACTOR under Contract. Phone numbers or instructions on how to contact key personnel must be provided. Resumes of all project related personnel should be included for review and approval by the OWNER. All key personnel as identified in the organizational chart are required to have assumed the same level of responsibility on three (3) projects of similar scope and magnitude.

B. An Authorized Representative must be designated, with a clear definition of the scope of this individual's authority to represent or act on behalf of the CONTRACTOR. Any limitations in the authority of this designated representative must also be clearly delineated. At all times when work is underway at the jobsite, the CONTRACTOR'S Project Manager or Superintendent shall be present at the jobsite to supervise the work. The CONTRACTOR shall also supply an alternative Authorized Representative to act on his behalf in an emergency situation or if the prime Authorized Representative is unavailable for any reason. The limits and extent of this individual's authority to act on the CONTRACTOR'S behalf must also be clearly defined. All instructions, determinations, notices and other communications given to the Authorized Representative of the CONTRACTOR shall be binding upon the CONTRACTOR. An Authorized Representative must be available by cell phone and/or radio on a twenty-four (24) hours a day, seven (7) days a week basis throughout the course of the Contract. In the event that no Authorized Representative is available in an emergency situation requiring the CONTRACTOR'S action or should the CONTRACTOR fail to respond within two (2) hours, the OWNER may take the appropriate actions to remedy the situation at the CONTRACTOR'S expense. The

CONTRACTOR, by failing to respond to the call, shall waive any rights to claims caused by the OWNER'S actions.

C. All key personnel as described in the CONTRACTOR'S organizational chart must be approved by the OWNER prior to the commencement of work on the project. Resumes of key personnel should include related experience on three previous projects of similar magnitude and complexity. In the event that a member of the project team proves to be unsatisfactory to the CONTRACTOR and ceases to be in his employ, all substitutions must be reviewed and approved by the OWNER. Key personnel shall not be replaced without prior approval by the OWNER.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract comprises construction of the following:

1. Connection to the Existing 20" waterlines,

2. Installation of approximately 17,400 LF of 24" inch ductile iron pipe and appurtenances,

3. Installation of appurtenances including ten (10) Air Release / Vacuum Valves, three (3) blow-off hydrants, eight (8) buried butterfly valves, and two meters and vaults.

4. Two Jack and Bore Operations including a bore underneath Camino La Tierra and a bore underneath an arroyo crossing,

5. Miscellaneous construction activities such as pavement removal and replacement, fence removal and replacement, etc.

B. The Work is located in Santa Fe, NM and County of Santa Fe, New Mexico, as indicated on the Drawings.

C. The following forms are included for the CONTRACTOR's use following this section: Pay estimate, construction progress, progress certificate, and materials on hand.

1.04 WORK BY OTHERS

The CONTRACTOR'S attention is directed to the fact that work may be conducted at or adjacent to the Site by other contractors during the performance of the Work under this Contract. The CONTRACTOR is to conduct its operations in a manner that will minimize any interference with the Work of other contractors under separate contract with the OWNER or other entities, and shall coordinate its operations and cooperate fully, with such contractors to provide continued safe access to their respective portions of the Site, as required to perform Work under their respective contracts. The CONTRACTOR shall include in the bid price all costs associated with the successful coordination of its operations with other contractors. Copies of Contract Documents pertaining to Work conducted on or adjacent to the site are available for review upon request.

1.05 COORDINATION

A. Existing Utilities and Structures

Known utilities and structures adjacent to or expected to be encountered in the work are shown on the drawings. The locations shown are taken from existing records and pothole utility location results; however, it is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the CONTRACTOR only, and no responsibility is assumed by either the OWNER or the ENGINEER for their accuracy or completeness.

CONTRACTOR shall protect all existing utilities within the boundaries of the work. Utilities damaged, as a result of the CONTRACTOR'S operations due to his negligence or oversight shall be repaired to the satisfaction of the owner of said utility at CONTRACTOR'S sole expense.

At least 48 hours prior to start of said work, CONTRACTOR shall notify all utilities that may be affected.

For location of utilities, CONTRACTOR shall call New Mexico One Call, phone number 811 for coordinating and identifying utility locations.

CONTRACTOR shall protect all existing structures within the boundaries of the work and adjacent to the work. CONTRACTOR shall be responsible for visiting the site and becoming familiar with all existing structures. Existing structures damaged that were not part of this contract shall be repaired to their original condition at CONTRACTOR'S sole expense.

For convenience, the CONTRACTOR may remove and replace small structures such as mailboxes, signs, gates, walls, fences and valve boxes that indirectly interfere with the pipeline construction. CONTRACTOR shall notify the owner of each structure to be removed seven (7) calendar days prior to removal and provide temporary mailboxes, signs, fences, or other miscellaneous structures until the permanent structures are replaced. If a traffic control sign is removed, CONTRACTOR shall make arrangements to erect a temporary sign acceptable to the owner. All small surface structures removed shall be replaced in the same location in as good or better than the original condition. The cost for this work shall be considered incidental to the pipeline construction and shall be included in the pipeline unit costs as shown in the bid proposal.

B. Cultural and Archaeological Resources: In the event that cultural material or human remains are encountered during excavation, CONTRACTOR shall immediately stop all work in the vicinity of the discovery, notify ENGINEER of the discovery and protect the area from further disturbance. No work shall proceed in the vicinity of the discovery without written approval of ENGINEER.

1.06 WORK SEQUENCE AND SCHEDULING CONSTRAINTS

A. The CONTRACTOR shall schedule and perform the Work in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewerage, drainage structures, ditches and canals, gas, electric, cable television, and telephone. Refer to all available plan and profile sheets for approximate location of utilities. It is the CONTRACTOR'S responsibility to locate each utility and incorporate as-built locations on the reproducible record plans, in red ink, showing proper

location on each sheet where these utilities are located including depths, widths, and lengths of each utility. There is no guarantee as to exact location of each utility and no additional compensation will be made for utilities that are within a reasonable proximity of the area shown on the record plans.

1.07 CONTRACTOR ACCESS AND USE OF PROJECT SITE

The CONTRACTOR'S use of the Project Site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices.

1.08 TIME OF WORK AND OVERTIME NOTIFICATION

Time of Work:

A. For work on this project, no work shall be performed between 6:00 p.m. and 7:00 a.m., or on Sundays or legal holidays, without the written permission of the OWNER or ENGINEER. However, critical maintenance or emergency work may be completed without prior approval.

B. If CONTRACTOR, for convenience, should desire to work outside of normal hours, written authorization must be obtained from the Owner and ENGINEER prior to start of the work.

1.09 STORAGE

Storage conditions shall be in accordance with the manufacturer's requirements and shall be acceptable to OWNER for all materials and equipment not yet incorporated into the Work but included in Applications for Payment. Such storage arrangements and conditions shall be presented in writing for OWNER review and acceptance and shall afford adequate and satisfactory security and protection. Off-site storage facilities shall be accessible to OWNER. The stored materials shall be insured for full value.

1.10 NOTICES TO OWNERS OF ADJACENT PROPERTIES AND UTILITIES

A. CONTRACTOR shall notify owners of adjacent property and utilities in advance of when prosecution of the Work may affect them.

B. When it is necessary to temporarily interrupt any utility service connection, CONTRACTOR shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit any resulting inconvenience.

C. Utilities and other concerned agencies shall be contacted at least seven (7) days prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines. The CONTRACTOR must submit to the OWNER and each affected utility a written description of the area, time, duration, and proposed method of disruption and reparation. With the exception of emergencies and/or events that may compromise the public safety, no disruption will be allowed without the CONTRACTOR having first obtained the express written approval of the OWNER.

1.11 PROJECT MEETINGS

A. Preconstruction Conference

1. Prior to the commencement of Work at the Site, a preconstruction conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR'S Project Manager, its Superintendent, its Safety Representative, and its Subcontractors as the CONTRACTOR deems appropriate. Other attendees will be:

   a. OWNER'S CONSTRUCTION MANAGER;

   b. Representatives of OWNER;

   c. Governmental representatives as appropriate;

   d. Others as requested by CONTRACTOR, OWNER, or OWNER'S CONSTRUCTION MANAGER;

   e. ENGINEER; and

   f. CONTRACTOR'S personnel assigned to Scheduling. In the event CONTRACTOR elects to utilize an outside agency to perform its scheduling requirements, the responsible personnel from such Agency is required to attend.

2. Bring to the conference the submittals prepared by the CONTRACTOR prior to the conference along with a schedule of submittals for the project.

3. The purpose of the conference is to designate responsible personnel, discuss contract requirements and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date. Any additions to the agenda by CONTRACTOR must be forwarded to the OWNER at least 24 hours prior to the scheduled meeting date and time.

4. The CONTRACTOR shall be prepared to discuss all of the items listed below.

   a. CONTRACTOR'S assignments for safety and first aid, including Designated Competent person(s) and CONTRACTOR'S Safety Representative.

   b. CONTRACTOR'S schedules as required by Contract.

   c. Transmittal, review, and distribution of all documents between the CONTRACTOR and the OWNER including CONTRACTOR'S submittals, RFI'S, Survey Requests, etc.

   d. Processing applications for payment.

   e. Maintaining record documents.

   f. Critical work sequencing.

g. Field decisions and Change Orders.

h. Use of project site, office and storage areas, security, housekeeping, and OWNER'S needs.

i. Major equipment deliveries and priorities.

j. Permits required for construction.

k. Utilities required for construction.

l. Contract authority and channels of communication.

m. Coordination with others.

n. Conflict resolution procedures.

5. The OWNER'S CONSTRUCTION MANAGER will preside at the pre-construction conference and will arrange for keeping and distributing the minutes to all persons in attendance.

B. Progress Meetings

1. The OWNER'S CONSTRUCTION MANAGER will schedule and hold regular on-Site progress meetings at least weekly and at other times as requested by OWNER'S CONSTRUCTION MANAGER or as required by progress of the Work. The CONTRACTOR, OWNER'S CONSTRUCTION MANAGER and all Subcontractors active on the Site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its Suppliers, manufacturers, and other Subcontractors.

2. The OWNER'S CONSTRUCTION MANAGER will preside at the meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the Work, discuss safety, maintain coordination of efforts, discuss commercial issues, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR is required to present any issues which may impact his Work, with a view to resolve these issues expeditiously.

C. Subcontractor Coordination Meetings

1. The CONTRACTOR is expected to conduct regularly scheduled coordination meetings with Subcontractors, Suppliers, and Manufacturers to manage and ensure the smooth progression of the work. Request representation at each meeting by all applicable parties involved in the coordination of current activities or concerned with the planning of upcoming work. During each meeting the following topics need to be addressed:

a. The development of a four week look-ahead schedule (to be distributed to the OWNER at the subsequent progress meeting).

b. Any concerns relating to the progress of the work.

c. Any other items as deemed necessary by any of the related parties.

D. Pre-Activity/Specialty Coordination Meetings

Pre-Activity meetings are to be held no later than twenty-four (24) hours prior to the execution of any activity requiring inspection or as deemed necessary by the OWNER. Required attendees should include at a minimum the OWNER'S CONSTRUCTION MANAGEMENT TEAM, the CONTRACTOR'S Project Manager, Superintendent and any other related personnel.

1.12 CONTRACTOR'S REQUEST FOR INFORMATION (RFI)

A. In the event that the CONTRACTOR determines that some portion of the Contract Documents requires additional information or interpretation, the CONTRACTOR shall submit a written statement to the OWNER'S CONSTRUCTION MANAGER requesting clarification on the issue. Such request must be provided by the CONTRACTOR to the OWNER immediately upon discovery. Prior to the submittal of the RFI the CONTRACTOR shall carefully study and review the Contract Documents to ensure that the requested information is not contained therein. Submit only one issue to be clarified per form. The CONTRACTOR must include in a properly written RFI the following information:

1. Project number and title, RFI number (sequentially numbered), date, person requesting clarification and signature.

2. A clear and concise summary of the issue in question and why further clarification or information is required from the OWNER.

3. The specific drawing shall be identified by drawing number and location on the drawing sheet.

4. The specific specification section shall be identified by section number, page and paragraph.

5. Where applicable, the CONTRACTOR shall include his own interpretation of the drawings or specifications and why he believes such an understanding is correct.

6. In cases requesting clarification of coordination issues, the CONTRACTOR shall include a suggested solution with necessary drawings or sketches with the RFI.

B. Only RFI'S submitted by the CONTRACTOR will be accepted. Any clarifications required by the Subcontractors, Manufacturers, or Suppliers of the CONTRACTOR must be properly routed through the CONTRACTOR to the OWNER on the appropriate form. All RFI'S must be limited to clarifications of the Contract Documents. RFI'S shall not be used for the purpose of notifying the OWNER of the following:

1. To request approval of submittals.

2. To request approval of substitutions.

3. To request changes which entail additional cost or credit.

4. To request methods of performing work different than those shown or specified.

C. If the OWNER determines that the RFI is not in relation to clarifications relating to the Contract Documents, such RFI will be returned to the CONTRACTOR with an explanation which may include references to other sections within the Contract for the CONTRACTOR to follow.

D. Improper or frivolous RFI'S that are not properly prepared as detailed above, or request information that is clearly shown in the Contract Documents, will be returned to the CONTRACTOR labeled as either Improper or Frivolous with the reasons for such determination. Should additional costs be incurred by OWNER as a result of reviews of RFI'S that were deemed Improper or Frivolous, OWNER will withhold from CONTRACTOR'S payment an amount based on ENGINEER'S current fee schedule, including applicable miscellaneous expenses, so that OWNER may reimburse ENGINEER for such reviews.

E. After receipt of the RFI, the OWNER will be allowed fourteen (14) calendar days to review and respond to the issue. If additional time is required by the OWNER, the CONTRACTOR will be notified in writing. Responses by the OWNER shall not be interpreted as authorization to proceed with extra work. In the event that the CONTRACTOR believes that additional cost or time is involved from the clarification provided by the OWNER, the CONTRACTOR shall notify the OWNER in writing that a change order is required and the reasons for his belief that this work constitutes a change in his Contractual requirements. At no point in time is the CONTRACTOR to proceed with extra work without the written consent of the OWNER.

1.13 DAILY ACTIVITIES REPORT

A. Commencing with the date of Notice to Proceed, which shall be considered as Contract Day No. 1, the CONTRACTOR shall prepare and forward to the OWNER'S CONSTRUCTION MANAGER a Daily Activity Report. A Daily Activity Report shall be executed by the CONTRACTOR for each Contract day, for each shift, whether work takes place or not. Report shall be submitted to the OWNER'S CONSTRUCTION MANAGER either at the end of each working day or the following morning prior to the start of operations. This report shall contain not less than the following data:

1. Contractor.

2. Contract name and number.

3. Contract day, date and shift.

4. All personnel engaged in the Contract, including management, supervisory, clerical, engineering and manual.

5. An exact count of personnel hours by trade, craft, duties, CONTRACTOR or Subcontractor.

6. An exact account of all equipment that is on site or committed to the Contract, indicating hours worked and idle.

7. All personnel hours and equipment hours shall be identified by the activity number or node displayed in the approved construction schedule.

8. List all accidents.

9. List all Subcontractors active on site.

10. Name and Signature of CONTRACTOR'S Authorized Representative.

11. Work performed, including area (i.e. station).

12. Conflicts encountered.

1.14 AS-BUILT DRAWINGS

A. The CONTRACTOR shall, during progress of the work keep a careful record of all changes and corrections to the Contract Drawings. This record shall show the actual field locations, all project conditions, configurations, and any other changes or deviations that vary from the details provided in the original Contract drawings. The horizontal and vertical locations of any buried or concealed construction and utility features that were either not shown on the drawings or vary from the locations indicated, shall be carefully recorded. Include detailed sketches to fully illustrate the constructed work. The as-built drawings shall be available for review by the OWNER at all times during the construction period. At the end of each month, prior to each monthly progress payment, these drawings will be inspected by the OWNER. If these drawings are not found to be complete and up-to-date, a non-compliance report will be issued and payment will be withheld. If the OWNER receives a written notice of the correction of the condition that resulted in the withholding, signed by an authorized agent of the CONTRACTOR, the OWNER shall pay the amount withheld within 30 days after receiving the next progress estimate.

The as-built drawing format shall be red-line mark-ups on a set 24" x 36" drawing paper prints.

Upon completion of construction and prior to final payment, the CONTRACTOR shall submit to the OWNER one (1) copy of the red-lined mark-ups showing all changes, including the type, make, model, class, manufacturer, etc., as applicable, of all major items of material used in the project as well as the source of all said items. The as-builts drawings shall be completed and certified by a New Mexico Professional Surveyor.

B. As part of the as-builts, the City of Santa Fe also requires the CONTRACTOR to submit the AS-Built Construction packet within five (5) working days of completion of construction and include the following information: valve ties, As-Built Drawings (Including, But Not limited to: fitting to fitting measurements, service to service measurements, center of main to center of service

measurements, length of main installed, fittings installed, etc.) and potability results. An example of the fitting to fitting measurements is included at the end of this section.

1.15 PERMITS AND CLEARANCES

The CONTRACTOR shall procure all permits and encroachments except for those already obtained by the OWNER. The following permits or clearances have been identified:

1. United States Corp of Engineers Determination for arroyo crossing from approximately Station 95+00 to Station 96+00 will require no construction activities in this area as delineated on the plans.

2. No archeological or cultural clearances are required as the pipeline will be through existing disturbed areas.

3. No prairie dogs have been observed within sight of the pipeline and no clearance is required.

4. Development and ROW permits are required from Santa Fe County.

1.16 SUPPLEMENTAL PROJECT REQUIREMENTS

A. The CONTRACTOR shall COMPLY WITH THE FOLLOWING SUPPLEMENTAL PROJECT REQUIREMENTS:

1. CONSTRUCTION WITHIN SANTA FE COUNTY ROW

a. A portion of this project is located within Santa Fe County Right of Way. The CONTRACTOR must comply with ALL Santa Fe County Requirements for construction activities including the following:

(1) Santa Fe County requires a minimum of ten (10) working days to review comment and/or approve the traffic control plan prepared by the CONTRACTOR. The traffic control plan must be stamped by a registered New Mexico Professional Engineer.

(2) Upon approval of traffic control plan by Santa Fe County Roads section, the Traffic Control plan along with a press release shall be submitted to the Santa Fe County Public Information Section for review and approval. Upon receiving approval, the CONTRACTOR shall contact emergency services to discuss the traffic control plan and construction schedule. The CONTRACTOR shall provide documentation of this meeting (i.e. meeting minutes with sign-in sheet) to the County upon completion this notification. Once complete, a minimum seven (7) calendar day period of public notification shall occur prior to the start of construction.

(3) The CONTRACTOR must comply with ALL requirements of Santa Fe County Ordinance 2003-1 for this work including the three (3) year warranty period for roadway defects, bonding requirements and submittal of an

excavation/restoration permit. A copy of this ordinance has been attached at the end of this Supplemental Specification.

B. ALLOWANCES

1. GENERAL

a. All allowances include New Mexico Gross Receipts Tax. The amounts stated are estimated dollar amounts. The actual dollar amount reimbursed may be less than, equal to, or more than the stated allowance.

2. UTILITY RELOCATION ALLOWANCE

a. Where possible all conflicts with existing private utilities shall be avoided by minor adjustments to the alignment of the proposed facilities as directed by the OWNERS CONSTRUCTION MANAGER. Where conflicts are determined to be unavoidable by the OWNER, the private utility shall be relocated. The CONTRACTOR shall notify the utility owner at least three weeks prior to needing the utility relocated. The CONTRACTOR shall be responsible for coordinating this work and paying invoiced cost to the utility owner. The Contractor may be required by the utility owner to pay such relocation work prior to the actual relocation work being performed.

b. The CONTRACTOR shall submit a utility relocation estimate from the utility owner to the Owners Construction Manager for review and approval prior to the actual direction from the Owners Construction Manager to relocate the utility.

c. A Utility Relocation Allowance is included in the Bid Proposal to pay for field utility relocation that may be required to be performed by the appropriate utility owner. The Owner shall reimburse the Contractor the actual cost for all such utility relocations based on invoices received from the utility owner.

d. The Contractor shall, at his expense, furnish necessary equipment, tools, and labor to assist the utility owner in the performance of utility relocations. All additional costs associated with potholing, discovery, surveying, site cleanup, and coordination necessary to achieve required utility relocations shall be incidental to the Contract and shall be included in the Contract Price. No additional compensation will be allowed for delays or inconvenience caused by utility company work crews.

3. GEOTECHNICAL TESTING ALLOWANCE

a. A Geotechnical Engineer shall perform tests on the structural fill, backfill placed and compacted and materials used by the CONTRACTOR throughout the construction durations. The CONTRACTOR shall select a Geotechnical Engineering Firm for this project and submit qualifications to the OWNER for approval of this firm.

b. The CONTRACTOR shall coordinate directly with this firm and the Owners Construction Manager in order to schedule activities required for the testing

during construction. The testing methods shall conform to the requirements of the New Mexico Standard Specifications for Public Works Construction.

c. The Owner or Owners Construction Manager has the option of requesting additional test to verify construction activities are consistent with the project requirements at any time during construction.

d. A Geotechnical Testing Allowance is included in the Bid Proposal to pay for testing required during the project. The Owner shall reimburse the Contractor the actual cost for all testing based on invoices received from the Geotechnical Firm. The Contractor shall be responsible for all failed or re-tests required for the project.

4. SCADA SYSTEM INTEGRATION ALLOWANCE

The contractor shall include a SCADA System Integration Allowance to include the work described herein.

1. Flow Meter at Buckman Booster 4:

a. Programming

i. Modify the RTU polling logic in the existing RTU to allow receipt of flow meter instantaneous flow and totalizer pulse signals.

b. Equipment:

i. None

c. Installation:

i. Terminate all wiring from to connect signal from flow meter to existing RTU at Buckman Booster Station 4.

d. Commissioning

i. Provide onsite commissioning support to assist City personnel with hardware and software startup support.

2. County Master Meter near Buckman Tank:

a. Programming

i. Modify the RTU polling logic in the existing RTU at the Buckman Tank to allow receipt of flow meter instantaneous flow and totalizer pulse signals.

b. Equipment:

i. None

c. Installation:

i. Terminate all wiring from to connect signal from flow meter to existing RTU at Buckman Tank.

d. Commissioning

i. Provide onsite commissioning support to assist City personnel with hardware and software startup support.

2.01 PRODUCTS

As stated in Standard and Supplemental Specifications.

PART 3 – EXECUTION

3.01 SEQUENCE OF WORK

The work associated with this project shall be accomplished in the sequence of work deemed necessary by the CONTRACTOR.

PART 4 – PAYMENT

4.01 GENERAL

Costs for the work in this Section shall not be paid for separately, but shall be considered incidental to the contract work to be accomplished.

SANTA FE COUNTY ORDINANCE

2003-1

SANTA FE COUNTY
ORDINANCE 2003- 01

2316057

(REPLACING SANTA FE COUNTY ORDINANCE NO. 1994-2)

AN ORDINANCE REGULATING PROCEDURES FOR WORKING IN, DISTURBING AND REPAIRING COUNTY PROPERTY AND RIGHTS OF WAY

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF SANTA FE, NEW MEXICO:

Section 1. Short Title

This Ordinance may be referred to as the Right of Way Use Ordinance.

Section 2. Purpose

The purpose of this Ordinance is to establish and define responsibilities and standards for the use of public property and rights of way, especially regarding road use, excavations and restorations thereof.

Section 3. Index

Section 4. Definitions

A. "Applicant" means any person required by this Ordinance to apply for a permit to make a road cut.

B. "Boring," means the act of tunneling under the surface of the roadway or Right of Way.

C. "Business day" means Monday through Friday.

D. " Cultural Property" means a property as defined in the NM Cultural Properties Act 18-6-1 to 18-6-7 i.e., a structure, place, site or object having historic, archaeological, scientific, architectural or other significance.

E. "County" means the County of Santa Fe, New Mexico as represented by its Board of County Commissioners.

F. "County facilities project" means any road cut undertaken as a part of a project initiated by the County and includes related action taken by the utility company to further the County facilities project.

G. "Emergency" means any situation or condition existing in which there is an interruption or disruption of gas, electricity, sewer, storm sewer, drainage structures, water, or telecommunications service to one or more customers being served by a utility company, or any situation or condition in which there is a danger of serious bodily injury, serious property damage, or prolonged disruption of service.

H. "Excavation" means the act of making a hole, trench, or ditch, which penetrates through or under the surface in a public right of way or other public property, resulting in the removal of dirt, asphalt, concrete or other material.

I. "Facilities" are and include, but are not limited to, plants, works, systems, improvements and equipment of the utility company such as pipes, electric substations, mains, conduits, transformers, wires, cables, poles, underground links, meters and concrete pedestals for any of the above and including postal service mail boxes.

J. "Permit," means the written form provided by the County in which a person describes the use, excavation or road cut which will be performed on public property and in which are contained any special conditions required of the person by the County in the execution of the work. Permits are subject to the conditions and requirements contained in this Ordinance.

K. "Permittee" means a person that has received a road cut permit from the County.

L. "Person" means any individual, estate, trust, receiver, cooperative association, club, corporation, utility company, firm, partnership, joint venture, syndicate or other entity.

M. "Public facility" means any designed, engineered, constructed road structures or engineered drainage facilities owned or maintained by the County located on public right of ways.

N. "Public right of way" or "public property" means those properties or sites within the County for which the County possesses a real property estate or interest, such as fee simple title, prescriptive easement or dedicated easement, and includes easements, right of ways, highways or roads, paved or unpaved, curbs, gutters, sidewalks, or other paved, unpaved, un-surfaced or concrete property which the County owns or maintains.

O. "Public Works Director" means the person employed by the County who is designated by the Board of County Commissioners to hold this position, and/or his designee.

P. "Road use" means any activity in or adjacent to the roadway that affects traffic and pedestrian flow.

Q. "Road cut " means the act of cutting a hole, trench, ditch or tunnel in, on, under, or through the surface of a public facility; or the act of drilling, boring, tunneling under or jacking up the surface of a public right of way.

R. "TCP" means a Traffic Control Plan or diagram showing the county how safe maintenance of traffic and Pedestrian flow will be conducted.

S. "Utility company" means any person, entity, or corporation, which provides water, sewer, electric, gas, telephone, or cable television services to five (5) or more hookups in the County. It also includes an independent contractor that has entered into a contract with the utility company to perform the road cut or excavation when the independent contractor is performing services for the utility company. Such an independent contractor must file a notarized affidavit with the County, executed by the utility company, setting forth the name, business address, and business telephone number of the independent contractor as an authorized agent of the utility company.

Section 5. Permit

A. Permit Application.

1. Every person desiring to make a road cut, bore or utilize Public right of way is required to obtain a permit. The applicant must be licensed and bonded, or the applicant must be a utility company or an agent for the utility company. In extenuating

circumstances where the applicant is a private party or not licensed, bonded or a utility company the applicant shall be required to comply with guidelines established by the Public Works Department. The person shall make written application on forms provided and approved by the Public Works Director prior to the performance of any road cut work or activity on public property. County staff has 5 days to review and process submitted applications.

2. No person shall make any road cut on public property or utilize Public right of way until the person or designated agent obtains an appropriate permit from the County, except in an emergency. In the event of an emergency, the person may proceed with such activity immediately but notify the County by phone that such an emergency is being repaired and thereafter file an application within two (2) business days. The application must state the description of the emergency and a summary of the repairs. The applicant must comply with any reasonable repair directions set forth by the County.

3. The applicant shall agree to the following; (a) complete all work required by this ordinance, covered by the permit; (b) complete any specific item required by the County in conjunction with the permit within five (5) days after written notice is given by the County to do so. The Public Works Department is authorized to grant an extension if necessary.

4. Evidence shall be presented that insurance requirements have been met in accordance with section 8, except for governmental agencies.

5. Evidence shall be presented that any "tie in" or "extension of utilities", is authorized by the applicable utility company, utility association or provider of services.

B. Faxing permit applications, Billing.

A utility company may file its application for a road cut, right of way use permit and all supporting information through the use of telecopy machine located in the County Public Works Office, in accordance with procedures established by the Public Works Director. An approved permit may be sent to the applicant in accordance with similar procedures. The Public Works Director, in his discretion, may allow a person to be billed for fees due and payable under the terms of this Ordinance on a monthly basis, provided the person is not more than sixty (60) days delinquent in payments due under this Ordinance. No further permits will be issued if payments are more than 60 days delinquent

C. Permit Fees.

The permit fees are set forth in Section 10.

D. Length of Road Cut; Number of Road Cuts, Use of Right of Way

By issuance of a road cut permit, the County authorizes the cutting or excavation of a road or right of way by approved methods as listed in the New Mexico Standard Specifications for Public Works Construction and only for the single road cut specified on the permit. When the project involves the excavation of the road or right of way in a manner that runs roughly parallel to the roadway, the permit shall authorize up to six hundred (600) lineal feet of excavation.

Section 6. Excavations, Road Cuts Or Boring.

A. Purpose: It is the primary purpose of this ordinance to achieve maximum public use of public right-of-way, consistent with the laws of New Mexico and to insure that utility relocations on or in County rights of way are accomplished in accordance with New Mexico Statutes, Regulations and Federal Codes while providing for maximum public safety, maintenance of the roadways, and minimizing future conflicts between the County roadways, highway systems of New Mexico and utilities serving the general public in the County of Santa Fe.

B. Preferred means: In all circumstances, best efforts shall be made to install utility facilities using existing overhead facilities or bore under the roadway instead of excavating in an attempt to limit patches on the road surface. Road cuts shall be the least desirable means of utility facility installation.

C. Clearance of Vital Structures: Work under these provisions must be performed and conducted so as not to interfere with access to fire hydrants, fire stations, fire escapes, bridges, traffic control devices, and all other vital permanent structures or equipment.

D. General utility design requirements: Except when a higher degree of protection is required by industry or governmental codes, laws, or orders of the public authority having jurisdiction over the utility, all utility facility installations on, over, along or under the surface of the rights-of-way of County roadways, including attachments to highway structures shall, as a minimum, meet the following utility industry and governmental requirements:

(1) Electric power and communication facilities installations shall conform to the current applicable National Electric Safety Code.

(2) Water, sewage and other effluent lines shall conform to the requirements of the American Public Works Association, the American Water Works Association and County Standards.

(3) Pressure pipelines shall conform to the current applicable sections of the standard code of pressure piping of the American National Standards Institute, 49 CFR section 192, 193 and 195, and/or applicable industry codes.

(4) Liquid petroleum pipelines shall conform to the current applicable recommended practice of the American Petroleum Institute for pipeline crossings under railroads and highways.

(5) Any pipeline carrying hazardous commodities shall conform to the rules and regulations of the U.S. Department of Transportation governing the transmission of such materials. Pipelines located in casings, galleries, utility tunnels or highway structures shall be designed to withstand expected internal pressures, and to resist internal and external corrosion; casings or uncased pipelines shall be designed to withstand external pressures as well. Joints in carrier pipelines operating under pressure shall be of a mechanical or welded leak-proof construction. Ground-mounted utility facilities shall be of a design that minimizes, to the extent practicable, the impact on the scenic quality of the specific highway segment being traversed and or of a design approved by the Public Works Department. All utility installations on, over, along or under roadway rights-of-way, and attachments to roadway structures, shall be of durable materials, designed for a long service-life and relatively free from routine maintenance. On new installations or relocation of existing facilities, provisions shall be made for expansion of the facilities, particularly those underground or attached to highway structures. These provisions shall be planned so as to avoid interference with highway traffic when additional facilities are installed in the future.

(6) The facility owner shall be responsible for compliance with industry codes, the conditions and/or special provisions specified in the permit, applicable statutes and regulations of the State of New Mexico, and the U.S. Department of Transportation Code of Federal Regulations.

(7) The utility company shall be responsible for the design, construction, and maintenance of all facilities to be installed within Santa Fe County or public right of way. All elements of these facilities are subject to review and approval by the County Public Works Department, particularly the materials, location, and method of installation. The utility is responsible for, and will provide all measures as required to preserve the safe and free flow of traffic and the structural integrity of the roadway, roadway structures, ease of roadway maintenance and appearance of the roadway resulting from their installation. Prior to any utility work within the County or public right of way, The County Public Works Department shall approve all submitted traffic control plans.

E. Maintenance of Traffic and Pedestrian Flow.

The permittee shall maintain safe and adequate passage of vehicle and pedestrian traffic on all public property on which the permittee is conducting its activities under its permit. When a public facility has been closed or detoured because of the permittee's work, The Santa Fe County Public Works Department shall be notified by the permittee prior to removal of existing barricades and other traffic control devices.

F. Permittee's Obligation to Protect Property.

It is the permittee's responsibility to verify no known cultural properties exist in the permit area. Should known cultural properties occur in a permit area, a permit shall not be issued until the applicant submits notification from the State Historic Preservation Division certifying that said properties have received sufficient consideration. Should unknown cultural properties be encountered during work conducted under a permit, work in the immediate vicinity of the cultural property shall cease and the County shall be notified.

G. Restoration and Repair.

The permittee shall take whatever measures necessary to protect the road surface from damage by equipment used in the excavation process. Any damage to the road surface such as tearing or scaring of the pavement caused by the permittee's equipment shall be repaired to County requirements by the permittee. Traffic markings removed, as a part of the road cut shall be replaced by the permittee with materials similar to those originally displaced, in a place and in a manner satisfactory to the County.
The permittee shall, at his own expense, support and protect all utilities which may be in any way affected by the road cut or other permitted work and do everything necessary to support, sustain and protect them under, over, along or across said work. Before commencing a road cut, the permittee shall ascertain the location of all utilities by notifying the New Mexico One Call System in or near the area of the proposed cut. The conformation number from the One Call System shall be listed on the permit prior to issuance of the permit. In the event said utilities are damaged, including damage to pipe coating or other encasement devices, the permittee shall immediately notify the facility owner of the damage. The permittee shall be liable for all costs associated with the damage and repair if the permittee was negligent and the facilities were properly marked and located. The permittee shall protect the road cut from surface water flows by appropriate diversions or ponding devices. The permittee shall repair asphalt or other road surfaces and other public facilities and public property to reasonable construction and engineering standards in order to approximate the condition that existed before the work.

H. Protection of Adjoining Property.

The permittee shall at all times and at his own expense preserve and protect from injury all private property adjoining the public property on which the road cut work is being performed by taking suitable measures for that purpose. Where in the protection of such property, it is necessary to enter upon private property for the purposes of taking appropriate protection measures, the permittee, shall unless otherwise provided by law, obtain appropriate permission from the owner of such private property to enter thereupon. The permittee must at his own expense shore up and protect all structures, facilities, walls, fences or other property that may be affected or damaged during the progress of the

road cut work and be responsible for all damages on other property resulting from his failure to properly protect and carry out such work.

I. Care of Excavated Material.

All materials excavated and piled adjacent to the road cut or in any public place by the permittee must be piled and maintained so as to not endanger the public and those working in the excavation, and so as to cause as little inconvenience as possible to those persons using the public property and adjoining property. All material excavated must be laid completely along the side of the cut and kept trimmed so as to cause as little inconvenience as is reasonably possible to vehicle and pedestrian traffic. In order to expedite flow of traffic and to keep dirt and dust from spreading or flying, the permittee shall use guards or other methods and/ or shall water the excavated material.

J. Cleanup.

Each permittee shall thoroughly clean up from the public place all rubbish, excess earth, rock, asphalt, concrete, tree branches or limbs and other debris resulting from road cut work. All cleanup operations at the location of such road cuts are to be accomplished at the expense of the permittee. During the progress of work or immediately after completion of such work, the permittee shall clean up and remove all refuse, dirt and unused materials of any kind resulting from said work. Upon failure to do so, the County may cause to have such work done, and the permittee shall pay for such reasonable cost.

K. Protection of Water Course.

The permittee shall maintain all gutters, easement crossings and related drainage structures free-flowing and unobstructed for the full depth and width of the water course, or provide adequate substitutes for any such water course that are blocked by the road cut.

Section 7. Restoration Of Road Cuts.

A. Compaction.

Any person holding a road cut permit shall undertake to restore each road cut, in accordance with the reasonable compaction and restoration standards required by the County. This shall include both the backfilling of the road cut and the restoration of the surface. All backfill must be compacted to 95% density under the road surface, and 90% density outside the road surface. Certified nuclear density test results must be submitted to the Public Works Department within five (5) working days of completion of said work. Flow capacity and /or existing flow capacity shall not be altered without the written approval of the Public Works Director. For any person who does not submit compaction

test results to the County in a form and with results acceptable to the County, such person shall not be issued any future permits under this Ordinance until the person complies with this Ordinance, and the County may take such other actions as it deems necessary to assure compliance with this Section. The Public Works Director may waive the compaction tests for plow trenching only, provided the utility company demonstrates a method and operation of compaction acceptable to the Public Works Department.

B. Resurfacing.

In those instances when a permittee cannot resurface a public place with concrete or asphalt because the air temperature or moisture content is below the minimum standards contained in the compaction and restoration standards or the weather conditions are such that the permittee is unable to resurface the public place within a reasonable time after the County's acceptance of any density tests, the permittee shall immediately check with Public Works Department concerning how and when the public facility shall be resurfaced. The County can require that the permittee cold patch the road cut on a temporary basis. The permittee shall restore the surface of the cut in accordance with reasonable compaction and restoration standards.

C. Cost.

The cost for restoration of the road surface shall be borne by the permittee.

D. County Performance.

If a permittee makes a road cut that is not resurfaced by the permittee within a reasonable time, and the County has not granted an extension of time, the County may, upon giving notice to the permittee, resurface the road cut and bill the permittee for the reasonable cost.

E. Safety.

It shall be the responsibility of the permittee restoring the public property to keep the road cut or surface opening safe for pedestrians, workers and vehicular traffic until the pavement surface or opening has been restored.

F. Extension of time.

Any time periods may be extended by the County due to weather conditions or other circumstances beyond the control of the permittee, with written or oral permission of the Public Works Director or his designee.

G. State Standards.

The permittee shall comply at all times with the appropriate construction standards set forth in New Mexico state statutes.

H. Restoration.

The permittee shall restore as practicably as possible, the affected property to the condition it was immediately prior to excavation or development. This includes but is not limited to depth of base course or other materials used on road surfaces. All materials shall be inspected and approved by the Public Works Department prior to use of any such materials. In the case of trenching in the right of way that exceeds six hundred (600) lineal feet the county recommends the responsible party document the condition of the surface by means of videotaping the proposed work area. The Public Works Department can require the seeding of disturbed areas to offset possible erosion that may result from the area being disturbed during excavation.

Section 8. Liability Insurance, Self Insurance and Bonding.

A. Certificate of Insurance.

No person other than a utility company shall make a road cut, enter a substructure opening, perform road cut work or utilize County right of way until filing with the County a certificate of insurance establishing that such person is adequately insured according to NM Tort Claims Act, NMSA 41-4-19, as amended against bodily injury or personal injury to any person, and against liability for damages, other than the work itself, because of injury to or destruction of tangible property, including loss of use resulting there from. Each insurance certificate shall provide that the County be given at least thirty (30) calendar days notice of cancellation in writing by the insurance company.

B. Form and Type.

A utility company shall at all times maintain insurance or may self insure against all risks and perils set forth above for the reasonable limits of liability set by the NMSA 41-4-19 as amended and the County, in a form and type acceptable to the County, which approval will not be unreasonably withheld.

C. Performance bonding.

A performance bond in the amount of fifteen thousand dollars ($15,000.00) shall be kept on file at Public Works along with the contractor's license and insurance documents.

Section 9. Location and Relocation Of Facilities

The County expressly reserves the right to change the grade, install, relocate, or widen the public right of ways within the County and subject to all regulatory approvals, the facility owner shall relocate, at its own expense, its facilities and appurtenances in order to accommodate the paving, installation, relocation, widening, or changing of the grade or location of any such public right of way, including if necessary, relocating facilities to a sufficient distance within the right of ways and to permit a reasonable work area for machinery and individuals engaged in such work, or to protect the health, safety, or welfare of the public.

Section 10. Fees.

A permit fee of seventy-five dollars ($75.00) shall be charged and collected for each proposed activity and for each permit issued up to 600 lineal feet. The seventy-five dollar ($75) fee collected shall be distributed as follows: Sixty seven percent (67%) shall be designated to the County General Fund and Thirty three percent (33%) shall be designated to a road maintenance fund for repair of roadways. For permits in excess of 600 lineal feet the fee will be prorated by dividing the length by 600, then multiplying it by seventy-five dollars ($75). Except for the Public Works Department, which is not required to obtain a permit for any of its projects, all other County departments shall be required to obtain a permit.

Section 11. Road Cut Warranty.

Any person or facility owner including a utility company making a road cut shall be required to correct defective materials and workmanship performed under each road cut permit for a period of three (3) years from the date the work performed under such permit is completed.

Section 12. Routing of Traffic.

A. When road cut work or use of the right of way is being performed, the person making the road cut or using the right of way shall take appropriate measures to maintain traffic conditions as near normal as practicable at all times so as to cause as little inconvenience as possible to the occupants of the abutting properties and to the public. All applicants shall submit with the permit application a TCP or traffic control plan for approval by the Public Works Director or his designee along with the permit application. No permits shall be issued without the submission of a traffic control plan unless waived by the County.

B. The County may require the permittee to notify various public agencies, emergency services and the public of proposed work prior to issuance of a permit or prior to commencement of the proposed work if Public Works decides it is necessary for public safety.

C. Warning signs shall be placed by the permittee near each road cut or substructure opening being entered so as to give adequate warning to vehicular and pedestrian traffic both night and day, and cones or other approved devices shall be placed to channel traffic. The traffic controls, including but not limited to the number, type, size and location of the signs shall be done in accordance with Manual on Uniform Traffic Control Devices (MUTCD) Part VI and reasonable traffic standards as directed by the Public Works Director or his designee.

D. The County may require the permittee to place a visible sign at each end of the construction area which is visible from a distance and sets forth the name of the person making the road cut, or in the case of a utility company, the name of the company together with a business telephone number to handle calls from the motoring public.

Section 13. Noise, Debris and Working Hours.

Each permittee shall conduct and carry out road cut work in such manner as to avoid unnecessary inconvenience and annoyance to the public and occupants of neighborhood property and in compliance with the County noise standards.

Section 14. Preservation of Survey Monuments.

Any survey monument set for the purpose of locating or preserving the lines of the road, property, subdivision, or a permanent survey, or a permanent survey bench mark within the County shall not be removed or disturbed without first obtaining written permission from the owner. Permission to remove or disturb such monuments, reference points or bench marks will be granted only upon the condition that the person apply for such permission and pay all expenses incident to the proper replacement of the monument.

Section 15. Non-Compliance by Permittee.

In the event a permittee fails to comply with the requirements of this Ordinance, the Public Works Director or his designee shall notify the permittee of non-compliance and stop all work until the permittee is in compliance. Written or verbal notice of non-compliance shall be issued. Following a hearing on the matter, a fee of three hundred dollars ($300.00) may be assessed for non-compliance of this ordinance if the Public Works Director decides it is justified. The Public Works Director, his designee, County Fire Department, or County Safety Officer is authorized and empowered to suspend, revoke or refuse to issue any permit or future permit issued to a permittee provided that a hearing on the matter be conducted by the Public Works Director within five (5) business days of the suspension, revocation or refusal to issue the permit unless based on failure to adequately complete an application. The permittee shall be granted one appeal to the Public Works Director following the decision if the permittee makes written request to do so. The County of Santa Fe reserves the right to issue or revoke any permit for any reason

deemed reasonable by the Public Works Director or his designee. The County may also deny issuance of a permit to any applicant if there are delinquent compaction test results from previously performed road cuts. 2316069

Section 16. Amendment To Ordinance 1993-8.

Sections 7 A, 7 E, 7 F, 8 B, and 9 of Santa Fe County Ordinance 1993-8 are hereby Repealed.

Section 17. New Pavement Fee and Penalty.

Any person, facility owner or utility excavating or cutting into new pavement (less than two yrs old) shall be charged a fee of two hundred dollars ($200.00) to offset the impact of cutting the new pavement, which frequently leads to failure of new roadways installed by the County.

Section 18. Saving Clause.

If any of the sections, subsections, sentences, clauses, or phrases, of this Ordinance are for any reason held to be unconstitutional or invalid, the validity of the remaining portions of this Ordinance shall not be hereby affected since it is the express intent of the County Commission to pass each section, phrase, paragraph and word separately.

Section 19. Effective Date.

This ordinance shall take effect thirty days after the recording date.

SANTA FE COUNTY:

2316070

Paul D. Duran, Chairperson
Santa Fe County Board of Commissioners

ATTEST:

Rebecca Bustamante, County Clerk

APPROVED AS TO LEGAL FORM:

for
Steve Kopelman, County Attorney

1-7-2003
Date

FINANCE DEPARTMENT APPROVAL:

Katherine Miller, Finance Director

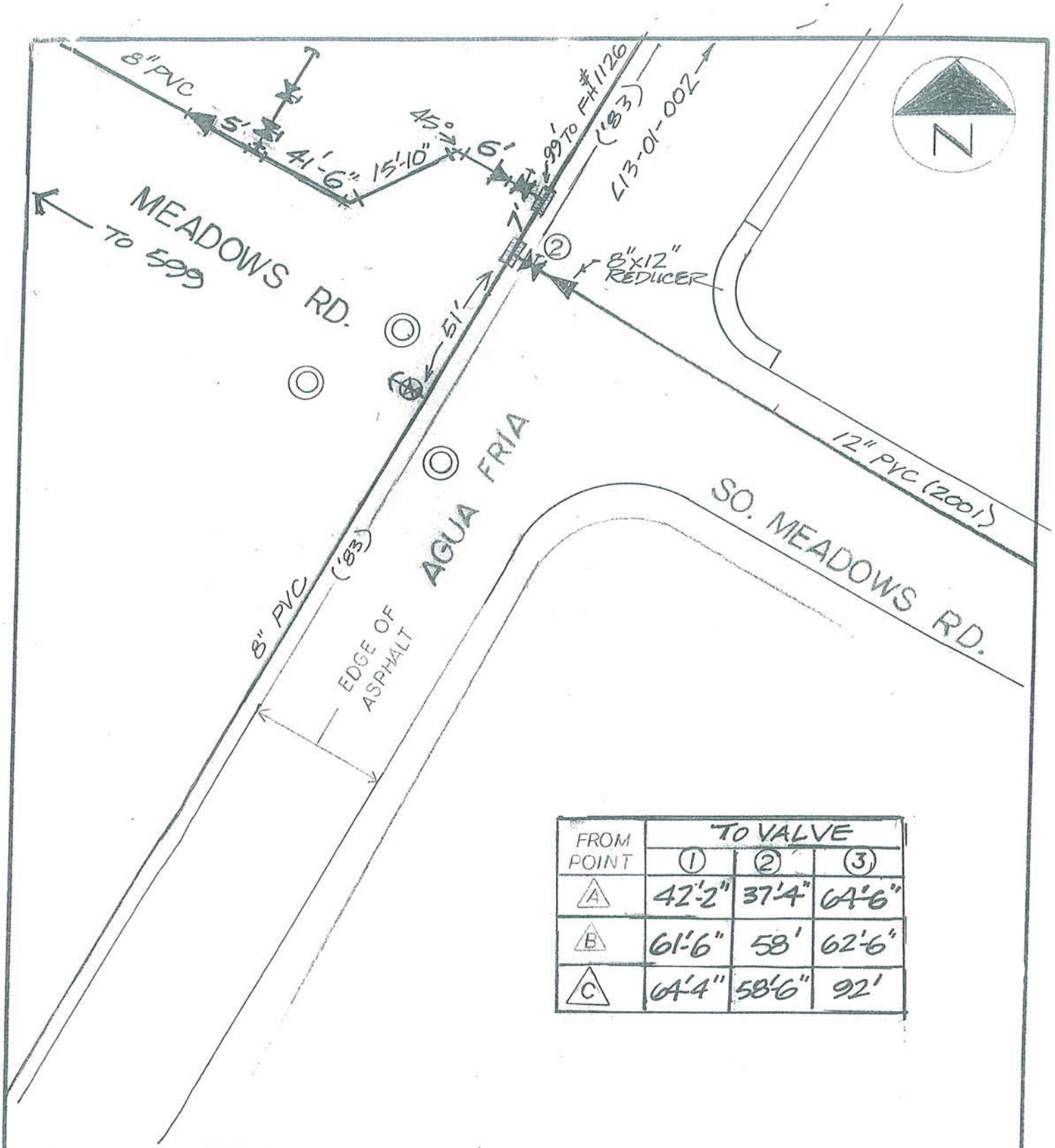
1-8-03
Date

COUNTY CLERK
SANTA FE COUNTY NEW MEXICO
REBECCA BUSTAMANTE

1244 037
COUNTY OF SANTA FE } ss
STATE OF NEW MEXICO
I HEREBY CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD ON THE 16 DAY OF JAN A.D. 20 03 AT 11:07 O'CLOCK AM AND WAS DULY RECORDED IN BOOK 2316 PAGE 057-070 OF THE RECORDS OF SANTA FE COUNTY
WITNESS MY HAND AND SEAL OF OFFICE
REBECCA BUSTAMANTE
COUNTY CLERK, SANTA FE COUNTY, N.M.
Marcella
DEPUTY

FITTING TO FITTING

MEASUREMENT EXAMPLE



FROM POINT	TO VALVE		
	(1)	(2)	(3)
A	42'-2"	37'-4"	64'-6"
B	61'-6"	58'	62'-6"
C	64'-4"	58'-6"	92'

T. 16 R. 08 S. 01

L	-	1	3	

SANGRE DE CRISTO WATER COMPANY

DESCRIPTION:

AGUA FRIA @ MEADOWS DR and SO. MEADOWS RD.

DR. | REV. | CONST. DWG. NO. 13 OF | DWG.

NING 44-242 6U431-05

CONTRACTORS FORMS

- APPLICATION FOR PAYMENT WITH PAYMENT FORMS AND STORED MATERIAL SUMMARY (EJCDC)
- CHANGE ORGER FORM (EJCDC)

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contractor's Application for Payment No.

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

Application For Payment

Change Order Summary

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

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

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By:	Date:

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

is recommended by: _____ _____
(Engineer) (Date)

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

is approved by: _____ _____
(Owner) (Date)

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

Progress Estimate - Lump Sum Work

Contractor's Application

For (Contract):	Application Number:
Application Period:	Application Date:

			Work Completed		E	F		G
A		B	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value ($)	From Previous Application (C+D)	This Period				
	Totals							

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):								Application Number:			
Application Period:								Application Date:			
A					B	C	D	E	F		
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)						
	Totals										

Stored Material Summary

Contractor's Application

For (Contract):								Application Number:			
Application Period:								Application Date:			
A		B	C		D		E		F		G
Bid Item No.	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Storage Location	Description of Materials or Equipment Stored	Stored Previously		Amount Stored this Month ($)	Subtotal Amount Completed and Stored to Date (D + E)	Incorporated in Work		Materials Remaining in Storage ($) (D + E - F)
					Date Placed into Storage (Month/Year)	Amount ($)			Date (Month/ Year)	Amount ($)	
				Totals							

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Change Order No. _____

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

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

Description:

Attachments: *[List documents supporting change]*

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

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title _____	Title _____
Date: _____	Date _____	Date _____

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

END OF SECTION

SECTION 09900

PAINTING AND COATING

PART 1 - GENERAL

DESCRIPTION

This section includes materials and application of painting and coating systems for the following surfaces:

Submerged metal.
Exposed metal.
Buried metal.
Metal in contact with concrete.

RELATED WORK SPECIFIED ELSEWHERE

Specification SECTION 09954: POLYETHYLENE SHEET ENCASEMENT (AWWA C105)
Specification SECTION 15100: PRESSURE SUSTAINING / ALTITUDE VALVE AND APPURTENANCES
Specification SECTION 15108: AIR RELEASE AND VACUUM RELIEF VALVES

SUBMITTALS

A. Submit shop drawings.

B. Submit manufacturer's data sheets showing the following information:

Percent solids by volume.
Minimum and maximum recommended dry film thickness per coat for prime, intermediate, and finish coats.
Recommended surface preparation.
Recommended thinners.
Statement verifying that the specified prime coat is recommended by the manufacturer for use with the specified intermediate and finish coats.
Application instructions including recommended equipment and temperature limitations.
Curing requirements and instructions.

C. Submit color swatches.

D. Submit certificate identifying the type and gradation of abrasives used for surface preparation.

PART 2 - MATERIALS

2.01 PAINTING AND COATING SYSTEMS

The following index lists the various painting and coating systems by service and generic type:

PAINT COATINGS SYSTEM INDEX

NO	TITLE	GENERIC COATING
7	SUBMERGED METAL COATING SYSTEMS	Epoxy
10	EXPOSED METAL – CORROSIVE ENVIRONMENT	High-Build Epoxy (two-coat system) with polyurethane topcoat
21	BURIED METAL	Coal-tar epoxy

These systems are specified in detail in the following paragraphs. For each coating, the required surface preparation, prime coat, intermediate coat (if required), topcoat, and coating thicknesses are described. Mil thicknesses shown are minimum dry film thicknesses.

2.02 SUBMERGED METAL COATING SYSTEMS

System No. 7- Submerged Metal, Potable Water (Epoxy).

Type: Epoxy.

Service Conditions: For use with structures, piping, or equipment immersed in potable water.

Surface Preparation: SSPC SP-10.

Coating System: Apply two or more coats of Tnemec Series N140 Carboline Hi-Gard 891, Ameron 395, or equal; 16 MILS TOTAL. COLOR OF TOPCOAT: WHITE.

2.03 EXPOSED METAL COATING SYSTEMS

System No. 10-Exposed Metal, Corrosive Environment:

Type: High-build epoxy intermediate coat having a minimum volume solids of 60%, with an inorganic zinc prime coat and a pigmented polyurethane finish coat having a minimum volume solids of 52%.

Service Conditions: For use with metal structures or pipes subjected to water condensation; chemical fumes, such as hydrogen sulfide; salt spray; and chemical contact.

Surface Preparation: SSPC SP-10.

Prime Coat: Self-curing, two-component inorganic zinc-rich coating recommended by the manufacturer for overcoating with a high-build epoxy finish coat. Minimum zinc content shall be 12 pounds per gallon. Apply to a thickness of 3 mils. Products: Tnemec 90-96, Carboline 11HS; Ameron 9HS, or equal.

Intermediate Coat: Tnemec 104; Carboline 888 or 890, Ameron 385, or equal; 5 mils.

Finish Coat: Two-component pigmented aliphatic or acrylic polyurethane recommended by the

manufacturer for overcoating a high-build epoxy coating. Apply to a thickness of at least 2 mils. Products: Tnemec 1075; Ameron 450 HS, Carboline 134 HG or equal.

2.04 BURIED METAL COATING SYSTEMS

System No. 21-not exceed the manufacturer's recommendation.

2.05 ABRASIVES FOR SURFACE PREPARATION

A. Abrasives used for preparation of iron and steel surfaces shall be one of the following:

16 to 30 or 16 to 40 mesh silica sand or mineral grit.
20 to 40 mesh garnet.
Crushed iron slag, 100% retained on No. 80 mesh.
SAE Grade G-40 or G-50 iron or steel grit.

B. Abrasives used for preparation of copper and aluminum surfaces shall be one of the following:

Crushed slag, 80 to 100 mesh.
Very fine silica sand, 80 to 100 mesh.

C. In the above gradations, 100% of the material shall pass through the first stated sieve size and 100% shall be retained on the second stated sieve size.

2.06 ORGANIC ZINC PRIMER FOR FIELD TOUCH-UP AND SHOP COATING

Organic zinc coating system shall have a minimum zinc content of 14 pounds per gallon. Coating shall be of the two- or three-component converted epoxy, epoxy phenolic, or urethane type. Products: Tnemec 90-97, Ameron 68HS, or equal; applied to a minimum dry-film thickness of 3 mils. Organic zinc primer shall be manufactured by the prime coat manufacturer.

Where shop-applied inorganic zinc primers cannot be used because of volatile organic compound (VOC) regulations, the above organic zinc primers described in System No. 18 may be substituted for the specified inorganic zinc primers.

PART 3 - EXECUTION

3.01 WEATHER CONDITIONS

Do not paint in the rain, wind, snow, mist, and fog or when steel or metal surface temperatures are less than 5 degrees F above the dew point.

A. Do not apply paint when the relative humidity is above 85% or the temperature is above 90 degrees F.

B. Do not paint when temperature of metal to be painted is above 120 degrees F.

C. Do not apply alkyd silicone aluminum, silicone acrylic or inorganic zinc paints if air or surface temperature is below 40 degrees. F or expected to be below 40 degrees F within 24 hours.

D. Do not apply epoxy acrylic latex and polyurethane paints on an exterior or interior surface if air or surface temperature is below 60 degrees F or expected to drop below 60 degrees F in 24 hours.

3.02 SURFACE PREPARATION

Do not sandblast or prepare more surface area in one day than can be coated in one day; prepare surfaces and apply coatings the same day. Remove all sharp edges, burrs, and weld spatter. Do not sandblast epoxy-or enamel-coated pipe that has already been factory coated, except to repair scratched or damaged coatings.

A. Surface preparation shall conform with the SSPC specifications as follows:

Solvent Cleaning	SP-1
Hand Tool Cleaning	SP-2
Power Tool Cleaning	SP-3
White Metal Blast Cleaning	SP-5
Commercial Blast Cleaning	SP-6
Brush-Off Blast Cleaning	SP-7
Pickling	SP-8
Near-White Blast Cleaning	SP-10

B. Wherever the words "solvent cleaning," "hand tool cleaning," "wire brushing," or "blast cleaning" or similar words are used in these specifications or in paint manufacturer's specifications, they shall be understood to refer to the applicable SSPC (Steel Structure Painting Council, Surface Preparation Specifications, ANSI A159.1) specifications listed above.

C. Dust blasting is defined as cleaning the surface through the use of very fine abrasives, such as siliceous or mineral abrasives, 80 to 100 mesh. Apply a fine etch to the metal surface to clean the surface of any contamination or oxide.

D. Remove oil and grease from metal surfaces in accordance with SSPC SP-1. Use clean cloths and cleaning solvents and wipe dry with clean cloths. Do not leave a film or greasy residue on the cleaned surfaces before sandblasting.

E. Remove weld spatter and weld slag from metal surfaces and grind smoothly rough welds, beads, peaked corners, and sharp edges including erection lugs in accordance with SSPC SP-2 and SSPC SP-3.

F. Neutralize welds with a chemical solvent that is compatible with the specified coating materials. Use clean cloths and chemical solvent. Wipe dry with clean cloths. Do not leave a residue on the cleaned surfaces.

3.03 ABRASIVE BLAST CLEANING

Use dry abrasive blast cleaning for metal surfaces. Do not use abrasives in automatic equipment that have become contaminated. When shop or field blast cleaning with handheld nozzles, do not recycle or reuse blast particles.

A. After blast cleaning and prior to application of coating, dry clean surfaces to be coated by dusting, sweeping, and vacuuming to remove residue from blasting. Apply the specified primer or touch-up coating within the period of an eight-hour working day. Do not apply coating over damp or moist surfaces. Reclean prior to application of primer or touch-up coating any blast cleaned surface not coated within said eight-hour period.

B. Keep the area of the work in a clean condition and do not permit blasting particles to accumulate and constitute a nuisance or hazard.

C. During sandblast cleaning, prevent damage to adjacent coatings. Schedule blast cleaning and coating such that dust, dirt, blast particles, old coatings, rust, mill scale, etc., will not damage or fall upon wet or newly coated surfaces.

3.04 PROCEDURES FOR ITEMS HAVING SHOP-APPLIED PRIME COATS

After application of primer to surfaces, allow coating to cure for a minimum of two hours before handling to minimize damage.

A. When loading for shipment to the project site, use spacers and other protective devices to separate items to prevent damaging the shop-primed surfaces during transit and unloading. If wood spacers are used, remove wood splinters and particles from the shop-primed surfaces after separation. Use padded chains or ribbon binders to secure the loaded items and minimize damage to the shop-primed surfaces.

B. Cover shop-primed items 100% with protective coverings or tarpaulins to prevent deposition of road salts, fuel residue, and other contaminants in transit.

C. Handle shop-primed items with care during unloading, installation, and erection operations to minimize damage. Do not place or store shop-primed items on the ground or on top of other work unless ground or work is covered with a protective covering or tarpaulin. Place shop-primed items above the ground upon platforms, skids, or other supports.

3.05 FIELD TOUCH-UP OF SHOP-APPLIED PRIME COATS

Remove oil and grease surface contaminants on metal surfaces in accordance with SSPC SP-1. Use clean rags wetted with a degreasing solution, rinse with clean water, and wipe dry.

A. Remove dust, dirt, salts, moisture, chalking primers, or other surface contaminants that will affect the adhesion or durability of the coating system. Use a high-pressure water blaster or scrub surfaces with a broom or brush wetted with a solution of trisodium phosphate, detergent, and water. Before applying intermediate or finish coats to inorganic zinc primers, remove any soluble zinc salts that may have formed by means of scrubbing with a stiff bristle brush. Rinse scrubbed surfaces with clean water.

B. Remove loose or peeling primer and other surface contaminants not easily removed by the previous cleaning methods in accordance with SSPC SP-7. Take care that remaining primers are not damaged by the blast cleaning operation. Remaining primers shall be firmly bonded to the steel surfaces with blast cleaned edges feathered.

C. Remove rust, scaling, or primer damaged by welding or during shipment, storage, and erection in accordance with SSPC SP-10. Take care that remaining primers are not damaged by the blast cleaning operation. Remaining primers shall be firmly bonded to the steel surfaces with blast cleaned edges feathered.

D. Use repair procedures on damaged primer which protects adjacent primer. Blast cleaning may require the use of lower air pressure, smaller nozzles, and abrasive particle sizes, short blast nozzle distance from surface, shielding, and/or masking.

E. After abrasive blast cleaning of damaged and defective areas, remove dust, blast particles, and other debris by dusting, sweeping, and vacuuming; then apply the specified touch-up coating.

F. Surfaces that are shop primed with inorganic zinc primers shall receive a field touch-up of organic zinc primer to cover all scratches or abraded areas.

G. Other surfaces that are shop primed shall receive a field touch-up of the same primer used in the original prime coat.

3.06 PAINTING SYSTEMS

All materials of a specified painting system, including primer, intermediate, and finish coats, shall be produced by the same manufacturer. Thinners, cleaners, driers, and other additives shall be as recommended by the paint manufacturer for the particular coating system.

Deliver paints to the jobsite in the original, unopened containers.

3.07 PAINT MIXING

Prepare multiple-component coatings using all of the contents of the container for each component as packaged by the paint manufacturer. Do not use partial batches. Do not use multiple-component coatings that have been mixed beyond their pot life. Provide small quantity kits for touch-up painting and for

painting other small areas. Mix only the components specified and furnished by the paint manufacturer. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.

3.08 PROCEDURES FOR THE APPLICATION OF COATINGS

Conform to the requirements of SSPC PA-1. Follow the recommendations of the coating manufacturer including the selection of spray equipment, brushes, rollers, cleaners, thinners, mixing, drying time, temperature and humidity of application, and safety precautions.

A. Stir, strain, and keep coating materials at a uniform consistency during application. Apply each coating evenly, free of brush marks, sags, runs, and other evidence of poor workmanship. Use a different shade or tint on succeeding coating applications to indicate coverage where possible. Finished surfaces shall be free from defects or blemishes.

B. Do not use thinners unless recommended by the coating manufacturer. If thinning is allowed, do not exceed the maximum allowable amount of thinner per gallon of coating material. Stir coating materials at all times when adding thinner. Do not flood the coating material surface with thinner prior to mixing. Do not reduce coating materials more than is absolutely necessary to obtain the proper application characteristics and to obtain the specified dry-film thicknesses.

C. Remove dust, blast particles, and other debris from blast cleaned surfaces by dusting, sweeping, and vacuuming. Allow ventilator fans to clean airborne dust to provide good visibility of working area prior to coating applications. Remove dust from coated surfaces by dusting, sweeping, and vacuuming prior to applying succeeding coats.

D. Apply coating systems to the specified minimum dry-film thicknesses as measured from above the peaks of the surface profile.

E. Apply primer immediately after blast cleaning and before any surface rusting occurs, or any dust, dirt, or any foreign matter has accumulated. Reclean surfaces by blast cleaning that have surface colored or become moist prior to coating application.

F. Apply a brush coat of primer on welds, sharp edges, nuts, bolts, and irregular surfaces prior to the application of the primer and finish coat. The brush coat shall be done prior to and in conjunction with the spray coat application. Apply the spray coat over the brush coat.

3.09 SURFACES NOT TO BE COATED

Do not paint the following surfaces unless otherwise noted on the drawings or in other specification sections. Protect during the painting of adjacent areas:

A. Concrete walkways.

B. Mortar-coated pipe and fittings.

C. Stainless steel.

D. Metal letters

E. Glass.

F. Roofings.

G. Fencing.

H. Copper tubing, red brass piping, and PVC piping except where such piping occurs in areas where the walls are painted, or required for color coding.

I. Electrical fixtures except for factory coatings.

J. Nameplates.

K. Grease fittings.

L. Brass and copper, submerged.

M. Buried pipe, unless specifically required in the piping specifications.

N. Aluminum handrail, stairs, and grating.

3.10 PROTECTION OF SURFACES NOT TO BE PAINTED

Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors to prevent paint and other materials from entering the motors.

3.11 SURFACES TO BE COATED

Coat surfaces as described below:

Coat mechanical equipment as described in the various mechanical equipment specifications. Color shall match the color of the connecting piping.

A. Coat aboveground and exposed piping or piping in vaults and structures as described in the various piping specifications. Color shall be as selected by the Owner.

B. Coat valves as described in the various valve specifications. Aboveground valves, or valves in vaults and structures, shall match the color of the connecting piping.

C. Coat aluminum surfaces in contact with concrete per System No. 51.

D. Coat buried flanges, nuts and bolts, valves, flexible pipe couplings, exposed rebar in thrust blocks, and valve boxes per System No. 21.

E. Coat exposed indoor galvanized electrical conduit per system no. 52. Color of finish coat shall be OSHA Safety Orange.

3.12 DRY-FILM THICKNESS TESTING

Measure coating thickness specified for metal and concrete surfaces with a calibrated magnetic-type dry-film thickness gauge. Test the finish coat (except zinc primer and galvanizing) for holidays and discontinuities with an electrical holiday detector, low-voltage, wet-sponge type. Provide measuring equipment. Provide detector as manufactured by Tinker and Rasor or K-D Bird Dog. Provide dry-film thickness gauge as manufactured by Mikrotest or Elcometer. Check each coat for the correct dry-film thickness. Do not measure within eight hours after application of the coating.

Make five separate spot measurements (average of three readings) spaced evenly over each 100 square feet of area (or fraction thereof) to be measured. Make three gauge readings for each spot measurement of either the substrate or the paint. Move the probe a distance of 1 to 3 inches for each new gauge reading. Discard any unusually high or low gauge reading that cannot be repeated consistently. Take the average (mean) of the three gauge readings as the spot measurement. The average of five spot measurements for each such 100 square foot area shall not be less than the specified thickness. No single spot measurement in any 100 square foot area shall be less than 80%, nor more than 120%, of the specified thickness. One of three readings which are averaged to produce each spot measurement may underrun by a greater amount.

3.13 REPAIR OF IMPROPERLY COATED SURFACES

If the item has an improper finish color or insufficient film thickness, sandblast as required, and clean and topcoat the surface with the specified paint material to obtain the specified color and coverage. Sandblast or power-sand visible areas of chipped, peeled, or abraded paint, feathering the edges. Then prime and finish coat in accordance with the specifications. Work shall be free of runs, bridges, shiners, laps, or other imperfections.

PART 4 – PAYMENT

Costs for the work in this section shall not be paid for separately, but shall be considered incidental to the contract work to be accomplished.

END OF SECTION

SECTION 09954

POLYETHYLENE SHEET ENCASEMENT (AWWA C105)

PART 1 – GENERAL

1.01 DESCRIPTION

This section includes materials and installation of a polyethylene sheet encasement for buried iron pipe, fittings, and valves.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Specification SECTION 15240: DUCTILE IRON PIPE.

1.03 SUBMITTALS

Submit shop drawing.

Submit manufacturer's catalog literature and product data sheets describing the physical, chemical, and electrical properties of the encasement material.

PART 2 – PRODUCTS

2.01 POLYETHYLENE WRAP

The encasement shall consist of a polyethylene wrap at least 8 mils thickness conforming to AWWA C105. Color: Black.

2.02 PLASTIC ADHESIVE TAPE

Tape shall be Calpico Polyvinyl Tape, Polyken 900, Scotchwrap 50, or equal.

PART 3 – EXECUTION

3.01 APPLYING SHEET COATING TO BURIED PIPING AND FITTINGS

A. Apply wrapping per AWWA C105.

B. Apply a single wrapping.

C. Overlap adjoining polyethylene tube coatings a minimum of 1 foot and wrap prior to placing concrete anchors, collars, supports, or thrust blocks. Hand wrap the polyethylene sheet, apply two layers, and secure in place with 2-inch-wide polyethylene adhesive tape.

3.02 APPLYING SHEET COATING TO BURIED VALVES

Wrap with a flat sheet of polyethylene. Place the sheet under the valve and the flanges or joints

with the connecting pipe and fold in half. Extend the sheet to the valve stem and secure the sheet in place with 2-inch-wide plastic adhesive tape. Apply a second layer and secure with tape. Secure the sheets with tape around the valve stem below the operating nut and around the barrel of the connecting pipe to prevent the entrance of soil. Pour concrete anchor and support blocks after the wrap has been placed.

3.03 APPLYING SHEET COATING TO BURIED FLEXIBLE PIPE COUPLINGS

Apply two layers or wraps around the coupling. Overlap the adjoining pipe or fitting a minimum of 1 foot and secure in place with tape. Apply tape around the entire circumference of the overlapped section on the adjoining pipe or fitting.

3.04 REPAIR OF POLYETHYLENE MATERIAL

Repair polyethylene material that is damaged during installation. Use polyethylene sheet, place over damaged or torn area, and secure in place with 2-inch-wide plastic adhesive tape.

PART 4 – PAYMENT

Payment for the work in this section shall not be paid for separately, but shall be included as part of the unit price cost for piping. No additional compensation will be made.

END OF SECTION

SECTION 11400
ELECTROMAGNETIC FLOW METER – COUNTY MASTER METER

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section covers the furnishing, installation, and services for a 12-inch and an 8-inch electromagnetic flow meter to be installed on the 16-inch pipeline near the Buckman Tank. The use of a Badger M-Series M-2000 electromagnetic flow meter for this application has been requested by the SDCW. Substitutions are NOT ALLOWED for this product.

1.02 RELATED WORK

A. None.

1.03 SUBMITTALS

A. Submit shop drawings.

1.04 MAINTENANCE AND TEST EQUIPMENT

A. Provide the following complete with carrying cases, patch cords, etc.
   1. One hand held smart transmitter calibrator provided with the flow meter to calibrate the Badger flow meters.

B. Contactor shall provide list of recommended spare parts

PART 2 PRODUCTS

2.01 FLOW METERING INSTRUMENTS

A. Confirm that flowmeter meets manufacturer's required length of straight pipe upstream and downstream of flowmeter to ensure accurate readings. Notify OWNER if facility as designed will not meet this requirement.

B. Provide flanged, electromagnetic flowmeter meeting the following requirements:

   1. Flow Element
      a. Type:
         (1) Insertable electromagnetic type and shall provide an induced voltage proportional to the liquid flow rate.
      b. Functional/Performance:
         (1) Accuracy - Plus or minus 0.25 percent of rate for velocities greater than 1.64 ft/s (0.50 m/s). Plus or minus 0.004 ft/s (plus or minus 1 mm/s) for velocities less than 1.64 ft/s (0.50 m/s)

(2) Repeatability - Plus or minus 0.1 percent of the actual value over the flow range.
(3) Ambient Temperature - -4 to 140 degrees F (-20 – 60 degrees C).
(4) Pressure rating – Flanges shall be tested to 50% above their stated pressure rating for 150 lb flanges.
(5) Additional- Meter shall be capable of running empty indefinitely without damage to any component.
(6) The flow tube will be water submergence rated.
(7) Remote mount
(8) Submersible

c. Physical:
(1) Insertion hardware: 316 stainless steel.
(2) Flanges: ANSI 150 lb, RF cast steel unless otherwise indicated.
(3) Amplifier Housing - cast aluminum, powder-coated paint.
(4) Detector Housing – Carbon steel welded
(5) Hard rubber liner

d. Accessories/Options Required:
(1) Factory calibration - All meters shall be factory calibrated. A copy of the report shall be in the O&M manual. Manufacturer to provide onsite calibration testing and documentation reports. Contractor to coordinate with Owner for third party calibration testing and documentation reports.
(2) Grounding - Meter shall be grounded per the manufacturers recommendation. Provide 316 SS ground ring, ground wires, gaskets, etc., as required, or as otherwise noted. All materials shall be suitable for water.
(3) Provide all equipment necessary for full operation of flow meter and connections to process PLC.
(4) NEMA 6P and cable
(5) Include ability to connect to City AMI and SCADA-ready outputs. City to provide ORION Cellular Endpoint.

2. Converter/Transmitter:
a. Input Power: 120 VAC. Optional 10-36V DC.
b. Output Signal: 4-20 mA proportional to flowrate over specified range.
c. Analog Output: Maximum loop resistance < 800Ohms.
d. Totalizer: Programmable/resettable.
e. Integral digital indicator scaled in process units.
h. Electrical Connections: Screw terminals for instrument cable.

3. Manufacturer:
a. Badger Meter M-Series M2000. NO SUBSTITUTION ALLOWED

PART 3 EXECUTION

3.01 GENERAL

A. The Badger Meter M-Series M2000 shall be installed within the Flow Meter Vault per the

manufacturer's instructions. The display transmitter unit will be remotely mounted exterior to the Flow Meter Vault.

B. A single, un-spliced, line shall be installed from the flow meter tube in the pit to the flow meter transmitter. The CONTRACTOR shall verify the length of this line prior to ordering the material.

C. The flow meter display shall report two readings including 1) flowrate measured in gallons per minute (gpm) and 2) Total Cumulative Flow measured in Cubic Feet.

D. The 120V power pathway to be provided by contractor to meter sites shall be with PVC-coated rigid conduit

E. Electrical enclosures shall be 304/316 SS NEMA 4X rated

PART 4 – MEASUREMENT AND PAYMENT

4.01 Costs for the work in this Section shall not be paid for separately, but shall be considered incidental to the Master Meter Vault bid item.

END OF SECTION

SECTION 11410

ELECTROMAGNETIC FLOWMETER – SUPPLY METER AT BS4

PART 1 – GENERAL

1.01 SCOPE OF WORK

A. This Section covers the furnishing, installation, and services for an electromagnetic flow meter to be installed on the new 24-inch pipeline near the Booster Station 4. The OWNER has identified the use of a Endress Hauser Promag L400 for this application. Substitutions are NOT ALLOWED for this product.

1.02 RELATED WORK

A. None.

1.03 SUBMITTALS

A. Submit shop drawings.

1.04 MAINTENANCE AND TEST EQUIPMENT

A. Provide the following complete with carrying cases, patch cords, etc.

1. One hand held smart transmitter calibrator provided with the flowmeter to calibrate the flow meter.

B. Contactor shall provide list of recommended spare parts

PART 2 – PRODUCTS

2.01 FLOW METERING INSTRUMENTS

A. Confirm that flowmeter meets manufacturer's required length of straight pipe upstream and downstream of flowmeter to ensure accurate readings. Notify OWNER if facility as designed will not meet this requirement.

B. Provide flanged, electromagnetic flowmeter meeting the following requirements:

1. Flow Element

a. Type:

(1) Electromagnetic type and shall provide an induced voltage proportional to the liquid flow rate.

b. Functional/Performance:

(1) Accuracy - Plus or minus 0.5 percent of reading over the flow range.

(2) Repeatability - Plus or minus 0.1 percent of the actual value over the flow range.

(3) Temperature rating - Suitable for process liquid temperature 0 to 50 degrees C.

(4) Pressure rating - Suitable for typical working pressures up to250 psi

(5) Additional- Meter shall be capable of running empty indefinitely without damage to any component.

6) The flowtube will be water submergence rated.

c. Physical:

(1) Measuring Tube: 316 stainless steel.

(2) Flange: Carbon Steel ANSI Class 250 lb. raised face. AWWA class ring flange.

(3) Electrode: AISI 316 Stainless Steel (exchangeable).

(4) Housing - Shall be designed for accidental submergence in 30 feet of water for 24 hours.

(5) Liner: Polyurethane.

(6) Grounding Rings: AISI 316 Stainless Steel, per manufacturer's recommendations.

(7) Pipe Size: See piping Drawings for pipe size.

(8) Manufacturers Reference: Endress Hauser Promag L400. NO SUBSTITUTION.

d. Accessories/Options Required:

(1) Factory calibration - All meters shall be factory calibrated. A copy of the report shall be in the O&M manual.

(2) Grounding - Meter shall be grounded per the manufacturers recommendation. Provide ground ring, ground wires, gaskets, etc., as required or as otherwise noted. All materials shall be suitable for liquid being measured.

(3) Provide all equipment necessary for full operation of flow meter and connections to process PLC.

(4) 120V power pathway to be provided by contractor to meter sites with PVC-coated rigid conduit

(5) Electrical enclosures to be 304/316 SS NEMA 4X rated

C. Provide remote transmitter/signal converter with integral empty pipe detection option meeting the following electrical requirements:

1. Input Power: 120 VAC.

2. Output Signal: 4 - 20 mA proportional to flow rate over specified range.

3. Output Load: 600 Ohms, maximum.

4. Totalizer: 0-50 pulses per second, scaleable to any unit.

5. Indication: Integral digital indicator scaled in process units.

6. Accuracy: ±0.5% of flow rate.

7. Element-to-Transmitter cable: Provide cable length as shown on Drawings. Provide cable as required by field routing conditions.

8. Electrical Connections: Screw terminals for Instrument Cable.

PART 3 EXECUTION

3.01 GENERAL

A. The flowmeter tube shall be installed within the Flow Meter Vault as identified on the detail sheet. The display transmitter unit will be remotely mounted inside the building.
B. A single line, unspliced, shall be installed from the flow meter tube in the pit to the flow meter transmitter. The estimate length of this cable is 90 LF. The CONTRACTOR shall verify the length of this line prior to ordering the material.
C. A signal conductor shall be installed from the flow meter transmitter to the RTB Cabinet. An additional 10LF of conductor shall be provided and coiled within the RTB Cabinet. The CONTRACTOR is not required to complete the connection to the RTB.
D. The OWNER shall connect the conductor to the RTB panel and complete the installation to their system.

PART 4 – MEASUREMENT AND PAYMENT

4.01 Costs for the work in this Section shall not be paid for separately, but shall be considered incidental to the construction of the Flow Meter Vault

END OF SECTION

SECTION 13420

HYDRAULIC CONTROL VALVES

PART 1 – GENERAL

1.01 DESCRIPTION

This Section includes the pressure sustaining valve along with associated instrumentation of control devices.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Specification SECTION 09900: PAINTING AND COATING

B. Specification SECTION 16993: PROCESS INSTRUMENTATION AND CONTROLS – FIELD INSTRUMENTS

1.03 SUBMITTALS

A. Submit shop drawings.

B. Submit manufacturer's catalog data. Show dimensions, materials of construction by ASTM reference and grade, and coatings.

C. The valve manufacturer shall provide a computerized cavitation chart which shows flow rate, differential pressure, percentage of valve opening, Cv factor, system velocity and if there will be cavitation damage.

PART 2 – MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Cla-Val Co., Newport Beach, CA

2.02 MAIN VALVE DESIGN AND CONSTRUCTION

A. Main Valve:
   a. Valve design to be globe single diaphragm type in globe or angle pattern as required;
   b. edges of diaphragm shall be exposed; rolled diaphragms not allowed.
   c. Main valve shall be NSF 61 approved for drinking water service.
   d. Main valve seat:
      i. single, removable seat with a 5° taper, shall serve as lower stem guide, and include a precision machined O-ring gland
      ii. In full port valves 6" and smaller, the seat shall be a screw-in design (to not cause damage to the O-ring).
      iii. 8" and larger full port valves, seat shall be held in place with screws
      iv. Slanted seats are not allowed.

v. Anti-cavitation trim seat - Constructed of 316 Stainless Steel. Seat and disc guide trim components feature dual inter-locked sleeves containing radial slots that deflect internal flow to impinge upon itself in the center of the flow path, harmlessly dissipating the potential cavitation damage. Slotted design lessens the possibility of fouling if large particles in the water are present due to the large flow path of the radial slots

e. Main Valve disc to be retained on 3-1/2 sides, o-ring type discs are not allowed.
f. Main valve stem
   i. Guided by bearings at the top in the valve cover at the bottom in the valve seat.
   ii. The stem shall be machined with spiral flutes on each end, the length of the stem travel and be drilled and tapped on the cover end to accept accessories. Sleeved or coated stems are not acceptable.
   iii. Fluted stems shall be a regular feature of valve construction and shall have be proven in hard water service successfully for a minimum period of ten years.
   iv. Stem to be drilled and tapped at cover end to accept accessories.
g. Main valve and pilot control system components shall be cast, machined, and assembled in the United States (US made, Buy America Compliant).
h. Main valve diaphragm:
   i. Vulcanized at stem hole and not used as the seating surface.
   ii. Capable of withstanding Mullins Burst test of 600 psi per nylon layer.
   iii. Fully supported in full open and full closed positions by precision machined surfaces.
   iv. Protected from over–extension in full open poison by contact of precision machined surfaces of diaphragm washer and cover stops.
i. All necessary repairs and/or modification shall be possible without removing the main valve from the line.
j. Valve to be hydraulically operated, pilot controlled diaphragm type.
k. Valve cover and body mating surfaces:
   i. Precision machined with register fits and serrated surfaces to grip and seal the diaphragm and center the cover without use of locating or alignment pins
   ii. valve cover shall be of a single piece design.
l. Single chamber type valves;
   i. Single operating chambers sealed from each other by the diaphragm.
   ii. Removable guide bearings for main stem
   iii. Disc guide: one piece design with straight edges and radius on top edge; Hour glass shaped designs are not allowed.
m. Dual chamber type valves;
   i. Two operating chamber sealed from each other by the diaphragm
   ii. Lower operating chamber: separated from line pressure by an o-ring seal.
   iii. Check flow feature when scheduled: life type, non-hydraulic check feature using a two-piece stem.
   iv. Main valve stem to be fully guided with bearings in the valve cover seat for port sizes 8” and smaller
n. Reduced Port type: valve seat diameter to be one nominal size smaller than valve flange diameter
o. Self-cleaning strainers shall be used to protect the pilot control system
p. The valve manufacturer shall also provide a computerized cavitation chart which shows flow rate, differential pressure, percentage of valve opening, Cv factor, system velocity,

and if there will be cavitation damage. All analysis to be fully supported by independent 3rd party testing laboratory.

B. Control Valve Pilot System (131-AM):
   a. Control system (pilot) components shall be manufactured by the same company as the main valve.
   b. The 131-AM hydraulic control valve pilot system shall consist of dual DC solenoids which alternately apply or relieve pressure to the diaphragm chamber to position the main valve.
   c. They shall be normally closed (energized to open, Main valve fail closed on power loss)
   d. 12 VDC with NEMA 4 enclosure.
   e. Manual solenoid operator or manual by-pass system with isolation cocks to by-pass the solenoid(s) shall be provided.

C. Electronic Valve Controller (PSCV-1)
   a. Function - The controller shall provide the interface between a remote computer system and the hydraulic control valve.
   b. Utilizing electronic digital control, solenoid pilots equipped onto the control valve(s) are actuated by electrical signals received from the Electronic Valve Controller which enables remote computer control over the diaphragm valve operations. The solenoids either add or relieve line pressure from the cover chamber of the diaphragm valve, causing it to open or close as directed by the Electronic Valve Controller. Each solenoid is controlled by a solid state relay with zero switching voltage. The total cycle time between each pulse shall be programmable.
   c. In either digital or analog control, the Electronic Valve Controller shall accept an analog 4-20mA feedback signal. Upon receiving the remote set-point command from the computer system or local command from the operator, the Electronic Valve Controller shall provide a digital signal or 4-20 mA analog signal to the appropriate pilot(s) and maintain the desired set-point value. When the feedback signal is within a programmable dead band zone, the appropriate electronic pilot(s) on the control valve will not activate; control valve will maintain position. When the feedback signal deviates from or approaches the set-point, the appropriate electronic pilot(s) will be activated, smoothly modulating the valve to its set-point. Preinstalled valve application templates allow the Electronic Valve Controller to be configured to perform a wide range of control valve functions, such as; pressure management, pressure reducing, pressure sustaining, rate of flow control, level control or valve position.
   d. The electronic controller shall be supplied with pre-programmed valve application templates used to setup and configure the controller to match the desired function of the valve in the piping system.
   e. The controller display shall be a color TFT screen to graphically display valve application with integral real-time sys- tem information.
   f. An IP-68 enclosure shall be provided to house the controller for environmental protection. An anodized aluminum mounting bracket suitable for mounting on pipe or wall shall be supplied as standard. The controller shall feature a multi-PID loop control with local or remote set point input. The controller shall include six (6) configurable analog inputs; six (6) dry contact digital inputs; four (4) 4-20mA analog inputs; and two (2) solid-state relays.

g. The controller shall be enable configurable set point ramping to protect against system surges and shall also include a configurable flow totalizer. High speed logging data (1000Hz) shall be downloadable to a portable memory device such as a USB drive. Security codes shall be provided to protect against unauthorized changes.

h. The electronic controller shall be capable of data retransmission to SCADA or similar control systems and shall be capable of generating and sending signal loss warnings and other configurable control actions. Alarm outputs shall be provided as standard rather than an optional feature.

i. Controller Specifications

a. Enclosure:

i.	Enclosure material:	Flame retardant UL rated PC/ABS plastic
ii.	Enclosure connections:	M16/M20 cable; IP68 cable glands UIP-68 USB Type A & Type B Connection, IP-68 Ethernet port
iii.	Environmental:	IP-68, 2 meters for 48 hours
iv.	Enclosure Dimensions:	8.75”H x 6”W x 3.5”D, 3 pounds
v.	Mounting Bracket:	Anodized aluminum

b. Power Requirement:

i.	Power:	300 mA at 24VDC (Steady State)
ii.	Voltage Input:	12-24 VDC – full function
iii.	Fuse Type:	3A Fuse

c. Display:

i.	Display Type:	4.3” color TFT-LCD, 480 x 72 pixels
ii.	Display update rate:	100ms
iii.	Programming method:	mechanical push button, VNC
iv.	Password:	5 digit

d. Mass Data Storage:

i.	Type:	2 GB SD Card
ii.	Language:	English
iii.	Humidity:	90% RH, non-condensing
iv.	Memory Protection:	10 year Lithium battery

e. Input Logging:

i.	Configurable:	Yes
ii.	Logging Speed:	1 minute
iii.	Output:	CSV format suitable for exporting to MS Excel

f. Inputs:

i.	Analog:	Six (6) inputs (4–20mA / 0-5 V/ 0-10V)
ii.	Resolution:	10 bit
iii.	Digital:	Six (6) digital inputs – dry contacts
iv.	Units:	Configurable
v.	Decimal Point:	0/ 0.0/ 0.00/ 0.000
vi.	Signal Filter:	Configurable 1 to 60 seconds
vii.	Totalizer:	Configurable inputs and units
viii.	Totalizer reset:	Yes
ix.	I/O Connection:	Screw terminals

g. Outputs:
   i. Analog: Four (4) outputs (4-20mA)
   ii. Resolution: 10 bit
   iii. Solenoid: Two (2) Solid state Relay (DC), Zero Switching voltage for AC solenoids, use PC-22D Power Converter
   iv. Relay: Two (2) Mechanical Relay, 250VAC rated voltage, 6A rated current
h. Control Parameters:
   i. Control Input: 4-20mA full scale/ 0-5V/ 0-10V/Digital (Dry contact)
   ii. Proportional Band: 0-100% (50% Default), adjustable in 1% increments – Independent for OPENING and CLOSING
   iii. Dead Band: Adjustable 0 to full scale of set-point signal
   iv. Cycle Time: 0 – 60 seconds, in 1 second increments
   v. Integral Band: Adjustable 0 – 60 seconds
   vi. Derivative Band: Adjustable 0 – 60 seconds
   vii. Loop Zoning: Adjustable up to Four (4) zones
   viii. PID Loops: Four (4), Configurable
i. Temperature Range:
   i. Working Temperature: -10°C to 70°C/ 14°F to 158°F
   ii. Storage Temperature: -30°C to 85°C/ -22°F to 185°F
j. Warranty:
   i. The electronic controller shall be warranted to be free of defects in material and workmanship for a period of one year from date of shipment, provided it is installed and used in accordance with all applicable instructions.

2.03 MATERIALS

A.	Main valve body and cover	Ductile Iron ASTM A536
B.	Main valve stem	Stainless Steel Type 303
C.	Main valve stem nut Stainless Steel or Brass 1. Note: Main valve stem and stem nut must have sufficient material and hardness difference to prevent galling during assembly and disassembly.	
D.	Main valve stem, nut, and spring	Stainless Steel Type 303
E.	Main valve nuts/ bolts (fastener hardware)	Stainless Steel Type 303
F.	Main valve seat	Stainless Steel Type 316
G.	Main valve bearings	Stainless Steel Type 304
H.	Diaphragm and disc	Buna N Rubber

I.	Pilot system tubing	Stainless Steel Type 316
J.	Pilot valve body and cover	Bronze, ASTM B62
K.	Pilot valve seat	Stainless Steel Type 303
L.	Disc retainer and diaphragm washer	Cast Iron

PART 3 – EXECUTION

3.01 INSTALLATION

A. Manufacturer's recommendations

B. As indicated on Drawings

C. Furnish copper drain tubing from all drip sources in the pilot assembly to the nearest floor drain or through wall to daylight, unless shown otherwise on Drawings.

3.02 FIELD SERVICE REPRESENTATIVE

A. Manufacturer's representative shall have and office located within 50 miles of jobsite that is capable of providing repair service and maintains minimum of $50,000 in valve parts inventory (including complete spare / replacement controllers), and employs service personnel that are factory trained.

B. All equipment shall be operationally tested by the Supplier at the jobsite following installation of equipment, controls, valves, and piping. The Supplier shall make all the necessary repairs and/ or adjustments. Adjustments shall be repeated until the installation is complete and the equipment is functioning properly and accurately and is ready for continuous operation.

C. The Supplier representative shall visit the site as many times as necessary until any trouble is resolved and the installation is totally satisfactory. Supplier will provide Certification in writing that each valve system is properly installed and ready for use.

D. Start-up, check and adjust systems and components: Eight (8) hours on-site minimum. Training of Owner's designated personnel: Four (4) hours minimum devoted to training and scheduled in writing to the Engineer.

3.03 SCHEDULE

A. Buckman Tank Inlet Pressure Sustaining Control Valve
   1. Tag PSCV-1: Electronically actuated pressure sustaining control valve. This valve will open to allow an operated defined inlet pressure. The valve will open based on on/off pumping status at Booster Station 4 (BS4) and will close based on on/off pumping status at BS4.
   2. Valve Size: 16-inch.

3. Valve Type: Flow control; full port model, Globe pattern, CL-150 flanged ends.
4. Design Basis: Cla-Val Model: 131G-AM B Y V C S N KC KD KX, include optional analog pressure gauge by valve manufacturer.
5. With VC-22D controller installed in IP68 enclosure.
6. With IFM model PI2793 inlet Pressure transmitter/ indicator, include isolation and nulling ball valves.
7. Flow Range: 2000 gpm (minimum); 10,500 gpm (maximum)
8. Quantity: One (1)

PART 4 – PAYMENT

Work covered in this section of the specifications, and associated costs therewith, shall be included in the lump sum bid item to which the work applies. No separate payment shall be made.

END OF SECTION

SECTION 15100

BUTTERFLY VALVES-WATER SYSTEM

PART 1 – GENERAL

1.01 DESCRIPTION

This Section of the Specifications shall be Supplemental to APWA Standard Specification Sections 801.3.4 of the Standard Specifications as modified by the City of Santa Fe Public Utilities Department Water Division Construction Standards and Specifications. All requirements of APWA Standard Specification Section 801 shall apply except as modified herein or by the City of Santa Fe Public Utilities Department Water Division Construction Standards and Specifications.

PART 2 – MATERIALS

2.01 MANUFACTURERS

Acceptable Manufacturers: Pratt or ValMatic OR Dezurik, No Exceptions.

PART 3 – EXECUTION

Not used.

PART 4 –PAYMENT

Work covered in this Section of the Specifications and associated costs therewith shall be included in the contract price for the item to which the work applies. No separate payment shall be made.

END OF SECTION

SECTION 15108

AIR-RELEASE AND VACUUM-RELIEF VALVES

PART 1 – GENERAL

1.01 DESCRIPTION

This Section of the specification shall be supplemental to Section 801 of the New Mexico Standard Specifications for Public Works Construction and includes materials and installation of air and vacuum valves and air-release valves for water service.

1.02 SUBMITTALS

A. Submit shop drawings.

B. Submit manufacturer's catalog data. Show dimensions, materials of construction by ASTM reference and grade, and coatings.

PART 2 – MATERIALS

2.01 COATING

Coat valves located above ground or in vaults and structures in accordance with Specification SECTION 09900: PAINTING AND COATING, System No. 7. Apply prime coat at the place of manufacture. Color of finish coat shall match the color of the adjacent piping. Do not coat stainless-steel pieces.

2.02 LINING

Coat interior surfaces of cast-iron valves at the place of manufacture per Specification SECTION 09900: PAINTING AND COATING, System No. 7. Do not coat seating areas and plastic, bronze, stainless steel, or other high alloy parts.

2.03 BOLTS AND NUTS FOR FLANGED VALVES

See specification for the pipe to which the valve is attached.

2.04 GASKETS FOR FLANGED END VALVES

Gaskets for flanged end valves shall be as described below.

Gaskets for flanges for steel piping in water service (Specification SECTION 127: Steel Water Pipe) for flat face and raised face flanges shall be 1/8-inch thick and shall be one of the following nonasbestos materials:

Acrylic or aramid fiber bound with nitrile. Products: Garlock "Bluegard," Klinger "Klingersil C4400," or equal. Gaskets shall be suitable for a pressure of 500 psi at a temperature of 400°F.

Gaskets for flanges for ductile-iron piping and fittings in water service shall be full face, 1/8-inch thick, cloth-inserted rubber, with a Shore "a" hardness of 75 to 85. Gaskets shall be suitable for a water pressure of 200 psi at a temperature of 180°f. Gaskets shall have "nominal" pipe size inside diameters not the inside diameters per ANSI B16.21. Products: Garlock style 19 or equal.

2.05 VALVE DESIGN AND OPERATION

A. Air release valves for water service shall function to slowly release pockets of air which accumulate at high points in piping systems. Valves larger than 3/4 inch shall have a float actuated compound lever with linkage mechanism to release air. Float shall withstand an external pressure of 1,000 psig without collapsing.

Air release valves 2 inches in size shall incorporate a body with flanged top cover, screened mushroom type cap outlet, and replaceable orifice and a synthetic rubber needle or disc actuated by the float and linkage mechanism. Top cover shall include a 1/2-inch threaded outlet with bronze plug. Body shall include a 1/2-inch threaded drain outlet near the bottom with a bronze plug.

B. Air and vacuum valves for water service shall have a float assembly and large venting orifice to exhaust large quantities of air from pipelines when being filled and to admit large quantities of air when pipelines are being drained. Valve shall have a body with a flanged top containing the air release orifice. The float shall rise with the water level in the valve body to close the orifice by sealing against a synthetic rubber seat. Float shall be protected by a baffle to prevent premature closing and shall withstand an external pressure of 1,000 psig without collapsing. Do not use designs having levers and weights attached to the floats. Float shall have a one-piece guide rod extending out of the bottom end to engage the guide bushings in the valve body at all times.

Air and vacuum valves larger than 4 inches shall have a 1-inch threaded drain outlet with bronze plug near the bottom of the valve body and a 2-inch threaded outlet with bronze plug on the side of the valve body above the minimum water level in the valve which forces the float against the valve seat. The valve outlet shall have a protective steel hood to prevent entry of foreign material.

2.06 MATERIALS AND CONSTRUCTION

A. Materials of construction for air-release valves for water service shall be as follows:

ITEM	MATERIAL	SPECIFICATION
Body and cover	Cast Iron	ASTM A 126, Grade B
Float	Stainless steel	AISI Type 316, ASTM A 240 or A 276
Linkage, orifice air-release mechanism	Stainless steel	AISI Type 316, ASTM A 240 or A 276

B. Materials of construction for air and vacuum valves for water service shall be as follows:

ITEM	MATERIAL	SPECIFICATION
Body and cover	Cast Iron	ASTM A 48, Class 30
Float, guide rod, guide bushings	Stainless steel	AISI Type 316, ASTM A 240 or A 276
Seat	Buna-N	--
Needle	Buna-N	--

2.07 VALVES

A. COMBINATION AIR AND VACUUM VALVES, 2 Inches through 6 Inches, Class 300:

Valves shall have an operating pressure of 300 psi. Provide steel hood above the top cover and orifice. The valves shall be dual body type with the air relief as a separate valve isolated from the main body. The orifice size shall be 3/32 inch or as designated in plans. Valves shall be rated to a minimum of 250 psi and be Cla-Val Model 363CAV332FT, CL125 Flange (3”), Model MTP364/34.116.3, CL250 Flange/Model MTP364/34.332, CL125 Flange (4”) or Model MTP366/34.116.3, CL250 Flange/model MTP366/34.332, CL125 flange (6”) or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reseat or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.

B. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.

3.02 VALVE PRESSURE TESTING

Test valves at the same time that the connecting pipelines are pressure tested. Protect or isolate any parts of valves, operators, or control and instrumentation systems whose pressure rating is less than the test pressure.

PART 4 – PAYMENT

Payment for the valves in this section shall not be paid for separately, but shall be included in their respective bid amounts for each vault or manhole included in the Bid Proposal. No additional payment will be made.

END OF SECTION

SECTION 15240

DUCTILE-IRON PIPE

PART 1 – GENERAL

1.01 DESCRIPTION

This section describes materials, testing, and installation of ductile-iron pipe and fittings 24 inches and smaller.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Specification SECTION 09900: PAINTING AND COATING.

B. Specification SECTION 09954: POLYETHYLENE SHEET ENCASEMENT (AWWA C105).

C. Specification SECTION 16640: CORROSION MONITORING.

1.03 SUBMITTALS

A. Submit shop drawings.

B. Provide an affidavit of compliance with standards referenced in this specification, e.g., AWWA C151. Submit copy of report of pressure tests for qualifying the designs of all sizes and types of AWWA C153 fittings that are being used in the project. The pressure test shall demonstrate that the minimum safety factor described in AWWA C153, Section 5.5, is met.

C. Submit piping layout profile drawings showing location and dimensions of pipe and fittings; submit after equipment and valve submittals have been reviewed and marked "Resubmittal not required." Label or number each fitting or piece of pipe. Piping having identical design pressure class, laying lengths, and bell-and-spigot dimensions that is to be placed in long straight reaches of alignment may have the same identifying label or number.

D. Provide the following information:

1. Mortar lining thickness.

2. Wall thickness.

3. Material test data for this project.

4. Show deflections at push-on and mechanical joints.

5. Submit joint and fitting details and manufacturer’s data sheets.

E. Submit calculations and test data proving that the proposed restrained joint arrangement can transmit the required forces with a minimum safety factor of 1.5.

F. Submit copy of manufacturer's quality control check of pipe material and production. Include hydrostatic test records and acceptance test records. For each acceptance test, submit a stress-strain diagram showing yield strength, yield point, tensile strength, elongation, and reduction in area. Provide specimen test section dimensions and speed and method used to determine speed of testing, method used for rounding of test results, and reasons for replacement specimens, if any. Submit ring bending test of pipe of the same diameter and pressure class as the pipe required for this project to prove ring bending stress at 48 ksi results in a factor of safety of 2.0.

G. Submit certificate that cement for mortar lining complies with ASTM C 150, designating type.

H. Submit test report on physical properties of rubber compound used in the gaskets.

I. Submit drawing or manufacturer's data sheet showing flange facing, including design of facing serrations.

J. Submit weld procedure specification, procedure qualification record, and welder's qualifications prior to any welding to ductile-iron pipe.

PART 2 – MATERIALS

2.01 PIPE

Pipe shall be cast ductile (nodular) iron, conforming to AWWA C151. Provide pipe in nominal 18- or 20-foot laying lengths.

2.02 PIPE MARKING

Plainly mark each length of straight pipe and each fitting at the bell end to identify the design pressure class, the ductile-iron wall thickness, and the date of manufacture, and the proper location of the pipe item by reference to the layout schedule. Mark the spigot end of restrained joint pipe to show clearly the required depth of insertion into the bell.

2.03 DESIGN CRITERIA

A. Obtain the following information from the plans:

1. Elevation of the pipe centerline and of the completed ground.

2. Alignment of the pipeline.

3. Field test hydraulic gradient elevation (HGL).

4. Nominal internal diameter, ID.

5. Design internal pressure class.

6. Joint types(s).

B. The design pressure (in psi) shall be the difference in HGL elevation and the pipeline centerline elevation (in feet) multiplied by 0.433.

2.04 FITTINGS

A. Fittings 4 inch through 60 inch shall conform to AWWA C110 or AWWA C153 with a minimum pressure rating as shown on the drawings. Material shall be ductile iron, Grade 70-50-05 as specified in ASTM A536. Flanges shall be flat faced.

B. Mechanical joint ductile-iron fittings 4 inch through 48 inch and conforming to AWWA C153 (except for laying length) with a minimum pressure rating as shown on the drawings.

C. Grooved-end fittings shall conform to AWWA C110 with grooved ends conforming to AWWA C606, radius cut rigid joints. Fitting material shall conform to ASTM A 48, Class 30; ASTM A 126, Class B; or ASTM A 536, Grade 65-42-10. Wall thickness of ductile-iron (ASTM A 536) fittings shall conform to AWWA C110 or C153; wall thickness of cast-iron fittings shall conform to AWWA C110. Fittings and couplings shall be furnished by the same manufacturer.

D. Material for fittings with welded-on bosses shall have a Charpy notch impact value of minimum 10 ft-lbs under the conditions defined in AWWA C151.

2.05 FLANGES

A. Flanges shall be solid back, drilled per ANSI B16.1 Class 125/150 bolt hole pattern and constructed in accordance with AWWA C115. Flanges on pipe shall be either cast or threaded. Material shall be ductile iron.

B. Flanged pipe and fittings shall be shop fabricated, not field fabricated. Threaded flanges shall comply with AWWA C115. Flanges shall be individually fitted and machine tightened in the shop, then machined flat and perpendicular to the pipe barrel. Flanges shall be backfaced parallel to the face of flange. Prior to assembly of the flange onto the pipe, apply a thread compound to the threads to provide a leak-free connection. There shall be zero leakage through the threads at a hydrostatic test pressure of 250 psi without the use of the gasket.

C. Material for blind flanges shall be ductile iron. Pressure rating shall be equivalent or greater than the test pressure of the pipeline.

2.06 PIPE LINING--CEMENT MORTAR

D. Line pipe interior and fittings with cement-mortar per AWWA C104. Lining thickness shall be the double thickness listed in AWWA C104, Section 4.7. Lining material shall conform to ASTM C 150, Type II.

E. Line blind flanges per Specification SECTION 09900: PAINTING AND COATING, System No. 7.

F. Cement-mortar for pointing interior joints shall consist of one part cement to one and one-half parts of washed plaster sand conforming to ASTM C 35, mixed with the minimum amount of water which will permit placing the mortar.

G. Field repair of loose areas of cement mortar lining per manufacturer's recommendation are acceptable if the lining remains intact. Remove and reconstruct lining in areas where quality is defective, such as sand pockets, voids over sanded areas, blisters, drummy areas, cracked areas, and thin spots. Longitudinal cracks in excess of 1/32 inch in width or where crack extends to metal shall be repaired with epoxy. Repair all cracks larger than 1/16 inch with epoxy.

2.07 GASKETS FOR FLANGES

Gaskets for flanges for ductile-iron piping and fittings in water service shall be full face, 1/8-inch thick, cloth-inserted rubber, with a Shore "a" hardness of 75 to 85. Gaskets shall be suitable for a water pressure of 200 psi at a temperature of 180°f. Gaskets shall have "nominal" pipe size inside diameters not the inside diameters per ANSI B16.21. Products: Garlock style 19 or equal.

2.08 GASKETS FOR MECHANICAL, PUSH-ON, AND RESTRAINED JOINTS

Synthetic rubber in accordance with AWWA C111.

2.09 BOLTS AND NUTS FOR FLANGES

A. Bolts and nuts for Class 150 flanges (including AWWA C207, Class D) located indoors, and in vaults and structures shall be carbon steel, ASTM A 307, Grade B.

B. Bolts and nuts for buried or submerged Class 150 flanges shall be Type 304 stainless steel conforming to ASTM A 193 (Grade B8) for bolts and ASTM A 194 (Grade 8) for nuts.

C. Hex head machine bolts for use with lugged valves shall comply with ASTM A 193, Grade B7.

D. Fit shall be Classes 2A or 2B per ANSI B1.1 when connecting to cast-iron valves having body bolt holes.

E. Bolts for AWWA C207 Classes E and F flanges and ANSI B16.5 and B16.47 Class 300 flanges located indoors, and in vaults and structures shall be chrome molybdenum conforming to ASTM A 193, Grade B7, with nuts conforming to ASTM A 194, Grade 2H.

F. Bolts and nuts for buried or submerged Class 300 flanges and Class 300 flanges shall be Type 304 stainless steel conforming to ASTM A 193, Grade 8, Class 2, for bolts and ASTM A 194, Grade 8 for nuts.

G. Bolts used in flange insulation kits shall conform to ASTM A 193 (Grade B8). Nuts shall conform to ASTM A 194 (Grade 8).

H. Provide washers for each nut. Washers shall be of the same material as the nuts.

2.10 JOINTS

A. Joints in buried piping shall be of the restrained, push-on or mechanical-joint type per AWWA C111 except where flanged joints are required to connect to valves, meters, and other equipment. Provide unrestrained buried joints except where restrained joints are specifically shown in the drawings.

B. Restrained joints for piping 6 inches and larger shall be American Cast Iron Pipe "Lok-Ring" or "Flex-Ring," U.S. Pipe "TR-Flex," or equal.

C. Restrained joints in 4-inch-diameter buried piping shall be American Cast Iron Pipe Company “Fast-Grip,” U.S. Pipe Field-lok gasket within Tyton joint pipe and fittings, or equal. Joint restraint shall be certified to four times rated pressure of 200 psi by Factory Mutual.

D. Where thrust restraint is called for in the drawings, provide pipe with restrained joints capable of transmitting 1.5 times the thrust, as calculated by the following equation:

$T = 1.5 * (0.785 * P * D^2)$

where:

P = Pressure class of pipe in psi.

D = Outside diameter of pipe in inches.

T = Thrust in pounds.

2.11 MECHANICAL JOINT RESTRAINT SYSTEM USING FOLLOWER RING AND WEDGES

The restraining mechanism shall consist of a follower gland having a seal gasket and individually actuated wedges that increase their resistance to pullout as pressure or external forces increase. The system manufacturer shall provide all the components (follower ring, wedges, and gaskets) for the restraining device. The device shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial. The joint restraint ring and its wedging components shall be constructed of ductile iron conforming to ASTM A 536, Grade 60-42-10. The wedges shall be ductile iron, heat-treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with mechanical joint bells conforming to AWWA C111 and AWWA C153. The design shall use torque limiting twist-off nuts to provide actuation of the restraining wedges. The mechanical joint restraint shall be available in the size range of 3 through 48 inches. Minimum rated pressure shall be 350 psi for sizes 16 inches and smaller and 250 psi in sizes 18 inches and larger. Products: Megalug Series 1100 as manufactured by EBAA Iron, Inc., or equal.

2.12 DUCTILE-IRON PIPE WELDMENTS

A. All welding to ductile-iron pipe, such as for bosses, joint restraint, and joint bond cables, shall be done at the place of manufacture of the pipe or by the contractor in the field. If performed in the field, the welds shall be inspected by a welding inspector of the OWNER'S CHOICE at the expense of the CONTRACTOR. Perform welding by skilled welders who have experience in the method and materials to be used. Welders shall be qualified under the standard qualification procedures of the ASME Boiler and Pressure Vessel Code, Section IX, Welding Qualifications or ANSI AWS D.11.2.

B. Welds shall be of uniform composition, neat, smooth, full strength, and ductile. Completely grind out porosity and cracks, trapped welding flux, and other defects in the welds in such a manner that will permit proper and complete repair by welding.

PART 3 – EXECUTION

3.01 DELIVERY, UNLOADING, AND TEMPORARY STORAGE OF PIPE AT SITE

A. Limit onsite pipe storage within road limits to a maximum of one week.

B. Use unloading and installation procedures that avoid cracking of the lining. If necessary, use plastic sheet bulkheads to close pipe ends and keep cement-mortar lining moist.

C. Deliver the pipe alongside the pipe laying access road over which the pipe trailer-tractors can travel under their own power. Place the pipe in the order in which it is to be installed and secure it from rolling.

D. Do not move pipe by inserting any devices or pieces of equipment into the pipe barrel. Field repair linings damaged by unloading or installation procedures.

3.02 PROTECTION OF PIPE INTERIOR

A. During laying operations, do not place tools, clothing, or other materials in the pipe.

B. When pipe laying is not in progress, close the ends of the installed pipe by a child- and vermin-proof plug.

3.03 INSTALLING FLANGED PIPE AND FITTINGS

A. Set pipe with the flange bolt holes straddling the pipe horizontal and vertical centerline. Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment. Before bolting up, align flange faces to the design plane within 1/16 inch per foot measured across any diameter. Align flange boltholes within 1/8-inch maximum offset.

B. Clean flanges by wire brushing before installing flanged fittings. Clean flange bolts and nuts by wire brushing, lubricate carbon steel bolts with oil and graphite, and tighten nuts uniformly and progressively.

D. Bolt lengths shall extend completely through their nuts by at least one complete thread for complete engagement. Any which fail to do so shall be considered unacceptable.

E. Do not use more than one gasket between contact faces in assembling a flanged joint.

F. If flanges leak under pressure testing, loosen or remove the nuts and bolts, reset or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints. Joints shall be watertight.

G. Install heat shrinkable sleeves, cold applied wax tape or threaded nut and bolt thread protection caps after completing the bolt, nut, and gasket installation as set forth herein. Install on buried and submerged piping.

H. Cut the bore of the gaskets such that the gaskets do not protrude into the pipe when the flange bolts are tightened.

3.04 INSTALLING BURIED PIPING

A. When installing piping in trenches, do not deviate more than 1 inch from line or 1/4 inch from grade. Measure for grade at the pipe invert.

B. Provide thrust blocks at fittings with a minimum compressive strength (f'c @ 28 days) of 3,500 psi per Specification SECTION 101: PORTLAND CEMENT CONCRETE, unless otherwise shown in the drawings. Provide thrust blocks at fittings in existing water pipe lines that are being removed and relocated or replaced, per NMPWSS Standard Drawing 2320 when adequate restrained length is not available.

C. Assemble restrained joints per manufacturer's instructions.

D. Bond buried joints as described in Specification SECTION 16640: CORROSION MONITORING**.**

3.05 JOINT DEFLECTIONS FOR BURIED PIPE

A. Do not exceed the manufacturer's recommended maximum deflection angles for unrestrained buried pipe joints:

B. For restrained joints, do not exceed the manufacturer's recommended maximum deflections.

C. Small angular changes (less than 7 degrees) in horizontal alignment defined in the drawings by a point of inflection (PI) with no accompanying curve data shall be approximated as a curve by deflecting by equal amounts equal length pipe segments to create a curve equally distributed on both sides of the given PI. Accomplish a larger (greater than or equal to 7 degrees) change in horizontal alignment where a curve is not called for in the drawings through the use of an elbow placed at the station of the PI shown in the drawings. Provide thrust restraint as required in the drawings.

D. Small angular changes (less than 5 degrees) in vertical alignment may be accomplished by the use of pulled joints. For larger vertical deflections, place an elbow at the station and elevation of the vertical PI shown in the drawings. Provide thrust restraint as required in the drawings.

E. Assemble joints in accordance with AWWA C600 and the manufacturer's recommendations.

3.06 INSTALLING ABOVEGROUND OR EXPOSED PIPING

Install pipe without springing, forcing, or stressing the pipe or any adjacent connecting valves or equipment.

3.07 PAINTING AND COATING

A. Provide asphaltic coating on buried pipe per AWWA C151.

B. Coat buried flanges and buried mechanical and restrained joint bolts, nuts, and glands per Specification SECTION 09900: PAINTING AND COATING, System No. 21.

C. Coat exposed grooved-end couplings with epoxy per Specification SECTION 09900: PAINTING AND COATING, System No. 21.

D. Coat pipe located aboveground and vaults or structures per Specification SECTION 09900: PAINTING AND COATING, System 10. Apply prime coat in shop before transporting pipe to job site. Apply intermediate and finish coats in field before installing the pipe, then touch up after installation.

3.08 POLYETHYLENE ENCASEMENT OF BURIED PIPE AND FITTINGS

Wrap buried pipe, fittings, grooved-end couplings, and joints with polyethylene per Specification SECTION 09954: POLYETHYLENE SHEET ENCASEMENT (AWWA C105).

3.09 CLEANING PIPE

After joints have been completed, sweep pipe clean of all dirt and debris. A visual inspection of each joint shall be performed to identify potential rolled gaskets during the installation of the pipeline.

3.10 HYDROSTATIC TESTING

Test pressures are shown on the drawings.

END OF SECTION

SECTION 16640

CORROSION CONTROL AND MONITORING

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes the procurement, installation, and testing of corrosion control and corrosion monitoring facilities.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. American Society for Testing and Materials (ASTM)

C94 Ready Mix Concrete

B843 Magnesium Alloy Anodes for Cathodic Protection

D1248 Polyethylene Plastics, Molding and Extrusion Materials

B. American Water Works Association (AWWA)

C217 Application and Handling of Wax-Type Protective Coatings and Wrapper Systems for Underground Pipelines

C. National Association of Corrosion Engineers (NACE International)

RP0286 Electrical Insulation of Cathodically Protected Pipelines

RP0169 Control of External Corrosion on Underground or Submerged Metallic Piping Systems

D. National Electrical Manufacturer's Association (NEMA)

MR20 Cathodic Protection Units

E. National Fire Protection Association (NFPA)

70 National Electric Code

F. Underwriters Laboratories, Inc. (UL)

83 Thermoplastic-Insulated Wires and Cables

486 Wire Connectors and Soldering Lugs for Use with Copper Conductors

514 Outlet Boxes and Fittings

1.03 GENERAL REQUIREMENTS

The corrosion control and monitoring facilities shown on the Plans is considered diagrammatic and should not be scaled for exact location, except where dimensions are given. Field conditions, including interference with other utilities, architectural, mechanical and structural features shall determine exact locations. Where applicable, materials and equipment shall bear evidence of U.L. approval. Conform to the requirements of all applicable federal, state and local laws, codes and regulations.

1.04 SUBMITTALS

A. Qualifications of the NACE certified Corrosion Technician, materials, installation method, testing methods and testing equipment.

B. Certification by the professional Corrosion Engineer or the NACE certified Cathodic Protection Specialist stating that the criteria in these specifications are met.

C. Manufacturer's information for each item listed below (if required). Include sufficient information to show that the materials meet the requirements provided herein, including references to specific sections and details shown on the Plans.

1. Connectors
2. Alumino-Thermic Weld Kits
3. Weld Coating
4. Test Station boxes
5. Pipe Flange Insulating Kits
6. Pipe Lead & Bond Wire
7. Coating for Buried Insulated Pipe Flanges
8. Concrete
9. Plastic Warning Tape
10. Test Station

1.05 QUALITY ASSURANCE

A. The installation shall conform to the National Electrical Code, applicable local codes, and the Recommended Practice of NACE.

B. Provide all materials, equipment, labor and supervision necessary for the completion of the installation and testing. The Contractor shall employ a Corrosion Construction Supervisor, with experience in the installation of at least five similar type systems, to supervise the corrosion monitoring facilities installation. The Corrosion Construction Supervisor shall be under the direct supervision of a licensed professional Corrosion Engineer or a NACE certified Cathodic Protection Specialist. The Corrosion Construction Supervisor shall instruct the Contractor on site during the initial installation and shall revisit the site as required.

C. Maintain record drawings for the corrosion control and monitoring system continuously throughout installation of the corrosion control and monitoring facilities. Record drawings shall

properly identify all items of equipment and material and shall show exact locations with dimensional ties to existing structures or survey monuments for test boxes, insulated pipe flanges, and buried wires.

1.06 MEASUREMENT AND PAYMENT

Costs for the work in this Section shall not be paid for separately, but shall be considered incidental to the contract work to be accomplished.

PART 2 - MATERIALS

2.01 GENERAL

A. Provide corrosion control and monitoring facilities materials and equipment that are new, undamaged, and in the original packaging marked with the manufacturer's name or trademark. The materials and equipment shall be of the manufacturer's latest standard design and shall be fully compatible to provide a complete and functional corrosion monitoring system.

2.02 CONNECTORS

Split bolts shall be compact, high strength, high copper alloy, have free-running threads and easy to grip wrench flats. Bolts shall have high resistance to resist cracking and corrosion.

2.03 ALUMINO-THERMIC WELD KITS

A. Make the connection of the wire to metallic structure by exothermic weld or by brazing.

B. Exothermic weld material shall be a mixture of copper oxide and aluminum, packaged by size in plastic tubes. The materials shall be non-explosive and not subject to spontaneous ignition.

C. Material of different manufacturers shall not be mixed.

D. Connections shall be made in accordance with UL 486.

E. Connectors and accessories shall be Erico Products, Inc., or equal.

2.04 WELD COATING

Coating for all welds shall be a cold-applied, fast drying mastic consisting of bituminous resin and solvents. The minimum percentage of solids shall be 80 percent.

2.05 TEST STATIONS

A. Test stations shall be used as a test lead terminal to read:

1. Underground structure-to-soil potentials.
2. The resistive integrity of the insulation flange and joints.
3. The integrity of insulation between all types of underground metallic structures, such as between a carrier and its casing.
4. Stray currents on all types of underground structures.

B. Each test station shall consist of a 2inch test station as manufactured by Handley Industries.

2.06 TEST BOXES

A. Boxes for corrosion control and monitoring test stations shall be mounted flush with the ground and designed to withstand H-20 traffic loads. Covers for test stations shall be cast iron and have the words " TEST" and be blue in color. Lids shall consist of a one-piece locking mechanism. A magnet shall be included in the box to allow for location with an electronic locator. Use 2” Test Station as manufactured by Handley Industries.

2.07 PIPE FLANGE INSULATING KITS

A. Pipe flange insulating kit materials shall be of the type designated by the manufacturer as suitable for appropriate service at the operating temperatures and pressures specified on the Plans.

B. Flange insulating kits shall consist of a one piece full-face, insulating gasket, an insulating sleeve for each bolt, two insulating washers for each bolt, and a steel washer between each insulating washer and nut.

1. Insulating Gasket: Insulating gasket retainers shall be full-face, Type E, NEMA G-10 epoxy glass retainers with a nitrile (Buna-N) rectangular cross section O-ring sealing. Minimum total thickness shall not be less than 1/8-inch. Dielectric strength shall be not less than 550 volts per mil, and compressive strength of not less than 50,000 psi. Use PSI Linebacker, or equal.

2. Insulating Sleeves: Provide full length, one piece, insulating flange bolt sleeves for the appropriate bolt size. Insulating sleeves shall be NEMA G-10 epoxy glass. Dielectric strength shall be not less than 400 volts per mil.

3. Insulating Washers: Insulating washers shall be NEMA G-10 epoxy glass with a minimum thickness of 1/8-inch. Dielectric strength shall not be less than 550 volts per mil, and compressive strength of not less than 50,000 psi.

4. Provide cadmium plated steel flange bolt washers for placement over the insulating washers with a minimum thickness of 1/8 inch.

2.08 PIPE, CASING AND BOND WIRE

A. Use solid copper wire with insulation rated at 600 volts. Wires with cut or damaged insulation are not acceptable and replacement of the entire lead will be required. Wires shall be sufficient length to extend from the point of installation on the pipeline to the appropriate corrosion monitoring test box without splices.

1. Pipe/Casing Test Lead Wires: The pipe test lead wire shall be No. 8 and No. 12 AWG solid conductor and shall have a THHN insulation. Each wire shall have at least 18 inches of slack in the test box.

2. Pipe Joint Bonding Wire: The pipe joint bonding wire shall be No. 4 AWG and shall have 7/64-inch thick HMWPE insulation specifically designed for cathodic protection service and suitable for direct burial in corrosive soil, conforming to ASTM D1248, Type I, Grade J3, Class

C, Category 5 (HMWPE Type CP). Install bond wires at a minimum length.

2.09 CONCRETE

Concrete used for corrosion monitoring facilities installation shall be the type used for pavement and concrete flatwork (i.e., access roads, sidewalks, curb, etc.) with 3000 psi 28-Day Compressive Strength.

2.10 PLASTIC WARNING TAPE

Plastic warning tape for horizontal runs of buried leads in cable trenches shall be a minimum of 4 mils thick and 6 inches wide, inert yellow plastic film designed for prolonged use underground. The tape shall have the words, "CAUTION CATHODIC PROTECTION CABLE BELOW," or similar, clearly visible in repeating patterns along its entire length.

PART 3 - EXECUTION

3.01 TEST FACILITIES

A. Provide test facilities for measuring the effectiveness of the corrosion control and monitoring system.

1. Underground insulating pipe flanges shall contain a test station to verify and monitor the resistance and effectiveness of these joints.

2. Connect test lead wires to the structure so as to remain mechanically secure and electrically conductive.

3.02 TEST WIRE CONNECTIONS

A. Make connections to ensure continued operation of the system under all weather conditions.

B. Make connections to the structure with the exothermic weld process ("Cadweld" or equal). This process shall consist of a mixture of granulated copper oxide and aluminum together with a powdered magnesium starting charge, the whole being manufactured so that the charge, when poured into a suitable carbon mold, may be ignited by a spark gun to initiate a chemical reaction that will deposit molten copper welding metal at the point of the connection. Make exothermic welds in accordance with the manufacturer's procedures.

C. Prepare the pipe or casing surface by removing a four-inch square "window" from the coating. File and wire brush the pipe surface until a bright metal finish is obtained.

D. Where two or more wires are welded to the metallic structure, the minimum spacing between exothermic welds shall be 3 inches.

E. The lead wire end to be welded shall be stripped so that a copper sleeve of suitable size can be fitted over the bare section.

F. After the weld is performed, test the bond by hammering the molten deposit with a hammer. If the weld comes loose, or is not completely connected, perform a second weld. Prepare a second bare surface at least 6 inches from the site of the failed weld. The wire conductor shall be restripped and covered with a new copper sleeve.

G. Make the test wire connections during the pipe and casing laying process or as required during the system installation.

H. Install the cables with sufficient slack so that the cable insulation and conductors will not be damaged due to ground or structure movement.

3.03 TEST STATIONS

A. Install flush mounted test stations directly over the pipeline to which they are connected. In the case where the pipeline is in a paved street, install the test boxes in areas away from traffic hazards, such as in medians, shoulders, or behind curbs, as shown on the Plans or as directed by the Engineer.

B. Install test stations at the locations shown on the Plans. Weld the wires to the pipelines at the nearest pipe joint to the station indicated on the Plans. The wire shall be direct buried and terminated in the test box with a minimum of 18 inches of slack in each wire.

C. Place a single utility marking post at each test station. Utility marking posts shall be manufactured of fiberglass. The marking post shall be blue and have white labels on both sides with black lettering stating "CAUTION WATER PIPELINE/BEFORE DIGGING CALL NM ONE CALL 811 FOR LOCATES." Marking posts shall be constructed of resilient materials and shall not deteriorate with exposure to temperature extremes. Marking post colors shall not expose with exposure to sun, water, etc. Marking posts shall be 72" long by 4" wide. Acceptable manufacturers are Carsonite International – Curv-Flex (Early Branch, South Carolina) or Rhino-Fiber-Curve (Waseca, Minnesota).

D. Install tracer wire junction boxes at pipeline markers. Junction boxes shall be 3" Cott Big Fink or approved equal, consisting of a minimum 4 terminal with nickel plated brass hardware. Junction boxes shall be mounted on 3" COTTPipe PE.

3.04 THERMITE WELDS

A. After the thermite weld has been performed and the connection tested for strength, thoroughly coat the cleaned surface with a coating repair recommended by the coating manufacturer, and allow drying to a non-glossy appearance.

B. Cover the connection with a thermite weld cap. Where unable to use a weld cap, cover the exposed metal surfaces with a 1/8-inch thick dielectric sealant, or wax tape. Work the sealant or tape so that there are no voids or spaces between the sealant or tape and the pipe surface. Push the lead wire back down onto the pipe so that the elastomer compound is in firm contact with the pipe over the entire welded area.

C. Place a cement mortar coat of equal material and thickness over the weld cap, dielectric sealant or wax tape.

3.05 EXCAVATION AND BACKFILLING

A. Trenches for lead wires shall be a minimum of 24 inches deep or as shown otherwise on drawings.

B. Cover the bottom of the lead wire trench with a three (3)-inch layer of sand or stone free earth. Center lead wire on the backfill layer. Do not stretch or kink the conductor. Place backfill over the wire in layers not exceeding 6 inches deep, and compact each layer thoroughly. Do not place tree roots, wood scrap, vegetable matter or refuse in the backfill. Plastic warning tape shall be placed at a depth of eight inches below final grade.

C. Do not use large rocks, stones, boulders or other foreign materials as backfill material.

D. Place the backfill in 6 inch layers and thoroughly and carefully tamp until the wires and wire connection splices have a cover of not less than 18 inches. Compacting the backfill with water will not be permitted.

3.06 INSTALLATION OF CORROSION MONITORING TEST STATIONS

A. Install the test stations at the locations shown on the Plans. Any deviations in the location of test stations must be approved by the Engineer prior to their relocation.

B. Firmly tighten the lid after the installation of the test box to prevent tampering.

3.07 INSTALLATION OF FLANGE INSULATING KIT MATERIALS

Install the pipe flange insulating kits at the locations shown on the Plans and in accordance with the manufacturer's recommendations. Install the insulating flanges in accordance with the NACE recommended practice RP0286, "Electrical Insulation of Cathodically Protected Pipelines." The effectiveness of the insulating flanges will be tested by the Engineer in accordance with RP0286, Section 7, "Field Testing and Maintenance." Particular attention shall be paid to properly aligning the flanges prior to inserting the insulating sleeves around flange bolts. Prevent moisture, soil or other foreign matter from contacting any portion of the insulating joint prior to or during installation. If moisture, soil or other foreign matter contacts any portion of the insulating joint, disassemble the entire joint, clean with a suitable solvent and dry prior to reassembling. Follow the manufacturer's recommendations regarding the torquing pattern of the bolts and the amount of torque to be used when installing the flange insulating kit. Do not use conductive grease on the flange bolts or any other flange components.

3.08 PIPE JOINT BONDING WIRES

During installation of the pipe, electrically bond across pipe joints that are not circumferentially welded. Install bond wires across buried or submerged metallic in-line valves, dresser couplings, bolted flanges, and fittings, except for insulated pipe flanges. Install bond wires at minimum length. A minimum of two bond wires is required for each joint.

3.09 FIELD APPLIED COATING

Field coat bare fittings and connections to the pipe with a bitumastic coating.

3.11 TESTING

A. Verify, by testing, that the entire system is functioning properly. Perform all testing in the presence of the Engineer.

B. Retain a NACE certified Corrosion Technician to perform the testing. Perform tests under the supervision of a licensed professional Corrosion Engineer or a NACE certified Cathodic Protection Specialist.

C. Measure native pipe-to-soil potentials. Pipe-to-soil potential readings to a portable copper-copper/sulfate reference electrode shall be taken at the test stations along the pipeline.

D. Furnish test results including all pertinent readings, dates, times, and locations to the Engineer.

E. Measure the potential on both sides of insulating unions and flanges.

F. Insulated Pipe Flange Tests: Each insulated pipe flange shall be tested by the NACE certified Corrosion Technician under the supervision of a licensed professional Corrosion Engineer or a NACE certified Corrosion Specialist for electrical isolation of the two mating flanges. If the insulated pipe flange will be buried, this inspection must be done before the wax tape coating is applied. The insulated pipe flanges shall be installed in accordance with the NACE recommended practice RP0286, "Electrical Insulation of Cathodically Protected Pipelines." The effectiveness of the insulated pipe flanges shall be tested in accordance with RP0286, Section 7, "Field Testing and Maintenance." Replace or repair any insulated pipe flange that is not electrically effective.

G. Testing of Completed Welds: Pipe lead wire connections shall be inspected by the Engineer prior to backfilling. At the Engineer's discretion, tests to verify the soundness of the alumino-thermic welds shall be conducted by the Contractor. Tests for this purpose shall consist of striking the weld nugget with a two-pound hammer while steadily pulling on the wire. Note that the wire near the weld shall not be unnecessarily cold-worked during installation or testing. Remove and reweld any welds that break loose or show signs of separating, as determined by the Engineer.

H. Pipe Lead Wire Integrity Tests: After the pipe is buried, the pipe lead wire trenches are backfilled, and the test boxes are installed, the Engineer will test each set of pipe lead wires for electrical continuity to the pipe. If more than twice the theoretical resistance of the pipe lead wire lengths is measured, replace the pipe lead wires.

I. Final Inspection: Notify the Engineer when the corrosion control and monitoring system is completely installed. Within four weeks the system will be inspected and tested by the Engineer. The Contractor shall replace or repair any deficiencies in materials and installation that are revealed by these tests.

END OF SECTION

EXHIBIT V – CONSTRUCTION DRAWINGS

CITY OF SANTA FE WATER DIVISION
BUCKMAN PARALLEL PIPELINE PROJECT

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CONSTRUCTION PLANS FOR
BUCKMAN WELL FIELD PARALLEL PIPELINE
CIP PROJECT #3047
SANTA FE, NEW MEXICO

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4	G-04	HYDRAULIC PROFILE
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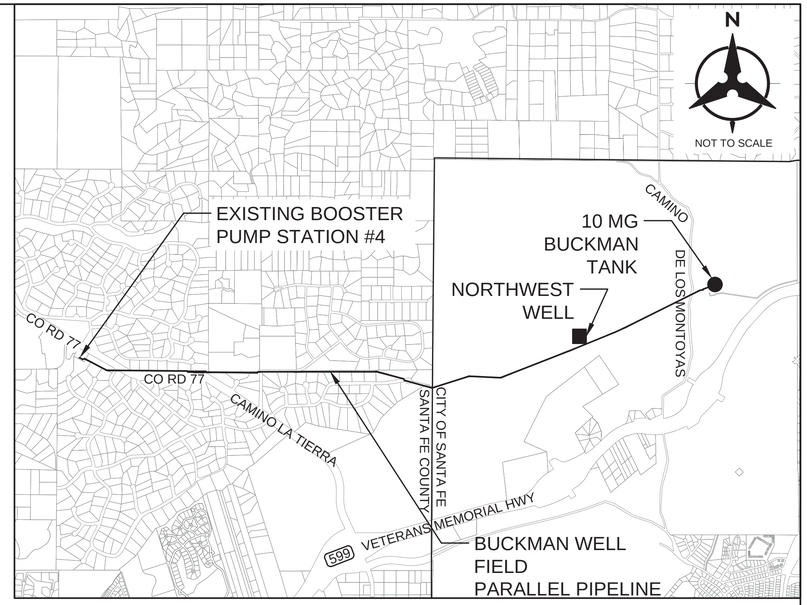
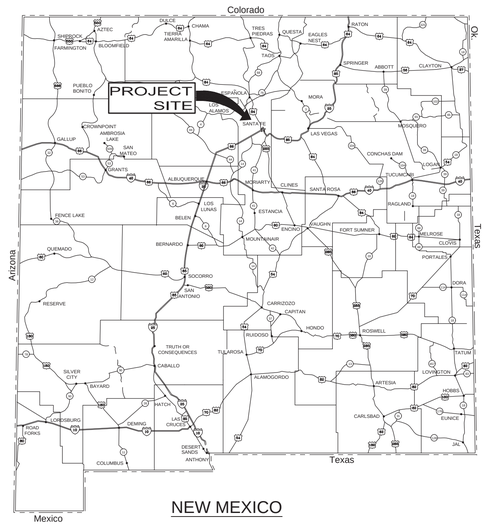


VICINITY MAP



NEW MEXICO

Know what's below. Call before you dig.

ENGINEERS STAMP & SIGNATURE

ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

APPROVED:

ROBERT JORGENSEN
CITY OF SANTA FE
WATER DIVISION

DATE

Bohannan Huston
www.bhinc.com 800.877.5332

BUCKMAN WELL FIELD PARALLEL PIPELINE
COVER SHEET

BHI PROJECT NO.	DWG NO.	SHEET	OF
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GENERAL NOTES

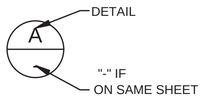
1. ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS.
2. PRIOR TO CONSTRUCTION ACTIVITIES, VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES AND OBSTRUCTIONS WITH POTENTIAL TO CHANGE PIPE ALIGNMENT. ALL EXISTING UTILITY ELEVATION DATA REPRESENTED ON THE PROFILE ARE APPROXIMATE FIELD MEASUREMENTS FROM SURVEYING OF MANHOLES OR POTHOLING. PROFILE ELEVATIONS FOR GRAVITY LINES SUCH AS STORM AND SANITARY SEWER WERE CALCULATED AND NOT POTHOLED. DATA POINTS NOT VERIFIED FROM POTHOLING, LABELED AS "DEPTH UNK". THE PROFILE SHOWN FOR THE EXISTING 20-INCH WATERLINE WAS CREATED BASED ON THE AS-BUILT DRAWINGS FOR SAME. NEITHER THE ENGINEER NOR THE OWNER ASSUMES RESPONSIBILITY FOR COMPLETENESS OR INTERPRETATION OF SUCH SUPPLEMENTARY INFORMATION.
3. ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. COORDINATE ALL NECESSARY UTILITY ADJUSTMENTS.
4. DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL AND UNSUITABLE MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OWNER.
5. PROTECT THE EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL IMMEDIATELY BE REPAIRED OR REPLACED BY CONTRACTOR. AT THE CONTRACTOR'S EXPENSE.
6. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE RIGHT-OF-WAY, PROPERTY LIMITS AND/OR CONSTRUCTION WORK ZONE AS SHOWN ON DRAWINGS. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED BY CONTRACTOR. AT THE CONTRACTOR'S EXPENSE.
7. OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES.
8. EXCEPT AS SET FORTH IN THE SPECIFICATIONS, OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION (I.E. BARRICADING, SURFACE DISTURBANCE.)
9. CONTRACTOR SHALL REPLACE ANY AND ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION. ALL PROPERTY CORNERS MUST BE RESET BY A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR.
10. AT MINIMUM, FOLLOW THE CONSTRUCTION TRAFFIC CONTROL AND SIGNING NOTES PROVIDED HEREIN. COORDINATE AND OBTAIN APPROVAL WITH THE APPROPRIATE AGENCY, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
11. ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), U.S. DEPARTMENT OF TRANSPORTATION, LATEST EDITION. ALL TRAFFIC CONTROL PLANS SHALL BE STAMPED BY A REGISTERED NEW MEXICO PROFESSIONAL ENGINEER.
12. MAINTAIN ALL CONSTRUCTION TRAFFIC CONTROL DEVICES AND SIGNING AT ALL TIMES. VERIFY THE PROPER LOCATION OF ALL TRAFFIC CONTROL AT THE END AND BEGINNING OF EACH DAY.
13. ALL PAVEMENT SHALL BE SAWCUT WITH A UNIFORM EDGE AND BE SPRAYED WITH A TACK COAT PRIOR TO PAVEMENT PLACEMENT.
14. USE PARALLEL OR ORTHOGONAL PAVEMENT SAWCUTS ONLY, NO DIAGONAL CUTS IN EXISTING PAVEMENT.
15. NO RIGHT-OF-WAY SURVEY WAS CONDUCTED WITH THIS PROJECT. RIGHT-OF-WAY SHOWN ON OTHER PORTIONS OF THESE PLANS ARE APPROXIMATE AND ARE SHOWN FOR INFORMATION ONLY.
16. SUPPORT EXPOSED EXISTING UTILITIES SUSPENDED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
17. USE CAUTION AT ALL EXISTING STRUCTURES INCLUDING ALL MASONRY WALLS, BUILDING, ETC. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY DAMAGE TO ANY STRUCTURES CAUSED BY THE CONTRACTOR'S OPERATIONS.
18. TEMPORARY DRAINAGE MEASURES SHALL BE PROVIDED AS NECESSARY TO SAFELY CONVEY STORM WATER RUNOFF TO EXISTING OUTFALLS INCLUDING SILT FENCES AND SEDIMENT CONTROL MEASURES. REPAIR ANY DAMAGE RESULTING FROM STORM WATER FLOWS TO PRIVATE PROPERTY OR IMPROVEMENTS CONSTRUCTED BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
19. BEARINGS ARE GRID AND DISTANCES ARE GROUND.
20. ALL DUCTILE IRON PIPE JOINTS SHALL BE CATHODICALLY BONDED AND SHALL BE INCIDENTAL TO THE PIPE BID ITEM.
21. ALL BURIED DUCTILE IRON PIPE SHALL BE ENCASED IN POLYETHYLENE ENCASEMENT AND SHALL BE INCIDENTAL TO THE PIPE BID ITEM. ALL STEEL OR DUCTILE IRON VALVES, FITTINGS, COUPLINGS, JOINT RETAINERS IN NEW PVC WATER DISTRIBUTION PIPING SHALL BE ENCASED IN POLYETHYLENE AND SHALL BE INCIDENTAL TO THE PIPE BID ITEM.
22. CONTRACTOR TO PROVIDE CERTIFIED AS-BUILT DRAWINGS.
23. CONTRACTOR SHALL PROVIDE ADEQUATE NOTICE TO FIELD INSPECTOR OR GEOTECHNICAL FIRM TO PERFORM FIELD DENSITY TESTS OR SOIL SAMPLING DURING CONSTRUCTION.
24. EXISTING VALVES SHALL ONLY BE OPERATED BY THE RESPECTIVE UTILITY OWNER. CONTRACTOR SHALL PROVIDE A MINIMUM 7 DAY NOTICE TO UTILITY OWNER WHEN A SHUT-OFF IS REQUIRED.
25. ALL TEES AND BENDS SHALL BE FLEXRING JOINTS AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR EQUAL FOR PIPE GREATER THAN 12 INCH DIAMETER.

GENERAL NOTES CONTINUED

25. CITY OF SANTA FE PUBLIC UTILITIES DEPARTMENT WATER DIVISION CONSTRUCTION STANDARDS AND SPECIFICATIONS (COSF STANDARDS & SPECIFICATIONS) SHALL BE USED AS SPECIFICALLY NOTED.
26. ALL PIPE SHALL HAVE LOCATE WIRE AND WARNING TAPE PER COSF STANDARDS AND SPECIFICATIONS.
27. ALL EASEMENT AND RIGHT-OF-WAY BOUNDARIES WITHIN SANTA FE COUNTY TO BE DELINEATED WITH SMOOTH WIRE FENCE WITH TEE POSTS EVERY 10 FEET. COST FOR MATERIALS AND LABOR TO INSTALL AND REMOVE SHALL BE INCIDENTAL. NO SEPARATE PAYMENT WILL BE MADE FOR SMOOTH WIRE FENCE.

CITY OF SANTA FE GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY THE CITY OF SANTA FE (COSF) FIVE (5) DAYS PRIOR TO COMMENCEMENT OF WORK.
2. CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE COSF CONSTRUCTION STANDARDS AND SPECIFICATIONS EXCEPT WHERE SPECIFICALLY CALLED FOR IN THESE PROJECT PLANS AND SPECIFICATIONS.
3. ALL EASEMENTS SHALL BE DEDICATED, CLEARED, GRADED AND STAKED PRIOR TO WATERLINE INSTALLATION.
4. ALL STREETS SHALL BE CUT TO WITHIN ±6" OF FINAL GRADE PRIOR TO WATERLINE INSTALLATION.
5. LOT CORNERS SHALL BE STAKED PRIOR TO SERVICE LINE INSTALLATION. CURB, GUTTER AND DRIVEWAY APRON SHALL BE INSTALLED PRIOR TO SERVICE LINE INSTALLATION UNLESS OTHERWISE APPROVED IN WRITING BY COSF.
6. CONTRACTOR (DEVELOPER) SHALL PROVIDE CONSTRUCTION STAKING UTILIZING THE APPROPRIATE RIGHT-OF-WAY MAPS, SIGNED PLATS AND COSF DRAWINGS.
7. MATERIAL SUBMITTALS SHALL BE APPROVED BY COSF PRIOR TO CONSTRUCTION.
8. CONTACT NEW MEXICO ONE CALL AT 811 TWO (2) WORKING DAYS IN ADVANCE OF CONSTRUCTION FOR UTILITY SPOTS.
9. PRESSURE REGULATORS SHALL BE INSTALLED ON ALL SERVICES DOWNSTREAM FROM THE METER.
10. A MINIMUM OF 4 FEET COVER TO TOP OF PIPE SHALL BE MAINTAINED ON ALL WATERMAINS AND SERVICES.
11. CONTRACTOR SHALL SUBMIT AS-BUILT CONSTRUCTION PACKET WITHIN FIVE (5) DAYS OF COMPLETION OF CONSTRUCTION INCLUDING; VALVE TIES, AS-BUILT DRAWINGS (INCLUDING, BUT NOT LIMITED TO: FITTING-TO-FITTING MEASUREMENTS, SERVICE-TO-SERVICE MEASUREMENTS, CENTER OF MAIN TO CENTER OF SERVICE MEASUREMENTS, LENGTH OF MAIN INSTALLED, FITTINGS INSTALLED, ETC.) AND POTABILITY RESULTS.
12. ALL VALVE BOXES SHALL BE BROUGHT UP TO GRADE AFTER FIRST COURSE OF ASPHALT AND BEFORE FINAL COURSE OF ASPHALT.
13. FIRE HYDRANTS SHALL BE NUMBERED USING REFLECTIVE NUMERALS. THE REFLECTIVE NUMERALS SHALL BE OBTAINED BY THE CONTRACTOR FOR THE COSF FIELD REPRESENTATIVE AT THE TIME THE NOTICE TO PROCEED (NTP) IS ISSUED. NUMBERS SHALL BE LEGIBLE FROM THE ROAD. PRIOR TO INSTALLING NUMBERS, FIRE HYDRANTS SHALL BE PAINTED.
14. A MECHANICAL RESTRAINT SYSTEM SHALL BE UTILIZED ON FITTINGS AND PIPING FOR THRUST RESTRAINT. CONCRETE THRUST BLOCKING SHALL BE USED ONLY FOR SPECIAL CONDITIONS. (E.G CAPS WHERE MAIN WILL BE EXTENDED IN THE FUTURE) AS SPECIFICALLY APPROVED BY COSF.
15. ANY FIELD CHANGES TO THESE PLANS REQUIRE APPROVAL OF BOTH THE DESIGN ENGINEER AND COSF.
16. WORK ON COSF FACILITIES SHALL NOT BEGIN UNTIL COSF HAS ISSUED A NTP TO THE APPROVED UTILITY CONTRACTOR.



DETAIL CALLOUT

GEOTECHNICAL NOTES

GENERAL

THE GEOTECHNICAL ENGINEER SHALL BE THE OWNER'S REPRESENTATIVE TO OBSERVE AND EVALUATE THE EARTHWORK OPERATIONS. THE CONTRACTOR SHALL COOPERATE WITH THE GEOTECHNICAL ENGINEER IN THE PERFORMANCE OF THE ENGINEER'S DUTIES.

CLEARING AND GRUBBING

PRIOR TO PLACING STRUCTURAL FILL ALL BORROW AREAS AND AREAS TO RECEIVE STRUCTURAL FILL SHALL BE STRIPPED OF VEGETATION AND DELETERIOUS MATERIALS. STRIPPINGS SHALL BE HAULED OFF-SITE OR STOCKPILED FOR SUBSEQUENT USE IN LANDSCAPED AREAS OR NONSTRUCTURAL FILL AREAS AS DESIGNATED BY THE OWNER OR HIS REPRESENTATIVE AND APPROVED BY THE GEOTECHNICAL ENGINEER.

SITE PREPARATION – FILL AREAS

PRIOR TO PLACING STRUCTURAL FILL THE AREAS TO BE FILLED SHALL BE SCARIFIED TO A DEPTH OF EIGHT INCHES AND MOISTURE CONDITIONED AS DESCRIBED BELOW. THE AREA TO BE FILLED SHALL THEN BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. IF VIBRATORY COMPACTION TECHNIQUES POSE A THREAT TO THE STRUCTURAL INTEGRITY OF NEARBY FACILITIES A STATIC COMPACTOR SHALL BE USED. ANY SOFT OR "SPONGY" AREAS SHALL BE REMOVED AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND REPLACED WITH STRUCTURAL FILL AS DESCRIBED HEREIN.

SITE PREPARATION – CUT AREAS

FOLLOWING EXCAVATION TO ROUGH GRADE, ALL BUILDING AND PAVEMENT AREAS SHALL BE SCARIFIED TO A DEPTH OF EIGHT INCHES AND MOISTURE CONDITIONED AS DESCRIBED BELOW. ALL BUILDING AND PAVED AREAS SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. IF VIBRATORY COMPACTION TECHNIQUES POSE A THREAT TO THE STRUCTURAL INTEGRITY OF NEARBY FACILITIES, A STATIC COMPACTOR SHALL BE USED. ANY SOFT OR "SPONGY" AREAS SHALL BE REMOVED AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND REPLACED WITH STRUCTURAL FILL AS DESCRIBED HEREIN. FOUNDATION, SLAB AND PAVEMENT SUBGRADE PREPARATION PRIOR TO PLACING REINFORCEMENT, FOOTINGS, SLABS, OR PAVEMENT, THE SUPPORTING SOILS SHALL BE PREPARED, MOISTURE CONDITIONED, AND COMPACTED AS DESCRIBED HEREIN.

STRUCTURAL FILL MATERIAL

STRUCTURAL FILL MATERIAL SHALL BE NONEXPANSIVE SOIL WHICH MAY BE GRAVEL, SAND, SILT OR CLAY, OR A COMBINATION THEREOF.

SIEVE SIZE	PERCENT PASSING BY WEIGHT
4"	100
1"	90-100
NO. 4	70-100
NO. 200	10-40

STRUCTURAL FILL MATERIAL SHALL EXHIBIT A PLASTICITY INDEX OF TEN OR LESS. NO ORGANIC, FROZEN OR DECOMPOSABLE MATERIAL SHALL BE UTILIZED. ALL STRUCTURAL FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.

STRUCTURAL FILL PLACEMENT

STRUCTURAL FILL MATERIAL SHALL BE BLENDED AS NECESSARY TO PRODUCE A HOMOGENEOUS MATERIAL. FILL MATERIAL SHALL BE SPREAD IN HORIZONTAL LIFTS NO GREATER THAN EIGHT INCHES IN UNCOMPACTED THICKNESS, BUT IN NO CASE THICKER THAN CAN BE PROPERLY COMPACTED WITH THE EQUIPMENT TO BE UTILIZED. IF STRUCTURAL FILL IS TO BE PLACED ON SLOPES STEEPER THAN 5:1 (HORIZONTAL: VERTICAL) THE NATURAL GROUND SHALL BE BENCHED WITH MINIMUM THREE FOOT WIDE BENCHES AT MAXIMUM TWO FOOT VERTICAL INTERVALS.

MOISTURE CONDITIONING

STRUCTURAL FILL MATERIAL SHALL BE DRIED OR MOISTENED AS NECESSARY, PRIOR TO COMPACTING, TO WITHIN ± THREE PERCENT OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-1557. MOISTURE SHALL BE DISTRIBUTED UNIFORMLY THROUGHOUT EACH LIFT.

COMPACTION

STRUCTURAL FILL SHALL BE MECHANICALLY COMPACTED TO THE FOLLOWING:

	MINIMUM COMPACTION ASTM D-1557
FOUNDATION SUPPORT	95%
SLAB SUPPORT	95%
BELOW SLAB UTILITY TRENCHES	90%
GENERAL SITE GRADING	90%
PAVEMENT SUPPORT –	
UPPER 8"OF SUBGRADE	95%
ALL OTHER FILL BELOW PAVEMENT	90%

AGGREGATE BASE COURSE SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. ASPHALTIC CONCRETE SHALL BE COMPACTED TO A RANGE OF 93% TO 97% OF THE MAXIMUM THEORETICAL UNIT WEIGHT IN ACCORDANCE WITH ASTM D2041. COMPACTION BY FLOODING AND JETTING IS SPECIFICALLY PROHIBITED UNLESS AUTHORIZED IN ADVANCE BY THE OWNER OR HIS REPRESENTATIVE AND THE GEOTECHNICAL ENGINEER.

OBSERVATION AND TESTING

THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE SHALL PERFORM FIELD DENSITY TESTS WITH A FREQUENCY AND AT THE LOCATIONS HE FEELS APPROPRIATE. THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE WILL PERFORM PROCTOR TESTS ON REPRESENTATIVE SAMPLES OF ALL STRUCTURAL FILL MATERIAL FOR COMPLIANCE TO THE STRUCTURAL FILL REQUIREMENTS. TO MINIMIZE DELAYS, THE EARTHWORK CONTRACTOR IS ENCOURAGED TO SUBMIT SOIL SAMPLES PRIOR TO USE FOR PROCTOR TESTING.

LEGEND

	TRENCH LIMITS
	PROPOSED 24" WL
16" WL / W	EXISTING WATERLINE 16" OR MORE
6" WL / W	EXISTING WATERLINE 12" OR LESS
SAS	EXISTING SANITARY SEWER
SD	EXISTING STORM DRAIN
GAS	EXISTING GAS LINE
TEL	EXISTING TELEPHONE LINE
FO	EXISTING FIBER OPTIC LINE
CBL	EXISTING CABLE LINE
UGE	EXISTING UNDERGROUND ELECTRIC
	EXISTING WALL
	EXISTING ROW
	EXISTING SAS MANHOLE
	EXISTING SD MANHOLE
	EXISTING DROP INLET
	EXISTING CURB LINE
	EXISTING PAVEMENT LIMITS
	EXISTING FENCE
X	EXISTING BARBWIRE FENCE
	ARV
	BLOW-OFF HYDRANT
	BUTTERFLY VALVE
	GATE VALVE
	EXISTING WATER VALVE
	EXISTING HYDRANT
	EXISTING TELEPHONE FEATURE
	EXISTING SIGN
	EXISTING LIGHT
	POT HOLE LOCATION
	BORE PIT
	RECEIVING PIT
	THRUST BLOCK
	REDUCER

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11/17/16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DATE 11/17/2016	
		DESIGNED BY AQC	
		DATE 11/17/2016	
		DRAWN BY JJG	
		DATE 11/17/2016	
		CHECKED BY JE	

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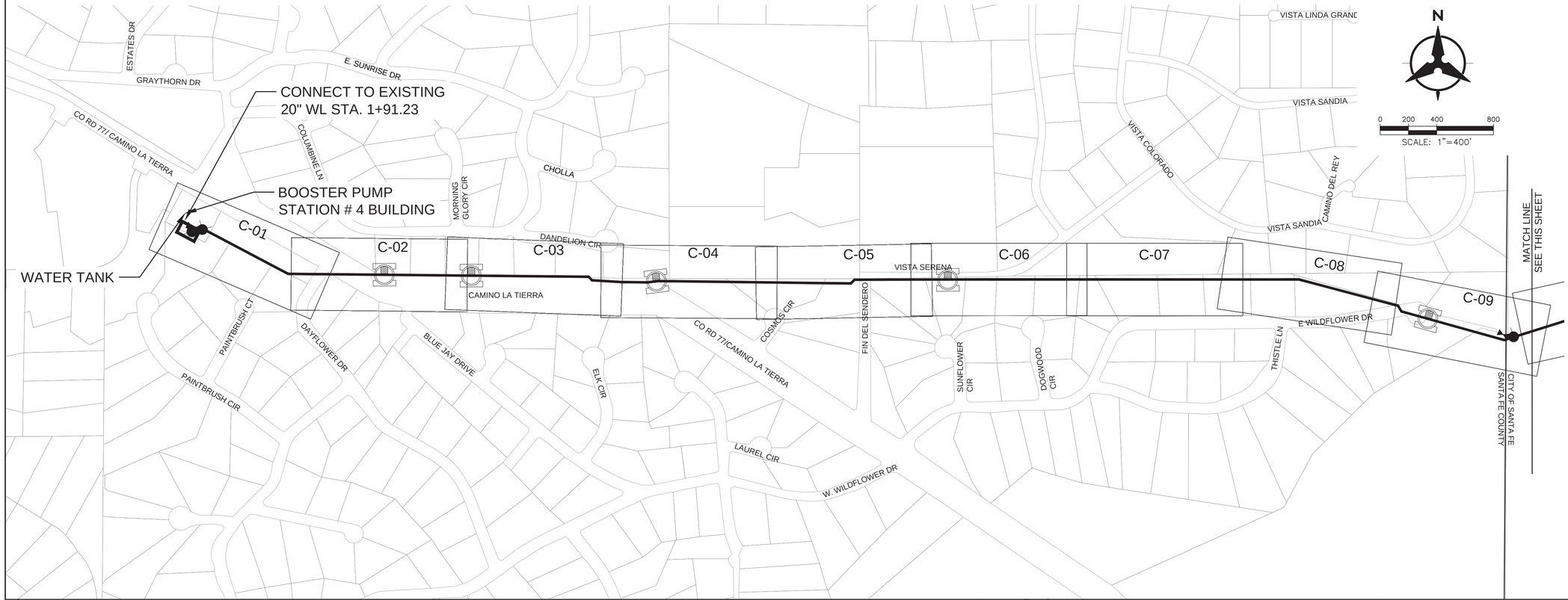
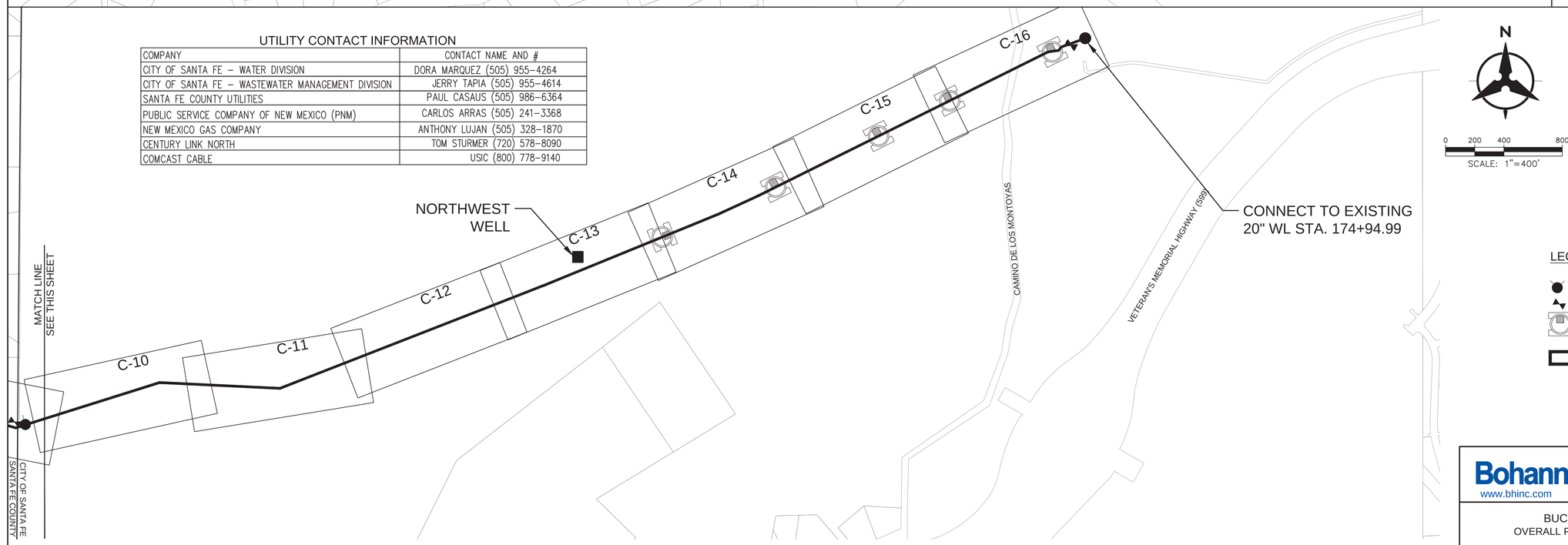
BUCKMAN WELL FIELD PARALLEL PIPELINE
GENERAL NOTES AND LEGEND

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	G-02	2	31

P:\20160344\WR\Design\plans\20160344_02_G-02-Gen-Notes.dwg
Thu, 17-Nov-2016 - 7:29:pm, Plotted by: ACAFFREY





UTILITY CONTACT INFORMATION

COMPANY	CONTACT NAME AND #
CITY OF SANTA FE – WATER DIVISION	DORA MARQUEZ (505) 955–4264
CITY OF SANTA FE – WASTEWATER MANAGEMENT DIVISION	JERRY TAPIA (505) 955–4614
SANTA FE COUNTY UTILITIES	PAUL CASAUS (505) 986–6364
PUBLIC SERVICE COMPANY OF NEW MEXICO (PNM)	CARLOS ARRAS (505) 241–3368
NEW MEXICO GAS COMPANY	ANTHONY LUJAN (505) 328–1870
CENTURY LINK NORTH	TOM STURMER (720) 578–8090
COMCAST CABLE	USIC (800) 778–9140

LEGEND

- BLOW–OFF HYDRANT
- BUTTERFLY VALVE
- ARV
- FLOW METER VAULT

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11.17.16

AS–BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS / REVISIONS / DESIGN	BY
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE
	11/17/2016		
	11/17/2016		
	11/17/2016		

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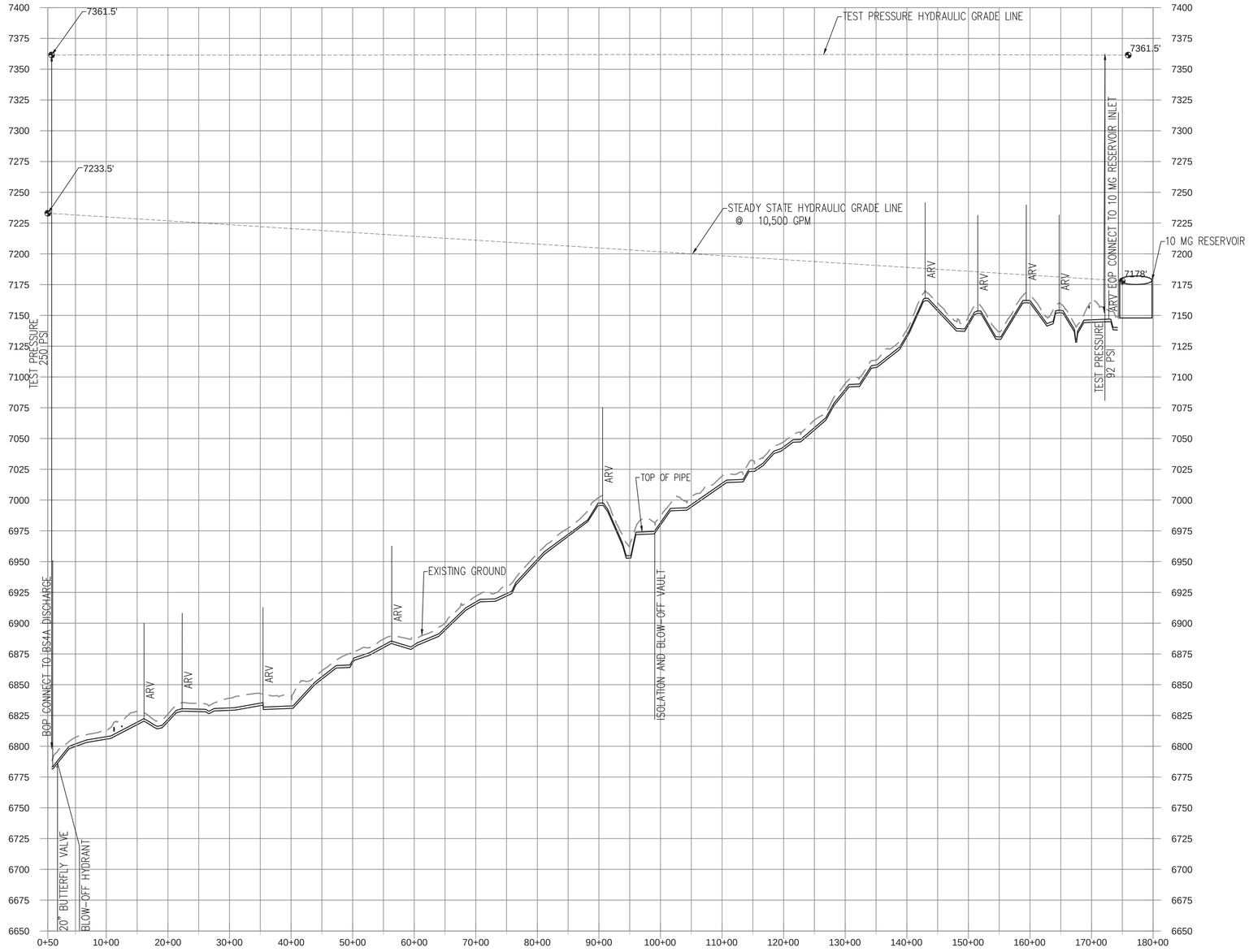
BUCKMAN WELL FIELD PARALLEL PIPELINE
OVERALL PROJECT MAP, KEY PLAN AND UTILITY CONTACTS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	G–03	3	31

P:\20160344\WR\Design\plans\20160344_03_G–03–Overall–map.dwg
Thu, 17–Nov–2016 – 7:30:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. TRANSMISSION LINE SHALL BE PRESSURE TESTED TO TEST PRESSURE HYDRAULIC GRADE LINE IDENTIFIED ON THIS SHEET.
2. TEST PRESSURE APPROXIMATELY 250 PSI. ALL PIPE, FITTINGS, VALVES, AND APPURTENANCES FOR THE PIPELINE MUST BE RATED TO A MINIMUM WORKING PRESSURE OF 250 PSI.
3. TRANSMISSION LINE FLOWRATES:
   APPROXIMATE AVERAGE FLOWRATE = 10,500 GPM
   APPROXIMATE PEAK HOUR FLOWRATE = 11,500 GPM



SCALE: 1" = 1000' HORZ.
1" = 50' VERT.

BUCKMAN WELL FIELD PARALLEL PIPELINE

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AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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BUCKMAN WELL FIELD PARALLEL PIPELINE
HYDRAULIC PROFILE

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	G-04	4	31

P:\20160344\WR\Design\plans\20160344_04_G-04-Hydraulic-Profile.dwg
Thu, 17-Nov-2016 - 7:32:pm, Plotted by: ACAFFREY

Units:	US Survey Foot
Horizontal Datum:	NAD_83(2011)(EPOCH:2010.0000)
Vertical Datum:	NAVD88
Geoid Model:	GEOID12A
Projection:	Transverse Mercator
State Plane and/or UTM Zone:	New Mexico Central Zone (3002)
Basis of Bearing:	Grid Bearings
Project Combined Factor:	0.9996536042 based on BH 16-344-05
Modification Method Used:	Scaled State Plane coordinates about origin (0,0) no truncation
Field Methodology:	RTK only
Equipment Used:	Trimble GPS Equipment (5700, 5800, and R8 Dual Frequency Receivers)
Control Set Date:	February 25, 2016
Observation Date:	February 25, 2016
Adjustment/ Publication Date:	April 29, 2016

N

0 300 600 1200

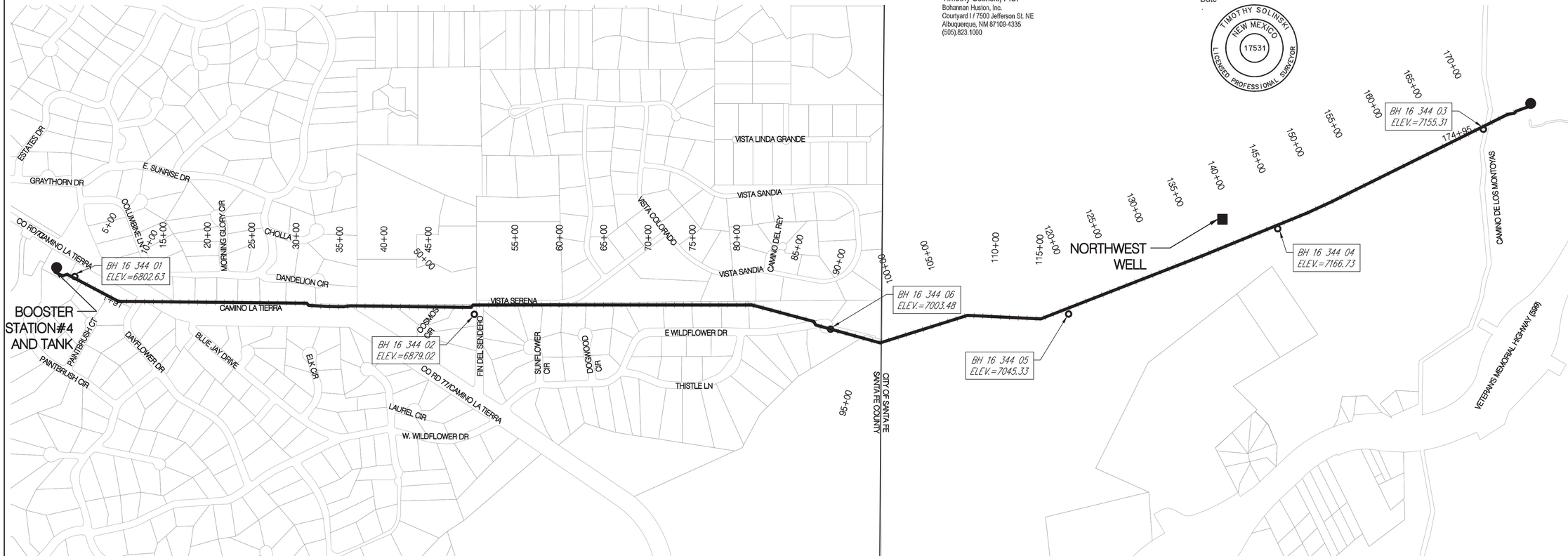
SCALE: 1"=600'

I, **Timothy Solinski**, New Mexico Professional Surveyor No. 17531 do hereby certify that this Control Survey Report was prepared by me or under my direct supervision based on an actual survey on the ground as described herein; that I am responsible for this survey; and that the survey and report meets the minimum standards for surveying in New Mexico.

April 29, 2016
Date

Timothy Solinski, P.S.
Bohannan Huston, Inc.
Courtyard I / 7500 Jefferson St. NE
Albuquerque, NM 87109-4335
(505).823.1000

TIMOTHY SOLINSKI NEW MEXICO 17531 LICENSED PROFESSIONAL SURVEYOR



POINT NAME	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT	GRID NORTHING	GRID EASTING	GROUND NORTHING	GROUND EASTING	ORTHOMETRIC HEIGHT	DESCRIPTION
BH 16-344-01	N 35° 42' 43.7178276"	W 106° 0' 57.1360251"	6740.466	1714569.682	1709918.735	1715163.807	1710511.249	6802.631	2" ALUMINUM CAP STAMPED "1634401"
BH 16-344-02	N 35° 42' 39.4031088"	W 106° 0' 2.5306639"	6817.182	1714144.522	1714422.578	1714738.500	1715016.653	6879.020	2" ALUMINUM CAP STAMPED "1634402"
BH 16-344-03	N 35° 42' 59.7334507"	W 105° 57' 44.5102344"	7094.431	1716231.192	1725797.838	1716825.893	1726395.855	7155.314	2" ALUMINUM CAP STAMPED "1634403"
BH 16-344-04	N 35° 42' 48.7004037"	W 105° 58' 12.674552"	7105.663	1715108.959	1723478.728	1715703.271	1724075.941	7166.728	2" ALUMINUM CAP STAMPED "1634404"
BH 16-344-05	N 35° 42' 39.2557796"	W 105° 58' 41.2878808"	6984.016	1714147.410	1721121.968	1714741.389	1721718.364	7045.332	2" ALUMINUM CAP STAMPED "1634405"
BH 16-344-06	N 35° 42' 37.6430558"	W 105° 59' 13.8286943"	6941.948	1713977.044	1718439.060	1714570.964	1719034.526	7003.475	2" ALUMINUM CAP STAMPED "1529805"

P:\20160344\WR\Design\plans\20160344_05_G-05-HVControlPlan.dwg
Thu, 17-Nov-2016 – 7:33:pm, Plotted by: ACAFFREY

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AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STARTED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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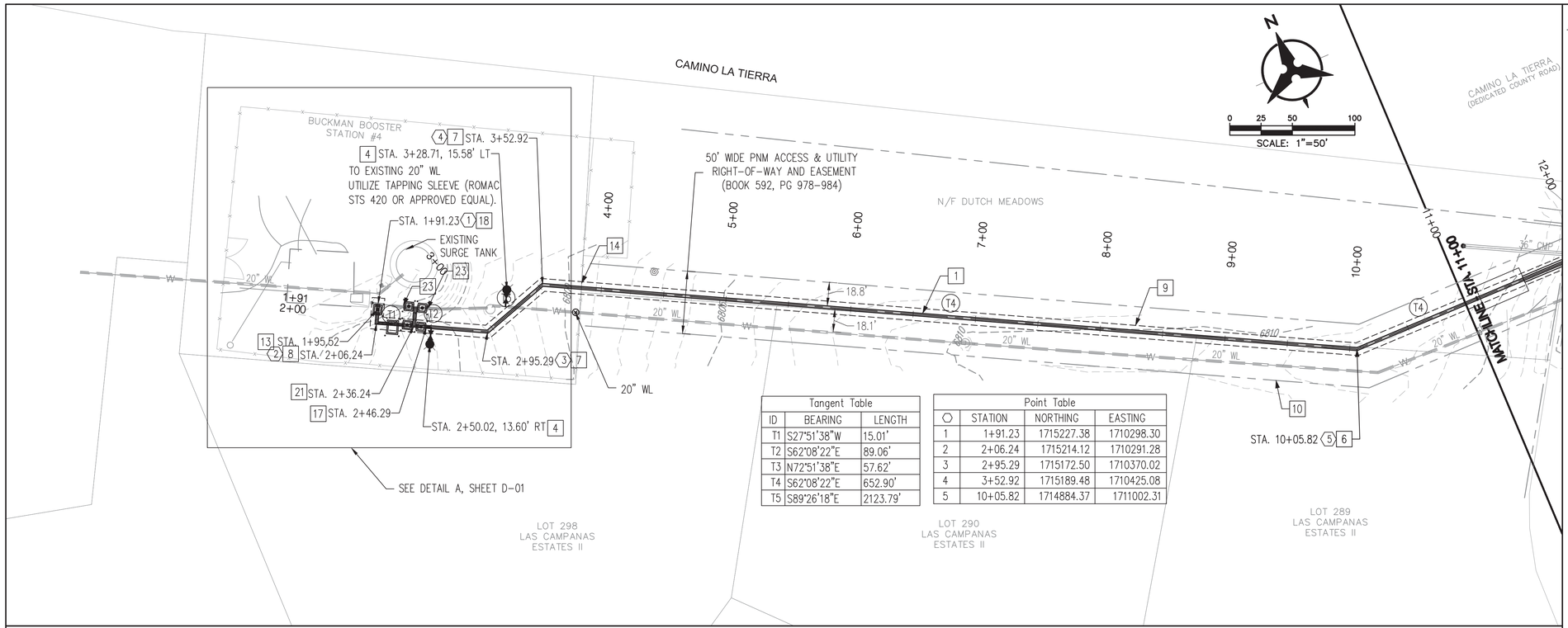
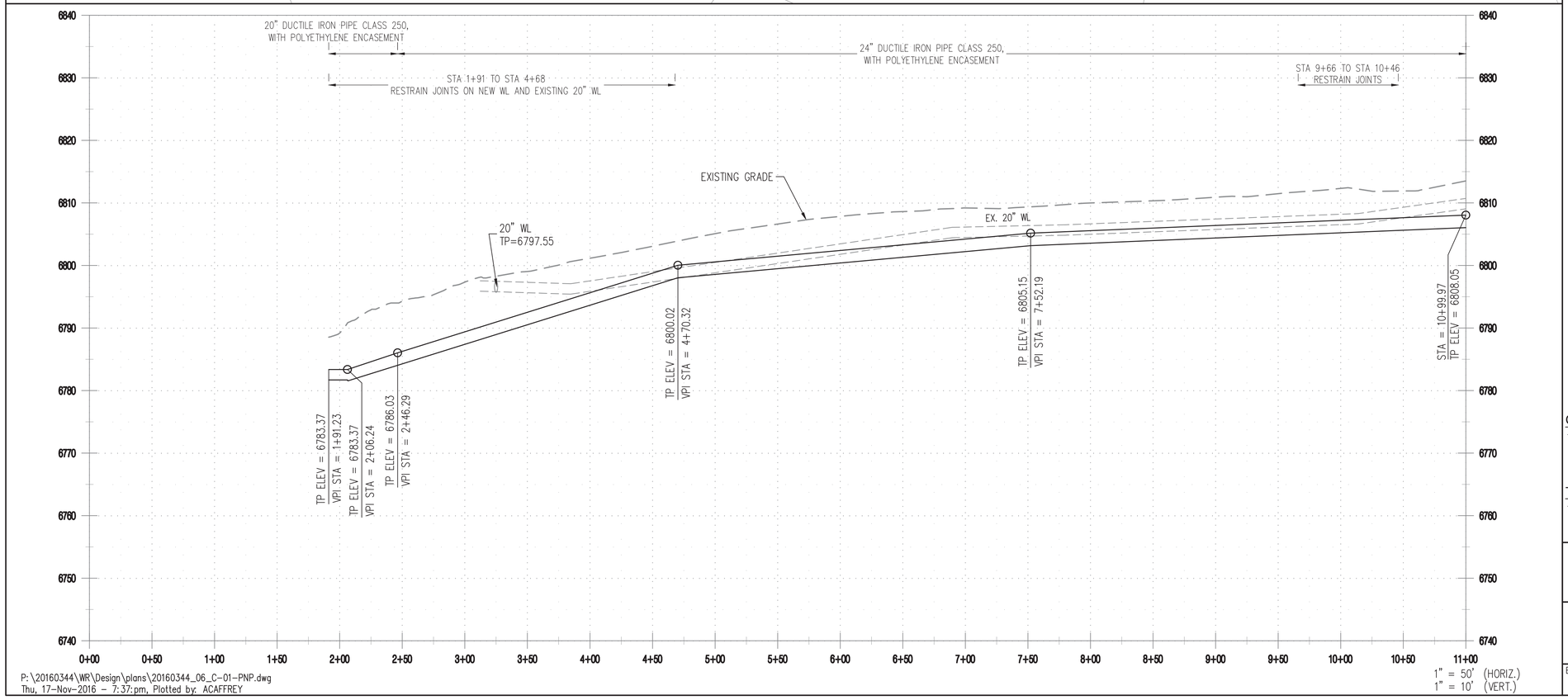
BUCKMAN WELL FIELD PARALLEL PIPELINE
HORIZONTAL / VERTICAL CONTROL PLAN

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	G-05	5	31



Tangent Table		
ID	BEARING	LENGTH
T1	S27°51'38"W	15.01'
T2	S62°08'22"E	89.06'
T3	N72°51'38"E	57.62'
T4	S62°08'22"E	652.90'
T5	S89°26'18"E	2123.79'

Point Table			
⬡	STATION	NORTHING	EASTING
1	1+91.23	1715227.38	1710298.30
2	2+06.24	1715214.12	1710291.28
3	2+95.29	1715172.50	1710370.02
4	3+52.92	1715189.48	1710425.08
5	10+05.82	1714884.37	1711002.31



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Thu, 17-Nov-2016 - 7:37:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. SHUTDOWN OF SYSTEM FOR 24" WL TIE-IN SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVE, COSF SOURCE OF SUPPLY PH. (505) 955-4376. MAXIMUM SHUTDOWN TIME SHALL BE 12 HOURS.
4. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
5. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
6. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.
7. EXISTING UTILITIES INCLUDING WATERLINES ARE SHOWN AT APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

KEYED NOTES:

1 24" WL.

4 BLOW-OFF HYDRANT, PER CITY OF SANTA FE STANDARD DETAIL 07.

6 22.50° BEND.

7 45° BEND.

8 90° BEND.

9 TRENCH LIMITS.

10 EXISTING EASEMENT.

13 20" BUTTERFLY VALVE, PER DETAIL 2, SHEET D-06.

14 REMOVE FENCE AND REPLACE IN LIKE KIND.

17 24" x 20" REDUCER.

18 TIE TO EXISTING 20" WL WITH 20" X 20" X 20" TEE.

21 20" X 20" X 20" TEE.

23 TIE TO EXISTING 20" WL WITH 20" RESTRAINED COUPLING.

CONSTRUCTION NOTES:

1. CAUTION: EXISTING CELL PHONE ANTENNAS AND CABLES ON AND IN VICINITY OF EXISTING SURGE TANK AT BUCKMAN BOOSTER STATION #4, DO NOT DISTURB. VERIFY LOCATION PRIOR TO CONSTRUCTION.

TRAFFIC CONTROL NOTES:

1. CONTRACTOR MAY NOT DISTURB TRAFFIC ON CAMINO LA TIERRA.

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18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

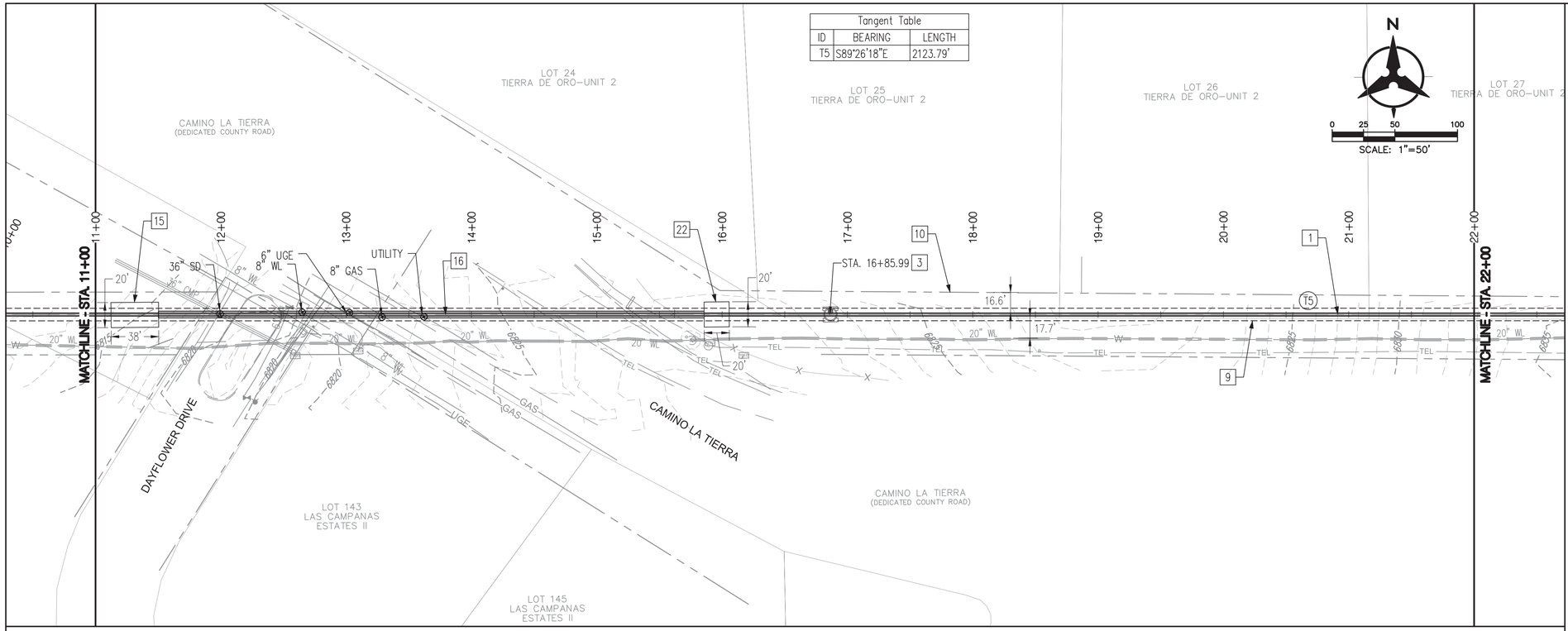
BENCH MARKS	CONTRACTOR	DATE
	WORK STAKED BY	DATE
	INSPECTOR'S ACCEPTANCE BY	DATE
	FIELD VERIFICATION BY	DATE
	DRAWINGS CORRECTED BY	DATE

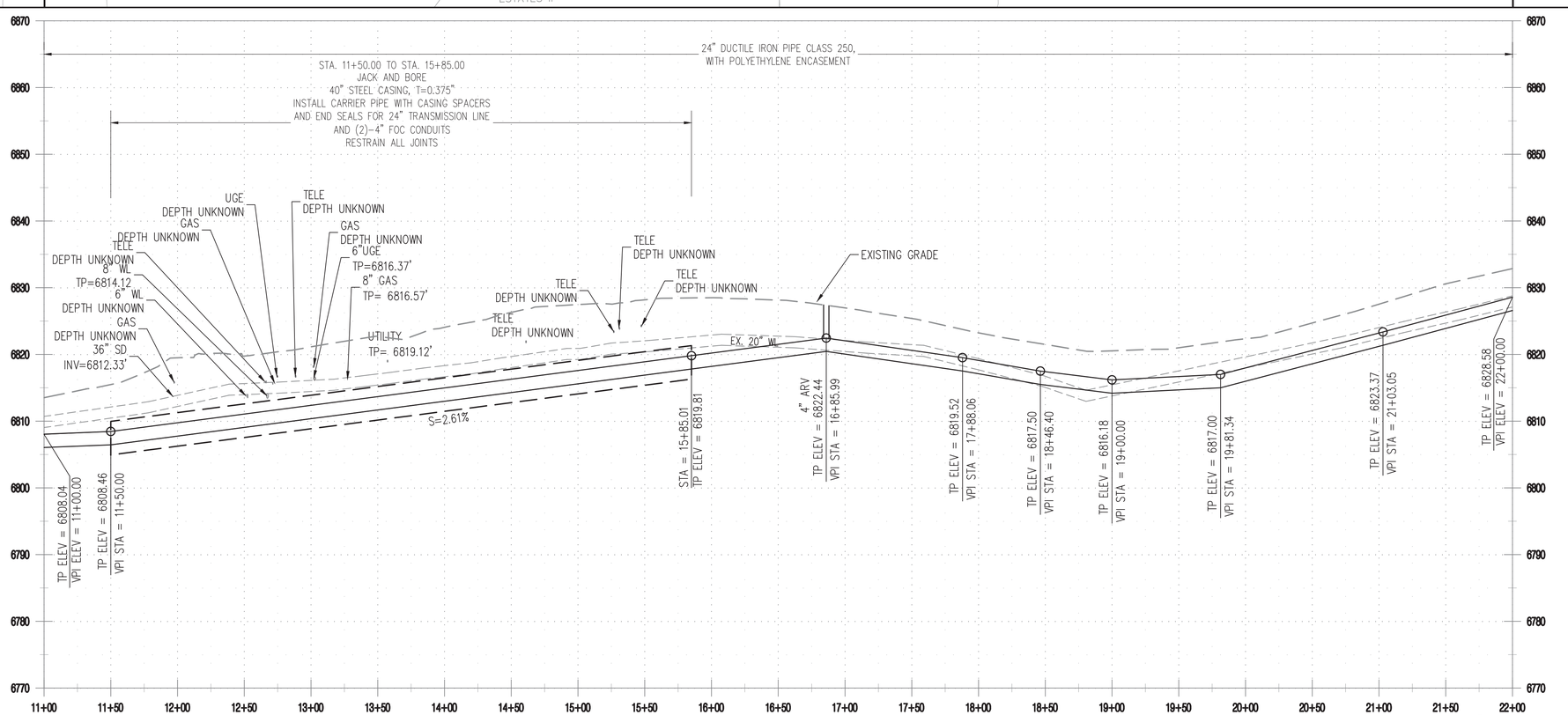
NO.	DATE	REMARKS / REVISIONS	BY
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 0+00 TO STA. 11+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-01	6	31

Tangent Table		
ID	BEARING	LENGTH
T5	S89°26'18"E	2123.79'





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Thu, 17-Nov-2016 - 7:41:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.
6. CONTRACTOR SHALL VERIFY ALL CROSSING ELEVATIONS OF EXISTING UTILITIES PRIOR TO JACK AND BORE INSTALLATION FROM STATION 11+50 TO STATION 15+85 PER GENERAL NOTE #2 ON DWG. G-02.

KEYED NOTES:

- [1] 24" WL.
- [3] ARV, PER DETAIL D, SHEET D-02.
- [9] TRENCH LIMITS.
- [10] EXISTING EASEMENT.
- [15] BORE PIT.
- [16] JACK AND BORE, PER DETAIL A, SHEET D-02.
- [22] RECEIVING PIT.

TRAFFIC CONTROL NOTES:

1. CONTRACTOR MAY NOT DISTURB TRAFFIC ON CAMINO LA TIERRA OR DAYFLOWER DR.

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11.17.16

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS / REVISIONS	BY
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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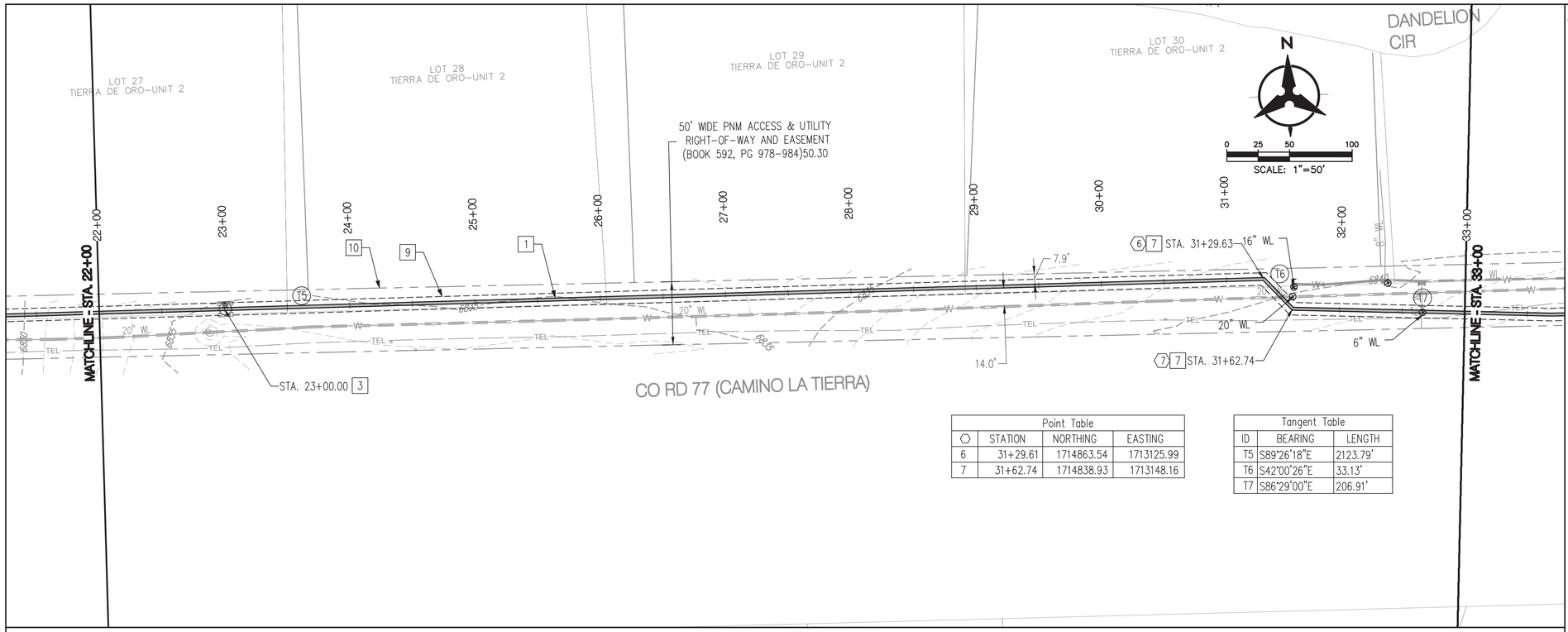
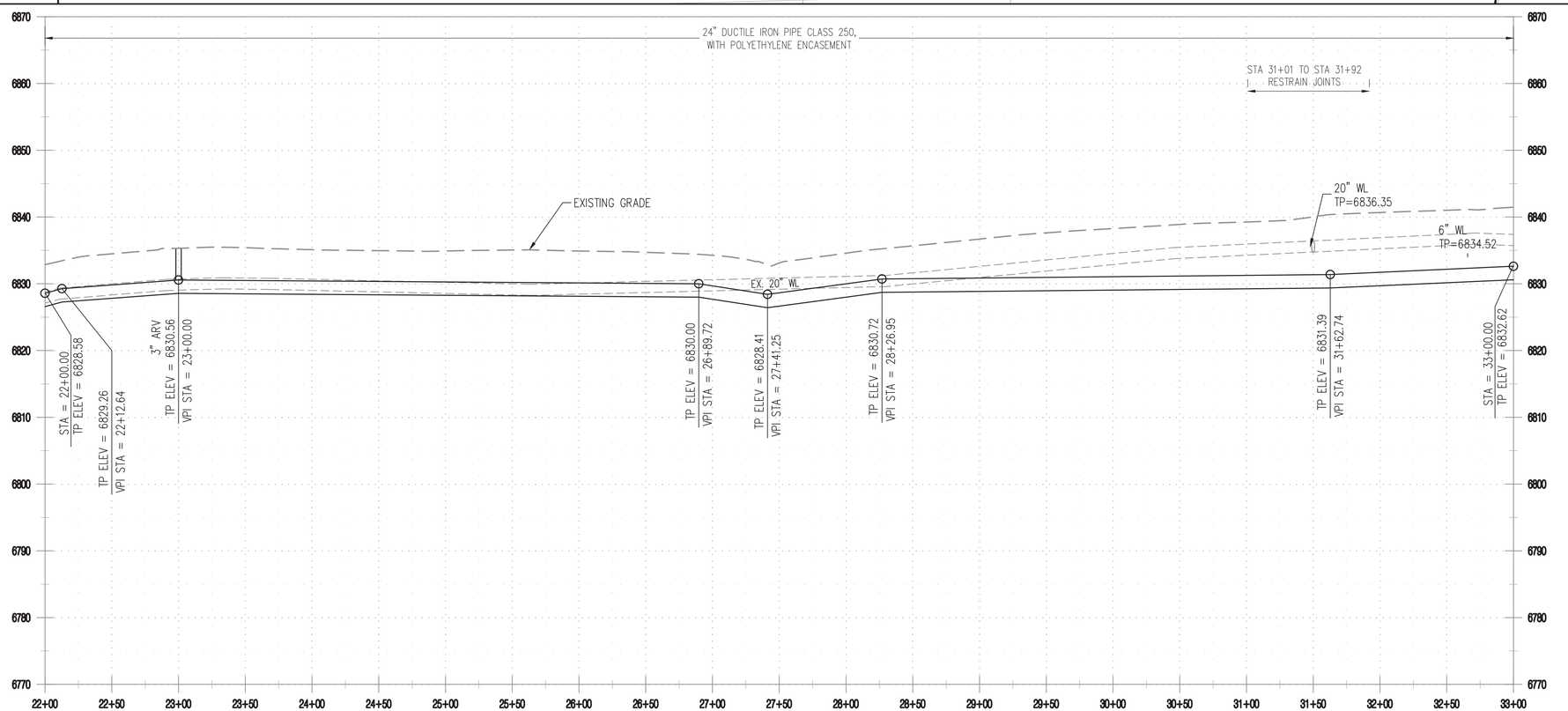
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 11+00 TO STA. 22+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-02	7	31



Point Table			
⬡	STATION	NORTHING	EASTING
6	31+29.61	1714863.54	1713125.99
7	31+62.74	1714838.93	1713148.16

Tangent Table		
ID	BEARING	LENGTH
T5	S89°26'18"E	2123.79'
T6	S42°00'26"E	33.13'
T7	S86°29'00"E	206.91'



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Thu, 17-Nov-2016 – 7:45:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D–03.
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3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D–04.

KEYED NOTES:

1 24" WL.

3 ARV, PER DETAIL D, SHEET D–02.

7 45° BEND.

9 TRENCH LIMITS.

10 EXISTING EASEMENT.

TRAFFIC CONTROL NOTES:

1. CONTRACTOR MAY NOT DISTURB TRAFFIC ON CAMINO LA TIERRA OR DAYFLOWER DR.

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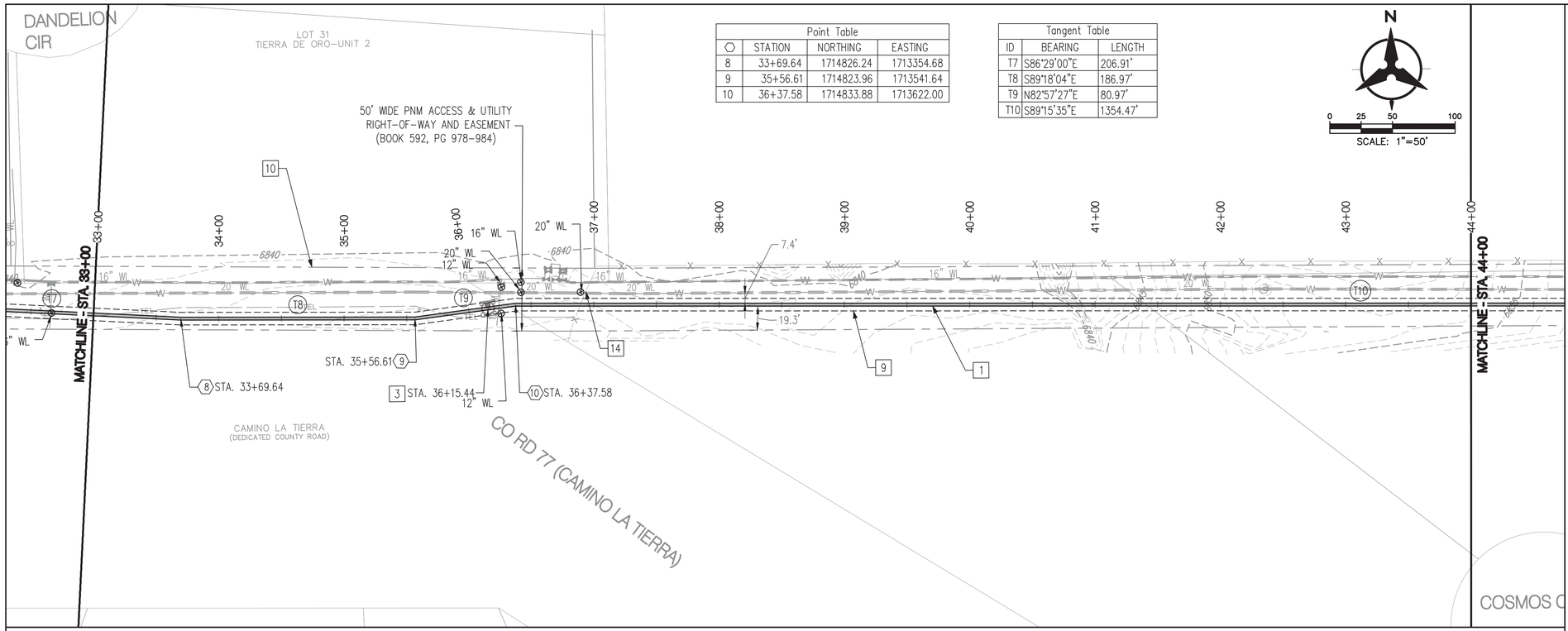
AS–BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 22+00 TO STA. 33+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C–03	8	31



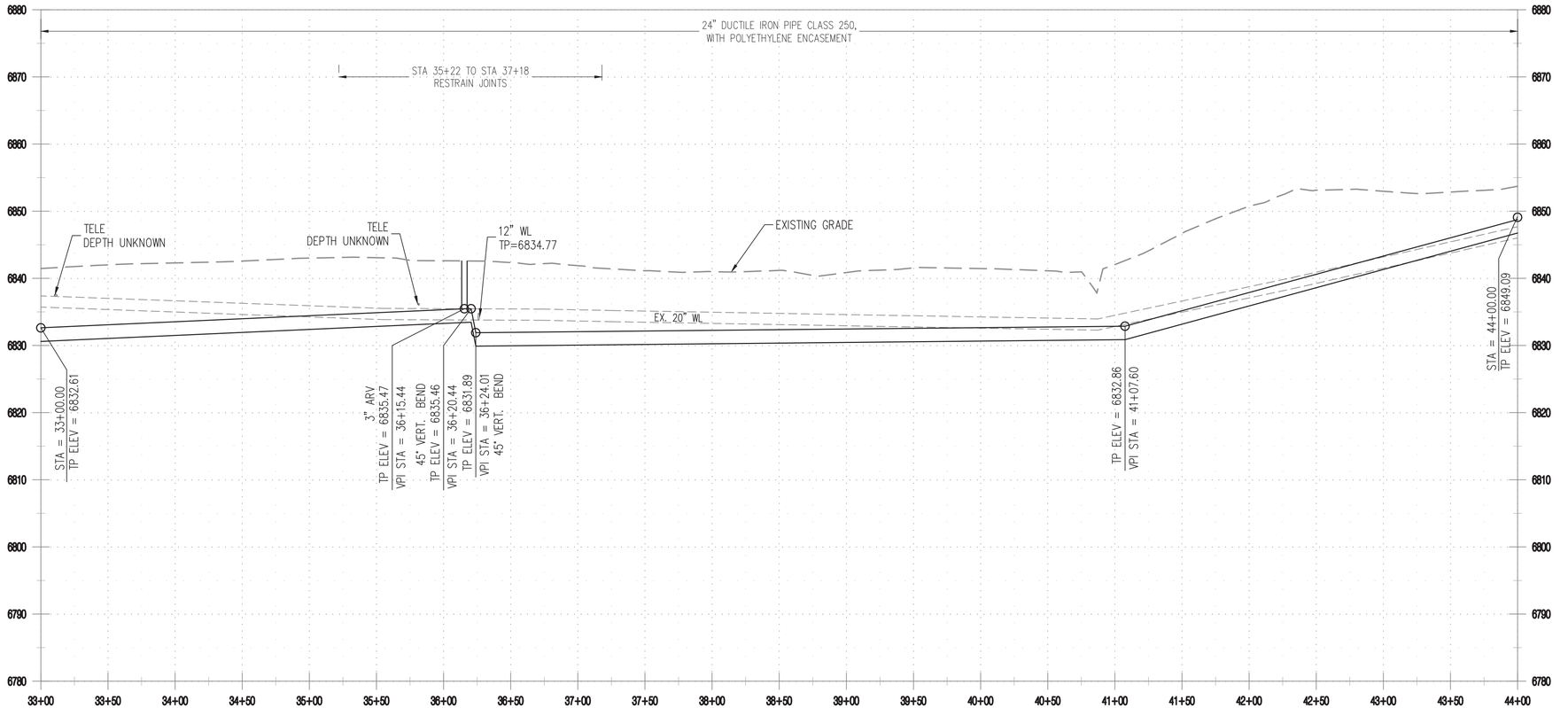
Point Table			
⬡	STATION	NORTHING	EASTING
8	33+69.64	1714826.24	1713354.68
9	35+56.61	1714823.96	1713541.64
10	36+37.58	1714833.88	1713622.00

Tangent Table		
ID	BEARING	LENGTH
T7	S86°29'00"E	206.91'
T8	S89°18'04"E	186.97'
T9	N82°57'27"E	80.97'
T10	S89°15'35"E	1354.47'

N

0 25 50 100

SCALE: 1"=50'



1" = 50' (HORIZ.)
1" = 10' (VERT.)

P:\20160344\WR\Design\plans\20160344_09_C-04-PNP.dwg
Thu, 17-Nov-2016 - 7:48:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

- [1] 24" WL.
- [3] ARV, PER DETAIL D, SHEET D-02.
- [9] TRENCH LIMITS.
- [10] EXISTING EASEMENT.
- [14] REMOVE WOOD RAIL FENCE AND REPLACE IN LIKE KIND.

TRAFFIC CONTROL NOTES:

1. CONTRACTOR MAY NOT DISTURB TRAFFIC ON CAMINO LA TIERRA OR DAYFLOWER DR.

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ENGINEER'S SEAL

ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
	DATE 11/17/2016	DESIGNED BY	AQC
	DATE 11/17/2016	DRAWN BY	JJG
	DATE 11/17/2016	CHECKED BY	JE

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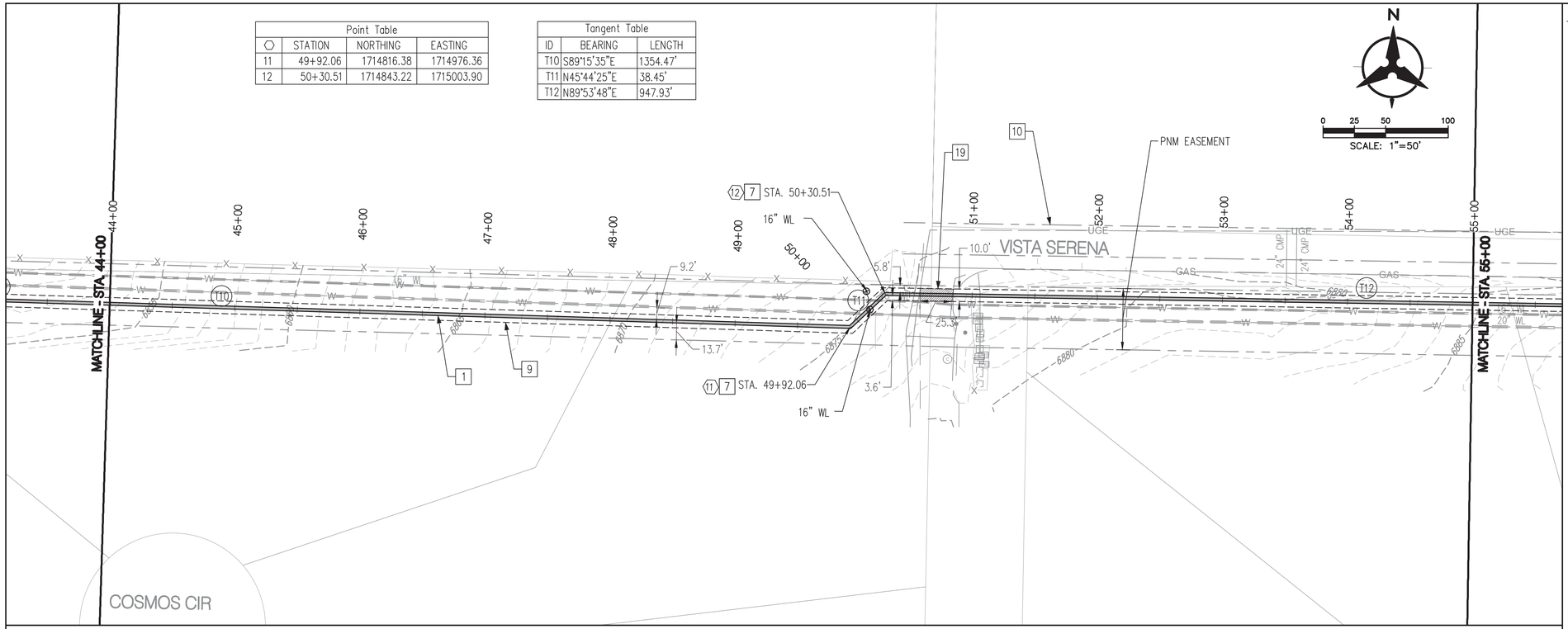
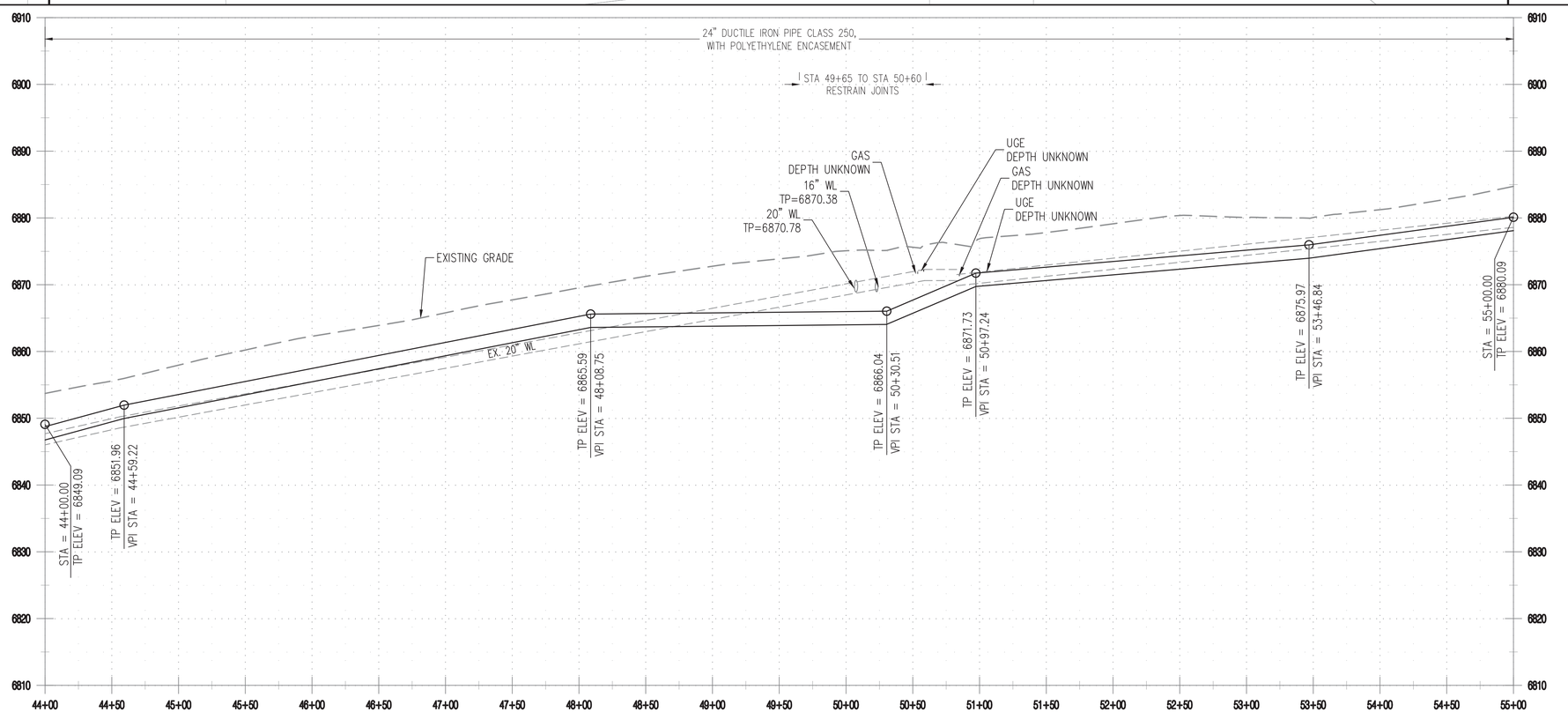
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 33+00 TO STA. 44+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-04	9	31

Point Table			
⬡	STATION	NORTHING	EASTING
11	49+92.06	1714816.38	1714976.36
12	50+30.51	1714843.22	1715003.90

Tangent Table		
ID	BEARING	LENGTH
T10	S89°15'35"E	1354.47'
T11	N45°44'25"E	38.45'
T12	N89°53'48"E	947.93'





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Thu, 17-Nov-2016 - 7:52:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
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4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1 24" WL.

7 45° BEND.

9 TRENCH LIMITS.

10 EXISTING EASEMENT.

19 SAW CUT, REMOVE AND REPLACE ASPHALT PER DETAIL C, DWG D-02.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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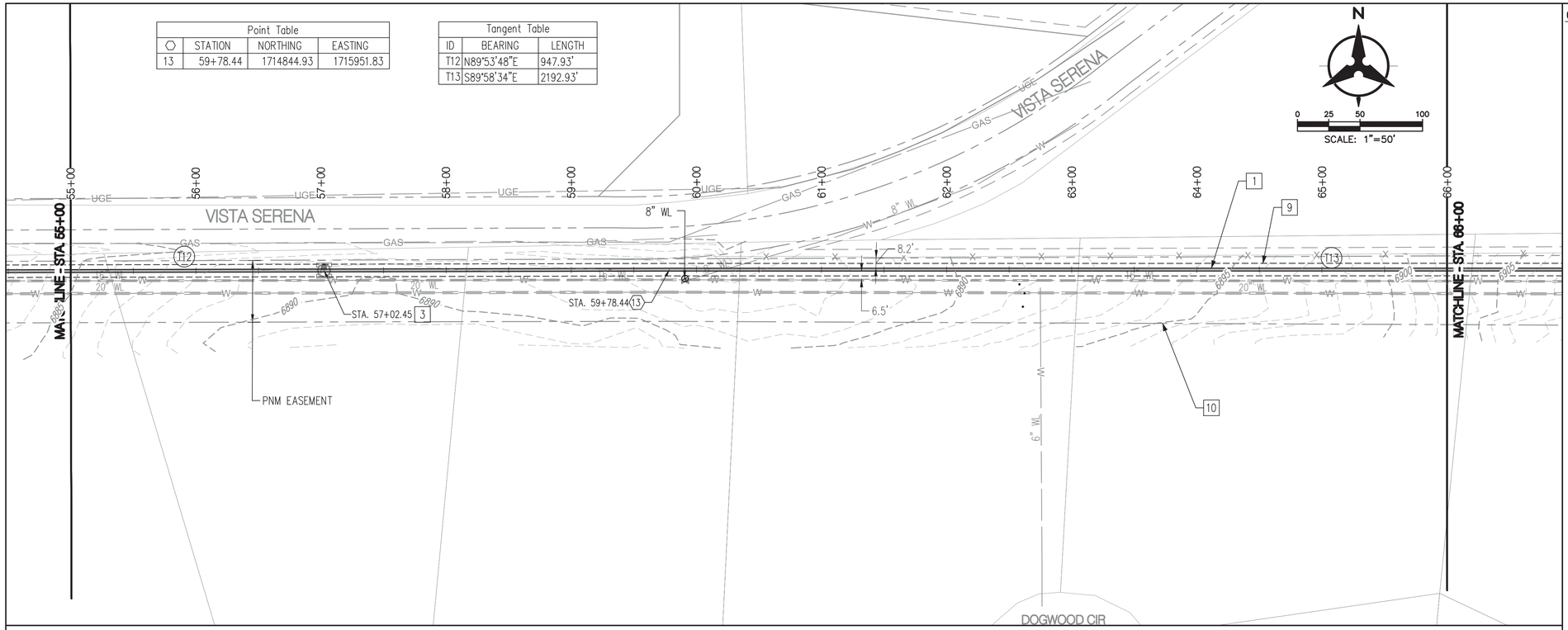
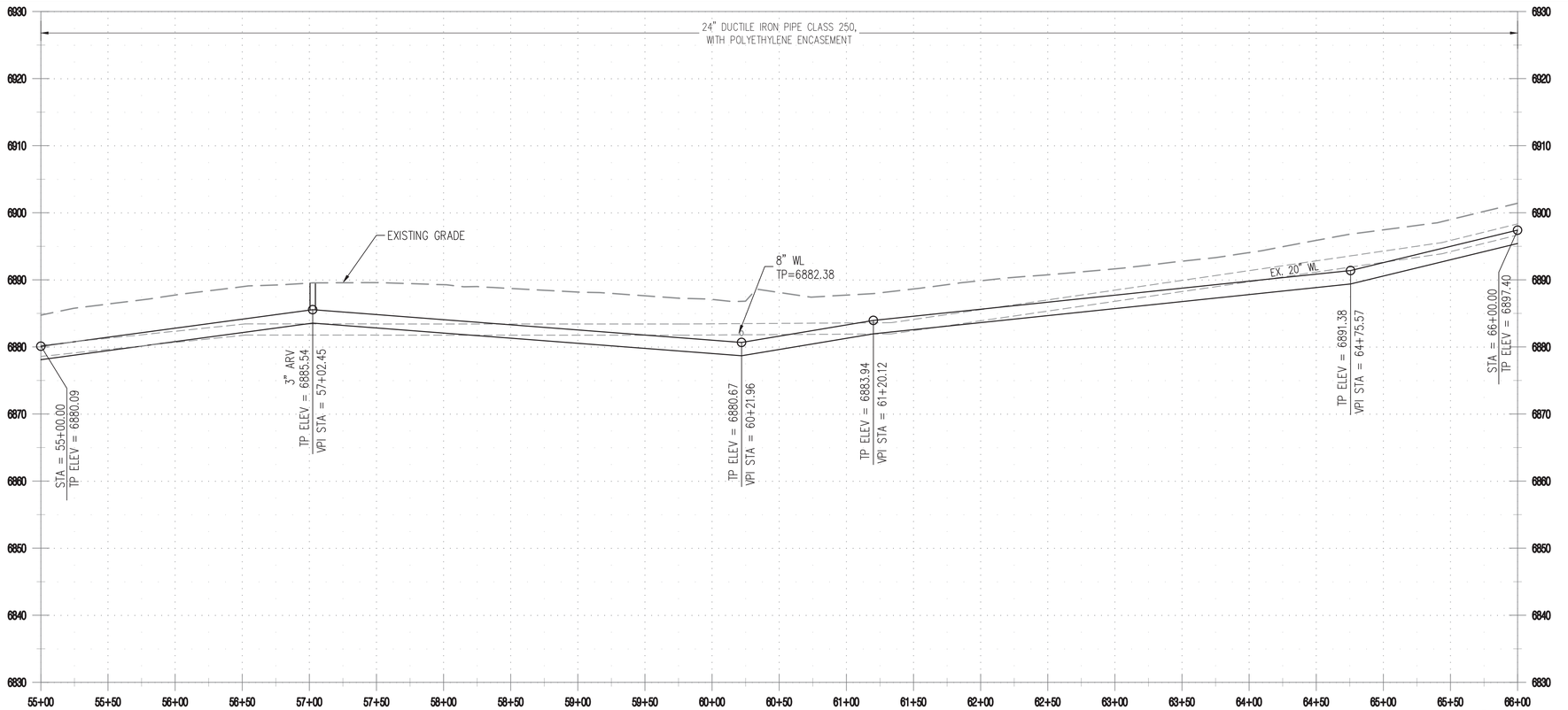
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 44+00 TO STA. 55+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-05	10	31

Point Table			
⬡	STATION	NORTHING	EASTING
13	59+78.44	1714844.93	1715951.83

Tangent Table		
ID	BEARING	LENGTH
T12	N89°53'48"E	947.93'
T13	S89°58'34"E	2192.93'





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Thu, 17-Nov-2016 - 7:57:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1. 24" WL.
3. ARV, PER DETAIL D, SHEET D-02.
9. TRENCH LIMITS.
10. EXISTING EASEMENT.

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ENGINEER'S SEAL

ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE
		DATE	11/17/2016

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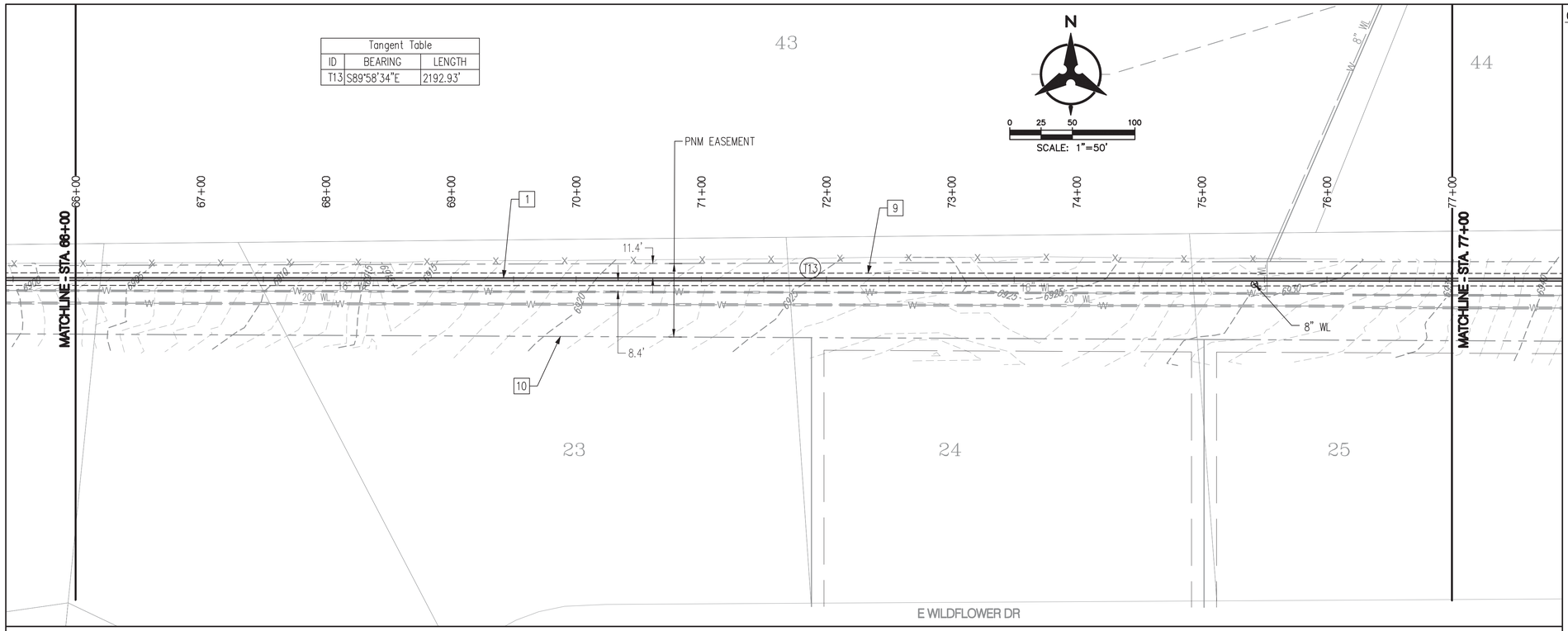
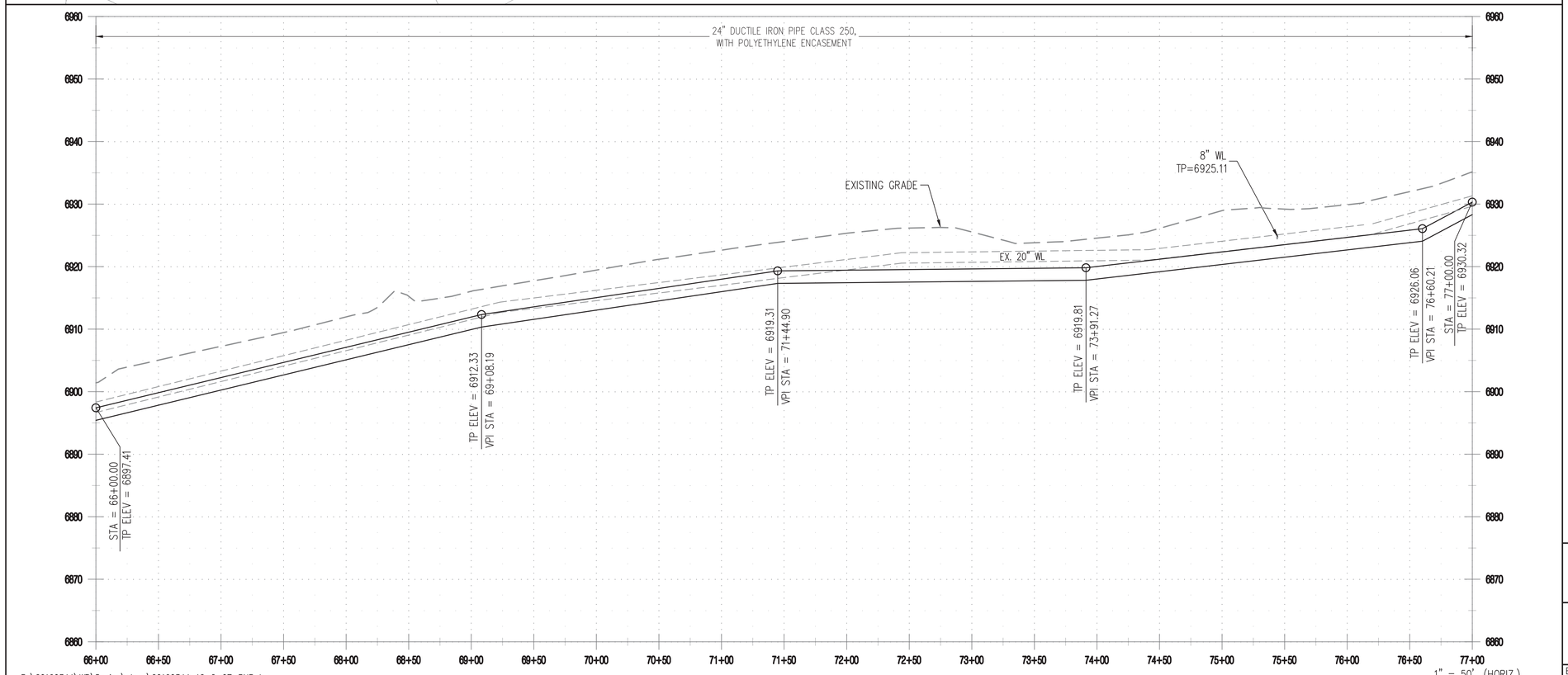
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 55+00 TO STA. 66+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-06	11	31





P:\20160344\WR\Design\plans\20160344_12_C-07-PNP.dwg
Thu, 17-Nov-2016 - 8:01:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
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3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1 24" WL.

9 TRENCH LIMITS.

10 EXISTING EASEMENT.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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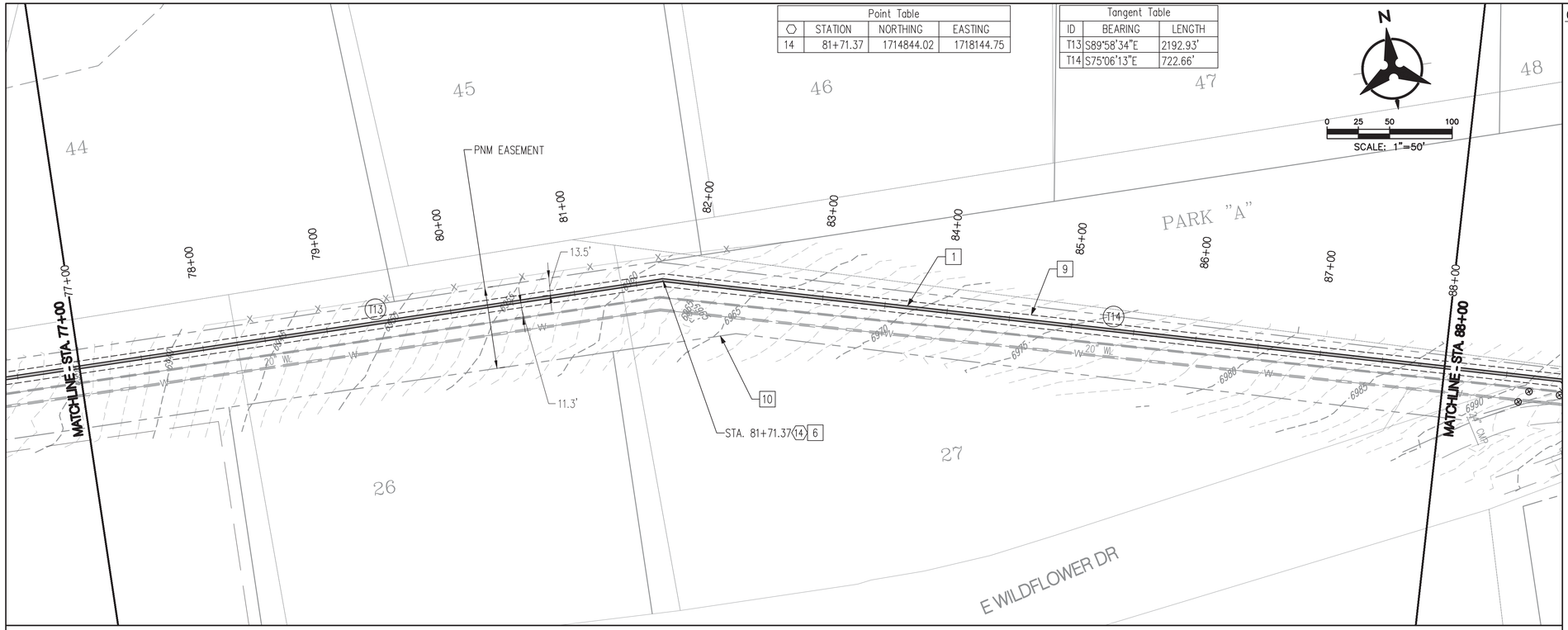
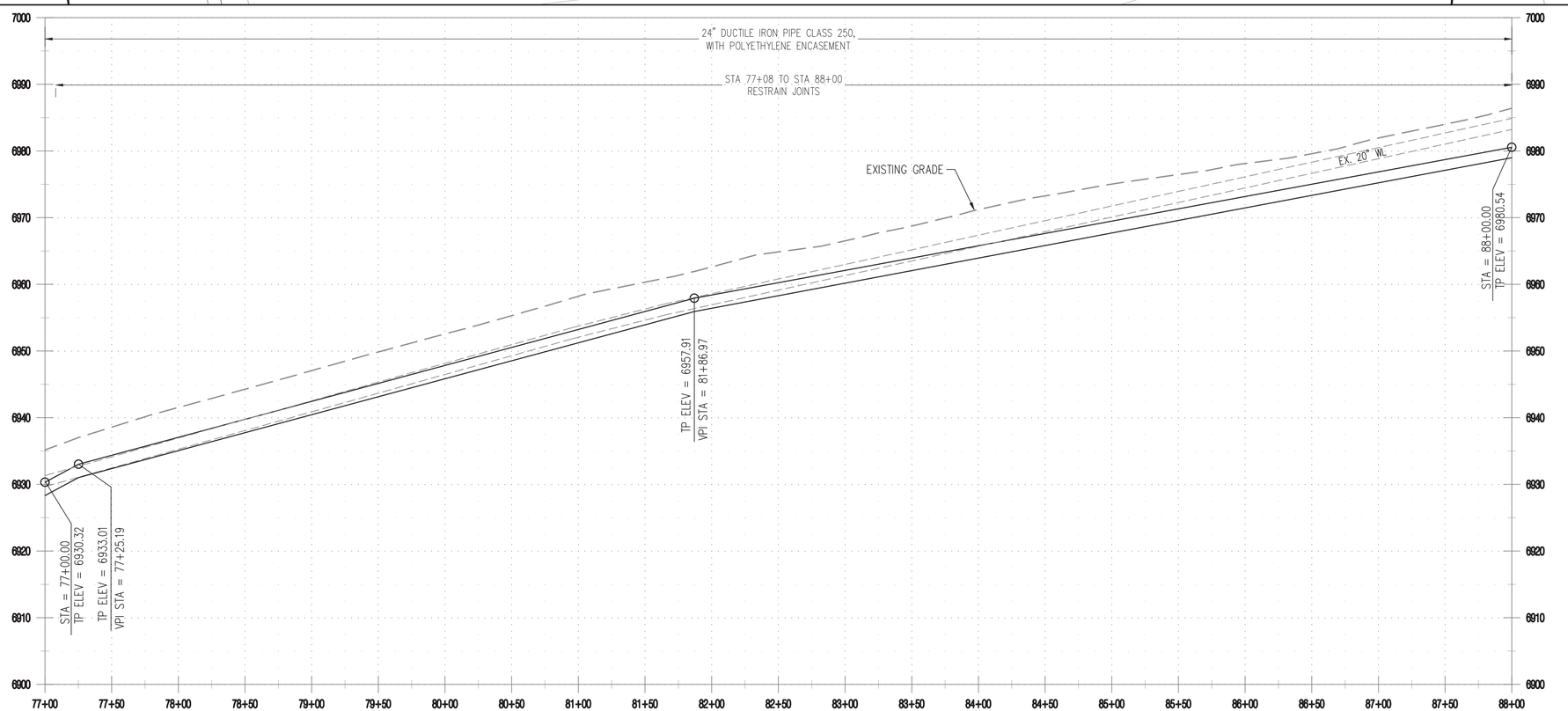
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 66+00 TO STA. 77+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-07	12	31

Point Table			
⬡	STATION	NORTHING	EASTING
14	81+71.37	1714844.02	1718144.75

Tangent Table		
ID	BEARING	LENGTH
T13	S89°58'34"E	2192.93'
T14	S75°06'13"E	722.66'





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Thu, 17-Nov-2016 - 8:05:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1 24" WL.

6 22.50° BEND.

9 TRENCH LIMITS.

10 EXISTING EASEMENT.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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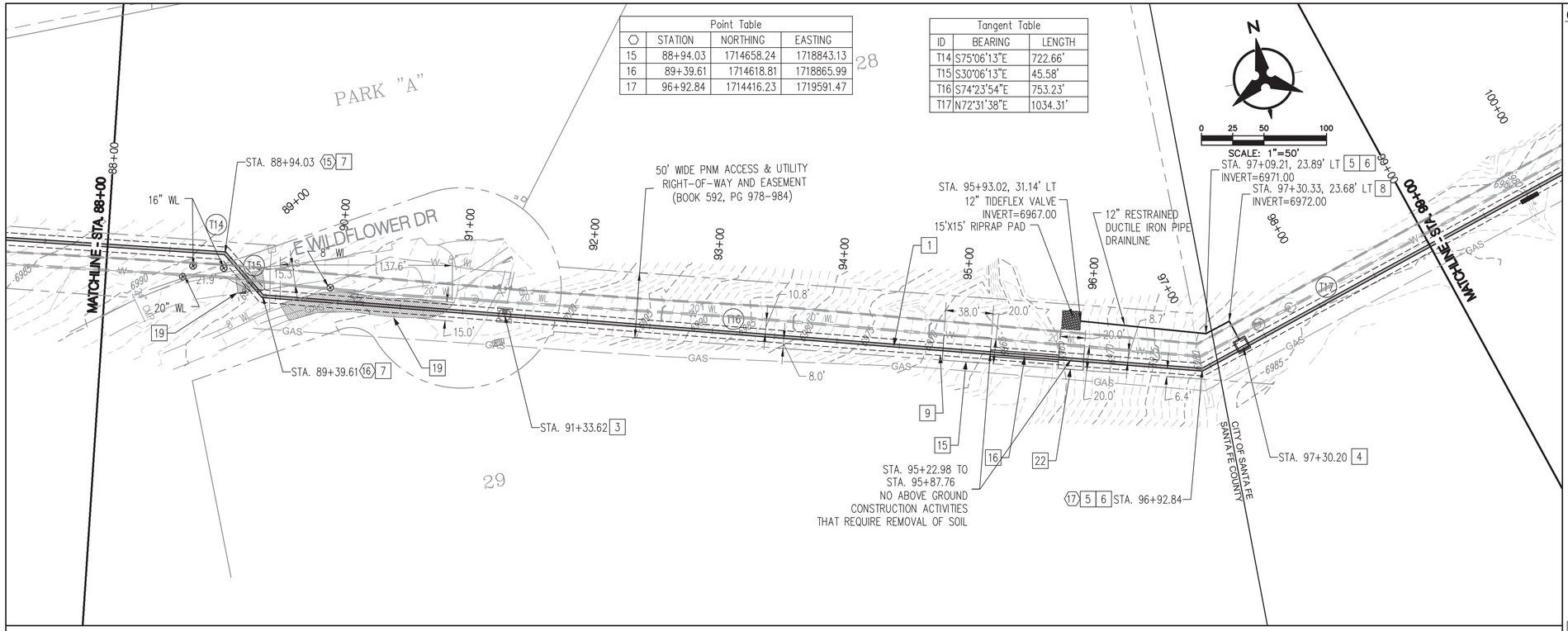
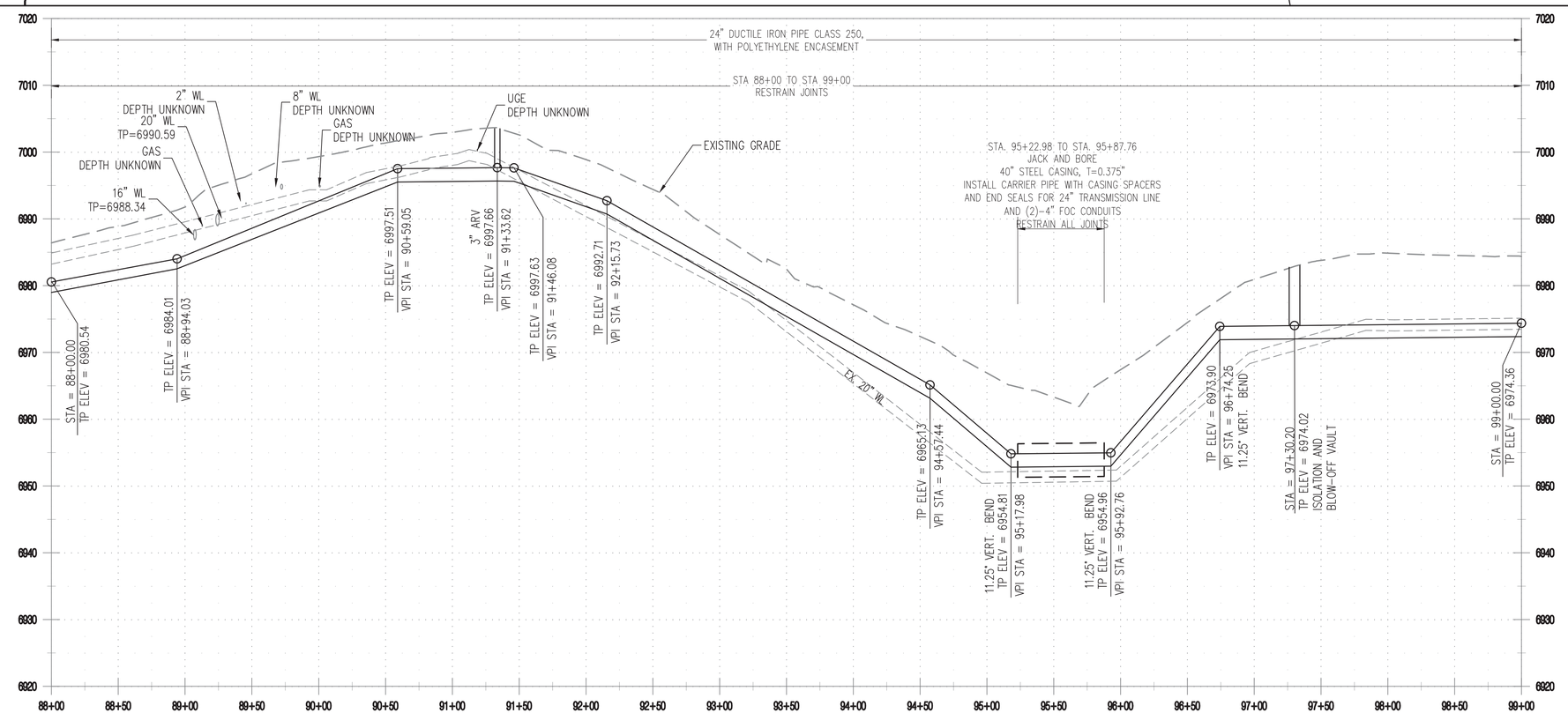
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 77+00 TO STA. 88+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-08	13	31



Point Table			
⬡	STATION	NORTHING	EASTING
15	88+94.03	1714658.24	1718843.13
16	89+39.61	1714618.81	1718865.99
17	96+92.84	1714416.23	1719591.47

Tangent Table		
ID	BEARING	LENGTH
T14	S75°06'13"E	722.66'
T15	S30°06'13"E	45.58'
T16	S74°23'54"E	753.23'
T17	N72°31'38"E	1034.31'



1" = 50' (HORIZ.)
1" = 10' (VERT.)

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Thu, 17-Nov-2016 - 8:08:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
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5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1. 24" WL.
3. ARV, PER DETAIL D, SHEET D-02.
4. ISOLATION AND BLOW-OFF VAULT, PER DETAIL 1, SHEET D-05.
5. 11.25° BEND.
6. 22.25° BEND.
7. 45° BEND.
8. 90° BEND.
9. TRENCH LIMITS.
15. BORE PIT.
16. JACK AND BORE, PER DETAIL A, SHEET D-02.
19. SAW CUT, REMOVE AND REPLACE ASPHALT PER DETAIL C, DWG D-02.
22. RECEIVING PIT.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	DATE
	WORK STAKED BY	DATE
	INSPECTOR'S ACCEPTANCE BY	DATE
	FIELD VERIFICATION BY	DATE
	DRAWINGS CORRECTED BY	DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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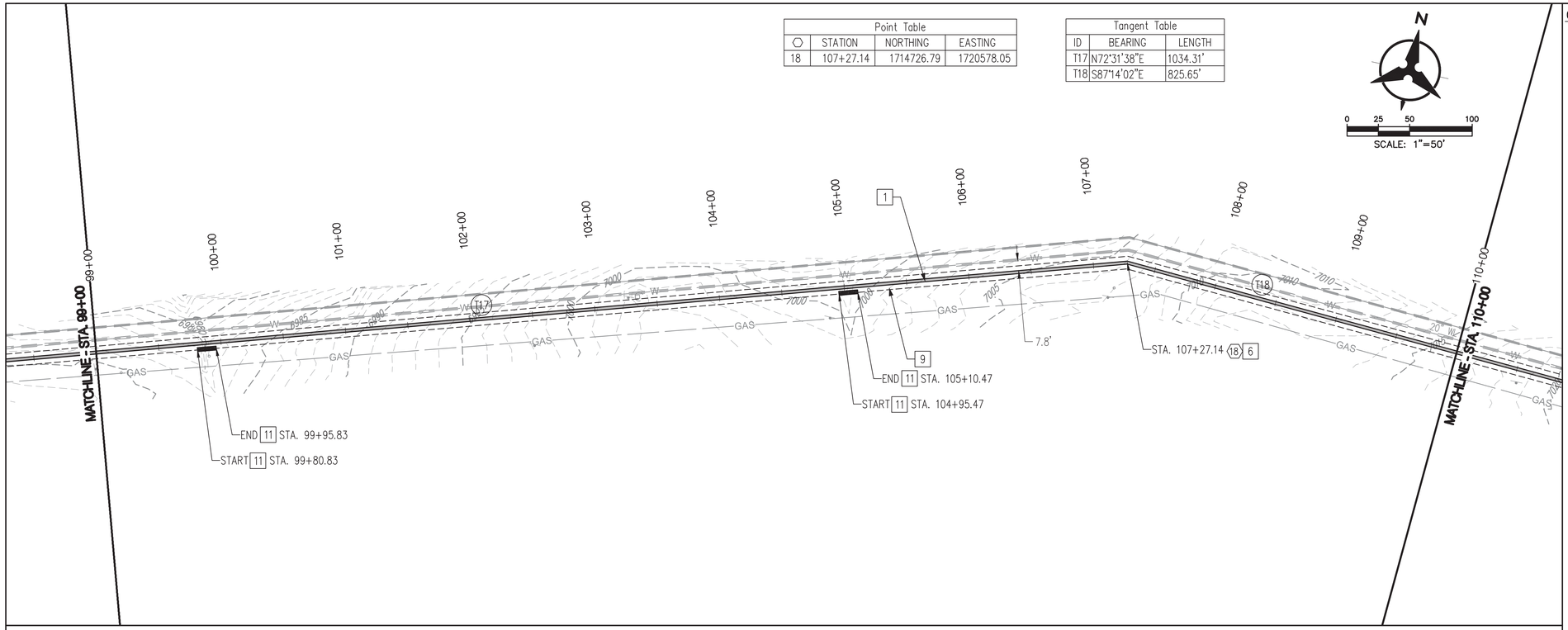
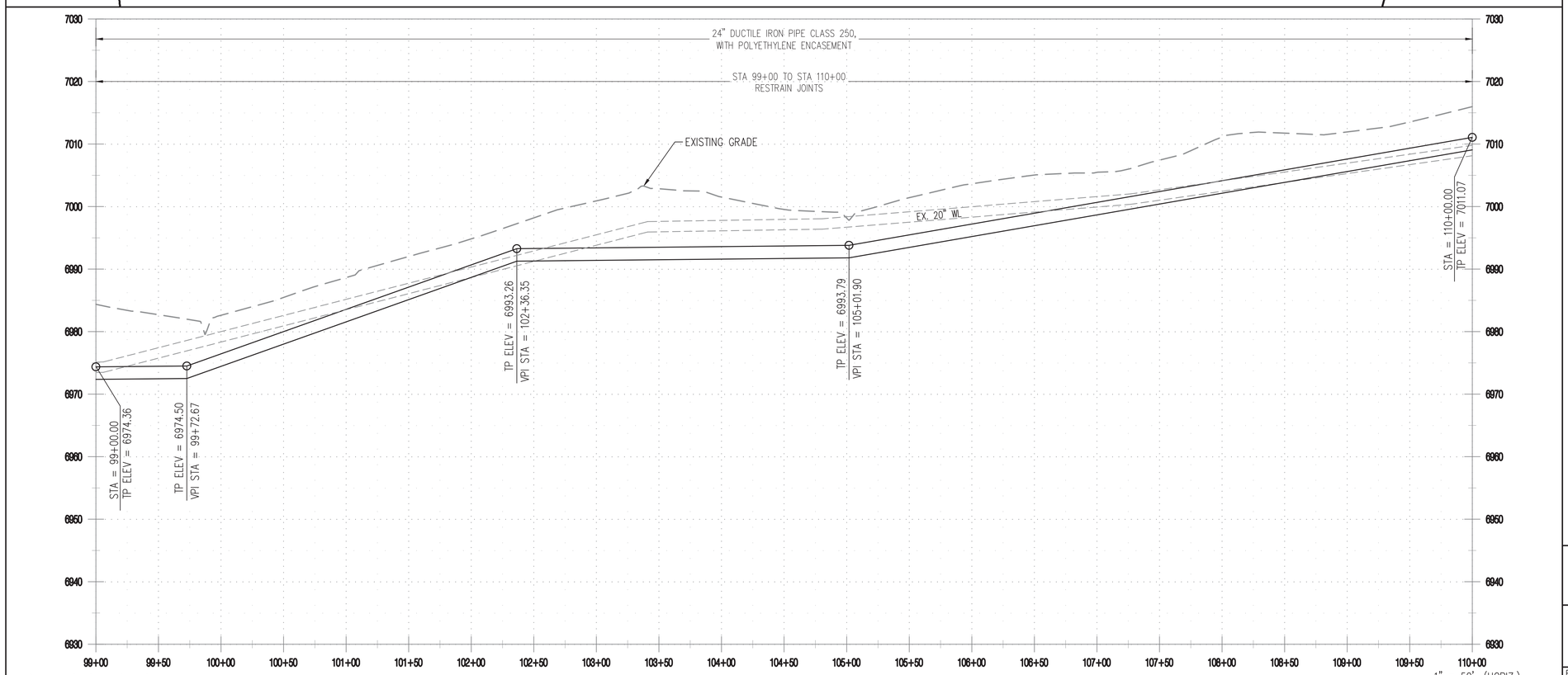
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 88+00 TO STA. 99+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-09	14	31

Point Table			
○	STATION	NORTHING	EASTING
18	107+27.14	1714726.79	1720578.05

Tangent Table		
ID	BEARING	LENGTH
T17	N72°31'38"E	1034.31'
T18	S87°14'02"E	825.65'





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Thu, 17-Nov-2016 - 8:11:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
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KEYED NOTES:

- 1 24" WL.
- 6 22.50° BEND.
- 9 TRENCH LIMITS.
- 11 GABION BASKETS, PER DETAIL O, SHEET D-03.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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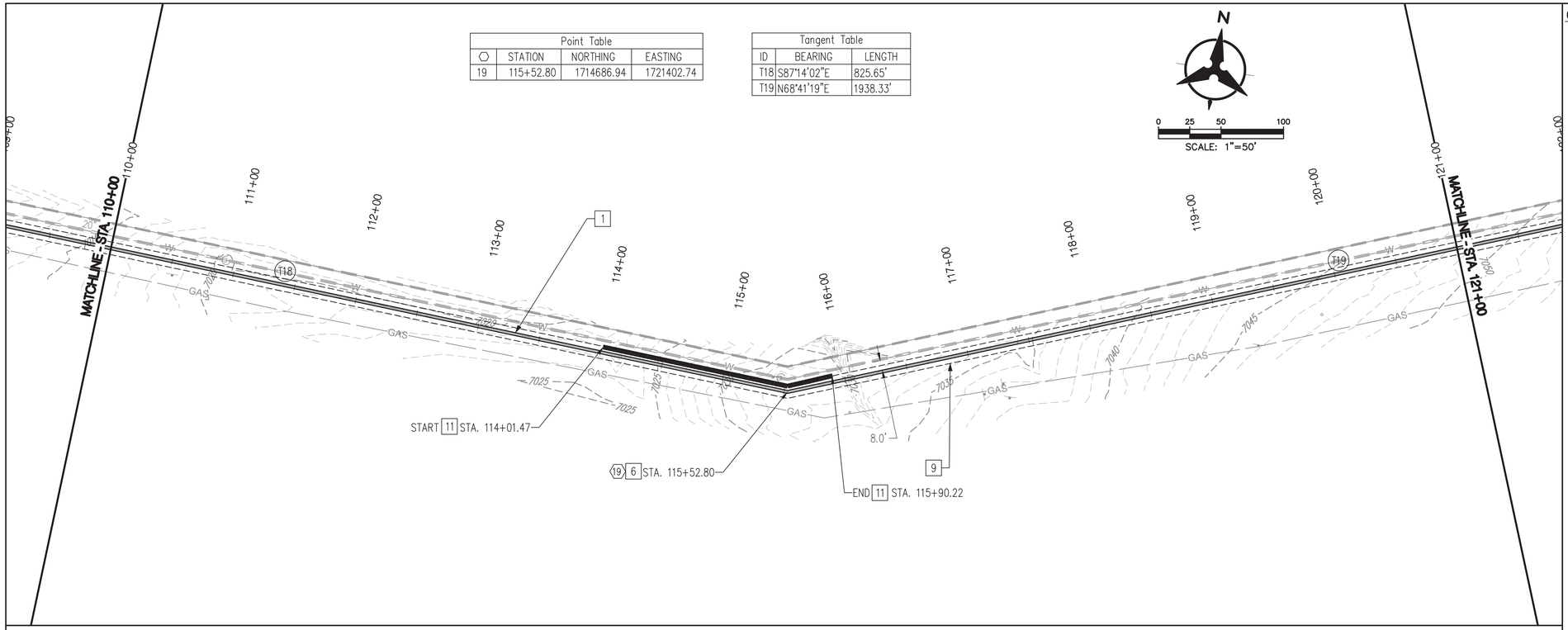
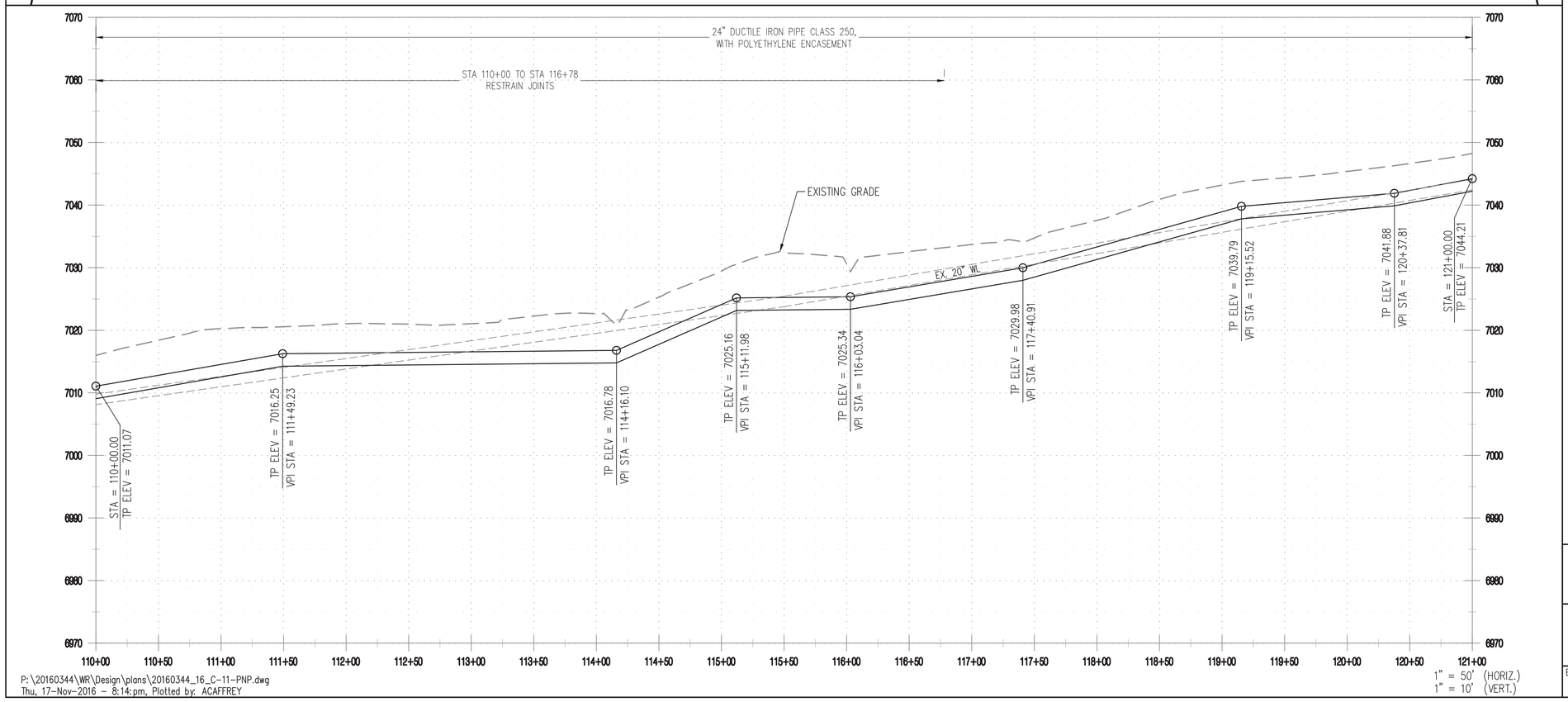
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 99+00 TO STA. 110+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-10	15	31

Point Table			
⬡	STATION	NORTHING	EASTING
19	115+52.80	1714686.94	1721402.74

Tangent Table		
ID	BEARING	LENGTH
T18	S87°14'02"E	825.65'
T19	N68°41'19"E	1938.33'





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Thu, 17-Nov-2016 - 8:14:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

- 1 24" WL.
- 6 22.50° BEND.
- 9 TRENCH LIMITS.
- 11 GABION BASKETS, PER DETAIL O, SHEET D-03.

Know what's below. Call before you dig.

ENGINEER'S SEAL

ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

Bohannan Huston
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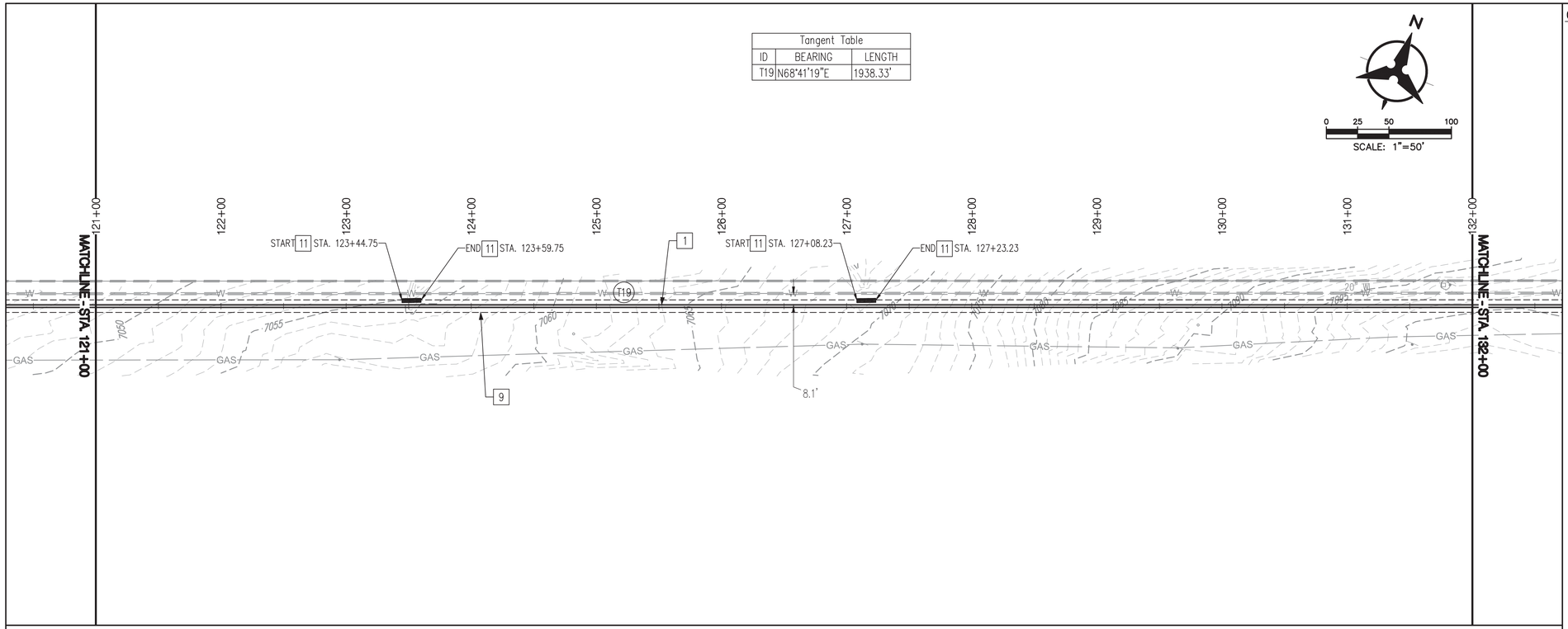
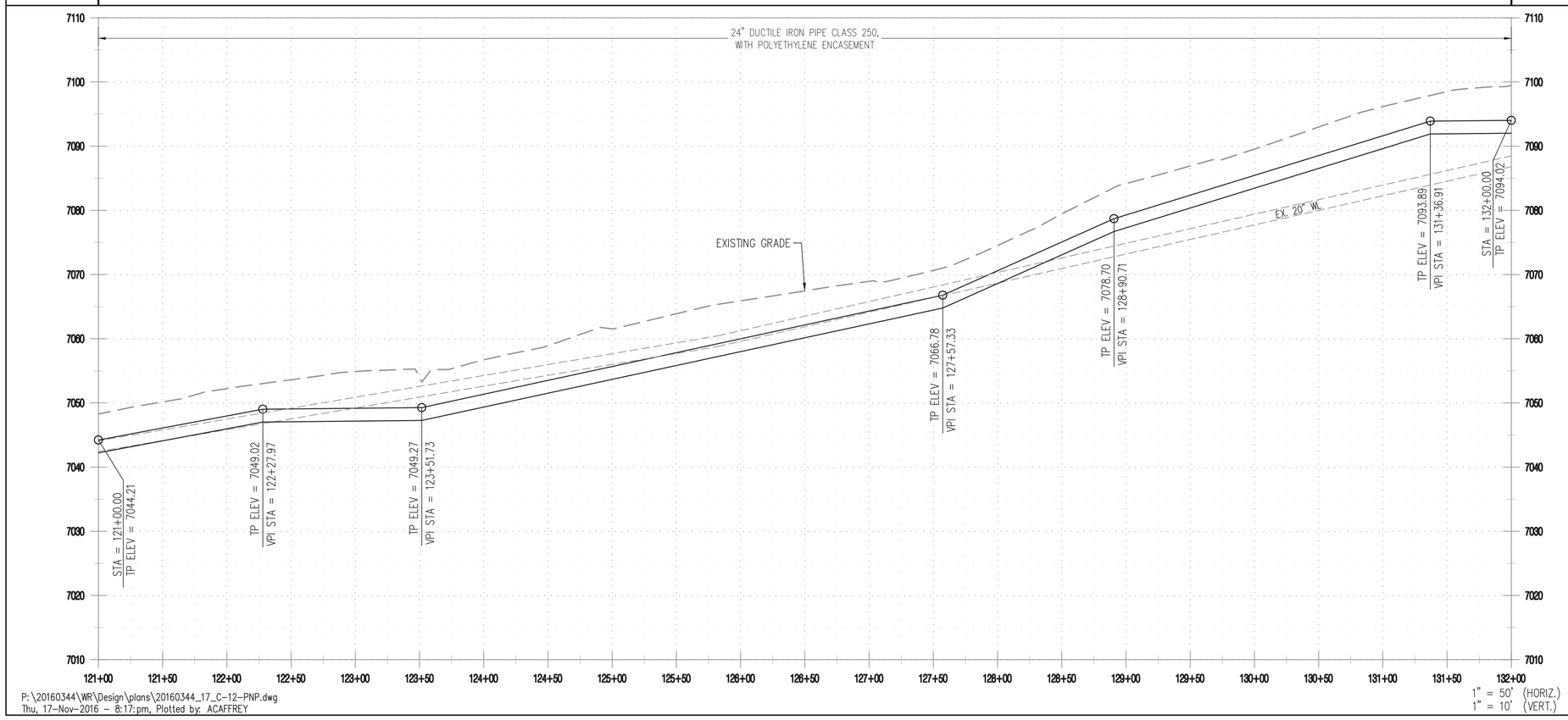
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 110+00 TO STA. 121+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-11	16	31

Tangent Table		
ID	BEARING	LENGTH
T19	N68°41'19"E	1938.33'





P:\20160344\WR\Design\plans\20160344_17_C-12-PNP.dwg
Thu, 17-Nov-2016 - 8:17:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

[1] 24" WL.

[9] TRENCH LIMITS.

[11] GABION BASKETS, PER DETAIL O, SHEET D-03.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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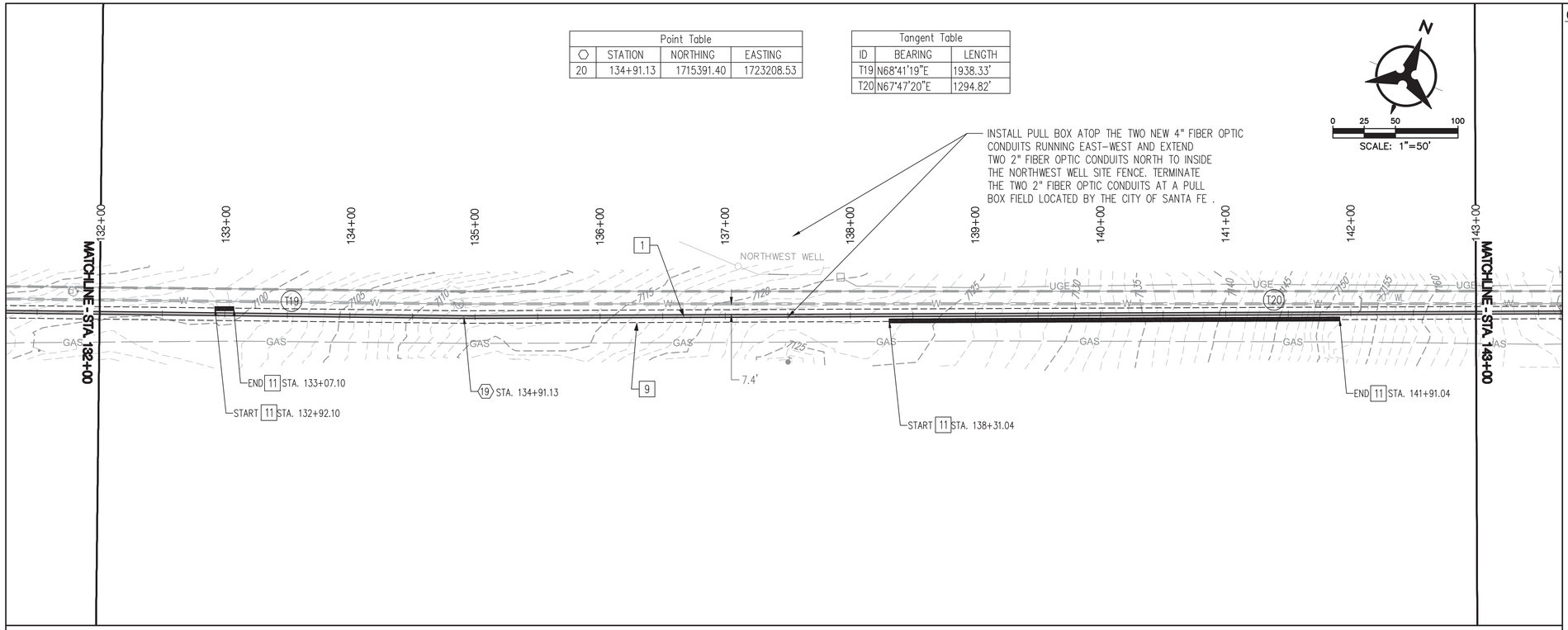
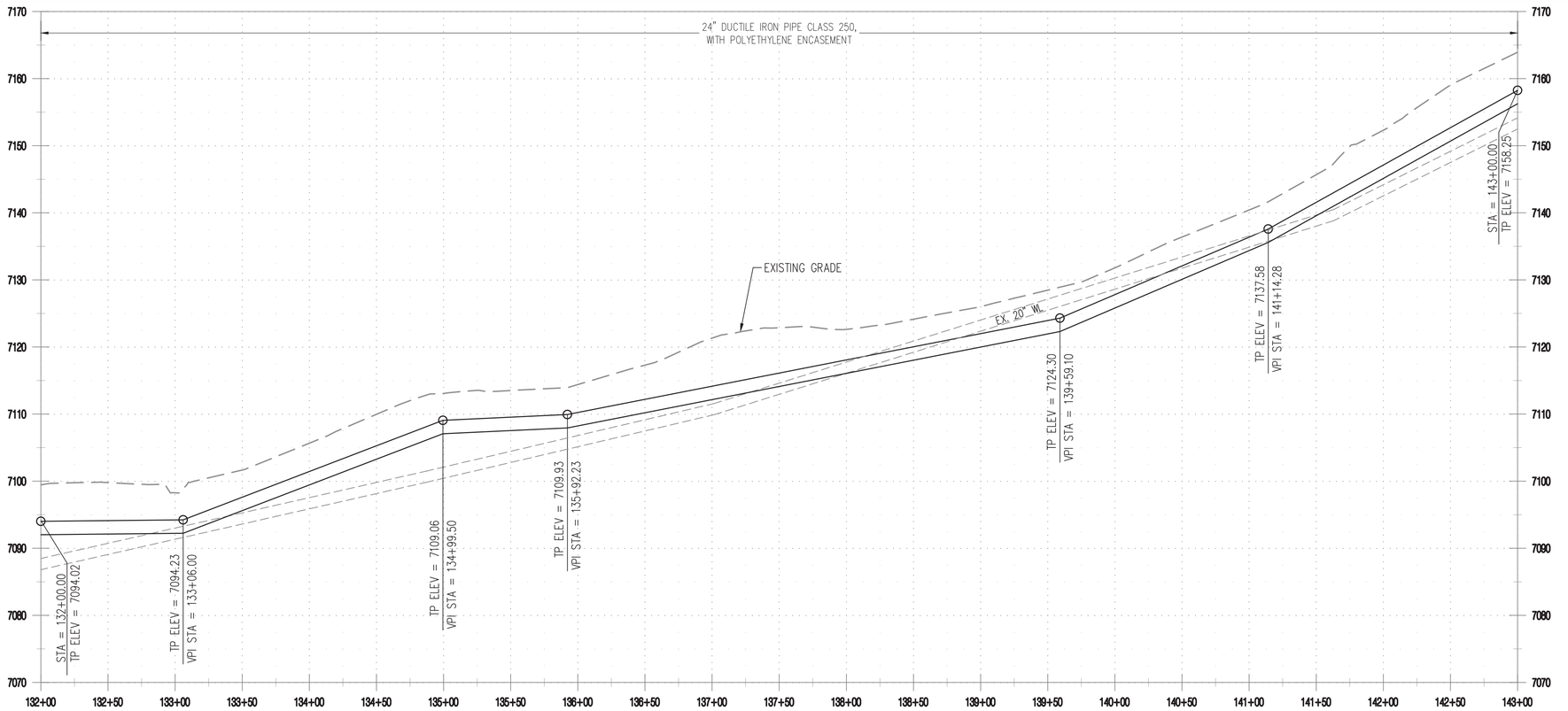
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 121+00 TO STA. 132+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-12	17	31

Point Table			
⬡	STATION	NORTHING	EASTING
20	134+91.13	1715391.40	1723208.53

Tangent Table		
ID	BEARING	LENGTH
T19	N68°41'19"E	1938.33'
T20	N67°47'20"E	1294.82'





P:\20160344\WR\Design\plans\20160344_18_C-13-PNP.dwg
Thu, 17-Nov-2016 - 8:20:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1 24" WL.

9 TRENCH LIMITS.

11 GABION BASKETS, PER DETAIL O, SHEET D-03.

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ENGINEER'S SEAL

ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY AQC DATE 11/17/2016
DRAWN BY JJG DATE 11/17/2016
CHECKED BY JE DATE 11/17/2016

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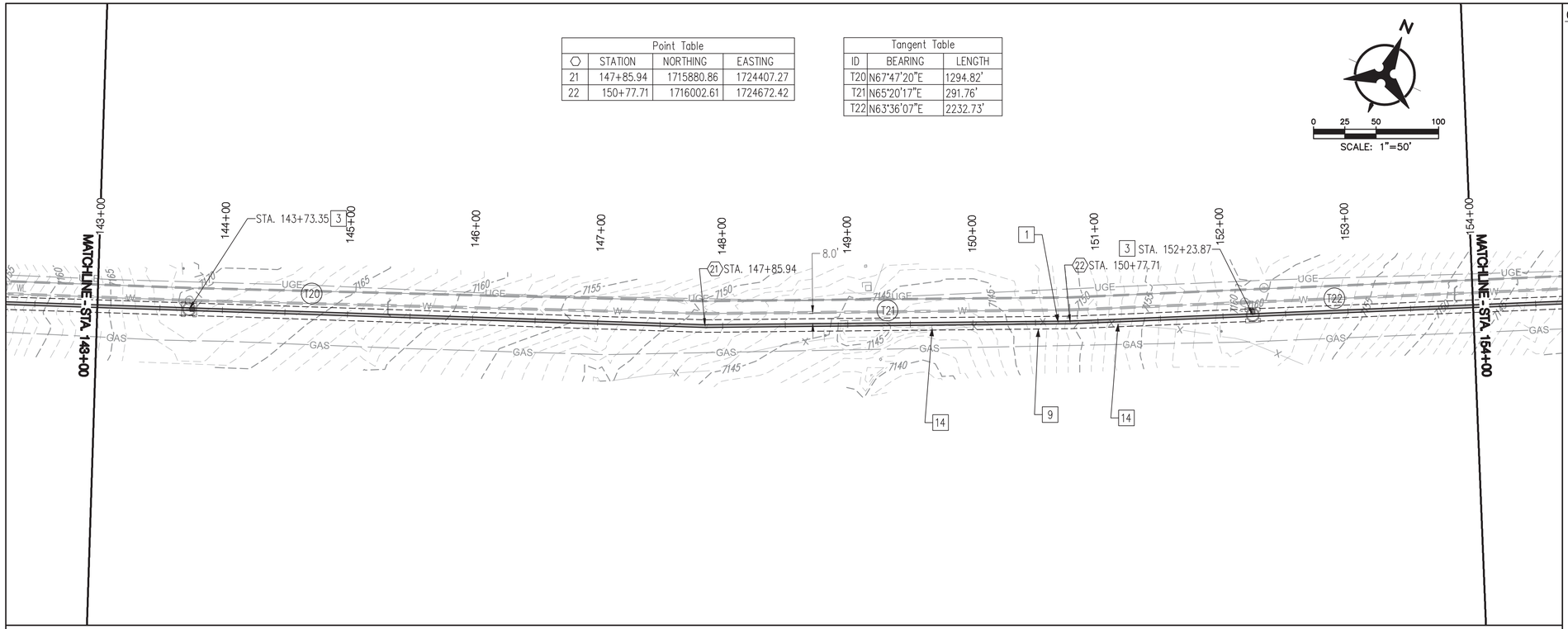
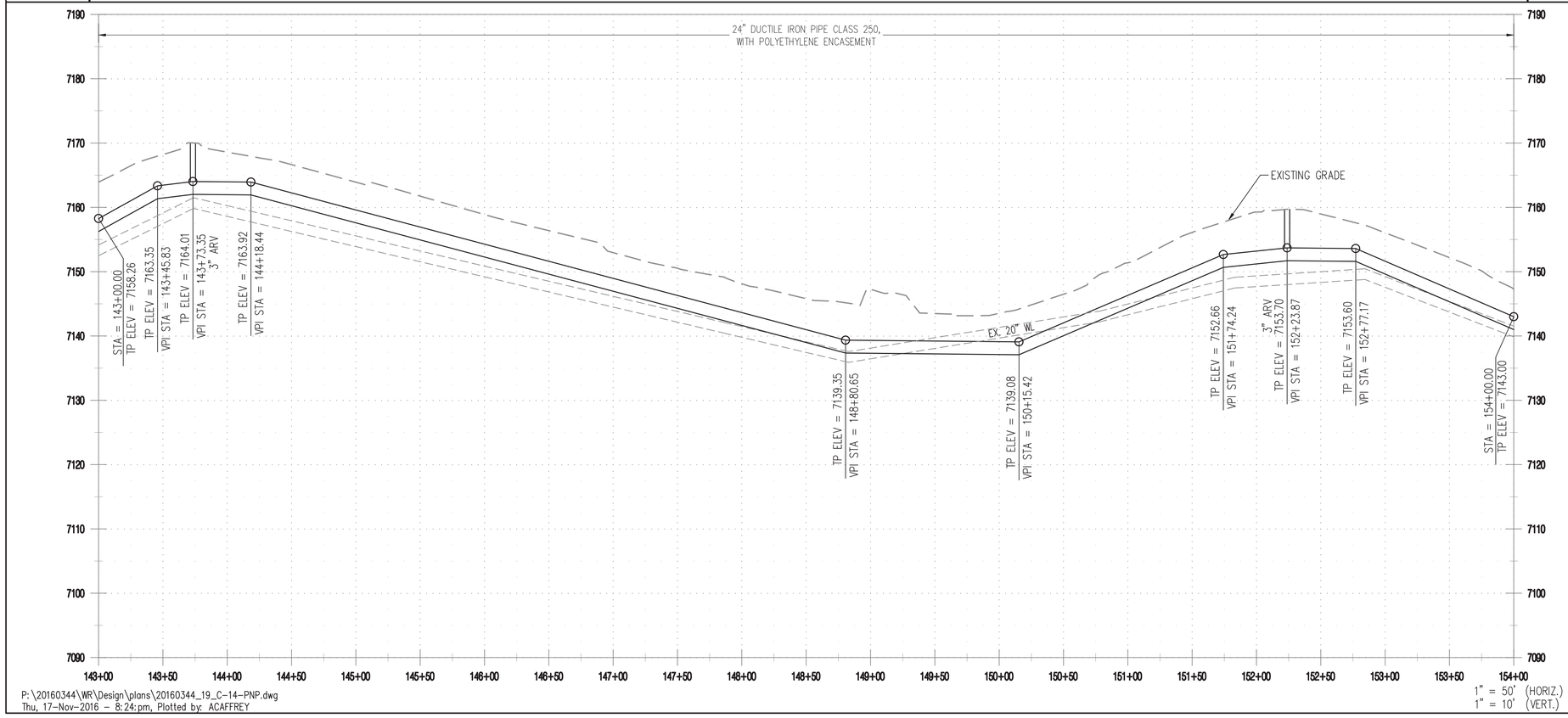
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 132+00 TO STA. 143+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-13	18	31

Point Table			
⬡	STATION	NORTHING	EASTING
21	147+85.94	1715880.86	1724407.27
22	150+77.71	1716002.61	1724672.42

Tangent Table		
ID	BEARING	LENGTH
T20	N67°47'20"E	1294.82'
T21	N65°20'17"E	291.76'
T22	N63°36'07"E	2232.73'





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Thu, 17-Nov-2016 - 8:24:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1. 24" WL.
3. ARV, PER DETAIL D, SHEET D-02.
9. TRENCH LIMITS.
14. REMOVE WOOD RAIL FENCE AND REPLACE IN LIKE KIND.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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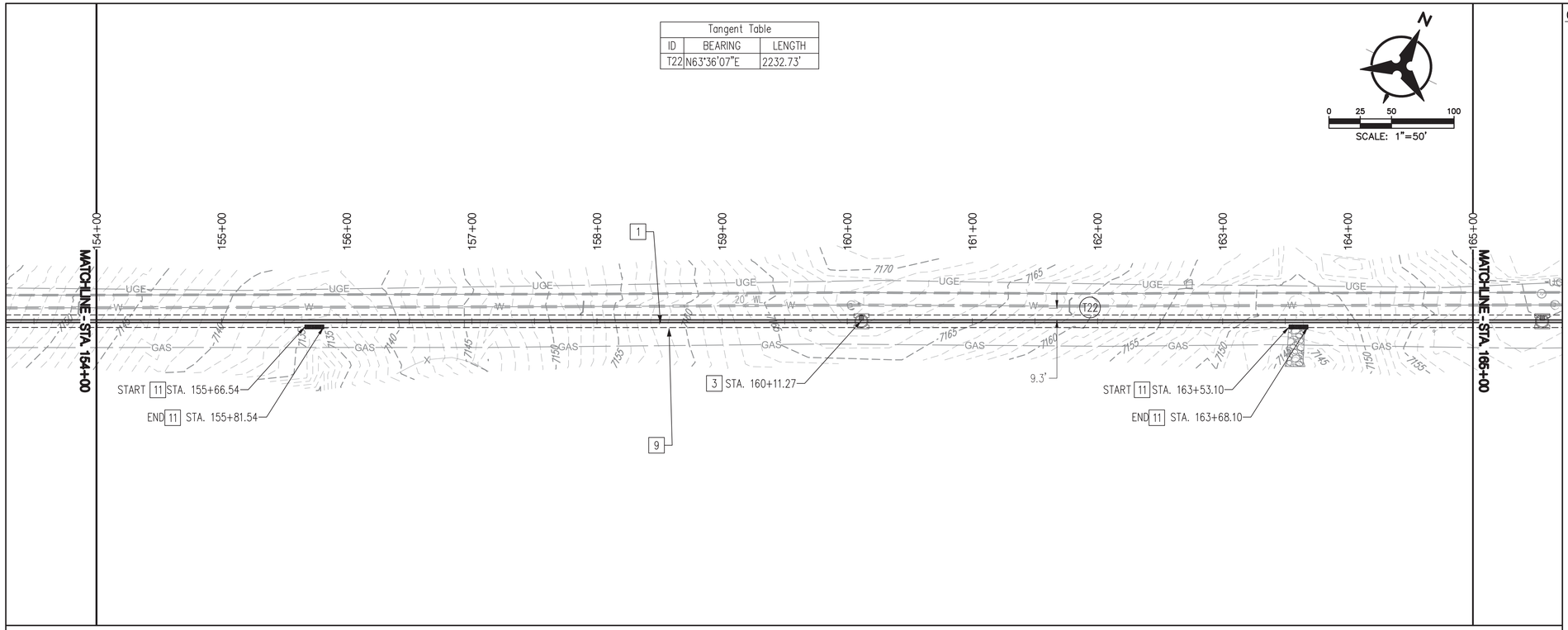
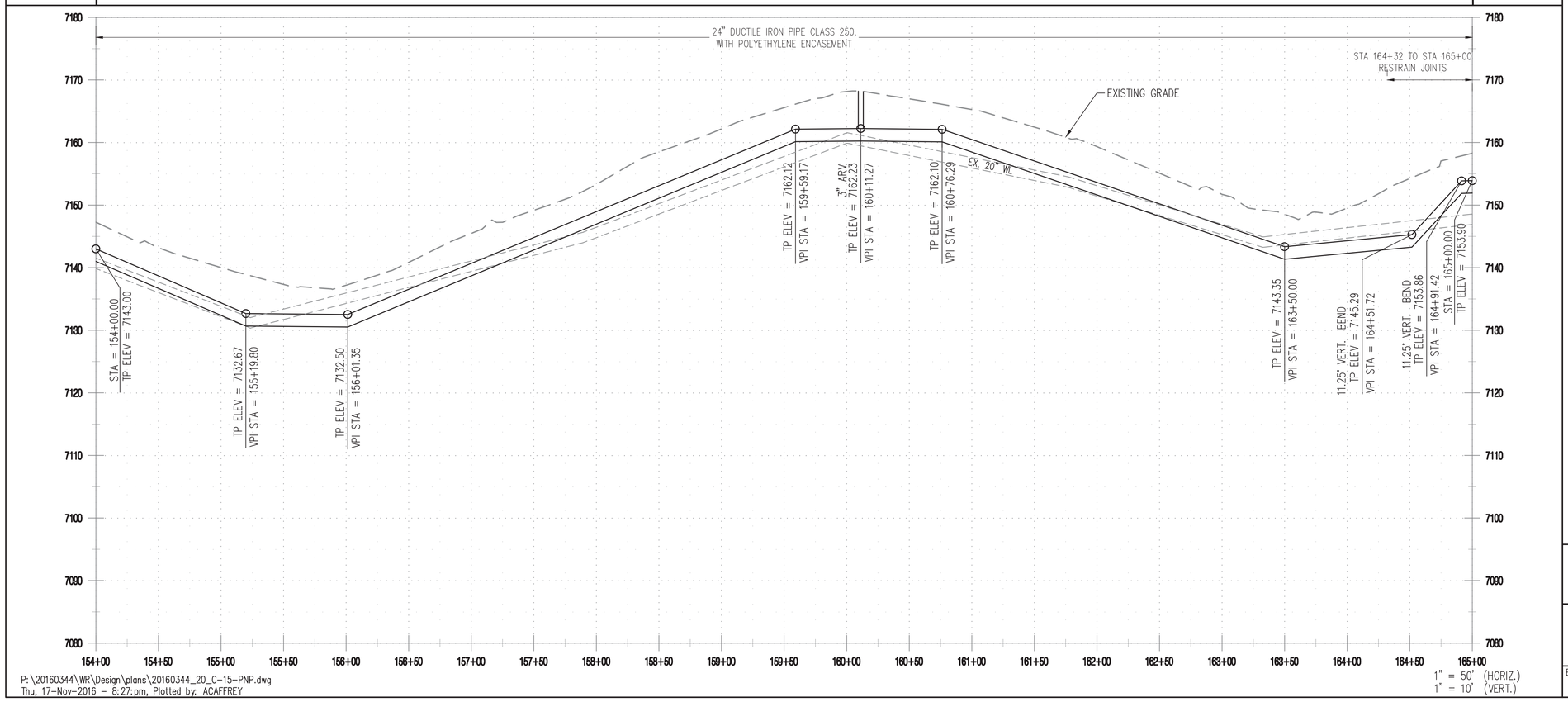
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 143+00 TO STA. 154+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-14	19	31

Tangent Table		
ID	BEARING	LENGTH
T22	N63°36'07"E	2232.73'





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Thu, 17-Nov-2016 - 8:27:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
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3. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
4. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
5. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.

KEYED NOTES:

1 24" WL.

3 ARV, PER DETAIL D, SHEET D-02.

9 TRENCH LIMITS.

11 GABION BASKETS, PER DETAIL O, SHEET D-03.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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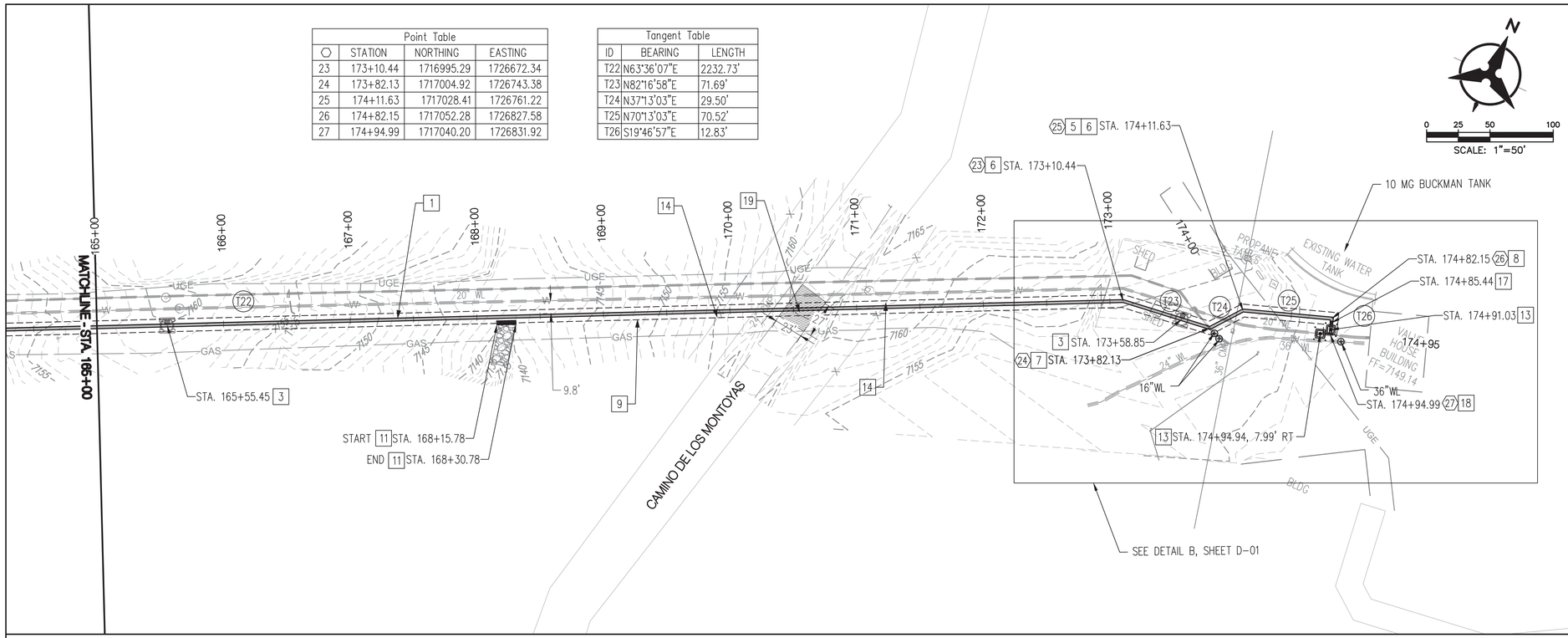
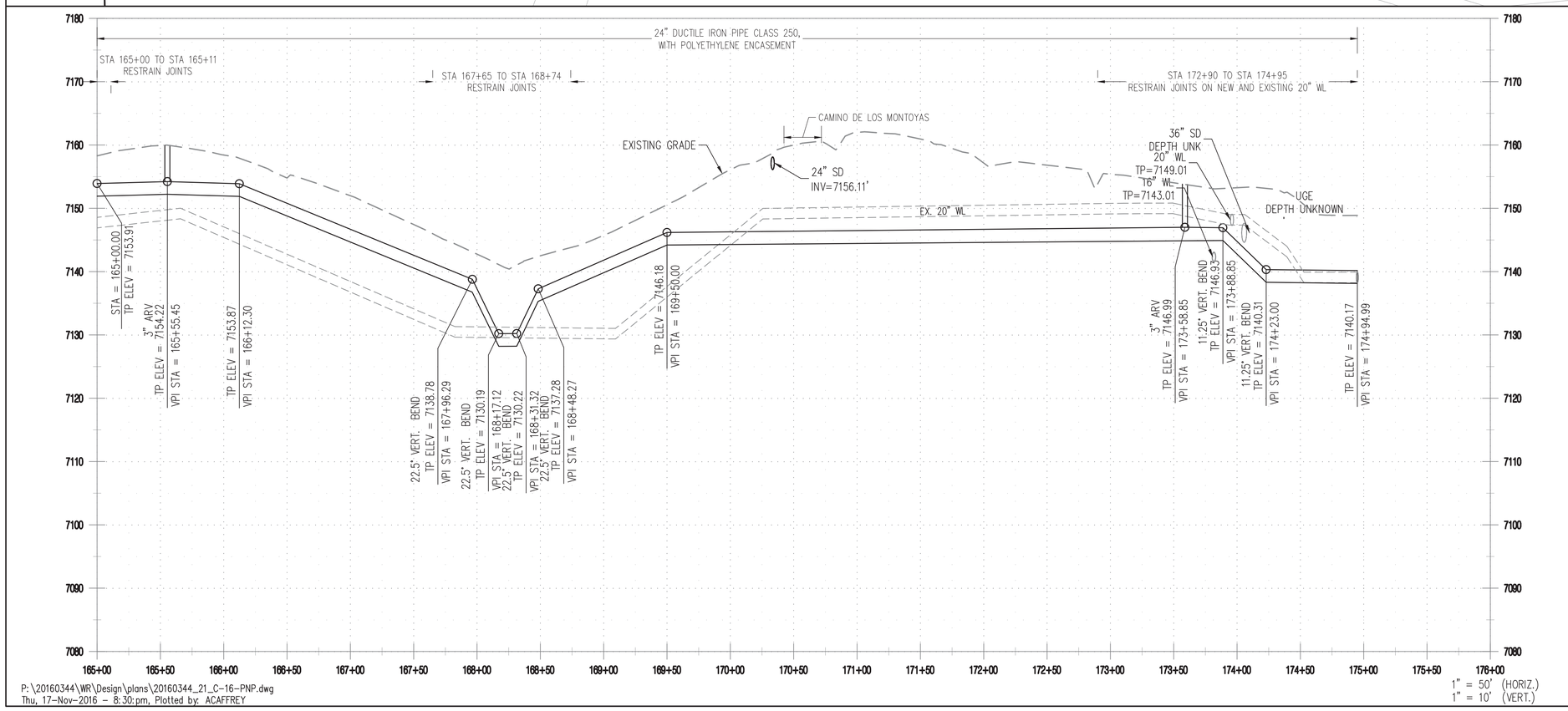
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 154+00 TO STA. 165+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-15	20	31

Point Table			
⬡	STATION	NORTHING	EASTING
23	173+10.44	1716995.29	1726672.34
24	173+82.13	1717004.92	1726743.38
25	174+11.63	1717028.41	1726761.22
26	174+82.15	1717052.28	1726827.58
27	174+94.99	1717040.20	1726831.92

Tangent Table		
ID	BEARING	LENGTH
T22	N63°36'07"E	2232.73'
T23	N82°16'58"E	71.69'
T24	N37°13'03"E	29.50'
T25	N70°13'03"E	70.52'
T26	S19°46'57"E	12.83'





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Thu, 17-Nov-2016 - 8:30:pm, Plotted by: ACAFFREY

1" = 50' (HORIZ.)
1" = 10' (VERT.)

GENERAL NOTES:

1. PIPELINE SHALL BE CONSTRUCTED OF DUCTILE IRON WITH CLASS NOTED IN PROFILE. THE PIPELINE SHALL BE WRAPPED IN BLACK POLYETHYLENE ENCASEMENT CONFORMING TO AWWA C105. BONDED WIRES SHALL BE INSTALLED ON ALL JOINTS WITH TEST STATIONS INSTALLED AS NOTED. REFER TO DETAIL G AND H, SHEET D-03.
2. WHERE IDENTIFIED IN PROFILE, THE 24" PIPELINE AND FITTINGS SHALL BE RESTRAINED. TR FLEX SHALL BE USED ON RUNS WITH A FULL LENGTH OF PIPE. MEGA LUGS ARE ACCEPTABLE TO BE USED TO RESTRAIN ALL FITTINGS.
3. SHUTDOWN OF SYSTEM FOR 24" WL TIE-IN SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVE, COSF SOURCE OF SUPPLY PH. (505) 955-4376. MAXIMUM SHUTDOWN TIME SHALL BE 12 HOURS.
4. EXISTING 20" PARALLEL WATERLINE MUST REMAIN IN SERVICE DURING CONSTRUCTION AND MUST BE SUPPORTED ACROSS OR PARALLEL WITH TRENCH EXCAVATION.
5. CONTRACTOR MUST REMAIN WITHIN EASEMENT AT ALL TIMES.
6. INSTALL TWO PARALLEL 4" FIBER OPTIC CONDUITS FROM STA 1+91.23 TO STA 174+94.99 WITH PULL BOXES. REFER TO DETAILS M AND N, SHEET D-04.
7. EXISTING UTILITIES INCLUDING WATERLINES ARE SHOWN AT APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

KEYED NOTES:

1. 24" WL.
3. ARV, PER DETAIL D, SHEET D-02.
5. 11.25° BEND.
6. 22.50° BEND.
7. 45° BEND.
8. 90° BEND.
9. TRENCH LIMITS.
11. GABION BASKETS, PER DETAIL O, SHEET D-03.
13. 20" BUTTERFLY VALVE, PER DETAIL 2, SHEET D-06.
14. REMOVE FENCE AND REPLACE IN LIKE KIND.
17. 24" x 20" REDUCER.
18. TIE TO EXISTING 20" WL WITH 20" X 20" X 20" TEE, SEE DETAIL B, SHEET D-01.
19. SAW CUT, REMOVE AND REPLACE ASPHALT PER DETAIL C, DWG D-02.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

Bohannan Huston
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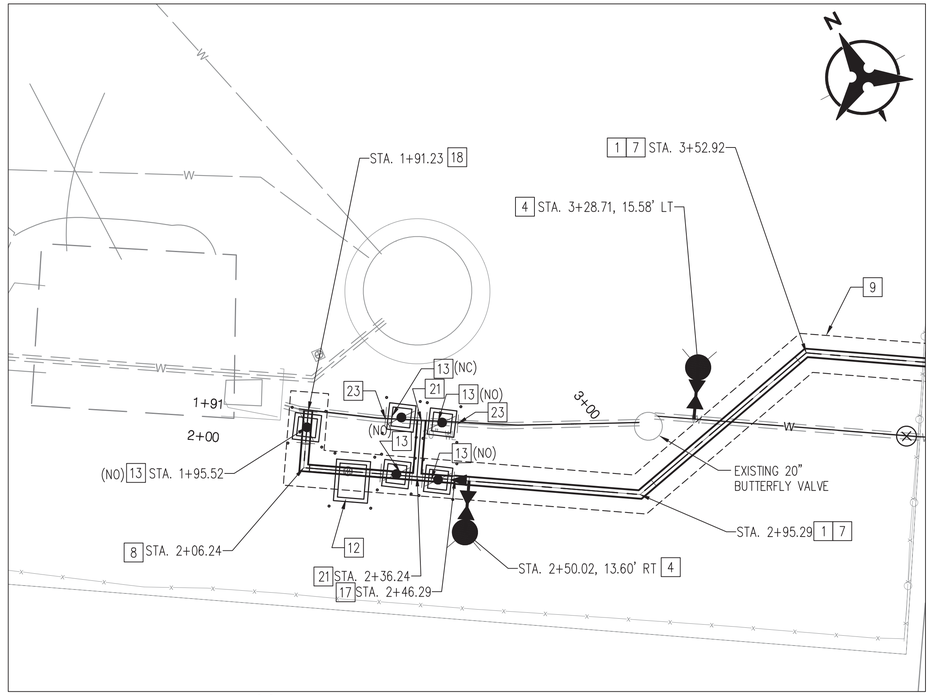
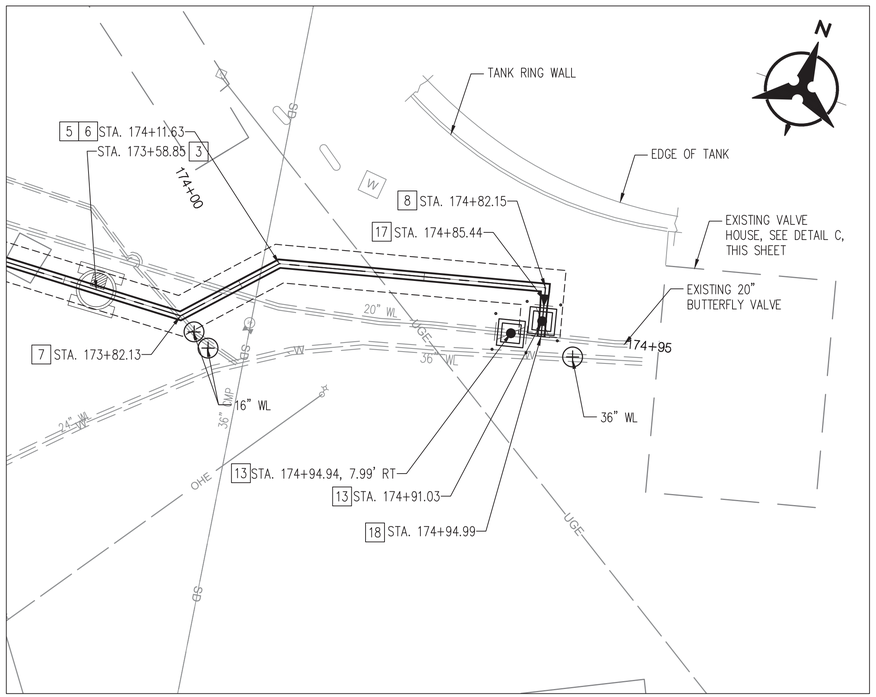
BUCKMAN WELL FIELD PARALLEL PIPELINE
PLAN AND PROFILE
STA. 165+00 TO STA. 176+00

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	C-16	21	31



A BOOSTER STATION #4 CONNECTION DETAIL
SCALE: 1" = 20'
C-01



B BUCKMAN TANK CONNECTION DETAIL
SCALE: 1" = 20'
C-16

0 10 20 40
SCALE: 1"=20'

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Thu, 17-Nov-2016 - 8:34:pm, Plotted by: ACAFFREY

KEYED NOTES:

1 24" WL.

3 ARV, PER DETAIL D, SHEET D-02.

4 BLOW-OFF HYDRANT, PER CITY OF SANTA FE STANDARD DETAIL 07.

5 11.25° BEND.

6 22.50° BEND.

7 45° BEND.

8 90° BEND.

9 TRENCH LIMITS.

12 INSTALL VAULT WITH FLOW METER PER DETAIL 1, SHEET D-06..

13 20" BUTTERFLY VALVE, PER DETAIL 2, SHEET D-06.

17 24" x 20" REDUCER.

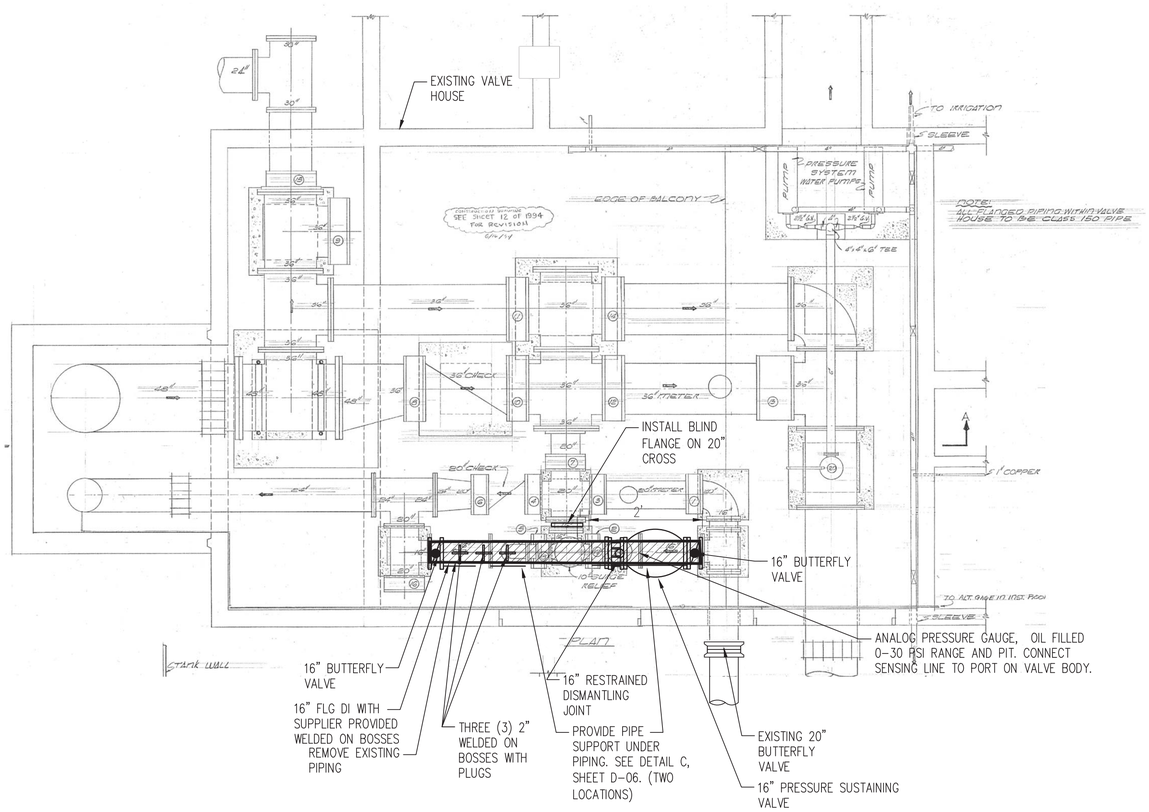
18 TIE TO EXISTING 20" WL WITH 20" X 20" X 20" TEE.

21 20" X 20" X 20" TEE.

23 TIE TO EXISTING 20" WL WITH 20" RESTRAINED COUPLING

GENERAL NOTES:

1. EXISTING WATERLINES ARE SHOWN AT APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
2. DURING APRIL THROUGH OCTOBER, OF ANY PART OF A YEAR, ONLY 12 HRS ALLOWED FOR PIPELINE TO BE OUT OF SERVICE. TWO WEEKS PRIOR TO SHUT OFF, CONTRACTOR TO COORDINATE WITH "SOURCE OF SUPPLY," (505) 955-4376.
3. REFER TO C-01 AND C-16 FOR POINT AND TANGENT INFORMATION.
4. CONTRACTOR TO COORDINATE ACCESS TO VALVE HOUSE WITH COSF.
5. TWO WEEKS NOTICE REQUIRED PRIOR TO INSTALLATION OF PSV.
6. CONTRACTOR TO INDEPENDENTLY MEASURE LAY LENGTH PRIOR TO ORDERING PSV.



C PSV DETAIL
SCALE: NTS
D-01

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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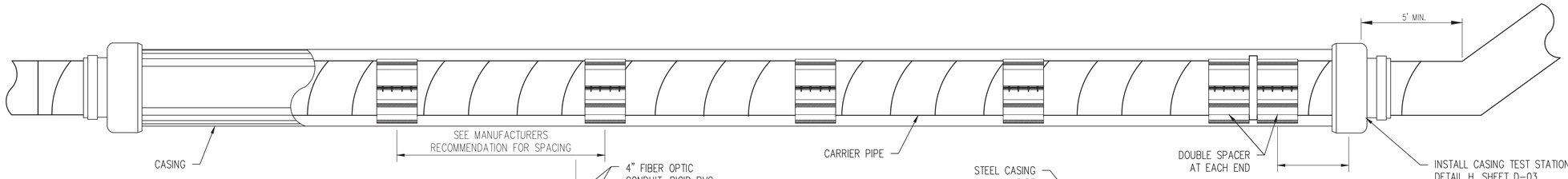
BUCKMAN WELL FIELD PARALLEL PIPELINE
CONNECTION DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-01	22	31



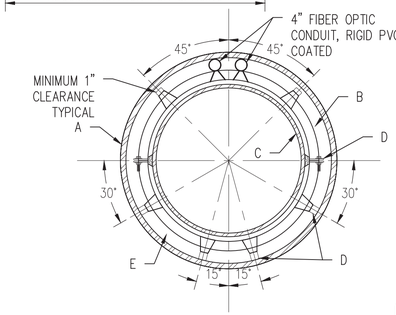
CONSTRUCTION NOTES:

A. STEEL CASING PIPE 40" DIAMETER AND WALL THICKNESS= 0.375" .

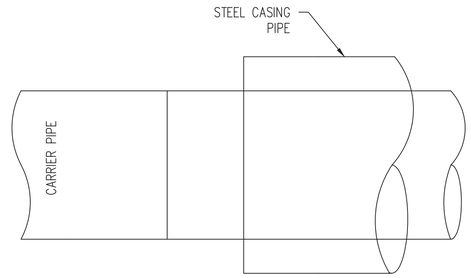
B. BELL DIA. OF CARRIER PIPE.

C. CARRIER PIPE.

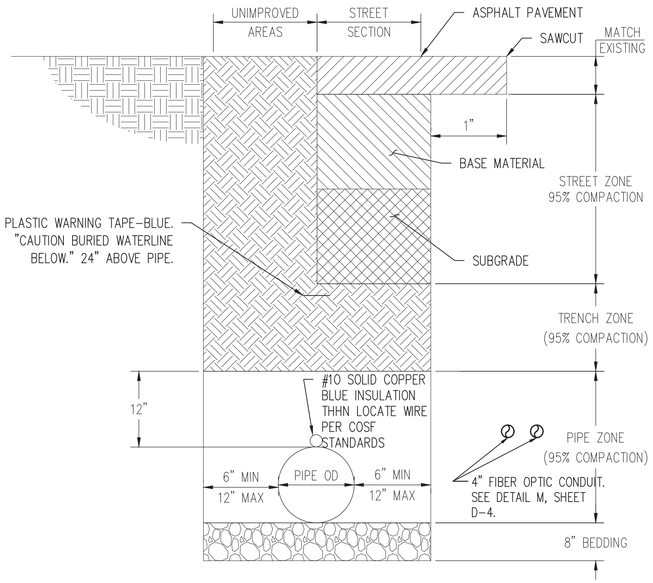
D. STEEL CASING SPACER AS MANUFACTURED BY PSI MODEL S12 W/G2 RUNNERS, BWM COMPANY, MODEL BWM SS-12 OR EQUAL, CONTAINING INTEGRAL SUPPORTS THAT ALLOW 4-INCH CONDUITS TO CLEAR BELLS OF CARRIER PIPE.



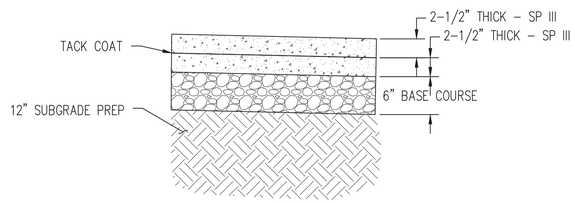
TYPICAL SECTION
C-02, C-09



A JACK AND BORE DETAIL
SCALE: N.T.S.



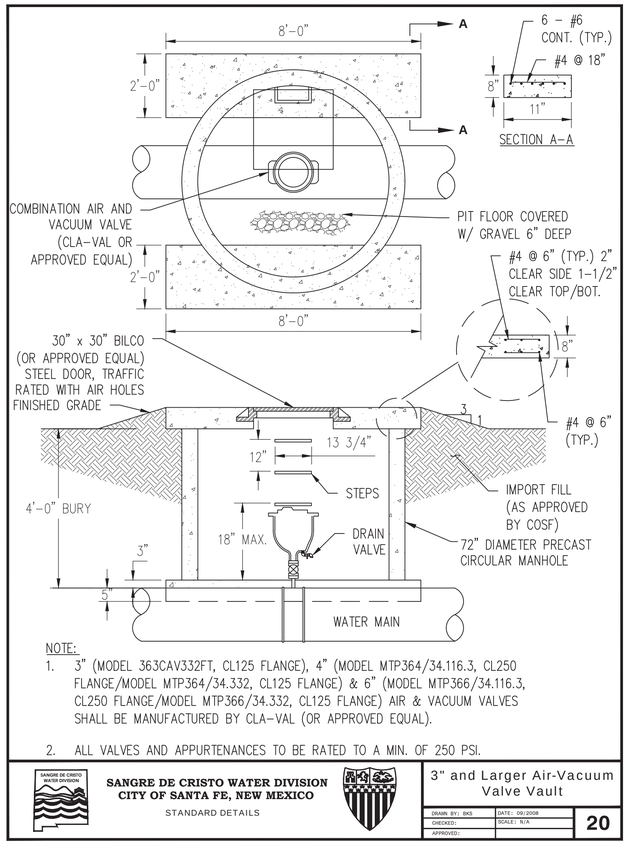
B TYPICAL TRENCH DETAIL
SCALE: N.T.S.



NOTES:
1. REPLACE ALL STRIPING IN LIKE KIND. COST SHALL BE INCIDENTAL TO PROJECT.

C ASPHALT REPLACEMENT SECTION
SCALE: N.T.S.

C-05, C-09, C-16



NOTE:
1. 3" (MODEL 363CAV332FT, CL125 FLANGE), 4" (MODEL MTP364/34.116.3, CL250 FLANGE/MODEL MTP364/34.332, CL125 FLANGE) & 6" (MODEL MTP366/34.116.3, CL250 FLANGE/MODEL MTP366/34.332, CL125 FLANGE) AIR & VACUUM VALVES SHALL BE MANUFACTURED BY CLA-VAL (OR APPROVED EQUAL).
2. ALL VALVES AND APPURTENANCES TO BE RATED TO A MIN. OF 250 PSI.

SANGRE DE CRISTO WATER DIVISION
CITY OF SANTA FE, NEW MEXICO
STANDARD DETAILS

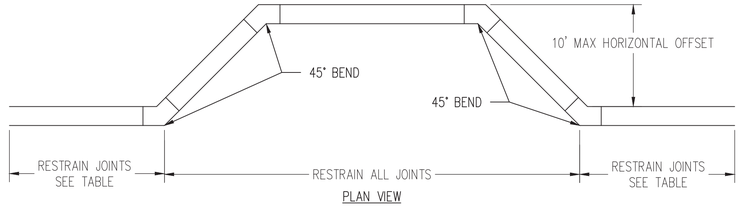
3" and Larger Air-Vacuum Valve Vault

DRAWN BY: BKG	DATE: 00/2008
CHECKED:	SCALE: N/A
APPROVED:	

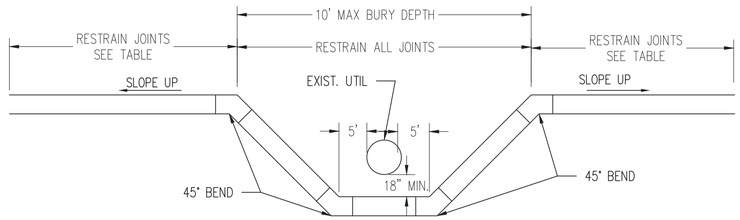
20

D COMBINATION ARV VALVE VAULT
SCALE: N.T.S.

C-02, C-03, C-04, C-06, C-09, C-14, C-15, C-16



PLAN VIEW



PROFILE VIEW

NOTES:
1. MAXIMUM VERTICAL DEVIATION SHALL BE 10' BURY DEPTH
2. MAXIMUM HORIZONTAL DEVIATION SHALL BE 10' FROM CENTERLINE OF ALIGNMENT.
3. DETAIL MAY BE USED TO RESOLVE UTILITY CONFLICT WITH APPROVAL FROM CITY OF SANTA FE.
4. BASED ON TEST PRESSURE OF 250 PSI AND MINIMUM BURY DEPTH OF 4 FT.

	R_L (LF) MINIMUMS		
SIZE	HORIZONTAL	VERTICAL DOWN	VERTICAL UP
24"	50	165	40

E WATERLINE HORIZONTAL OR VERTICAL DEFLECTION FOR VARIOUS DIAMETER
SCALE: N.T.S.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

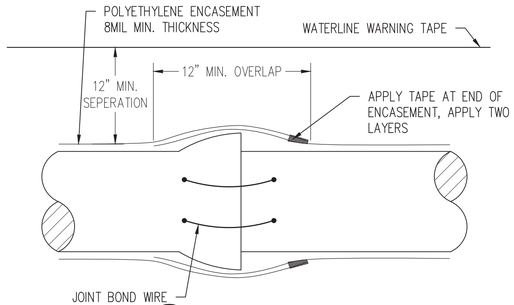
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

Bohannan Huston
www.bhinc.com 800.877.5332

BUCKMAN WELL FIELD PARALLEL PIPELINE
JACK AND BORE AND TRENCH DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-02	23	31

P:\20160344\WR\Design\plans\20160344_23_D-02-Details.dwg
Thu, 17-Nov-2016 - 8:35:pm, Plotted by: ACAFFREY



G PIPE INSTALLATION DETAIL
SCALE: N.T.S.
C-01 – C-16

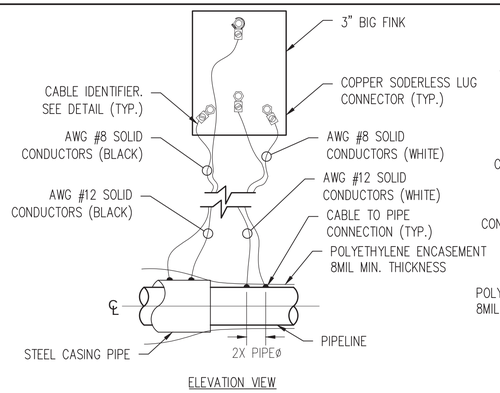
TEST STATION LOCATIONS

STA	OFFSET
01+91.23	3' RT
02+06.24	3' RT
02+95.29	3' RT
03+52.92	3' RT
10+05.82	3' RT
11+50.00	3' RT
15+85.00	3' RT
20+05.82	3' RT
26+00.00	3' RT
31+29.61	3' RT
31+62.74	3' RT
33+69.64	3' RT
35+56.61	3' RT
36+37.58	3' RT
43+00.00	3' RT
49+92.06	3' RT
50+30.51	3' RT
59+78.44	3' RT
69+78.44	3' RT
76+00.00	3' RT

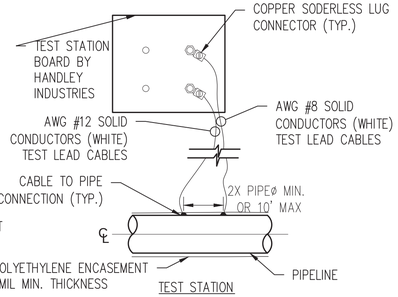
TEST STATION LOCATIONS

STA	OFFSET
81+71.37	3' RT
88+94.03	3' RT
89+39.61	3' RT
95+22.98	3' RT
95+87.76	3' RT
96+92.84	3' RT
102+00.00	3' RT
107+27.14	3' RT
115+52.80	3' RT
125+00.00	3' RT
134+91.13	3' RT
141+00.00	3' RT
147+85.94	3' RT
150+77.71	3' RT
160+77.71	3' RT
167+00.00	3' RT
173+10.44	3' RT
173+82.13	3' RT
174+11.63	3' RT
174+82.15	3' RT
174+94.99	3' RT

NOTES:
1. SPACE TEST STATIONS AT A MAXIMUM 1,000' INTERVAL.
2. INSTALL TEST STATIONS AT ALL CAPS AND BENDS LOCATIONS.
3. INSTALL CASING TEST STATIONS AT BOTH SIDES OF JACK ON BORE LOCATIONS.
4. TABLE HAS BEEN PROVIDED FOR REFERENCE.
5. LOCATIONS TO BE FIELD VERIFIED BY OWNER DURING CONSTRUCTION.
6. ALL TEST STATIONS ARE 3' RT UNLESS OTHERWISE NOTED.

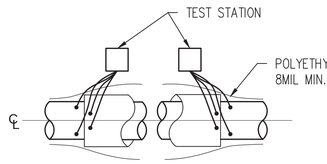


ELEVATION VIEW



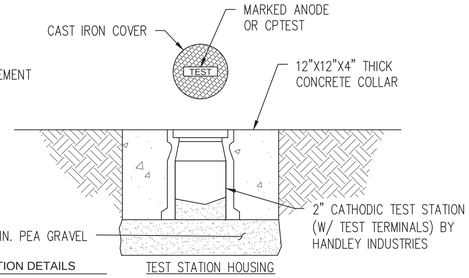
TEST STATION

NOTE: UTLIZE 2 INCH CATHODIC TEST STATION (W/ TEST TERMINALS) BY HANDLEY INDUSTRIES



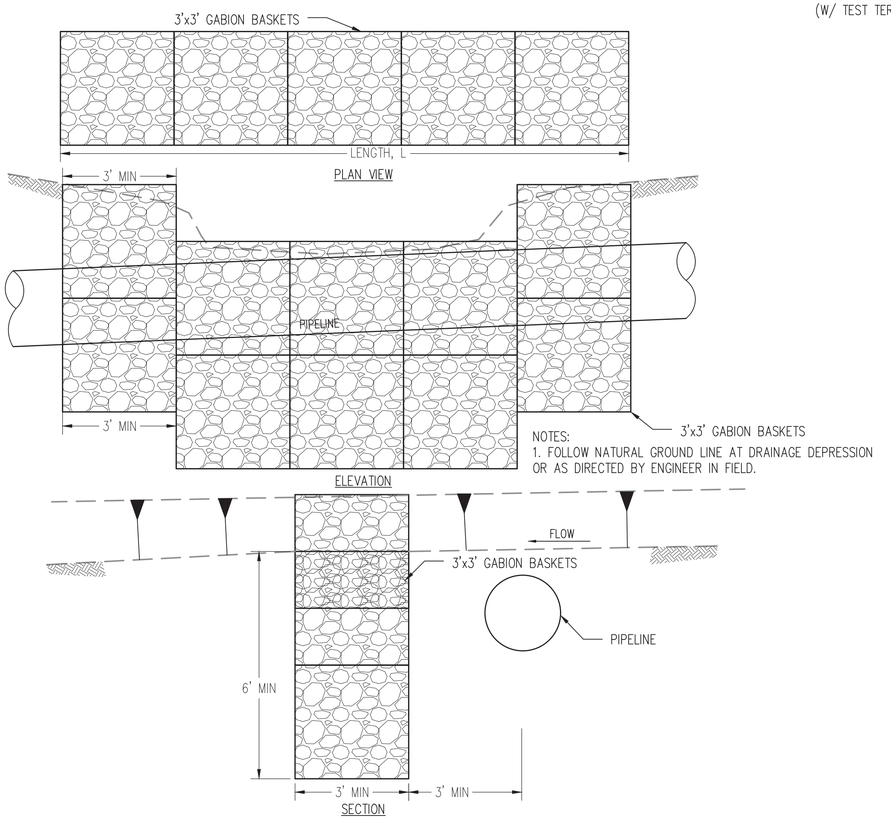
PLAN VIEW
CASING TEST STATION

NOTE: UTLIZE 2 INCH CATHODIC TEST STATION (W/ TEST TERMINALS) BY HANDLEY INDUSTRIES



H TEST STATION DETAILS
SCALE: N.T.S.
C-01 – C-16

TEST STATION HOUSING



O GABION BASKET EROSION PROTECTION DETAIL
SCALE: N.T.S.
C-10, C-11, C-12, C-13, C-15, C-16

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	CONTRACTOR	WORK STAKED BY	INSPECTOR'S ACCEPTANCE BY	FIELD VERIFICATION BY	DRAWINGS CORRECTED BY
DATE					

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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BUCKMAN WELL FIELD PARALLEL PIPELINE
TEST STATION AND EROSION PROTECTION DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-03	24	31

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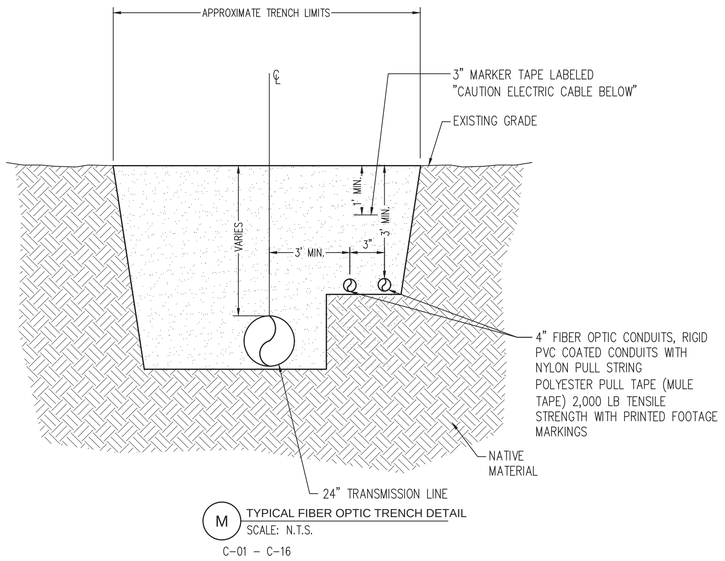
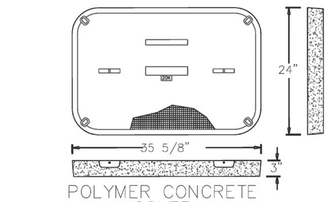
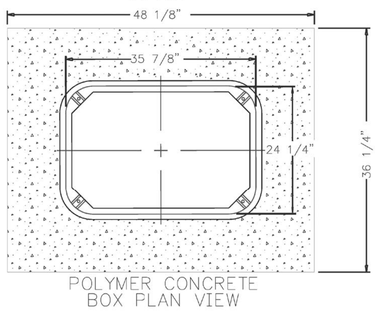
Thu, 17-Nov-2016 – 8:36:pm, Plotted by: ACAFFREY



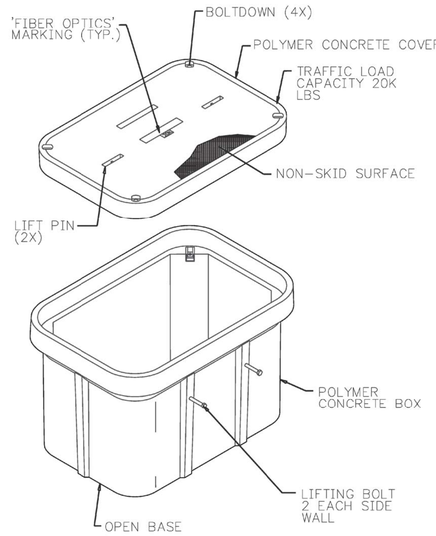
M TYPICAL FIBER OPTIC TRENCH DETAIL
SCALE: N.T.S.
C-01 – C-16



POLYMER CONCRETE COVER



POLYMER CONCRETE BOX PLAN VIEW



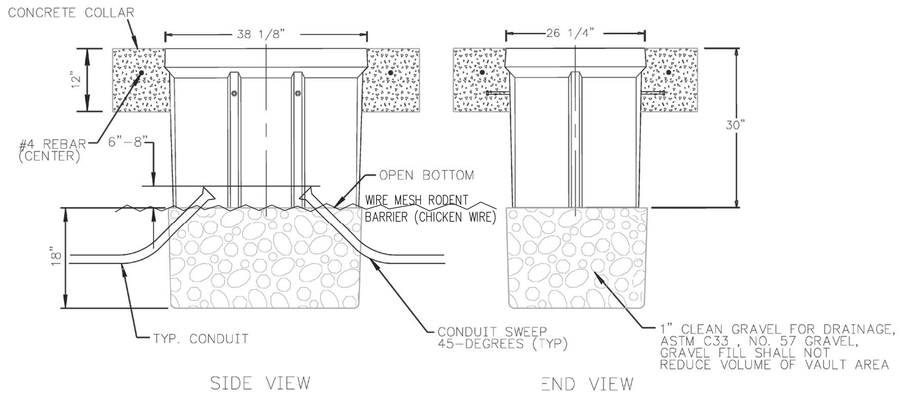
APPROX. WT. 376 LBS.

POLYMER MORTAR PULL BOX AND COVER NOTES:

1. MATERIAL TO BE AN AGGREGATE CONSISTING OF SAND AND GRAVEL BOUND TOGETHER WITH A POLYMERAND REINFORCED WITH CONTINUOUS WOVEN GLASS STRANDS. THE MATERIAL MUST HAVE THE FOLLOWING MECHANICALPROPERTIES: COMPRESSIVE STRENGTH – 11,000 PSI, TENSILE STRENGTH– 1,700 PSI, FLEXURAL STRENGTH – 7,500 PSI.
2. ALL PULL BOX COVERS SHALL BE HEAVY DUTY REINFORCED POLYMERMORTAR, HAVING A SERVICE LOAD OF 22,568 LBS OVER 10" SQUARE(225 PSI).
3. PULL BOX MARKINGS SHALL BE APPROVED BY THE PROJECT MANAGER.
4. THE DIMENSIONS OF THE PULL BOXES ARE NOMINAL DIMENSIONS AND MAY VARY AS TO THE MANUFACTURER'S RECOMMENDATIONS. ALL DIMENSIONS SHALL BE VERIFIED BY THE PROJECT MANAGER.
5. ELECTRICAL PULL BOX SHALL BE A HEAVY DUTY REINFORCED POLYMER MORTAR PULL BOX AND COVER MEASURING 24" X 35 5/8" X 3".

CONCRETE COLLAR NOTES:

1. ELEVATION OF TOP OF VAULT SHALL BE EQUAL WITH TOP OF CURB, OR PAVEMENT EDGE IN LOCATIONS WITHOUT CURB.
2. THE CONCRETE IN THE COLLAR SHALL BE PER SEC 101, EXTERIOR CONCRETE, f'c=3500 PSI AT 28 DAYS
3. THE CONCRETE COLLAR SHALL BE CONSIDER INCIDENTAL TO THE PULL BOX BID ITEM



SIDE VIEW END VIEW

N PULL BOX DETAIL
SCALE: N.T.S.
C-01 – C-16

PULL BOX LOCATIONS	
STA	OFFSET
02+95.29	93' LT
03+52.92	3' RT
10+05.82	3' RT
11+50.00	3' RT
15+85.00	3' RT
20+05.82	3' RT
26+00.00	3' RT
31+29.61	3' RT
31+62.74	3' RT
33+69.64	3' RT
35+56.61	3' RT
36+37.58	3' RT
43+00.00	3' RT
49+92.06	3' RT
50+30.51	3' RT
59+78.44	3' RT
69+78.44	3' RT
76+00.00	3' RT

PULL BOX LOCATIONS	
STA	OFFSET
81+71.37	3' RT
88+94.03	3' RT
89+39.61	3' RT
96+92.84	3' RT
102+00.00	3' RT
107+27.14	3' RT
115+52.80	3' RT
125+00.00	3' RT
134+91.13	3' RT
137+50.00	35' LT
141+00.00	3' RT
147+85.94	3' RT
150+77.71	3' RT
160+77.71	3' RT
167+00.00	3' RT
173+10.44	3' RT
173+82.13	3' RT
174+11.63	3' RT
174+82.15	3' RT
174+94.99	3' RT

NOTES:

1. SPACE PULL BOXES AT A MAXIMUM 1,000' INTERVAL.
2. INSTALL PULL BOXES AT ALL CAPS, BENDS, AND JACK ON BORE (BOTH SIDE) LOCATIONS.
3. TABLE HAS BEEN PROVIDED FOR REFERENCE
4. LOCATIONS TO BE FIELD VERIFIED BY OWNER DURING CONSTRUCTION.
5. EACH JUNCTION BOX SHALL BE LABELED WITH UNIQUE IDENTIFIER AND GPS COORDINATES AND PIPELINE STATIONING DETERMINED BY A LICENSE SURVEYOR. CONTRACTOR TO PROVIDE SUMMARY SPREADSHEET.
6. FIBER OPTIC CONDUITS SHALL BE MANDREL TESTED WITH 12" MANDREL WITH TESTING WITNESSED BY PROJECT INSPECTOR. CONDUITS SHALL HAVE PULL TAPE WITH FOOTAGE MARKING 'MULE TAPE' WITH MINIMUM 2000 POUND PULL STRENGTH. FINAL 45 DEGREE SWEEPS BETWEEN UNDERGROUND PVC INTO FIBER OPTIC PULL BOXES SHALL BE RMC. UNDERGROUND RMC SHALL BE WRAPPED WITH HALF LAPPED SCOTCHRAP BRAND 50 TAPE EXTENDING A MINIMUM OF 6" ABOVE FINISHED GRADE. CONDUIT ENDS SHALL BE EQUIPPED WITH BUSHINGS.
7. PULL BOXES FOR FIBER OPTIC CONDUIT SYSTEM SHALL BE CONSTRUCTED OF POLYMER CONCRETE AND DESIGNED FOR INCIDENTAL, NON-DELIBERATE TRAFFIC LOADS. PULL BOXES SHALL BE EQUIPPED WITH FACTORY INSTALLED VANDAL PROOF, STAINLESS STEEL COVER HOLD DOWN FASTENERS AT EACH CORNER. .PULL BOXES SHALL HAVE NOMINAL DIMENSIONS OF 24" WIDE X 36" LONG X 30" DEPTH. PULL BOXES COVERS SHALL BE FACTORY MARKED "FIBER OPTIC". PULL BOXES SHALL BE OLDCASTLE H-SERIES 2436-30 OR APPROVED EQUAL. PULL BOX COVERS SHALL BE EQUIPPED WITH STAINLESS STEEL IDENTIFICATION PLATE WITH EMBOSSED LETTERING/NUMBERING A MINIMUM OF 1" INCH IN HEIGHT. IDENTIFICATION PLATE SHALL BE FASTENED TO THE COVER WITH STAINLESS STEEL FASTENERS. TWO SPARE PULL BOXES SHALL BE FURNISHED TO THE WATER DIVISION,

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ANNA Q. CAFFREY NEW MEXICO 18095 LICENSED PROFESSIONAL ENGINEER 11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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BUCKMAN WELL FIELD PARALLEL PIPELINE
FIBER OPTIC CONDUIT DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-04	25	31

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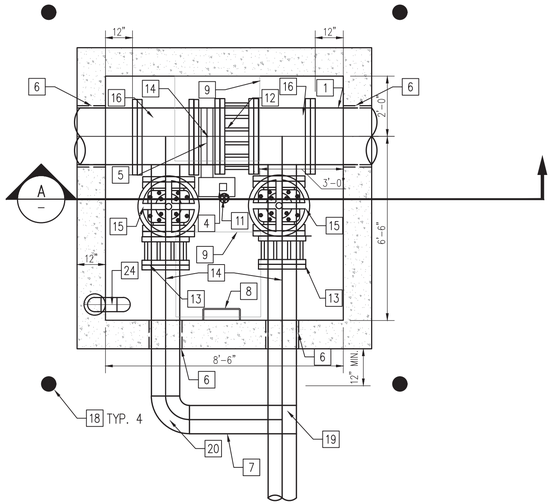
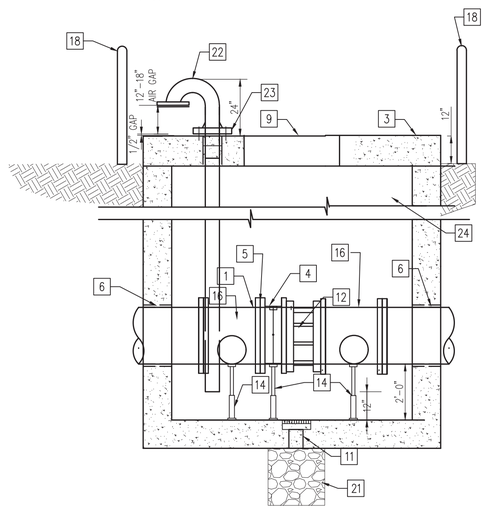
Thu, 17-Nov-2016 – 8:37:pm, Plotted by: ACAFFREY



1 ISOLATION AND BLOW-OFF VAULT PLAN
SCALE: 3/8" = 1'-0"
C-09



A ISOLATION AND BLOW-OFF VAULT PROFILE VIEW
SCALE: 3/8" = 1'-0"
D-05

P:\20160344\WR\Design\plans\20160344_26_D-05-Details.dwg
Thu, 17-Nov-2016 - 8:38:pm, Plotted by: ACAFFREY

GENERAL NOTES

1. ALL JOINTS SHALL BE RESTRAINED.
2. PRECAST CONCRETE VALVE VAULT: THE PRECAST VAULT SHALL BE DESIGNED TO ACCOMMODATE LIFTING, TRANSPORT AND SERVICE CONDITIONS. THE VAULT DESIGN MUST BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW MEXICO. VAULT FLOOR SHALL BE SLOPED MAX. OF 2% TO DRAIN TO SUMP.
3. ALL PIPE AND FITTINGS WITHIN THE VAULT SHALL BE FLANGED OR RESTRAINED FLANGE ADAPTER. ALL FITTINGS OUTSIDE THE VAULT SHALL BE RESTRAINED MJ.

KEYED NOTES:

[1] 24" CLASS 250 DUCTILE IRON PIPE.

[3] REMOVABLE CONCRETE LID WITH LIFTING EYES

[4] 2" SQUARE OPERATING NUT.

[5] 24" BUTTERFLY VALVE (FLXFL) WITH HANDWHEEL..

[6] WALL PENETRATION SEALED WITH LINK SEAL MODEL C, OR EQUAL.

[7] 12" DUCTILE IRON PIPE.

[8] ACCESS LADDER, DETAIL D, SHEET D-06

[9] 3' X 3' ACCESS CLEAR OPENING, TRAFFIC RATED ACCESS COVER, PADLOCK INSET BILCO OR HALIDAY.

[11] 12"X12"X4" DEEP FLOOR DRAIN, WITH STEEL GRATE FLUSH WITH VAULT FLOOR, WITH 4" DIA DRAIN TO PEA GRAVEL POCKET.

[12] 24" DISMANTLING JOINT.

[13] 12" DISMANTLING JOINT.

[14] ADJUSTABLE PIPE STAND, STANDON MODEL S92 OR EQUIVALENT. SEE DETAIL C, SHEET D-06.

[15] 12" FLANGED GATE VALVE WITH HANDWHEEL AND WELDED 2" SQUARE NUT.

[16] 24"X24"X12" FLANGED TANGENTIAL TEE.

[18] STATIONARY POSTS (4), PER APWA STD DWG 2250.

[19] 12"X12"X12" TEE.

[20] 12" 90° BEND.

[21] 3'X3'X3' PEA GRAVEL, WRAPPED IN FILTER FABRIC.

[22] 6" SCH. 20 GALVANIZED STEEL WITH VENT DEBRIS SCREEN. INSTALL BETWEEN (2) OPEN FLANGES, WELD NUT TO BOLT.

[23] 6" FLANGE, INSTALL 1/2" BOLTS WITH HILTI ANCHORS.

[24] 6" SCH 40 PVC.

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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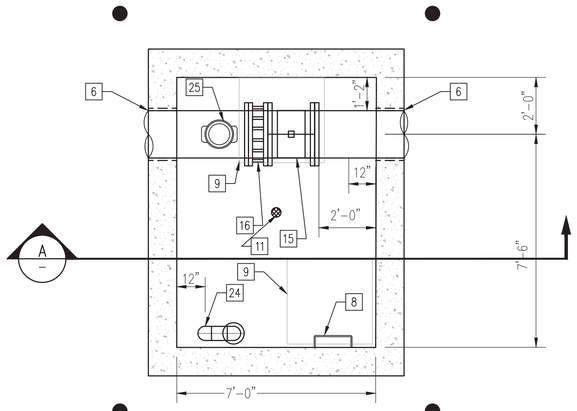
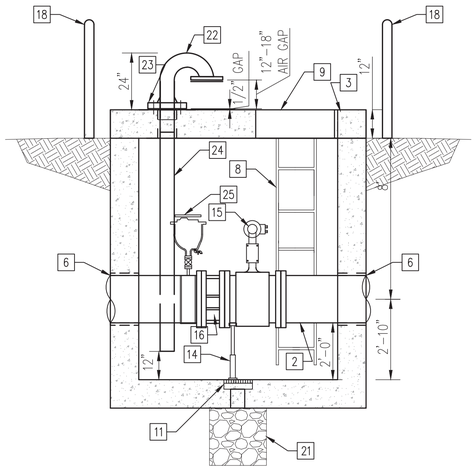
BUCKMAN WELL FIELD PARALLEL PIPELINE
ISOLATION AND BLOW-OFF VAULT DETAILS

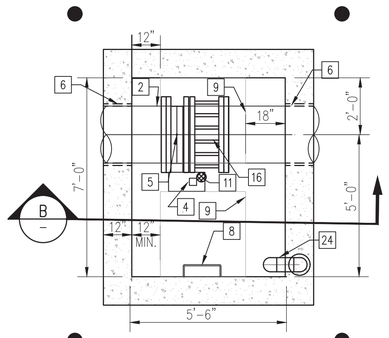
BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-05	26	31



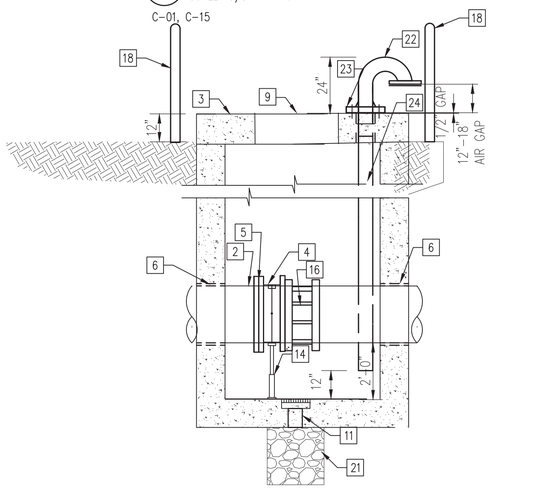
1 FLOW METER VAULT PLAN
SCALE: 3/8" = 1'-0"
C-01



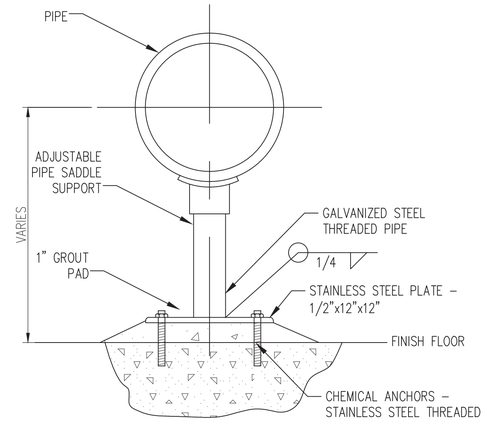
A FLOW METER VAULT PROFILE VIEW
SCALE: 3/8" = 1'-0"



2 VALVE VAULT PLAN
SCALE: 3/8" = 1'-0"
C-01, C-15

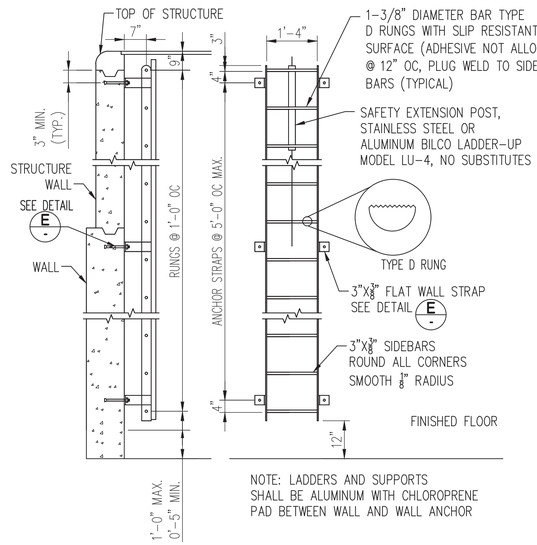


B VALVE VAULT PROFILE VIEW
SCALE: 3/8" = 1'-0"



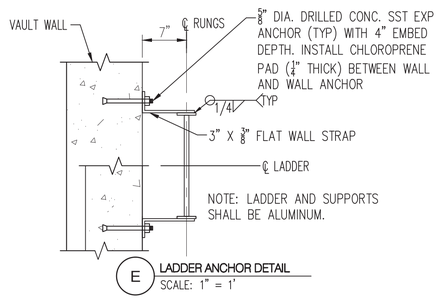
C PIPE SUPPORT DETAIL
SCALE: N.T.S.

NOTE: PIPE SUPPORT SHALL BE AS MANUFACTURED BY STANDON OR APPROVED EQUAL.



NOTE: LADDERS AND SUPPORTS SHALL BE ALUMINUM WITH CHLOROPRENE PAD BETWEEN WALL AND WALL ANCHOR

D LADDER DETAIL
SCALE: 1/2" = 1'



E LADDER ANCHOR DETAIL
SCALE: 1" = 1'

GENERAL NOTES

1. ALL JOINTS SHALL BE RESTRAINED.
2. PRECAST CONCRETE VALVE VAULT: THE PRECAST VAULT SHALL BE DESIGNED TO ACCOMMODATE LIFTING, TRANSPORT AND SERVICE CONDITIONS. THE VAULT DESIGN MUST BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW MEXICO. VAULT FLOOR SHALL BE SLOPED MAX. OF 2% TO DRAIN TO SUMP.

KEYED NOTES:

1 NOT USED.

2 20" CLASS 250 DUCTILE IRON PIPE.

3 REMOVABLE CONCRETE LID WITH LIFTING EYES

4 2" SQUARE OPERATING NUT.

5 20" BUTTERFLY VALVE (FLXFL) WITH HANDWHEEL, RESTRAIN BOTH SIDES

6 WALL PENETRATION SEALED WITH LINK SEAL MODEL C, OR EQUAL.

8 ACCESS LADDER, DETAIL D, THIS SHEET.

9 3' X 3' ACCESS CLEAR OPENING, TRAFFIC RATED ACCESS COVER, PADLOCK INSET BILCO OR HALIDAY.

11 12"X12"X4" DEEP FLOOR DRAIN, WITH STEEL GRATE FLUSH WITH VAULT FLOOR, WITH 4" DIA DRAIN TO PEA GRAVEL POCKET.

12 NOT USED.

14 ADJUSTABLE PIPE STAND, STANDON MODEL S92 OR EQUIVALENT. SEE DETAIL C, THIS SHEET.

15 20" FLOW METER.

16 20" DISMANTLING JOINT.

18 STATIONARY POSTS (4), PER APWA STD DWG 2250.

21 3'X3'X3' PEA GRAVEL, WRAPPED IN FILTER FABRIC.

22 6" SCH. 20 GALVANIZED STEEL WITH VENT DEBRIS SCREEN. INSTALL BETWEEN (2) OPEN FLANGES, WELD NUT TO BOLT.

23 6" FLANGE, INSTALL 1/2" BOLTS WITH HILTI ANCHORS.

24 6" SCH 40 PVC.

25 3" COMBINATION AIR AND VACUUM VALVE (CLA-VAL OR APPROVED EQUAL)

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ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE
		DATE	11/17/2016
		DATE	11/17/2016
		DATE	11/17/2016

Bohannan Huston
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BUCKMAN WELL FIELD PARALLEL PIPELINE
FLOW METER VAULT AND VALVE VAULT DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-06	27	31

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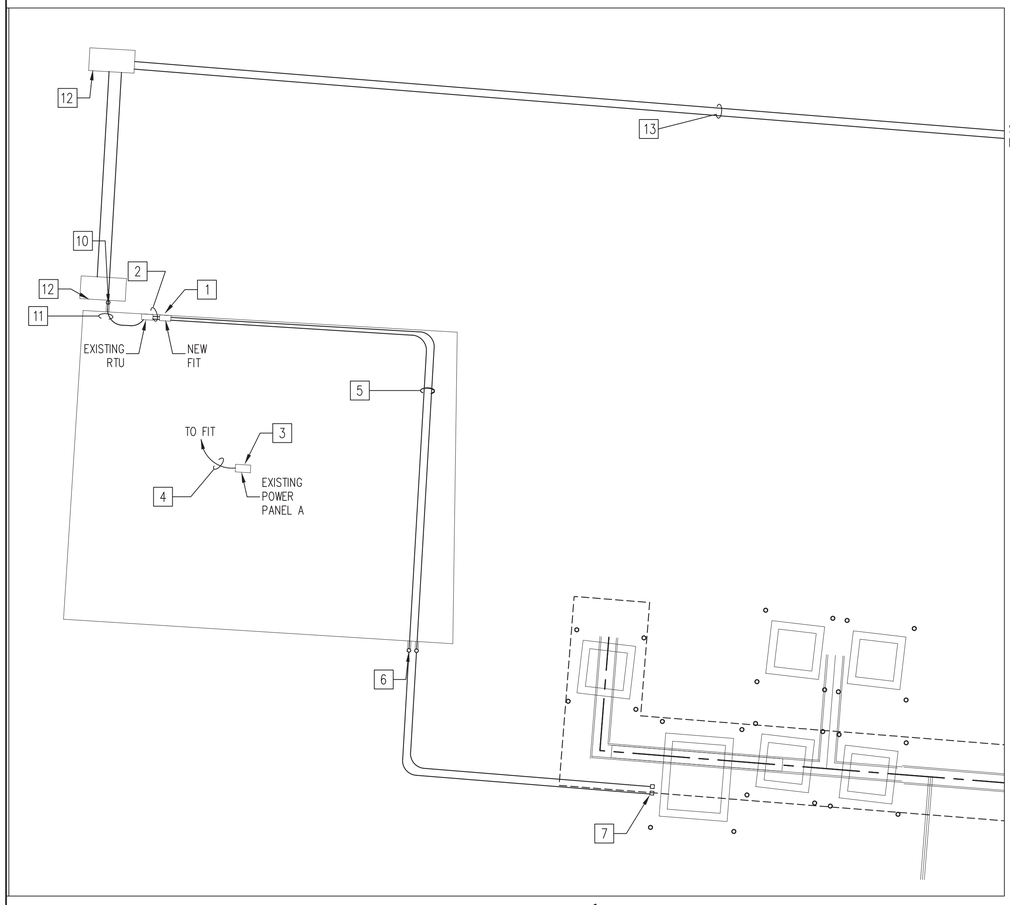
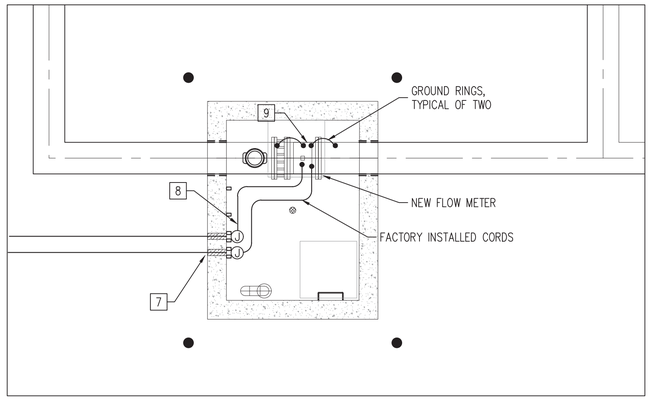
Thu, 17-Nov-2016 - 8:38:pm, Plotted by: ACAFFREY



A BOOSTER STATION #4 CONNECTION SITE PLAN
SCALE: 1" = 10'
C-01

N

0 5 10 20
SCALE: 1"=10'



B FLOW METER VAULT PLAN
SCALE: 1/4" = 1'
C-01

P:\20160344\WR\Design\plans\20160344_28_D-07-FlowMeter.dwg
Thu, 17-Nov-2016 - 8:39:pm, Plotted by: ACAFFREY

GENERAL NOTES:

1. IF ANY UTILITY LINES, PIPELINES OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH LINES ARE SHOWN, THE LOCATION IS BASED ON INFORMATION PROVIDED BY THE UTILITY OR PIPELINE COMPANY, THE OWNER OR OTHERS, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES.
2. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK. INFORMATION PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. WHERE DISCREPANCIES OR CONFLICTS OCCUR, THE BID SHALL REFLECT THE MOST STRINGENT REQUIREMENTS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS. USE ACTUAL DIMENSIONS.
3. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY AND CONFIRM THAT EQUIPMENT SUBMITTED SHALL FIT WITHIN THE ALLOTTED SPACE REQUIREMENTS SHOWN ON THE PLANS. IF ANY SPACE OR SIZE DISCREPANCIES ARE ANTICIPATED IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER PRIOR TO SUBMITTAL. ONCE THE SUBMITTALS HAVE BEEN APPROVED IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO INSTALL THE EQUIPMENT WITHIN THE ALLOTTED SPACE AT NO ADDITIONAL COST TO THE OWNER.
4. PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT THEM SELF WITH EXISTING UTILITIES AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NON-COMPLIANCE WITH THIS CONDITION AFTER BIDDING.
5. THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITY, SIZE OF WIRES, AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
6. CONDUCTORS IN CONDUIT IN DIRECT SOLAR EXPOSURE MUST BE DE-RATED USING A 140 DEGREE AMBIENT TEMPERATURE. THE CONTRACTOR IS RESPONSIBLE FOR REVISING CONDUCTOR SIZE BASED ON ACTUAL CONDUIT ROUTING.
7. PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE ENGINEER.
8. PERFORM ALL EXCAVATION AND BACKFILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. TRENCH BOTTOMS SHALL BE GRADED TRUE AND FREE FROM STONES OR SOFT SPOTS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE DEEMED NECESSARY BY THE ENGINEER. TRENCHING AND BACKFILLING FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES TO BUILDING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS. PROVIDE MINIMUM 95% COMPACTION FOR BACKFILL.
9. ALL CONDUCTORS AND DEVICES TO HAVE A PROPER GROUNDING SYSTEM INSTALLED PER NEC 250. ALL FEEDER AND BRANCH CONDUITS ARE TO BE CONSTRUCTED WITH A PROPERLY COORDINATED GROUND CONDUCTOR SIZED FOR EACH BRANCH CIRCUIT.
10. ALL CONDUIT INSTALLATIONS TO HAVE 24" MIN. BURY. CONDUIT ROAD CROSSINGS TO HAVE CONCRETE ENCASEMENT WHERE SHOWN ON THE PLAN LAYOUTS. ALL CONDUITS TO HAVE 6" METALLIC ELECTRIC WARNING TAPE INSTALLED 12" BELOW FINISHED GRADE.
11. NO CONDUIT SMALLER THAN 3/4" PIPE NOR WIRE SMALLER THAN 12 AWG SHALL BE USED UNLESS OTHERWISE NOTED.
12. CONDUIT INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS.
13. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO ENCLOSURES AND OTHER EQUIPMENT.
14. COVER METALLIC CONDUIT IN CONTACT WITH EARTH OR FILL, WITH POLYETHYLENE TAPE SPIRAL WRAPPED, 1/2" LAPPED TO PROVIDE DOUBLE THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER NEC 300.5. MAKE JOINTS WITH COMPOUND TO BE WATERTIGHT.
15. ALL SHIELDED CABLES SHALL BE INSTALLED IN RIGID STEEL CONDUIT OR PVC COATED RIGID STEEL CONDUIT BASED ON THE NEMA RATING OF THE AREA.
16. ALL CONDUITS ENTERING NEMA 4X OR NEMA 3R BOXES, CONTROL STATIONS OR OTHER EQUIPMENT RATED NEMA 4X SHALL BE TERMINATED AT THE BOX WITH A MEYERS HUB OR EQUAL.
17. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 210 POUND TEST PULL CORD INSTALLED TO FACILITATE INSTALLATION OF FUTURE WIRE.
18. FLEXIBLE METALLIC AND NON-METALLIC CONDUIT SYSTEMS SHALL HAVE A CODE SIZED COPPER GROUND CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.
19. UPON COMPLETION OF THE WORK UNDER THESE DRAWINGS AND SPECIFICATIONS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH A COMPLETE SET OF MARKED-UP ELECTRICAL DRAWINGS SHOWING THE "AS-BUILT" CONDITION OF THE WORK. BOND PRINTS OF THE DRAWINGS REQUIRED WILL BE FURNISHED BY THE OWNER, FOR THIS PURPOSE.

GENERAL NOTES, CONT.:

20. ALL EXPOSED CONDUIT SHALL BE RIGID PVC COATED CONDUIT AND FITTINGS/JUNCTION BOX SHALL MATCH CONDUIT TYPE.
18. ALL ELECTRICAL AND I&C CONDUCTORS SHALL BE XHHWZ NO. 14 MINIMUM.
19. ALL ANALOG CABLE SHALL BE BELDEN CABLE 9342 TWISTED SHIELD, NO EXCEPTIONS.
20. ELECTRICAL WORK SHALL CONFORM TO SANGRE DE CRISTO MASTER TECHNICAL SPECIFICATIONS. CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING AND ELECTRICAL WORK WITH WATER DIVISION (ALEX GAMINO 505.955.4375) PRIOR TO CONSTRUCTION OR ORDERING MATERIALS.
21. 600 VOLT CONDUCTORS SHALL BE SINGLE CONDUCTOR STRANDED COPPER WIRE WITH UL LISTED XHHW-2 INSULATION. CONDUCTOR SHALL BE 12 AWG MINIMUM FOR POWER AND LIGHTING. 14 AWG MINIMUM FOR 120 VOLT CONTROL CIRCUITS WITH CONDUCTOR COLOR CODE FOR 24 VDC BLUE (+) AND WHITE WITH BLUE STRIPES (-); 120 VAC CONTROL RED (LINE), WHITE (NEUTRAL).
22. TWISTED SHIELDED PAIR CONDUCTOR SHALL BE BELDEN 9342, NO EXCEPTION. CONNECTORS SHALL BE COMPRESSION OR SOLDER DIPPED WITH FORKED ENDS. WHERE INSULATION IS REMOVED, ALL CABLE SHALL HAVE BLACK HEAT SHRINK AT PANEL TERMINATIONS.
23. EACH CONDUCTOR OR CABLE SHALL BE IDENDTIFIED AT EACH PULL BOX, MANHOLE, AND EACH TERMINATION PANEL WITH CIRCUIT INDENTIFICATION MARKERS WHICH SHALL INCLUDE WIRE NUMBER. MARKERS SHALL BE SELF LAMINATING VINYL ON WHITE BACKGROUND AND SHALL BE PRINTED USING A BRADY "XC.PLUS" PRINTER O.A.E.
24. RIGID METALLIC CONDUIT (RMC, GRC) SHALL BE GALVANIZED STEEL. CONDUIT FROM BOTTOM OF TRENCH TO ABOVE GRADE SHALL BE RIGID. PVC COATED RMC SHALL BE USED IN VAULTS AND WET LOCATIONS. ALL CONDULET FITTING SHALL MATCH CONDUIT. CONDUITS ENTERING AN ENCLOSURE SHALL BE BOTTOM ENTRY WITH MYERS HUB. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC.
25. ALL NEMA 4X ENCLOSURES SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
26. FIBER OPTIC CONDUIT CONNECTION TO RTU IN BUILDING CONNECTION: INSTALL (2) 2" SCH. 40 PVC CONDUITS FROM 4" FIBER OPTIC PULL BOX TO EXTERIOR WALL. RUN TWO 2" RIGID METALLIC CONDUIT (RMC) RISERS WITH 90 DEGREE BENDS TO NEMA 4 JUNCTION BOX 24" X 24" X 10"WITH 3 PT. LATCHING DOOR WITH LOCK. MOUNT J-BOX TO MASONARY WALL. CORE WALL AND RUN ONE 2" RMC CONDUIT TO RTU. RMC CONDUIT, FITTINGS, AND BOXES SHALL HAVE MYERS HUB TYPE FITTING AT POINT OF PANEL CONNECTION. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. EMPTY CONDUITS SHALL HAVE A NYLON PULL TAPE.

KEYED NOTES:

1. INSTALL NEW FLOW METER TRANSMITTER (FIT) ON WALL AT 5' AFF WITH FIT MANUFACTURER SUPPLIED WALL MOUNTING KIT. SEE SECTION 16993 - FIELD INSTRUMENTS.
2. INSTALL TWO 3/4" CONDUITS FROM FIT TO EXISTING RTU WITH BELDEN 9342, AND TWO BLUE 14 AWG XHHW-2 AND ONE GREEN 14 AWG XHHW-2 GROUND. TERMINATE AND LAND ON TERMINAL BLOCKS WITHIN EXISTING RTU AS DIRECTED BY OWNER.
3. INSTALL NEW 20A CIRCUIT BREAKER IN EXISTING PANEL A FOR NEW FIT AND UPDATE CIRCUIT DIRECTORY.
4. INSTALL 3/4" CONDUIT WITH 20 AMP, 120 VAC SINGLE PHASE CIRCUIT WITH 12 AWG CU LINE, 12 AWG CU NEUTRAL, AND 12 AWG CU GND FROM PANEL A TO FIT. FIELD VERIFY EXISTING EQUIPMENT LOCATIONS AND BOOSTER STATION INTERIOR CONDITIONS.
5. INSTALL TWO 3/4" CONDUITS FROM FIT TO FLOW METER VAULT. FIELD VERIFY EXISTING EQUIPMENT LOCATIONS AND BOOSTER STATION INTERIOR CONDITIONS.
6. PENETRATE BUILDING WALL AND TRANSITION CONDUITS WITH LB FITTINGS. INSTALL CONDUITS 24" BFG TO FLOW METER VAULT. INSTRUMENTATION CONDUIT SHALL BE RIGID GALVANIZED WRAPPED WITH HALF LAPPED SCOTCH 350 TAPE. GROUT SEAL BUILDING CONDUIT PENETRATIONS.
7. PENETRATE FLOW METER VAULT WALL FOR CONDUIT INSTALLATION AND GROUT SEAL. TERMINATE INSTRUMENTATION CONDUITS WITHIN NON METALLIC NEMA 6P JUNCTION BOXES, TYPICAL OF TWO. INSTALL J-BOXES ON SST FRAMING CHANNEL. BOLT CHANNEL TO WALL WITH SST HARDWARE AND CHEMICALLY SET ANCHORS.
8. INSTALL SUBMERSION RATED CABLE GLANDS IN JBOXES AND EXTEND FLOW METER CABLES TO FLOW METER HEAD. SUPPORT CABLE ON SST J-HOOKS EVERY 24" MIN, EACH CABLE SHALL REST ON SEPARATE SETS OF J-HOOKS.
9. INSTALL FLOW METER WITH FACTORY POTTED CABLES, FIELD VERIFY LENGTH PRIOR TO ORDER. DO NOT SPLICE CABLES BETWEEN FLOW METER AND FIT. GROUND FLOW METER PER MANUFACTURER'S INSTRUCTIONS.
10. PENETRATE BUILDING WALL AND TRANSITION CONDUITS WITH LB FITTINGS. INSTALL CONDUIT 24" BFG TO FO PULL BOX. FO CONDUIT SHALL BE RIGID GALVANIZED WRAPPED WITH HALF LAPPED SCOTCH 350 TAPE. GROUT SEAL BUILDING CONDUIT PENETRATIONS.
11. INSTALL ONE 2" RMC CONDUIT FROM RTU TO FO PULL BOX.
12. INSTALL FO PULL BOX. SEE PULL BOX DETAIL DWG C-04.
13. INSTALL TWO 4" FIBER OPTIC, RIGID PVC COATED CONDUITS. SEE GENERAL NOTE #6 PLAN AND PROFILE DWGS C-01 AND C-16 FOR COMPLETE CONDUIT INSTALLATION.

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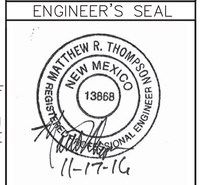

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AGC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

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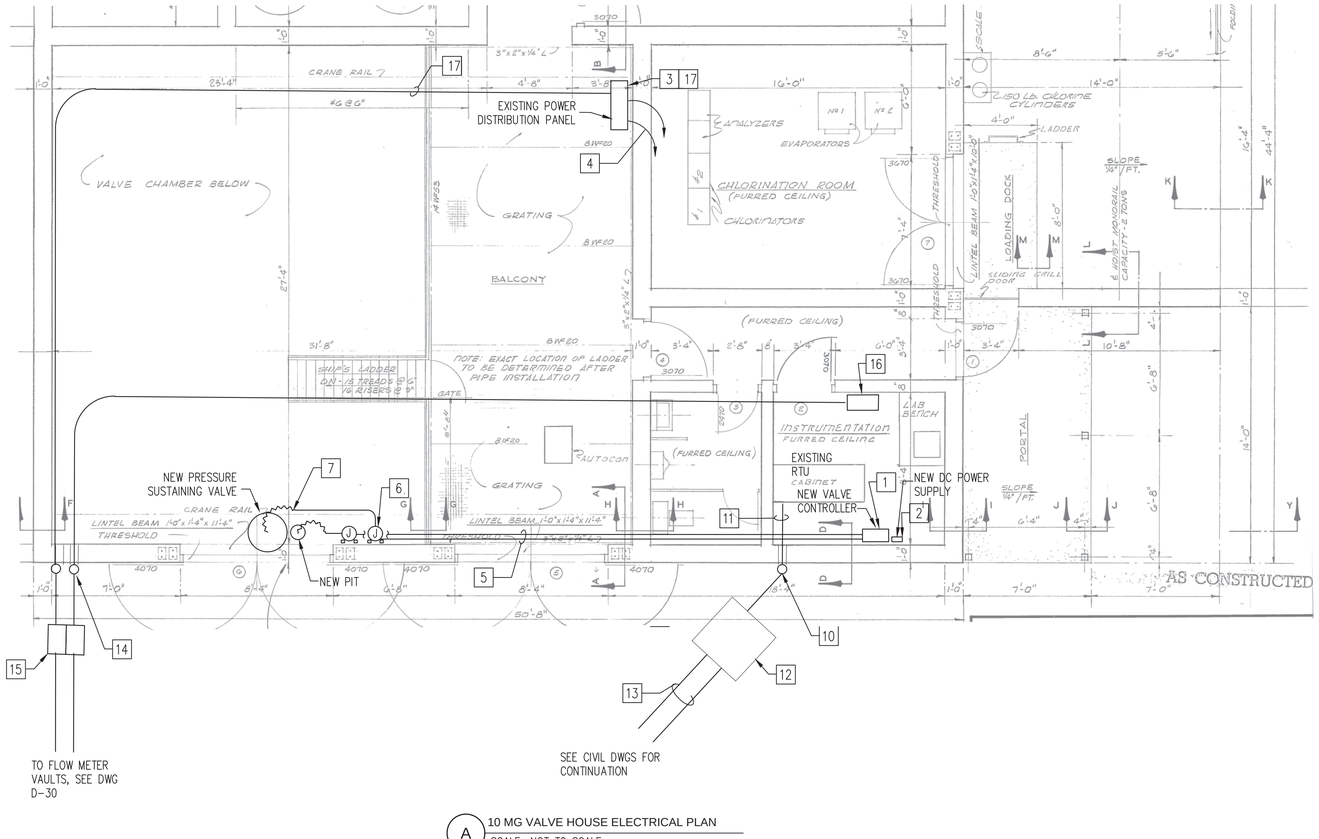
BUCKMAN WELL FIELD PARALLEL PIPELINE
BOOSTER PUMP STATION #4 ELECTRICAL PLAN

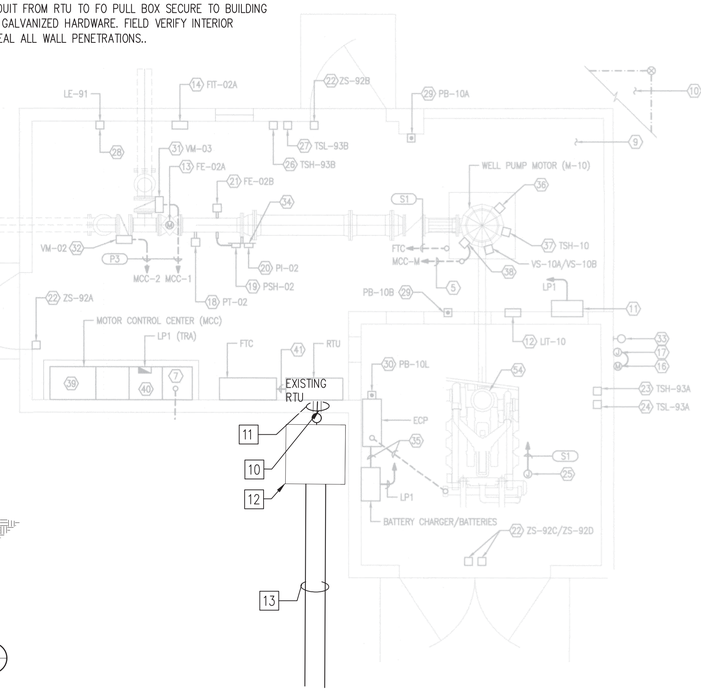
BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	E-01	28	31



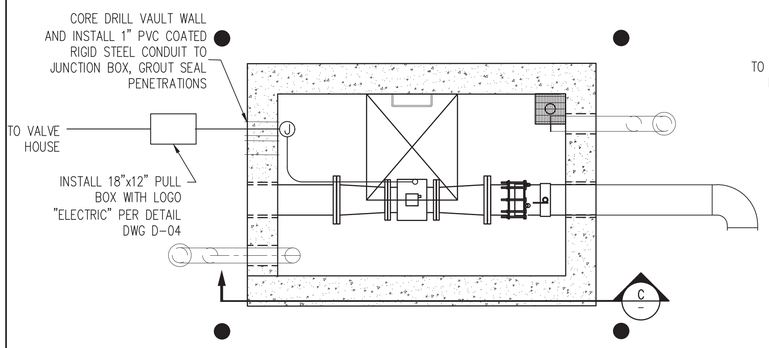
A 10 MG VALVE HOUSE ELECTRICAL PLAN
SCALE: NOT TO SCALE

KEYED NOTES:

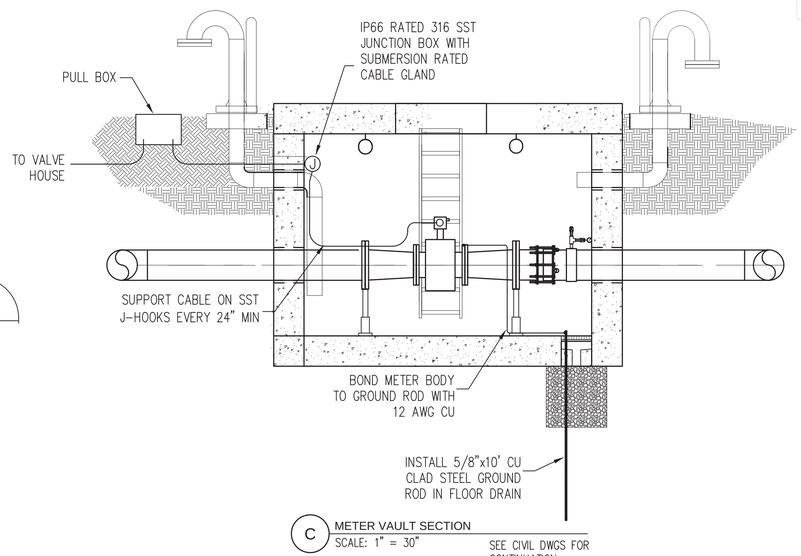
1. INSTALL NEW PRESSURE SUSTAINING VALVE (PSV) CONTROLLER ON WALL AT 5' AFF WITH MANUFACTURER SUPPLIED WALL MOUNTING KIT, SEE SECTION 13420 FOR INFORMATION. INSTALL TWO 3/4" CONDUITS FROM PSV CONTROLLER TO EXISTING RTU WITH TWO BELDEN 9342 CABLES AND ONE CAT6 CABLE. LAND CABLE IN RTU AS DIRECTED BY OWNER (NEW CONDUITS TO RTU ARE NOT SHOWN FOR CLARITY). FIELD VERIFY EXISTING RTU LOCATION AND AVAILABLE I/O TERMINALS.
2. INSTALL 24 VDC 15 WATT POWER SUPPLY IN UL 508A LISTED NEMA 4X ENCLOSURE. CONNECT TO VALVE CONTROLLER POWER LEADS.
3. INSTALL TWO NEW 20A CIRCUIT BREAKER IN EXISTING POWER DISTRIBUTION PANEL FOR NEW PSV CONTROLLER POWER SUPPLY AND FLOW METER TRANSMITTER (FIT) AND UPDATE CIRCUIT DIRECTORY.
4. INSTALL TWO 3/4" CONDUITS WITH 20 AMP, 120 VAC SINGLE PHASE CIRCUIT WITH 12 CU AWG LINE, 12 AWG CU NEUTRAL, AND 12 AWG CU GND FROM EXISTING POWER DISTRIBUTION PANEL TO VALVE CONTROLLER POWER SUPPLY AND FIT. FIELD VERIFY EXISTING EQUIPMENT LOCATIONS AND VALVE HOUSE INTERIOR CONDITIONS. SECURE CONDUITS EVERY 10' MIN TO STRUCTURE WALL. GROUT SEAL ALL WALL PENETRATIONS.
5. INSTALL TWO 3/4" CONDUITS FROM VALVE CONTROLLER TO VALVE CHAMBER WITH FOUR 14 AWG CU AND ONE 14 AWG CU GND TO PSV AND TWO BELDEN 9342 CABLES TO PIT. SECURE CONDUITS EVERY 10' MIN TO STRUCTURE WALL. GROUT SEAL ALL WALL PENETRATIONS.
6. INSTALL TWO NEMA 4X STAINLESS STEEL JUNCTION BOXES ON SST FRAMING CHANNEL, ANCHOR CHANNEL TO WALL WITH SST HARDWARE AND CHEMICALLY SET ANCHORS.
7. EXTEND CONDUITS FROM J-BOXES TO PSV AND PIT. TERMINATE FINAL 24" OF CONDUIT WITH LFMC. SECURE CONDUITS TO WALLS ON SST FRAMING CHANNEL AND TO PIPES USING SST PIPE STRAPS. SEE DWG D-01 DETAIL C FOR ELEVATION VIEW OF PSV AND PIT INSTALLATION.
10. PENETRATE BUILDING WALL AND TRANSITION CONDUITS WITH LB FITTINGS. INSTALL CONDUITS 24" BFG TO FO PULL BOX. FO CONDUIT SHALL BE RIGID GALVANIZED WRAPPED WITH HALF LAPPED SCOTCH 350 TAPE. GROUT SEAL BUILDING CONDUIT PENETRATIONS.
11. INSTALL ONE 2" RMC CONDUIT FROM RTU TO FO PULL BOX SECURE TO BUILDING WALL EVERY 10' MIN WITH GALVANIZED HARDWARE. FIELD VERIFY INTERIOR CONDITIONS AND GROUT SEAL ALL WALL PENETRATIONS..
12. INSTALL FO PULL BOX OUTSIDE VALVE HOUSE WALL. FO PULL BOX SEE DETAIL ON DWG C-04.
13. INSTALL TWO 2" FIBER OPTIC, RIGID COATED PVC CONDUITS, SEE CIVIL DWGS FOR CONDUIT CONTINUATION.
14. PENETRATE BUILDING WALL AND TRANSITION CONDUITS WITH LB FITTINGS. INSTALL POWER AND DATA CONDUITS 24" BFG TO METER VAULT. FO CONDUIT SHALL BE RIGID GALVANIZED WRAPPED WITH HALF LAPPED SCOTCH 350 TAPE. GROUT SEAL BUILDING CONDUIT PENETRATIONS.
15. INSTALL 18"x12" PULL BOX WITH LOGO "ELECTRIC", SEE PULL BOX DETAIL ON DWG D-04. CONTINUE CONDUITS TO PULL BOX AT METER VAULT AT 24" BFG, SEE DWG D-09.
16. INSTALL NEW FLOW METER TRANSMITTER (FIT) ON WALL AT 5' AFF AND CONNECT TO 120VAC POWER, SEE NOTE 4 THIS SHEET. INSTALL 1" CONDUIT FROM FIT TO NEW FLOW METER VAULT WITH FACTORY POTTED 500' CABLE. EXTEND TWO 3/4" CONDUITS WITH BELDEN 9342 CABLES TO RTU AND CONNECT INSTANTANEOUS FLOW AND TOTALIZER PULSE OUTPUTS TO RTU. FIELD VERIFY AVAILABLE I/O TERMINALS IN RTU.
17. INSTALL 20 AMP CIRCUIT BREAKER IN EXISTING POWER PANEL AND INSTALL 1" CONDUIT AND XHHW-2 12 AWG CU LINE, 12 AWG CU NEUTRAL, AND 12 AWG CU GROUND FROM POWER PANEL TO BYPASS FLOW METER. SEE DWG D-07.



B NORTHWEST WELL ELECTRICAL PLAN
SCALE: NOT TO SCALE



1 METER VAULT DETAIL
SCALE: 1" = 30"
D-08



C METER VAULT SECTION
SCALE: 1" = 30"
SEE CIVIL DWGS FOR CONTINUATION

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Thu, 17-Nov-2016 - 8:40:pm, Plotted by: ACAFFREY

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ENGINEER'S SEAL

MATTHEW R. THOMPSON NEW MEXICO 13868 REGISTERED PROFESSIONAL ENGINEER
11-17-16

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WORK STAKED BY	
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FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	AQC
		DRAWN BY	JJG
		CHECKED BY	JE

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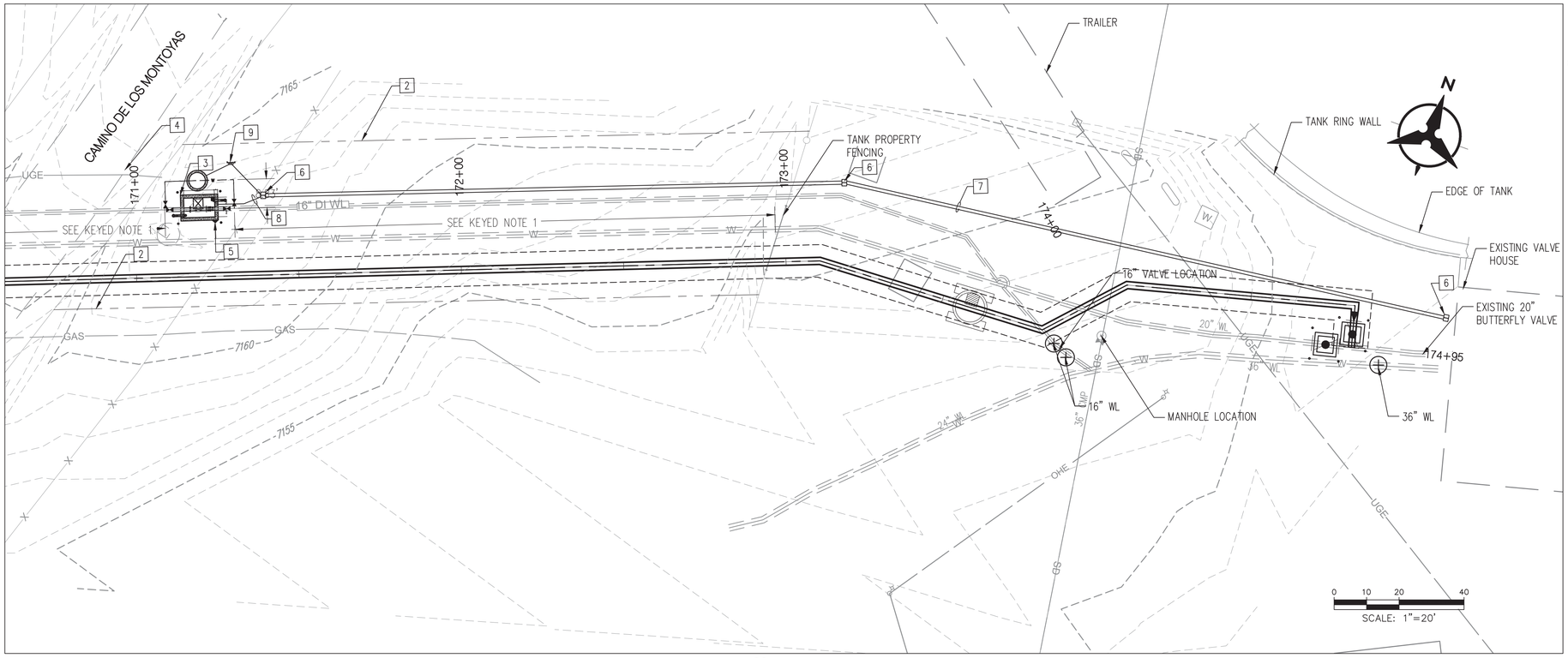
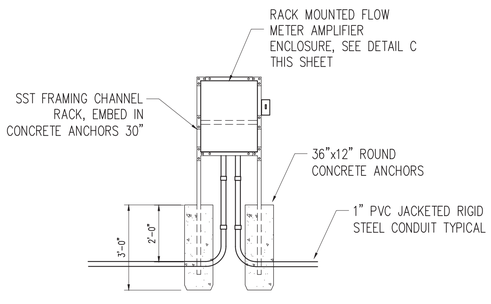
BUCKMAN WELL FIELD PARALLEL PIPELINE
10 MG VALVE HOUSE AND NORTHWEST WELL ELECTRICAL PLAN

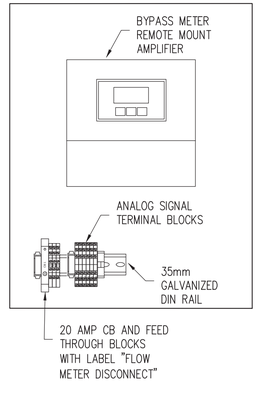
BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	E-02	29	31

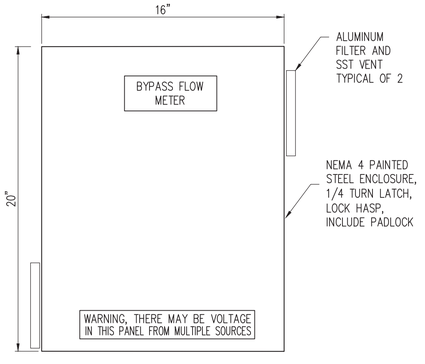


A MASTER METER SITE PLAN
SCALE: 1" = 20'



B FLOW METER AMPLIFIER MOUNTING DETAIL
SCALE: N.T.S.





C FLOW METER AMPLIFIER ENCLOSURE DETAIL
SCALE: N.T.S.

GENERAL NOTES

1. RESTRAIN ALL JOINTS.
2. MAXIMUM DEFLECTION ON PIPE JOINTS AS ALLOWED BY PIPE MANUFACTURER.
3. ALL NEW PIPE AND FITTINGS SHALL BE DUCTILE IRON PIPE, PRESSURE CLASS 200.
4. DUCTILE IRON PIPE SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT
5. ALL FLANGED JOINTS WITH DISSIMILAR MATERIALS SHALL BE MADE USING A FLANGE INSULATION GASKET KIT, THAT INCLUDES AN INSULATING GASKET, BOLT SLEEVES, AND WASHERS SUCH AS PSI LINEBACKER.
6. ALL BURIED FLANGED JOINTS SHALL BE WRAPPED IN WAX TAPE COATING.

CONSTRUCTION NOTES:

1. SERVICE TO SANTA FE COUNTY SHALL NOT BE INTERRUPTED AT ANY TIME, EXCEPT THAT ONE 8-HOUR OUTAGE WILL BE ALLOWED DURING CONSTRUCTION. OUTAGE WILL BE COORDINATED WITH LOW DEMAND PERIODS. OUTAGE TO BE COORDINATED WITH SANTA FE COUNTY PUBLIC WORKS AND SANTA FE COUNTY FIRE DEPARTMENT.
2. DURING THE OUTAGE, THE TWO 16-INCH VALVES SHALL BE INSTALLED, RESTRAINED, AND TEMPORARILY CAPPED. THE OUTAGE SHALL BE INITIATED ONLY FOLLOWING COMPLETION, TESTING, AND OPERATION OF THE 8-INCH BYPASS.

KEYED NOTES:

1. CONTRACTOR SHALL CONFIRM A MINIMUM OF 170' OF WATER LINE IS RESTRAINED. IF IT IS FOUND NOT TO BE RESTRAINED, THEN RESTRAINT SHALL BE INSTALLED TO MEET THIS RESTRAINT LENGTH, USING EBAA IRON MODEL 1900, OR ENGINEER APPROVED EQUAL.
2. APPARENT ROW.
3. METER VAULT, SEE DWG. D-08 FOR VAULT DETAILS.
4. EXISTING EDGE OF PAVEMENT.
5. GRADE TO DRAIN AROUND PERIMETER OF VAULT AT A MAX. OF 3:1 SLOPE.
6. INSTALL TWO 12"X18" TIER 22 PULL BOXES FOR POWER CIRCUIT TO BYPASS FLOW METER AND FACTORY METER CABLE TO MAIN FLOW METER WITH LOGOS "ELECTRIC", TYPICAL OF THREE LOCATIONS. SEE PULL BOX DETAIL ON DWG D-04.
7. INSTALL TWO 1" PVC JACKETED RIGID CONDUITS AT 24" BELOW FINISHED GRADE FROM VALVE HOUSE TO METER VAULT LOCATION WITH 12 AWG XHHW-2 CU CONDUCTOR SET FROM EXISTING POWER PANEL WITHIN VALVE HOUSE TO BYPASS FLOW METER, AND FACTORY CABLE FROM FIT WITHIN VALVE HOUSE TO MAIN FLOW METER.
8. INSTALL 1" CONDUIT FROM PULL BOX TO MAIN FLOW METER VAULT, SEE FLOW METER VAULT DETAIL ON SHEET 29.
9. INSTALL REMOTE MOUNT FIT AND METER DISCONNECT SWITCH ON GALVANIZED STEEL RACK. SEE DETAIL B THIS SHEET.

811 Know what's below. Call before you dig.

ENGINEER'S SEAL
ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

BENCH MARKS

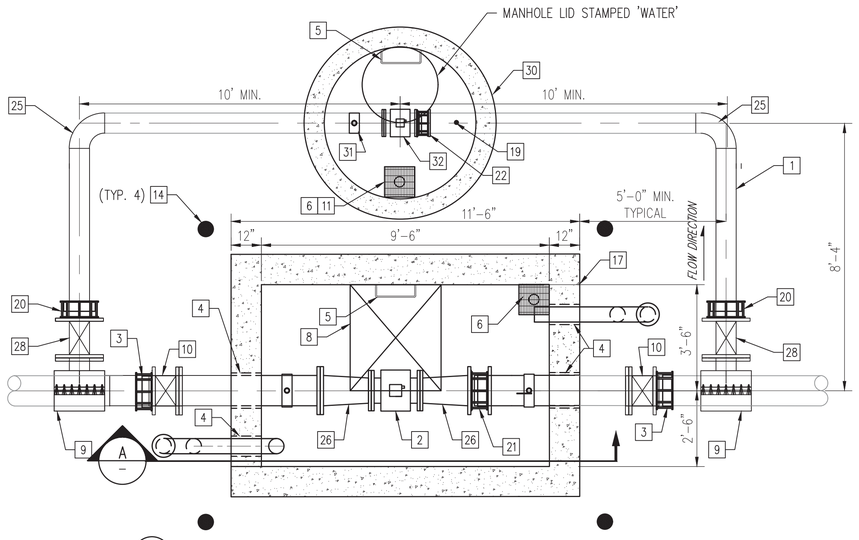
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DATE 11/17/2016
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	

Bohannan Huston
www.bhinc.com 800.877.5332

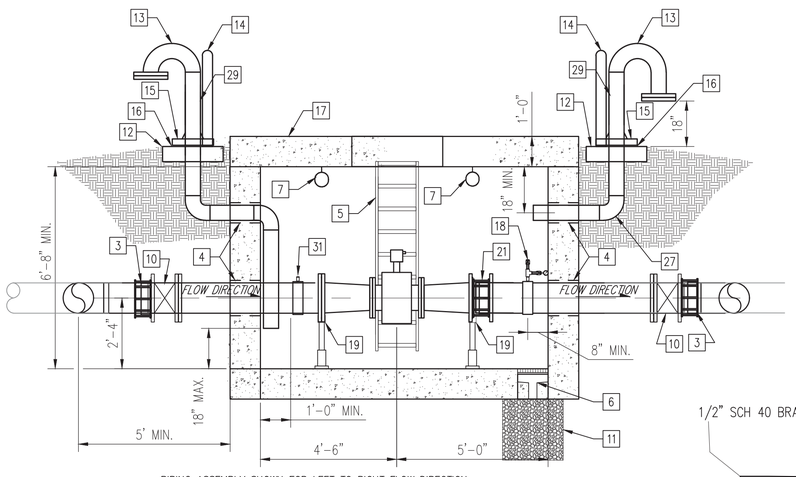
BUCKMAN WELL FIELD PARALLEL PIPELINE
COUNTY MASTER METER SITE PLAN

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-07	30	31

P:\20160344\WR\Design\plans\20160344_30_D-07-MasterMeterSitePlan.dwg
Thu, 17-Nov-2016 - 8:43:pm, Plotted by: ACAFFREY

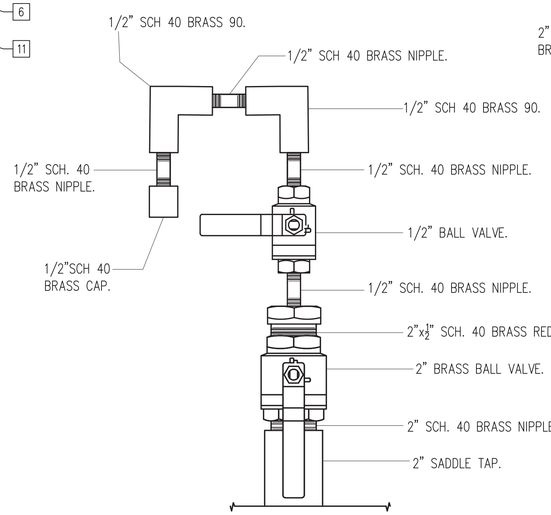


1 COUNTY METER VAULT DETAIL
D-07
SCALE: 1" = 30"
NOTE: SEE SITE PLAN FOR VAULT ORIENTATION
PIPING ASSEMBLY SHOWN FOR LEFT TO RIGHT FLOW DIRECTION.

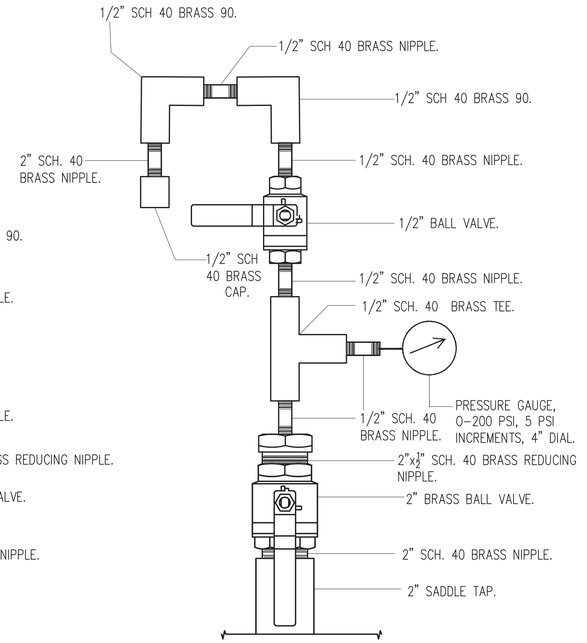


PIPING ASSEMBLY SHOWN FOR LEFT TO RIGHT FLOW DIRECTION.

A COUNTY METER VAULT SECTION
SCALE: 1" = 30"



C AIR BLOWOFF ASSEMBLY
SCALE: N.T.S.



B PRESSURE SENSOR ASSEMBLY
SCALE: N.T.S.

GENERAL NOTES

1. ALL JOINTS SHALL BE RESTRAINED.
2. PRECAST CONCRETE METER VAULT SHALL BE DESIGNED TO ACCOMMODATE LIFTING, TRANSPORT, AND SERVICE CONDITIONS. THE VAULT DESIGN MUST BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW MEXICO. VAULT FLOOR SHALL BE SLOPED TO DRAIN TO SUMP AT A MAX. OF 2%.

KEYED NOTES:

1. CLASS 200, DUCTILE IRON PIPE.
2. 12" FLOW METER, BADGER M2000, WITH AWWA 150# FLANGES.
3. 16" RESTRAINED FLANGED COUPLING ADAPTOR, ROMAC RFCA.
4. WALL PENETRATION SEALED WITH LINK SEAL MODEL C, OR EQUAL.
5. ACCESS LADDER, SEE DETAIL D, DWG NO D-06.
6. 12"X12"X4" DEEP FLOOR DRAIN, WITH STEEL GRATE FLUSH WITH VAULT FLOOR, WITH 4" DIA. DRAIN TO PEA GRAVEL POCKET.
7. 2" GALVANIZED STEEL EQUIPMENT LIFTING EYE,DIRECTLY ABOVE WL CL.
8. 3'X3.5' ACCESS CLEAR OPENING, WITH ACCESS HATCH, CENTERED ON METER. TRAFFIC RATED COVER, PADLOCK INSET, BILCO OR HALLIDAY.
9. 16"X8" STAINLESS STEEL TAPPING SLEEVE (FL).
10. 16" BUTTERFLY VALVE (FLXFL).
11. 3'X3'X3' PEA GRAVEL, WRAPPED IN FILTER FABRIC.
12. 2'X2'X6" 4000 PSI CONCRETE PAD.
13. 6" SCH. 40 GALVANIZED STEEL VENT WITH STAINLESS STEEL INSECT SCREEN. INSTALL SCREEN BETWEEN (2) OPEN FLANGES, WELD NUT TO BOLT.
14. STATIONARY POSTS (4) PER APWA STD. DWG. 2250, PAINTED SAFETY YELLOW
15. 6" FLANGE, INSTALL USING 1/2" BOLTS WITH HILTI ANCHORS TO CONCRETE PAD.
16. 1/2" GAP, TYP. BETWEEN GOOSENECK AND BURIED PIPE.
17. PRE-CAST CONCRETE VAULT.
18. 2" SADDLE TAP, PRESSURE GAUGE ASSEMBLY. SEE DETAIL B, THIS SHEET, ON DOWNSTREAM SIDE OF FLOW METER.
19. ADJUSTABLE PIPE STAND, STANDON MODEL S92 OR EQUIVALENT. SEE DETAIL C, SHEET D-06.
20. 8" RESTRAINED FLANGED COUPLING ADAPTOR, ROMAC RFCA.
21. 16" DISMANTLING JOINT, ROMAC DI400
22. 8" DISMANTLING JOINT, ROMAC DI400
25. 8" 90° BEND, MJXMJ.
26. 16"X12" REDUCER, FLXFL.
27. 6" PVC, SCH. 40. (BELOW GRADE & IN VAULT)
28. 8" GATE VALVE (FLXFL).
29. GALVANIZED STEEL (ABOVE GRADE)
30. 5' DIAMETER CYLINDRICAL PRECAST CONCRETE VAULT WITH AN ACCESS HATCH CAST IN THE LID AND LADDER WITH L1E EXTENSION. BOTTOM OF VAULT TO BE SAME AS RECTANGULAR VAULT.
31. AIR BLOWOFF. SEE DETAIL C, THIS SHEET.
32. 8" FLOW METER, BADGER M2000, WITH AWWA 150# FLANGES.

CONSTRUCTION NOTES:

1. SERVICE TO SANTA FE COUNTY SHALL NOT BE INTERRUPTED AT ANY TIME, EXCEPT THAT ONE 8-HOUR OUTAGE WILL BE ALLOWED DURING CONSTRUCTION. OUTAGE WILL BE COORDINATED WITH LOW DEMAND PERIODS. OUTAGE TO BE COORDINATED WITH SANTA FE COUNTY PUBLIC WORKS AND SANTA FE COUNTY FIRE DEPARTMENT.
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ENGINEER'S SEAL
ANNA Q. CAFFREY
NEW MEXICO
18095
LICENSED PROFESSIONAL ENGINEER
11.17.16

AS-BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	

BENCH MARKS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY AQC	DATE 11/17/2016
		DRAWN BY JJG	DATE 11/17/2016
		CHECKED BY JE	DATE 11/17/2016

Bohannan Huston
www.bhinc.com 800.877.5332

BUCKMAN WELL FIELD PARALLEL PIPELINE
COUNTY MASTER METER DETAILS

BHI PROJECT NO.	DWG NO.	SHEET	OF
20160344	D-08	31	31

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Thu, 17-Nov-2016 - 8:43:pm, Plotted by: ACAFFREY

EXHIBIT VI – GEOTECHNICAL REPORT

Geotechnical Investigation

Buckman Transfer Line
Santa Fe, New Mexico

Prepared for:
Bohannan-Huston, Inc.

Project No.: 16-1-020

April 5, 2016

8916-A ADAMS ST., NE
ALBUQUERQUE, NM 87113
OFFICE: 505.797.9743
CONTACTUS@X8EVINYARD.COM

TABLE OF CONTENTS

8916-A Adams Street NE
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1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the Buckman Transfer Line located in Santa Fe, New Mexico.

The investigation was performed to determine site subsurface conditions and, based upon the conditions observed in the test holes, to develop geotechnical recommendations for:

Shallow Foundation Design;
Foundation Bearing Pressures;
Lateral Earth Pressures;
Soil Corrosivity; and
Excavatibility of On-Site Soils.

The conclusions and recommendations presented are based on information provided to us regarding the proposed development, on subsurface conditions disclosed by the test holes, on laboratory testing, and upon the local standards of our profession at the time this report was prepared.

This investigation was not performed to determine the presence of potentially hazardous waste or radon gas. Determination of the presence of potentially hazardous materials was beyond the scope of this investigation and requires the use of exploration techniques and analytic testing which were not appropriate for this investigation. If desired, X8e Vinyard will perform an environmental audit of the site.

2.0 PROPOSED CONSTRUCTION

We anticipate construction will consist of the installation of approximately 17,400 linear feet of a new 20-inch diameter water pipeline and will include a CAV, PRV or other vaults, which will extend below grade. We also anticipate that the vaults may not necessarily be larger than 64 square feet in plan or extend to depths greater than eight (8) feet. The proposed pipeline will be located within an existing 50-foot wide utility easement.

3.0 SITE CONDITIONS

The proposed waterline route is characterized by an easement that includes a service road, portions of which are either heavily rutted or eroded at intersecting arroyos. Service roads tend to be mostly void of vegetation with much of the native grasses, shrubs and weeds beyond the primary travel area. Configuration of the site is indicated on the Site Plan, Figure 1.

4.0 SITE SUBSURFACE CONDITIONS

To explore the site subsurface conditions, four test pits were excavated using a backhoe and four test holes were drilled at the approximate locations shown on the Site Plan, Figure 1. A total of nine test locations were staked; however, only eight locations were investigated as previously

described. The test hole location that was eliminated was situated in an area where both public and private utility lines were in close proximity to each other. The soils in the test holes and test pits consisted of poorly graded sand (SP & SP-SM) with varying amounts of silt and gravel, silty sand (SM) with varying amounts of gravel, silty, clayey sand (SC-SM) with varying amounts of gravel, clayey sand (SC), sandy lean clay (CL) and fat clay (CH). The sand strata were described as loose to very dense and slightly moist to moist. The sandy lean clay was described as stiff to hard and slightly moist to moist. The fat (high plasticity) clay (CH) was described as stiff and slightly moist. Cobbles were encountered at varying depths in a few test holes as indicated on the logs of test holes.

Neither flowing groundwater nor bedrock was encountered in the test holes to a depth of eleven and one half (11.5) feet, the maximum depth of exploration. However, groundwater conditions may change with time due to precipitation, variations in groundwater level, seepage from ponding areas, or leaking utilities.

The test holes allow observation of a very small portion of the soils below the site. Significant variations in subsurface conditions may occur across the site, which were not disclosed by the test holes.

5.0 LABORATORY TESTING

A laboratory testing program was performed on samples obtained during the field investigation which appeared representative of the soils encountered in the test holes. The laboratory testing program was structured to determine the physical properties of the soils encountered in the test holes necessary for development of geotechnical recommendations.

The laboratory testing program included:

- Moisture Content;
- Dry Density;
- Sieve Analysis;
- Atterberg Limits;
- Consolidation/Collapse;
- pH;
- Resistivity; and
- Sulfates.

Moisture Content and Dry Density tests were performed to evaluate the in-place soil density and moisture content. Test results help to evaluate settlement potential. Test results indicate the soils encountered in the test holes have an average dry density of approximately 107 pcf. Natural moisture content averaged approximately 6.4 percent. Test results are presented on the Logs of Test Holes, Figures 2 through 10, and are summarized on Table 1.

Sieve Analysis and Atterberg Limits tests were performed to confirm field soil classifications and to provide information on general physical soil properties. Test results are presented on Table 1.

Consolidation/Collapse tests were performed to evaluate structure settlement and to determine the effect of water on site soils. The results indicate that the tested soils generally exhibited slight compressibility under anticipated loads. Appreciable additional settlement (collapse) occurred when the tested soils increased in moisture content. Test results are presented on Figures 12 and 13.

pH tests were performed to evaluate the degree of acidity or alkalinity potential of the existing soils when suspended in water. pH values averaged approximately 7.6. Results of pH tests for six selected soil samples are presented in Appendix B.

Resistivity tests were performed to evaluate the corrosive potential of soils. Resistivity values of the six selected soil samples varied from 700 to 6,440 Ohms-cm, the results of which indicate moderately to extremely corrosive soils. Results of resistivity tests are presented in Appendix C.

Sulfate tests were performed to evaluate the corrosive potential due to sulfate attack on concrete. The results indicate the soils exhibit sulfates varying from 7.1 to 2,900 mg/Kg (ppm). Soils exhibiting sulfate contents less than 150 mg/Kg are considered to have a negligible effect on concrete. Soils exhibiting sulfate contents 150 to 1500 mg/Kg will result in moderate exposure to concrete. The moderate exposure category requires Type I or II cement, with a maximum water cement ratio, w/c, of 0.50 and a minimum compressive strength of 4,000 pounds per square inch. The soil sample exhibiting 2,900 mg/Kg of sulfate will result in severe exposure to concrete and will require Type V cement with a maximum water cement ratio, w/c, of 0.45 and a minimum compressive strength of 4,500 pounds per square inch. Results of sulfate tests are also presented in Appendix C.

6.0 FOUNDATIONS

If the recommendations presented in this report are implemented particularly those regarding site grading and drainage, the proposed CAV, PRV, and other vaults may be supported on a reinforced concrete mat foundation. The mat should be supported on a minimum thickness of twelve inches of structural fill. Structural fill should extend a minimum of three feet laterally beyond the sides of the vaults. The mats may be designed for an allowable bearing pressure of 2,000 pounds per square foot. This value may be increased by one-third for short-term loads due to wind and earthquakes. If it is not feasible to implement the site grading and drainage recommendations presented herein, an alternate foundation system may be required. This office should be contacted for additional recommendations.

Lateral foundation loads will be resisted by a combination of passive soil pressure against the sides of footings and friction along the base. A passive soil resistance of 300 pounds per cubic foot may be utilized for design. Frictional resistance may be determined by multiplying foundation dead load by a coefficient of friction of 0.40.

Prior to fill placement and following footing excavation, the natural soils should be scarified to a depth of eight inches and moistened to near optimum moisture content (±3%). The exposed soils should then be compacted to a minimum of 95% of maximum density as determined by ASTM D-1557. All fill below structures should be placed and compacted as detailed in the attached Appendix. Prior to pouring concrete footing excavations should be cleaned of any slough, loose soil, or debris. Footing excavations should be compacted as detailed in the attached Appendix.

Foundations designed and constructed as described herein are not anticipated to settle more than one inch. Differential settlement between adjacent column footings should not exceed one-half of the above value. Foundations should be designed and constructed to tolerate the above settlement. Foundations should be designed by a qualified structural engineer.

The site soils will consolidate if allowed to increase in moisture content. With appropriate landscape irrigation and site grading and drainage as detailed in this report the moisture content of the soils within five to ten feet of the ground surface may increase. The recommendations presented in this report for site preparation are the minimum we consider prudent to address this degree of moisture penetration. In the event moisture penetration to depths greater than seven feet occurs, movement substantially greater than quoted above will occur.

Based upon the results of this investigation and our previous experience in the site vicinity, an International Building Code Site Classification of "D" may be utilized for design.

7.0 EARTHWORK

7.1 General

The settlement estimates presented in this report are based upon the assumption that site earthwork will be performed as recommended in this report and the attached Appendix. Presented below is a summary of the site earthwork recommendations. Detailed earthwork procedures are presented in the attached Appendix.

Prior to commencing earthwork the Contractor should obtain appropriate Proctor tests. Field density testing and evaluation of the suitability of the proposed materials performed prior to completion of the Proctor is "Preliminary" and may change based upon the results of the Proctor testing.

7.2 Clearing and Grubbing

Prior to placing structural fill, all borrow and fill areas should be stripped of vegetation and deleterious materials. All strippings should be hauled off-site or utilized in landscaped areas.

All existing utilities, septic tanks, leach fields, and disturbed soil should be removed from below the proposed amenities. The resulting excavations should be backfilled with compacted fill as detailed in the attached Appendix.

7.3 Excavation

We anticipate that on-site soils can be excavated with conventional earthwork equipment. Cobbles or boulders may be encountered during excavation. Cobbles and boulders should not be placed within structural fills. Cobbles and boulders as defined in ASTM D-2487.

7.4 Natural Ground Preparation

Prior to placing structural fill and subsequent to final grading in cut areas, the exposed soils should be scarified to a depth of eight inches and moisture conditioned to a near optimum (±3%) moisture content. The exposed soils should then be compacted to a minimum of 95% of maximum density as determined by ASTM D-1557. If vibratory compaction poses a threat to nearby structures, static compaction should be utilized.

7.5 Fill Placement and Compaction

Structural fill should be placed in horizontal lifts a maximum of eight inches in loose thickness, moisture conditioned to near optimum moisture content, and mechanically compacted. Fill placed within ten feet of proposed finished grade should be compacted to a minimum of 95% of maximum dry density as determined by ASTM D-1557. Not all on-site soils within the upper five to six feet are likely to satisfy structural fill requirements; however, import soils which are more granular than the on-site soil may be used for blending provided the blended material is tested for conformance with structural fill criteria.

7.6 Observation and Testing

Placement and compaction of granular soils/cobbles/boulders/concrete/asphalt mixtures should be observed by a qualified geotechnical engineer or his representative. Placement and compaction of clean fill and structural fill should be observed and tested by a qualified geotechnical engineer or his representative. The purpose of the observation and testing is to confirm that the recommendations presented herein are followed and to provide supplemental recommendations, if subsurface conditions differ from those anticipated.

7.7 Frequency of Testing

Earthwork should be tested periodically to confirm the fill is compacted to the criteria presented in this report. Prior to placing fill, the natural ground should be moisture conditioned, compacted, and tested to confirm it is properly compacted. Fill should be placed in maximum eight-inch thick loose lifts, but in no case thicker than can be compacted with the equipment being utilized. Fill should be moisture conditioned and compacted as detailed in this report. Fill areas should be tested at maximum one-foot vertical intervals. If fill areas are worked at different times, each individual area should be tested. Following finish grading, the final surface should be tested.

8.0 SITE GRADING AND DRAINAGE

The site should be graded to drain properly during fill placement and upon achieving finished grade elevation. Site grading and drainage should conform to the current International Building Code.

If ponding areas are required, they should be located as far away from existing structures, pavement and site improvements as possible, a minimum of ten feet. If these criteria cannot be met, this office should be contacted for supplemental recommendations.

Water should run off rapidly.

9.0 UTILITIES

The site soils are collapsible if allowed to increase in moisture content. If post-construction water or sewer line leaks occur, localized settlement will occur. Following installation, all water and sewer lines should be pressure checked for leaks. Any leaks found should be repaired.

Backfill in utility line trenches below slabs, driveways, and pavement should be compacted to a minimum of 95% of maximum density as determined by ASTM D-1557. Utility trenches should be as narrow as can be properly compacted. To reduce the possibility of breaking utility lines with compaction equipment, heavy compactors should not be utilized.

Utility trenches may not be compacted to the same degree as the remainder of the building pad. Therefore, wall footings, interior walls and thickened slabs should not be placed longitudinally over utility trenches. Column footings should not be placed over utility trenches.

10.0 TRENCHES AND EXCAVATIONS

All trenches greater than four feet in depth must be sloped, shored or braced or otherwise supported according to OSHA Construction and Safety Standards. Material excavated from the trench or spoil must be placed a minimum of two feet from the edge of the excavation. The spoil should be retained in an effective manner such that no loose material can fall into the excavation.

Temporary construction excavations less than eight feet deep should be sloped no steeper than 1½:1 (horizontal:vertical). If deeper excavations are required, this office should be contacted for supplemental recommendations. Limited raveling of slopes will occur particularly as the exposed soils dry out. Heavy equipment and material stockpiles should be located a minimum of five feet from the top of slope.

11.0 CLOSURE

This report was prepared for the exclusive use of our Client. The recommendations presented in this report are based upon the subsurface conditions disclosed by the test holes. Soil and groundwater conditions may vary between test holes and with time.

This report reflects our interpretation of the site subsurface conditions. We strongly recommend that prior to bidding all contractors perform their own subsurface investigation to form their own opinion of the site soil, rock, and groundwater conditions. Should contractors elect to use this report for construction, bidding or estimating purposes, they do so at their own risk.

In a southwest climate it is particularly important to protect the soils supporting the proposed structure from an increase in moisture content. If soils supporting the structure increase in moisture content due to any cause such as poor site drainage, ponding areas, or leaking utility lines, significant structural settlement and distress may occur.

If conditions are encountered during construction which differ from those presented herein, this office should be contacted for supplemental recommendations. The staff of X8e Vinyard is available for supplemental consultation as necessary.

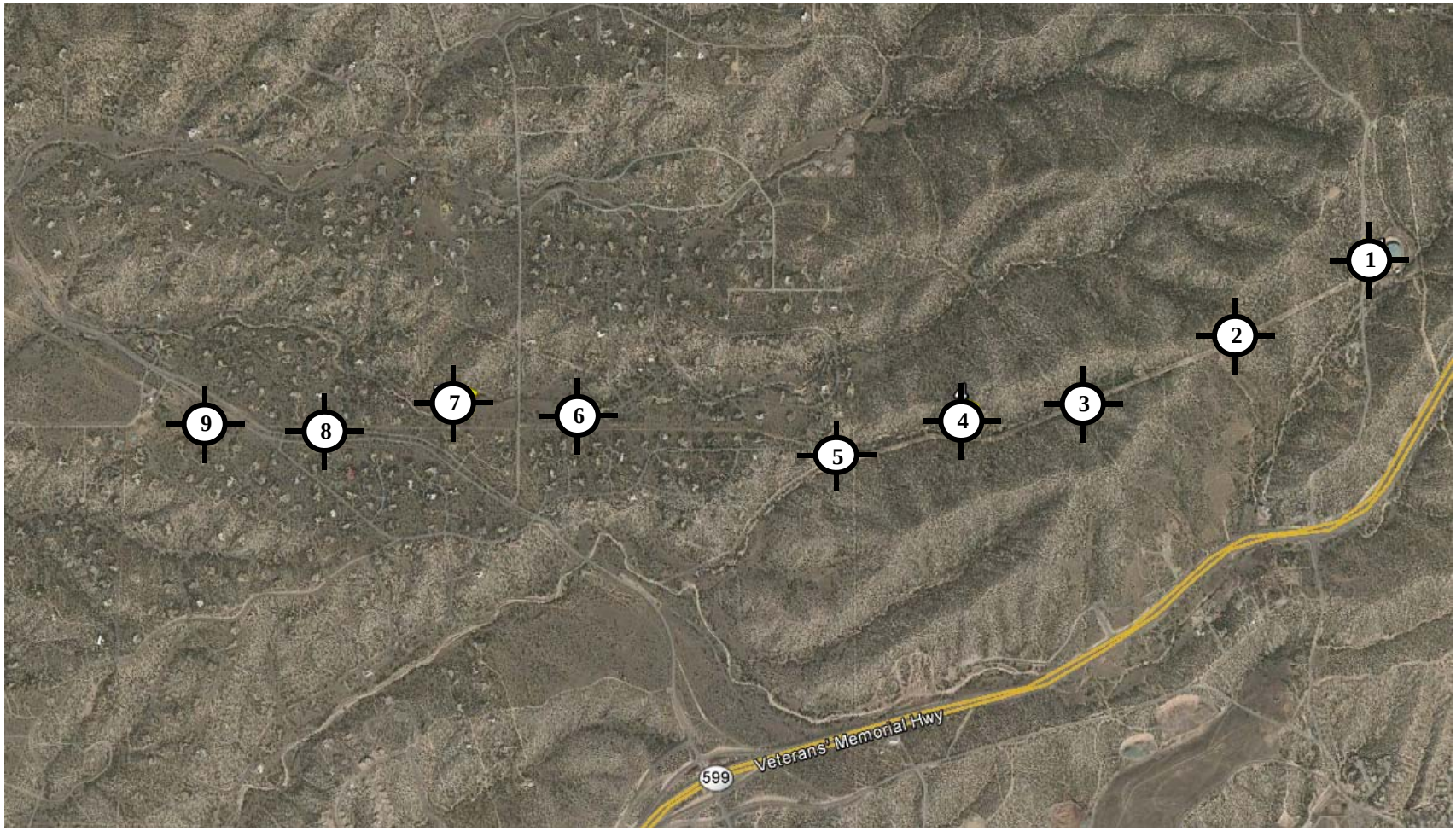
This office would be pleased to review site grading and drainage plans to evaluate conformance with the recommendations presented herein. All site earthwork should be observed by a qualified geotechnical engineer or his representative. X8e Vinyard would be pleased to provide these services.

X8e Vinyard,

Ralph L. Abeyta, P.E., M. ASCE

X8e Vinyard Project No.: 16-1-020

SITE PLAN
***Scale Unknown**



Test Hole or Test Pit Location

FIGURE 1

LOG OF TEST HOLE NO. 1

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/16/16
Depth to Groundwater: Not Encountered
Drilling Method: Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
		B		4.4		SP	Poorly graded SAND, fine to coarse grained, medium dense, slightly moist, red/pink, roots
5		B		3.1	1,2	SP-SM	Poorly graded SAND with silt and gravel, fine to coarse grained, dense, slightly moist, red/pink, cobbles
10		B		4.9		SP	Poorly graded SAND, fine to coarse grained, slight gravel, dense, slightly moist, red/pink
							Bottom of hole at 10½'
15							
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 2

LOG OF TEST HOLE NO. 2

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/16/16
Depth to Groundwater: Not Encountered
Drilling Method: Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
						SP SM	Poorly graded SAND with silt, fine to medium grained, medium dense, moist, brown
5		B		7.9	1,2	SC	SAND, clayey, fine to medium grained, medium dense, medium moist, brown, white lense, caliche
		B		7.9			Brown
10							
		B		3.7	1	SM	SAND, silty with gravel, fine to coarse grained, medium dense, slightly moist, light brown
15							Bottom of hole at 11½'
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 3

LOG OF TEST HOLE NO. 3

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/16/16
Depth to Groundwater: Not Encountered
Drilling Method: Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		14.5		SP	Poorly graded SAND, fine to coarse grained, medium dense, moist, brown, roots ~2'
10		B		3.9		SP-SM	Poorly graded SAND with silt, fine to coarse grained medium dense, medium moist, brown
15		B		4.5	1,2	SM	SAND, silty, fine to coarse grained, medium dense, medium moist, brown
20							Bottom of hole at 10½'
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 4

LOG OF TEST HOLE NO. 4

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/16/16
Depth to Groundwater: Not Encountered
Drilling Method: Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
		B		4.3		SP	Poorly graded SAND, fine to coarse grained, slight gravel, medium dense, moist, red, roots ~1'
5		B		14.9	1,2	SC	SAND, clayey, medium dense, moist, brown and white
10		B		3.9		SP	Poorly graded SAND, fine to coarse grained, slight gravel, medium dense to dense, slightly moist, red Slight cobbles
		B		7.3			Dense
15							Bottom of hole at 10½'
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 5

LOG OF TEST HOLE NO. 5

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/16/16
Depth to Groundwater: Not Encountered
Drilling Method: 7" H.S.A.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B					NOTE: Boring/backhoe pit was not dug due to utilities in the area. Utilities consisted of water, electricity, and communications. A grave surfaced road and a private property was in the area. Communication lines were marked.
		B					
10		S					
15							
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 6

LOG OF TEST HOLE NO. 6

Project: Buckman Transfer Line - Santa Fe, NM
Elevation: N/A
Depth to Groundwater: Not Encountered

Project No.: 16-1-020
Date Drilled: 3/15/16
Drilling Method: 7" H.S.A.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5	32	S		9.7	1,2	CL	Clay, sandy lean, stiff, moist, brown and white Gravel in shoe, hard
10	29	R	99	7.5		SM-SC	SAND, silty, clayey, fine to medium grained, medium dense, slightly moist, white and red
	50/5"	B					Very dense
15							Bottom of hole at 10½'
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 7

LOG OF TEST HOLE NO. 7

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/15/16
Depth to Groundwater: Not Encountered
Drilling Method: 7" H.S.A.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5	10	S		5.3		CL	CLAY, sandy lean, stiff, slightly moist, light brown
10	8	R	104	4.2	1,2,5	SC-SM	SAND, silty, clayey, fine to medium grained, trace gravel, loose, slightly moist, light brown
15	25	B		2.3	1,2	SM	SAND, silty, fine to coarse grained, medium dense, slightly moist, red
20							Bottom of hole at 10½'
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 8

LOG OF TEST HOLE NO. 8

Project: Buckman Transfer Line - Santa Fe, NM
Elevation: N/A
Depth to Groundwater: Not Encountered

Project No.: 16-1-020
Date Drilled: 3/16/16
Drilling Method: 7" H.S.A.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		13.9	1,2	CH	Fat CLAY, stiff, slightly moist, light brown Cobbles and gravel
10		B		4.6	1	SM-SC	SAND, silty, clayey with gravel, fine to coarse grained, medium dense, slightly moist, reddish brown, cobbles
		B		3.5			Bottom of hole at 10'
15							
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 9

LOG OF TEST HOLE NO. 9

Project: Buckman Transfer Line - Santa Fe, NM
Project No.: 16-1-020
Elevation: N/A
Date Drilled: 3/15/16
Depth to Groundwater: Not Encountered
Drilling Method: 7" H.S.A.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5	30	S		9.6		CL	Lean CLAY, sandy, hard, slightly moist, light brown
10	21	R	118	4.4	1,2,5	SC	SAND, clayey, fine to coarse grained, medium dense, slightly moist, very light brown/cream color
	71	S		2.6			Very dense
15							Bottom of hole at 11½'
20							
25							
30							
35							

ADDITIONAL TESTS: 1= Sieve Analysis 2= Atterberg Limits 3=Direct Shear 4=R-Value 5=Other

Figure: 10

NOTES - LOGS OF TEST HOLES

Test hole locations were determined by compass bearing and pacing distances from known topographic points.

"Drilling Method" refers to the equipment utilized to advance the test hole. A seven-inch outside diameter, continuous flight, hollowstem auger was utilized.

"S" under "Sample Type" indicates a Standard Penetration test (ASTM D-1586). The Standard Penetration sampler is 2 inches in outside diameter and 1 3/8 inches inside diameter.

"R" under "Sample Type" indicates a 3-inch outside diameter by 2.5-inch inside diameter sampler. The sampler is lined with 1-inch high brass rings.

"B" under "Sample Type" indicates a bulk sample.

"Blows Per Foot" indicates the number of blows of a 140-pound hammer falling 30 inches required to drive the indicated sampler 12 inches.

"NR" under "Blows/Foot" indicates that no sample was recovered.

"Dry Density PCF" indicates the laboratory determined soil dry density in pounds per cubic foot.

"Water Content %" indicates the laboratory determined soil moisture content in percent (ASTM D-2216).

"Unified Classification" indicates the field soil classification as per ASTM D-2488. When appropriate, the field classification is modified based upon subsequent laboratory tests.

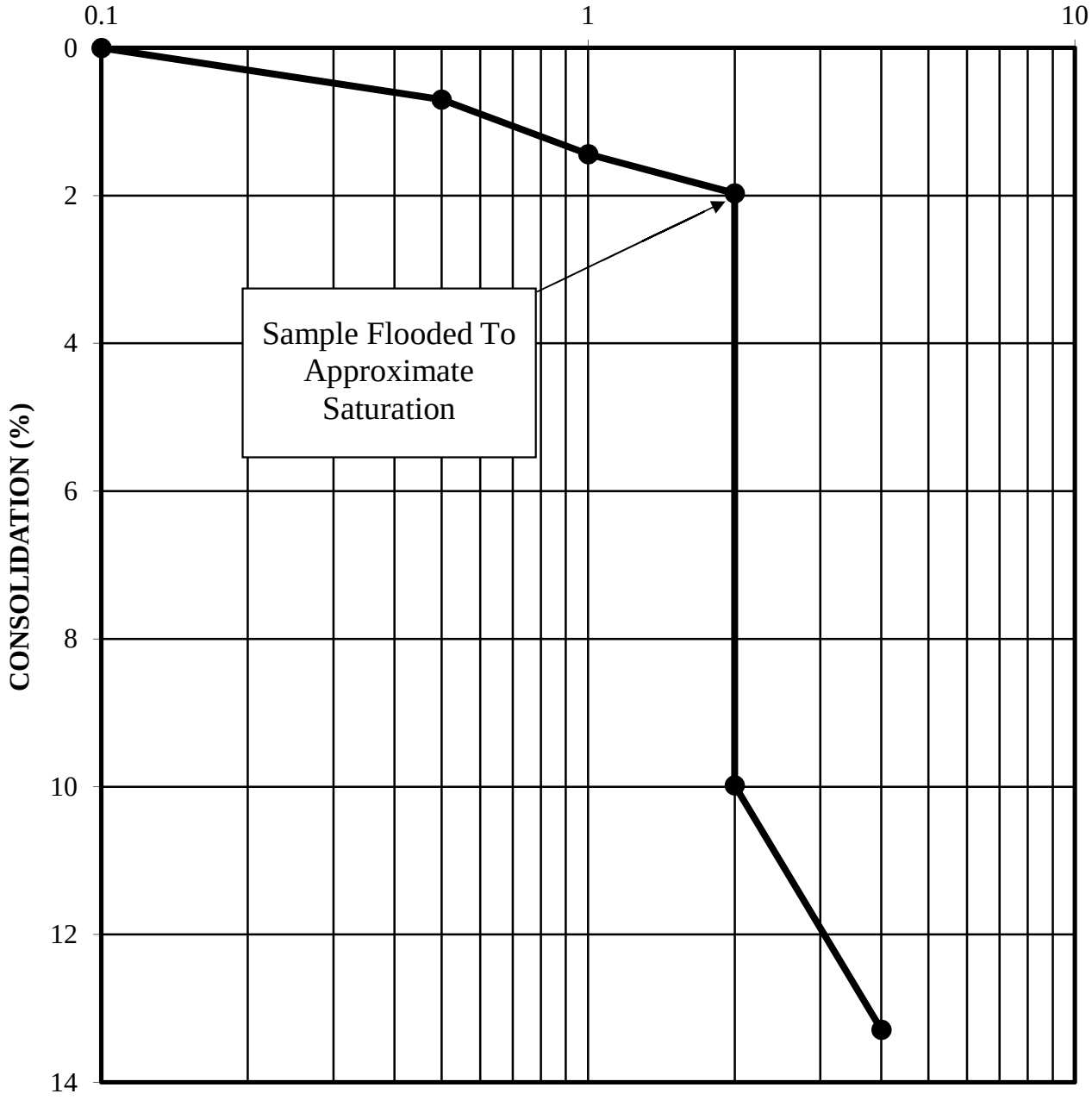
Variations in soil profile, consistency, and moisture content may occur between test holes. Subsurface conditions may also vary between test holes and with time.

Figure No.: 11

8916-A Adams Street NE
Albuquerque, NM 87113

Office: 505.797.9743
Fax: 505.797.9749

CONSOLIDATION TEST RESULTS

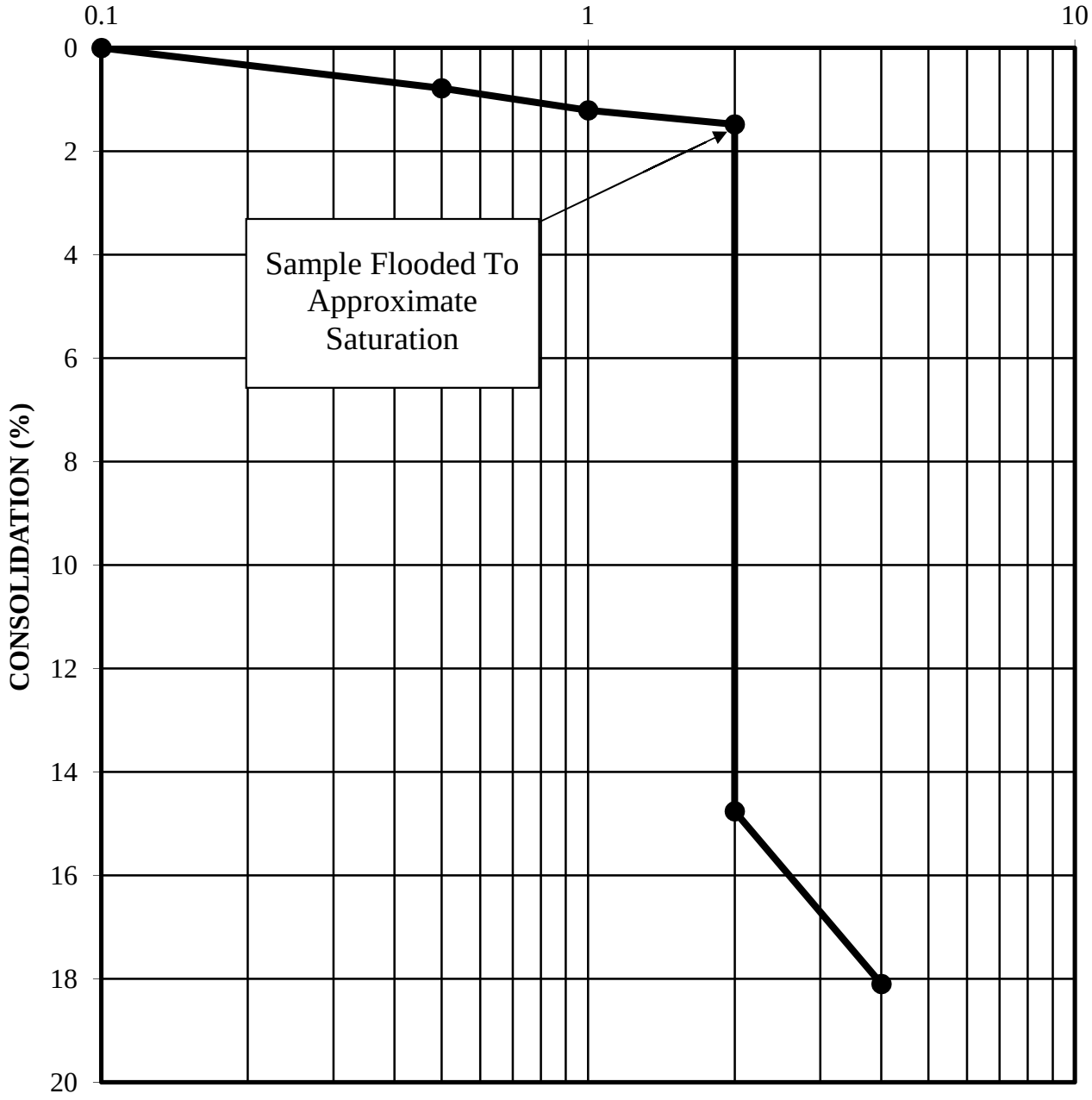


TEST HOLE NUMBER: 7
SAMPLE DEPTH: 5 FEET
SOIL DESCRIPTION: Silty, clayey SAND (SC-SM)
MOISTURE CONTENT: 4.2 %
BULK UNIT WEIGHT: 104 pcf

PROJECT: Buckman Transfer Line
Santa Fe, New Mexico
PROJECT NO.: 16-1-020

FIGURE NO.: 12

CONSOLIDATION TEST RESULTS



TEST HOLE NUMBER: 9
SAMPLE DEPTH: 5 FEET
SOIL DESCRIPTION: Clayey SAND (SC)
MOISTURE CONTENT: 4.4 %
BULK UNIT WEIGHT: 118 pcf

PROJECT: Buckman Transfer Line
Santa Fe, New Mexico
PROJECT NO.: 16-1-020

FIGURE NO.: 13

SUMMARY OF LABORATORY TEST DATA

Test Hole	Depth (feet)	Unified Classification	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS-% PASSING BY WEIGHT										Description
					LL	PI	1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
1	2			4.4													
1	5	SP-SM		3.1				100	84	68	57	47	36	20	13	10.3	Poorly graded SAND with silt and gravel
1	10			4.9													
2	2	SC		7.9	35	21		100	96	95	93	87	79	64	54	47.1	Clayey SAND
2	5			7.9													
2	10	SM		3.7			100	83	71	68	64	58	48	34	22	17.1	Silty SAND with gravel
3	2			14.5													
3	5			3.9													
3	10	SM		4.5				100	94	87	82	71	58	40	29	23.7	Silty SAND
4	2			4.3													
4	3	SC		14.9	35	18		100	99	98	96	91	83	72	60	47.7	Clayey SAND
4	5			3.9													
4	10			7.3													
6	2	CL		9.7	38	23		100	99	99	97	95	91	84	80	69.0	Sandy lean CLAY
6	5		99	7.5													
7	2			5.3													
7	5	SC-SM	104	4.2	24	7		100	98	96	92	85	76	60	51	41.9	Silty, clayey SAND
7	10	SM		2.3	NV	NP		100	98	93	85	68	48	29	21	16.4	Silty SAND
8	2	CH		13.9	52	35				100	99	97	95	91	89	85.5	Fat CLAY
8	5	SC-SM		4.6			100	95	81	74	69	62	55	45	35	24.1	Silty, clayey SAND with gravel

X8e Vinyard Project No.: 16-1-020

Project: Buckman Transfer Line - Santa Fe, NM **Table No.: 1**

SUMMARY OF LABORATORY TEST DATA

Test Hole	Depth (feet)	Unified Classification	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS-% PASSING BY WEIGHT										Description
					LL	PI	1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
8	9.5			3.5													
9	2			9.6													
9	5	SC	118	4.4	40	27		100	92	88	82	73	64	52	45	39.2	Clayey SAND
9	10			2.6													

X8e Vinyard Project No.: 16-1-020

Project: Buckman Transfer Line - Santa Fe, NM **Table No.: 1**

APPENDIX A
EARTHWORK PROCEDURES

8916-A Adams Street NE
Albuquerque, NM 87113
contactus@x8evinyard.com
Phone: 505.797.9743
Fax: 505.797.9749

APPENDIX
EARTHWORK PROCEDURES

General

The Geotechnical Engineer shall be the Owner's representative to observe and evaluate the earthwork operations. The Contractor shall cooperate with the Geotechnical Engineer in the performance of the Engineer's duties.

Clearing and Grubbing

Prior to placing structural fill all borrow areas and areas to receive structural fill shall be stripped of vegetation and deleterious materials. Strippings shall be hauled off-site or stockpiled for subsequent use in landscaped areas or nonstructural fill areas as designated by the Owner or his representative and approved by the Geotechnical Engineer.

Site Preparation - Fill Areas

Prior to placing structural fill the areas to be filled shall be scarified to a depth of eight inches and moisture conditioned as described below. The area to be filled shall then be compacted to a minimum of 95 percent of maximum density as determined by ASTM D-1557. If vibratory compaction techniques pose a threat to the structural integrity of nearby facilities a static compactor shall be used. Any soft or "spongy" areas shall be removed as directed by the Geotechnical Engineer and replaced with structural fill as described herein.

Site Preparation - Cut Areas

Following excavation to rough grade, all building and pavement areas shall be scarified to a depth of eight inches and moisture conditioned as described below. All building and paved areas shall be compacted to a minimum of 95 percent of maximum density as determined by ASTM D-1557. If vibratory compaction techniques pose a threat to the structural integrity of nearby facilities, a static compactor shall be used. Any soft or "spongy" areas shall be removed as directed by the Geotechnical Engineer and replaced with structural fill as described herein.

Foundation, Slab and Pavement Subgrade Preparation

Prior to placing reinforcement, footings, slabs, or pavement, the supporting soils shall be prepared, moisture conditioned, and compacted as described herein.

Structural Fill Material

Structural fill material shall be nonexpansive soil which may be gravel, sand, silt or clay, or a combination there of.

Sieve Size	Percent Passing By Weight
4”	100
1”	90-100
No. 4	70-100
No. 200	10-40

Structural fill material shall exhibit a plasticity index of ten or less. No organic, frozen or

decomposable material shall be utilized. All structural fill material shall be approved by the Geotechnical Engineer.

Structural Fill Placement

Structural fill material shall be blended as necessary to produce a homogeneous material. Fill material shall be spread in horizontal lifts no greater than eight inches in uncompacted thickness, but in no case thicker than can be properly compacted with the equipment to be utilized. If structural fill is to be placed on slopes steeper than 5:1 (horizontal:vertical) the natural ground shall be benched with minimum three foot wide benches at maximum two foot vertical intervals.

Moisture Conditioning

Structural fill material shall be dried or moistened as necessary, prior to compacting, to within ± three percent of optimum moisture content as determined by ASTM D-1557. Moisture shall be distributed uniformly throughout each lift.

Compaction

Structural fill shall be mechanically compacted to the following:

	Minimum Compaction ASTM D-1557
Foundation Support	95%
Slab Support	95%
Below Slab Utility Trenches	90%
General Site Grading	90%
Pavement Support	-
Upper 8" of Subgrade	95%
All other fill below pavement	90%

Aggregate Base Course shall be compacted to a minimum of 95% of maximum density as determined by ASTM D-1557.

Asphaltic concrete shall be compacted to a range of 93% to 97% of the maximum Theoretical Unit Weight in accordance with ASTM D2041.

Compaction by flooding and jetting is specifically prohibited unless authorized in advance by the Owner or his representative and the Geotechnical Engineer.

Observation and Testing

The Geotechnical Engineer or his representative shall perform field density tests with a frequency and at the locations he feels appropriate. The Geotechnical Engineer or his representative will perform Proctor tests on representative samples of all structural fill material for compliance to structural fill requirements on page A-1. To minimize delays, the Earthwork Contractor is encouraged to submit soil samples prior to use for proctor testing.

APPENDIX B

pH TEST RESULTS

8916-A Adams Street NE
Albuquerque, NM 87113
contactus@x8evinyard.com
Phone: 505.797.9743
Fax: 505.797.9749

Environmental • Geotechnical • Materials Testing • Geosciences • Engineering

April 5, 2016

Bohannan-Huston, Inc.
Courtyard One
7500 Jefferson Street NE
Albuquerque, NM 87109-4335

Subject: pH Test Results for Buckman Transfer Line in Santa Fe, New Mexico
X8e Vinyard Project No.: 16-1-020

Dear Mr. Burt;

X8e Vinyard performed a standard test method for pH of soils. Those results are as follows:

	Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**
pH in distilled water	1 @ 5'	2 @ 5'	3 @ 5'	4 @ 5'	6 @ 5'	8 @ 5'
pH in Calcium Chloride Solution	7.98	7.88	7.30	7.35	7.66	7.42

Should you have any questions regarding this letter please fee to call our office.

Sincerely,

X8e Vinyard

Ralph L. Abeyta, P.E., M. ASCE

APPENDIX C

RESISTIVITY AND SULFATE TEST RESULTS

8916-A Adams Street NE
Albuquerque, NM 87113
contactus@x8evinyard.com
Phone: 505.797.9743
Fax: 505.797.9749

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 01, 2016

Ralph Abeyta
X8E Vinyard
8916 A Adams NE
Albuquerque, NM 87113
TEL: (505) 797-9743
FAX

RE: Buckman Transfer Line OrderNo.: 1603D29

Dear Ralph Abeyta:

Hall Environmental Analysis Laboratory received 6 sample(s) on 3/28/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order: **1603D29**
Date Reported: **4/1/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: X8E Vinyard
Project: Buckman Transfer Line
Lab Order: 1603D29

Lab ID: 1603D29-001 **Collection Date:** 3/16/2016
Client Sample ID: 1@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	150	30		mg/Kg	20	3/30/2016 3:39:33 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	2480	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Lab ID: 1603D29-002 **Collection Date:** 3/16/2016
Client Sample ID: 2@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	28	1.5		mg/Kg	1	3/30/2016 4:16:47 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	2950	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Lab ID: 1603D29-003 **Collection Date:** 3/16/2016
Client Sample ID: 3@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	8.1	1.5		mg/Kg	1	3/30/2016 4:41:36 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	6440	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Lab ID: 1603D29-004 **Collection Date:** 3/16/2016
Client Sample ID: 4@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	7.1	1.5		mg/Kg	1	3/30/2016 5:06:26 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	5730	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: X8E Vinyard
Project: Buckman Transfer Line
Lab Order: 1603D29

Lab ID: 1603D29-005 **Collection Date:** 3/16/2016
Client Sample ID: 6@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	2900	75		mg/Kg	50	3/31/2016 4:52:05 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	700	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Lab ID: 1603D29-006 **Collection Date:** 3/16/2016
Client Sample ID: 8@5', 16-1-020 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Sulfate	260	30		mg/Kg	20	3/30/2016 6:08:28 PM	24520
RESISTIVITY AND EC SOIL						Analyst: **JRR**	
Resistivity	1660	1.00		Ohms * cm	1	4/1/2016 9:07:00 AM	24564

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603D29**

01-Apr-16

Client: X8E Vinyard

Project: Buckman Transfer Line

Sample ID	**MB-24520**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**24520**	RunNo:	**33205**					
Prep Date:	**3/30/2016**	Analysis Date:	**3/30/2016**	SeqNo:	**1019736**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	1.5								

Sample ID	**LCS-24520**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**24520**	RunNo:	**33205**					
Prep Date:	**3/30/2016**	Analysis Date:	**3/30/2016**	SeqNo:	**1019737**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	29	1.5	30.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: X8E VINYARD | Work Order Number: 1603D29 | RcptNo: 1

Received by/date: 03/28/16

Logged By: Lindsay Mangin 3/28/2016 12:45:00 PM

Completed By: Lindsay Mangin 3/28/2016 12:53:24 PM

Reviewed By: 03/28/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
	Approved by client.		
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☑	NA ☐
	Approved by client.		
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	24.0	Good	Not Present			

Chain-of-Custody Record

Client: X8e Vinyard

Mailing Address: 8916-A Adams St NE
Albuquerque, NM 87113

Phone #: 505-797-9743

email or Fax#: rlabeyta@x8evinyard.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation:
☒ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 3 day

Project Name: Buckman Transfer Line

Project #: 16-1-020

Project Manager: Ralph Abeyta

Sampler: Andrew Brenner

On Ice: ☐ Yes ☑ No

Sample Temperature: 2.5-1.0 °F = 22.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1603D29	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Sulfates				Air Bubbles (Y or N)
3/16/16	-	soil	1@5', 16-1-020	4 oz jar	N/A	-001												X				
↓	-	↓	2@5', 16-1-020			-002												X				
	-		3@5', 16-1-020			-003												X				
	-		4@5', 16-1-020			-004												X				
	-		6@5', 16-1-020			-005												X				
↓	-	↓	8@5', 16-1-020	↓	↓	-006												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
3/20/16	1245	Andrew F Bren		03/23/16	1245	
Date:	Time:	Relinquished by:	Received by:	Date	Time	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

EXHIBIT VII – SPECIFICATIONS FOR MATERIALS AND EQUIPMENT

The following specifications detail the Tools/Spare Parts lump sum bid item on the Bid Form (refer to Bid Item No. 31)

QTY	**MANUFACTURER**	**PART #**	**DESCRIPTION**
1	ALLEN BRADLEY	1769-PA4	POWER SUPPLY
1	ALLEN BRADLEY	1769-L30ER	CPU
1	ALLEN BRADLEY	1769-IF16C	ANALOG INPUT
1	ALLEN BRADLEY	1769-OF4	ANALOG OUTPUT
1	ALLEN BRADLEY	1769-IQ32	DIGITAL INPUT
1	ALLEN BRADLEY	1769-OW8	RELAY OUTPUT
2	ALLEN BRADLEY	1769-L16ER-BB1B	CPU
4	ALLEN BRADLEY	1734-IB8	DIGITAL INPUT
2	ALLEN BRADLEY	1734-OE4C	ANALOG OUTPUT
4	ALLEN BRADLEY	1734-IEBC	ANALOG INPUT
3	PHOENIX CONTACT	SFP 1-20/120VAC	SURGE PROTECTOR
3	NTRON	708FXE2-SC-15	ETHERNET SWITCH
3	PHOENIX CONTACT	QUINT-PS/1AC/24DC/5	POWER SUPPLY
1	FLUKE	MICROSCANNER2	CABLE VERIFIER
1	FLUKE	MICROMAPPER	TESTER