

PUEBLO OF ZUNI



# **PROJECT MANUAL**

## **Construction of Water Infrastructure For the Commercial Development Area**

**May 29, 2015**

**Funding Sources:      SAP 14-1656-ST  
                                     TIF 14TIF29**

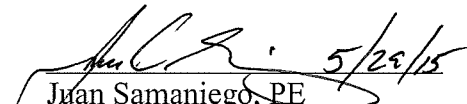
**Project Number: BHI 20150380**

**Office of Planning & Development  
1203B State Highway 53  
P.O. Box 339  
Zuni, N.M. 87327**



**ENGINEER OF RECORD**

The technical material and data contained in the Project Manual for the Construction of Water Infrastructure for the Commercial Development Area – Pueblo of Zuni, NM, dated May 22, 2015 was prepared under the supervision and direction of the undersigned, whose seal as a Professional Engineer, licensed to practice in the State of New Mexico, is affixed below.

  
Juan Samaniego, PE  
License No. 19830



All questions about the meaning or intent of these documents shall be submitted only to the Engineer of Record, stated above, in writing.





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## **I. ADVERTISEMENT FOR BIDS**



**Pueblo of Zuni  
Zuni, New Mexico  
Construction of Water Infrastructure for the Commercial Development Area**

**ADVERTISEMENT FOR BIDS**

Sealed Bids for the construction of the **Construction of Water Infrastructure for the Commercial Development Area, BHI Project #20150380** will be received, by **Pueblo of Zuni**, at the office of the **Director of the Zuni Procurement Office in Zuni, New Mexico**, until **2:00 p.m.** local time on **July 9, 2015**, at which time the Bids received will be “**publicly**” opened and read. The Project consists of constructing Zuni Commercial Development Area Water Infrastructure Construction of 17,725 LF of 12" Waterline, including crossing Blackrock Dam crest and Spillway, and pedestrian bridge crossing, with Freeze Protection where required, all appurtenances such as Air Release Valves, Hydrants, and Valves.

Bids will be received for a single prime Contract. Bids shall be on a lump sum and unit price basis, with additive alternate bid items as indicated in the Bid Form.

For bidding forms, and Contract Documents, including plans, specifications, and other documents to be used in connection with the submission of bids, prospective Bidders are invited to register under the Bids section at [www.bhinc.com](http://www.bhinc.com) to obtain access to Project Tracker and Bidding Process. Select the pertinent project as listed on the projects list. Register new company account by providing the following contact information: Company name, contact name, company role, telephone number and email address. The bidder shall receive a notification email once the bidder has been registered with the site. Each registered bidder will be able to re-access the site from [www.bhinc.com](http://www.bhinc.com) and selecting the “Bids” icon which will direct the Bidder to the Project Tracker site. The Bidder shall have a specific username and password in order to gain access to the “**Construction of Water Infrastructure for the Commercial Development Area**” project. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

If you do not or cannot access the site, please notify us as soon as possible. The following shall be performed through the Project Tracker site.

1. **DOWNLOAD THE BIDDING DOCUMENTS FROM THE PROJECT TRACKER SITE:** The bidding documents are available during the bidding phase from the **CONTRACT DOCUMENTS** tab under the **BIDDING DOCUMENTS** subsection. When issued, addenda will be available from the **ADDENDA SECTION**.
2. **PLEASE SUBMIT ALL QUESTIONS THROUGH THE PROJECT TRACKER SITE:** To submit a question, go to the **BIDDING** tab and click on **SUBMIT QUESTION**. This will direct you to a form to enter the question, when complete click **SUBMIT** and the question will be sent to BHI for review. Responses to questions will be included in the Addenda section (under the **CONTRACT DOCUMENTS** tab) and bidders will be notified via email when this information is available.
3. The bidders list is provided in the **BIDDERS LIST** tab.

Bidding Documents also may be examined at the following locations:

Dodge Reports, 1615 University Blvd. NE, Albuquerque, NM 87102, (505) 243-2817

Construction Reporter, 1609 Second St. NW, Albuquerque, NM 87102 (505) 243-9793

Builders News & Plan Room, 3435 Princeton NE, Albuquerque, NM 87107 (505) 884-1752

A mandatory pre-bid conference will be held at **10:00 a.m.** local time on **July 1, 2015** at the **Tribal Conference Room, 1203B State Highway 53, Zuni, NM.** Bidders shall submit questions to the Engineer during the bidding phase through the Project Tracker Site. Responses to the questions will be provided via an addendum. The last day for questions is close of business (5:00 p.m. local time) July 2, 2015.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: **Pueblo of Zuni**  
By: **Val R. Panteah, Sr.**  
Title: **Governor, Pueblo of Zuni**  
Date: **June 11, 2015**

+ + END OF ADVERTISEMENT FOR BIDS + +

## **II. INSTRUCTIONS TO BIDDERS**





## INSTRUCTIONS TO BIDDERS

Separate sealed bids will be received from general contractors by the Director of the Zuni Procurement Office, Zuni, N.M. at the location and time listed in the “Advertisement for Bids”. To be considered, bids must be made in accordance with these instructions to bidders.

### 1. PRE-BID CONFERENCE

- A. A Mandatory Pre-BID Conference for all prospective bidders will be held at 10:00 AM (Local Time), on July 1, 2015 at the Tribal Conference Room, 1203B State Highway 53 Zuni, N M. Representatives of the Owner will attend. Prospective bidders, subcontractors, and suppliers are invited to attend. Clarifications and answers to relevant questions presented at the pre-bid conference will be issued in an Addendum. Verbal responses made at conference will not be binding.

### 2. BIDDING DOCUMENTS

- A. Bidding documents include Advertisement for Bids, Instruction to Bidders, Bid Form and Supplements, Contract Forms, General Conditions, Owner’s Supplementary Conditions, Plan Set for Construction of Water Infrastructure for the Commercial Development Area as listed in the Project Manuel Table of Contents plus Drawings and Addenda issued prior to opening of bids.
- B. Drawings, specifications and contract documents may be examined, with out charge, at the locations mentioned in Advertisement for Bidders.
- C. Bidding Documents may be obtained from locations mentioned in the Advertisement for Bidders upon deposit of \$100.00 for each complete set. Checks should be made payable to “Pueblo of Zuni.” Incomplete sets will not be issued. General contractors will be allowed 2 sets and subcontractors and suppliers 1 set.
- D. Deposits will be refunded if Bidding Documents are returned in good condition within fifteen (15) days after bid opening.
- E. Bidders shall use complete sets of bidding documents in preparing Bids and assume responsibility for errors and misinterpretations resulting from use of partial sets.
- F. Bidding Documents are made available only for purpose of obtaining bids for this Project. Their issuance and use does not grant license for other purposes.

### 3. EXAMINATION

- A. Bidders shall carefully examine the Bidding Documents and site to obtain firsthand knowledge of existing conditions. Contractors will not be given extra payments for conditions, which can be determined by examining the site and documents.

### 4. QUESTIONS

- A. Requests for clarifications and technical inquiries may be directed to:  
Juan Samaniego, PE  
Bohannon Huston, Inc.  
7500 Jefferson St. NE  
Albuquerque, NM 87109  
505.823.1000  
[jsamaniego@bhinc.com](mailto:jsamaniego@bhinc.com)
- F. Submit all formal questions regarding the bidding documents in writing. Replies will be issued to all known recipients of Bidding Documents as Addenda to the Contract Documents and will become part of the Contract. The Owner will not be responsible for oral clarifications. Questions received less than 5 calendar days before the bid opening cannot be answered.

### 5. SUBSTITUTIONS

- A. Materials, processes, equipment, and other products described in Specifications establish standards of required function, dimension, appearance, and quality. Where products are specified by naming specific products of one or more manufacturers, these products shall establish minimum acceptable level of quality and performance. The use of a brand name is for the purpose of describing the standard of quality, performance and characteristic desired and is not intended to limit or restrict competition.
- B. Substitution requests: After contract award, Owner will consider requests to use unspecified products. Substitution requests shall be made in writing with all product specifications and information attached. Non-conforming requests will not be considered.
- C. Burden of proof of merit of proposed substitution is upon Proposer. Owner's decision of approval or disapproval of substitution shall be final.
- D. Prior approvals: Unless stated otherwise in individual specification sections, Owner will not consider requests made during bidding to use unspecified products.

## 6. ADDENDA

- A. Addenda are written or graphic documents issued by the Owner prior to execution of the Contract that modify or interpret the Bidding Documents by additions, deletions, clarifications and corrections.
- G. Addenda will be faxed, mailed or delivered to all known recipients of Bidding Documents. Copies of Addenda will be available for inspection wherever Bidding Documents are on file for inspection.
- H. No Addenda will be issued 3 days prior to the scheduled date of bid opening, except an Addendum, if necessary, postponing the date of receipt of bids or withdrawing the request for bids.
- I. Each Bidder shall ascertain prior to submitting Bid that all Addenda issued have been reviewed and shall acknowledge receipt on Bid Form.

## 7. PREPARATION OF BIDS

- A. Bids shall be made on unaltered Bid Forms. Prices shall be filled in for all items. The prices must be typed or written in ink in the spaces provided. State the Total Bid Amount in both words and numerals. Any corrections must be initialed by person signing the Bid Form.
- B. Bidder must include all cost items shown on the Bid Form including unit prices, amounts, bid lots, and additive alternates. Failure to comply will be cause for rejection. No segregated bids or assignments will be considered.
- C. Bid shall include legal name of Bidder and indicate that Bidder is a sole proprietor, partnership, corporation or other legal entity. Bids shall be signed by person legally authorized to bind Bidder to a contract. Any bid not signed will be cause for rejection.
- D. Where Bidder is a corporation, bid must indicate the state of incorporation and have the corporate seal affixed. A copy of the corporate resolution authorizing the officer to sign for the corporation must accompany the bid.
- E. The prime contractor shall be required to perform with its employees and equipment at least 33.3 percent of the total amount of work included in the contract. Copies of subcontract agreements may be required to verify the amount of work performed.
- J. Each bidder must be a licensed contractor in the State of New Mexico and shall include on the Bid Form the license number, license classification and license expiration date.

**8. ZUNI TRIBAL EMPLOYMENT RIGHTS OFFICE (TERO) TAX**

- A. Include TERO Tax of 5% in the Total Bid Amount. The Tax will be a one time payment included in the Contractor's first pay application.

**9. ZUNI TRIBAL CONTRACTING PREFERENCES**

- A. The successful Bidder and each of his subcontractors shall be required to give preference in hiring of Indians as required by the Zuni Labor Code and the Zuni Tribal Employment Rights Office (TERO) guidelines. The successful Bidder will also be required to submit the Compliance Plan Conditions and the Indian Preference Plan within 30 days after receipt of the Notice to Proceed (Refer to Zuni TERO Sample Forms included Owner's Supplementary Conditions).
- B. The Zuni TERO Office will supply applicant reference for Contractor consideration.
- C. Comply with all Zuni Labor Code and TERO (Tribal Employment Rights Office) guidelines. For additional information, direct questions to the Zuni TERO Office, attention Dancy Simplicio, TERO Director, 505-782-7113.
- D. The following agency may be contacted regarding Indian-Owned Businesses in the area.

Pueblo of Zuni, N.M.  
Taxation and Revenue Office  
Dancy Simplicio, Director  
(505) 782-7113

**10. ZUNI TRIBAL LABOR CODE BUSINESS LICENSE REQUIREMENT**

- A. Prior to start of construction, all Contractors and Subcontractors shall obtain a Pueblo of Zuni Contractor's License, in accordance with Contractor's Requirements in SECTION V, Owner's Supplementary Conditions.
- B. Business License Fee is based on Section 16-2-7 of the Zuni Tax code and the Contractor's annual sales.

**11. WAGE RATES**

- A. Davis-Bacon Wage rates and New Mexico Department of Workforce Solutions are to be referenced for this project. Each of these wage rate determinations are included as part of these Contract Documents. Where there is a different wage rate provided in each of the Determinations for the same category, the higher of the two wage rates shall be applied.

- B. The Contractor and subcontractors shall comply with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subcontracts.

## **12. ZUNI TRIBAL ROYALTIES FOR NATURAL RESOURCES**

- A. Specifications shall require that royalties be paid to the Pueblo of Zuni Reality Office for Contractor use of Tribal natural resources such as borrow soil material, sand, gravel, rock, domestic water and lake water. Royalty fees may be obtained from Reality Office in accordance to Zuni Tribal Resolution M70-2002-B0045.

Pueblo of Zuni  
Reality Office  
Shirley Bellson, Director  
(505) 782-7106

## **13. BID SECURITY**

- A. Each Bidder shall submit with bid a bid bond in the amount of 5% of the Total Bid Amount, payable without condition to the Owner as a pledge that the bidder, if awarded the contract will promptly execute such contract in accordance with the proposal and in a manner and form required by the Contract Documents and will furnish bond for the performance of the contract and for payment of all labor and materials.
- B. The bid security of all three lowest bidders will be retained until the contract is awarded or other disposition is made. The bid security of all bidders except the three lowest bidders will be returned promptly after canvass of bids.
- C. Should selected bidder fail to enter in contract with the Owner or furnish bonds, bid security shall be forfeited to the Owner.

## **14. PERFORMANCE BOND AND LABOR AND MATERIALS PAYMENT BOND**

- A. Successful bidder shall be required to furnish a Performance Bond and Labor and Materials Payment Bond each in the amount equal to one hundred percent of the total contract price. The bond must be executed in substantially the same form contained in these documents and with a surety company to do business in the State of New Mexico and acceptable to the Owner.
- B. Surety Company shall include a notarized statement that said surety is approved in Federal Circular 570 as published by the United States Treasury Department or the New Mexico State Board of Finance.

**15. SUBCONTRACTOR LIST**

- A. Names of Subcontractors to be used on Project must be listed on “BIDDER’S LIST OF SUBCONTRACTORS” and attached to the Bid.
- B. List all subcontractors who will perform work or render services for professional geotechnical services, preparation or inspection of SWPPP Plans or who will perform work or render services in an amount in excess of \$5,000.00. Give names, address, telephone number, and nature of work to be performed, There shall be only one subcontractor listed for each category. The bidder has the option of listing other names of subcontractors whose subcontract is less or equal to \$5,000.
- C. A bidder with whom the Contract is executed shall not substitute a subcontractor in place of one listed and submitted except as approved by the Owner.

**16. QUALIFICATIONS STATEMENT**

- A. Each Bidder shall fill out and submit the Qualifications Statement in these documents that demonstrates that the contractor has experience, qualifications, and financial ability to carry out the terms of the Contract and successfully complete the work.

**17. BID SUBMITTAL**

- A. Submit Bid, Bid Bond, and other required documents in an opaque, sealed envelope. Identify the envelope with project name and name of bidder.  
Address envelope to:

Zuni Procurement Office  
Attn: Director  
P.O. Box 339  
1203-b State HWY 53  
Zuni, N.M. 87327

- B. Bids submitted by fax, telegraph, or by means other than in sealed envelope as described above will be rejected and not read at Bid Opening.

**18. MODIFICATIONS AND WITHDRAWAL**

- A. A bid containing a mistake discovered before the bid opening may be withdrawn by a bidder prior to the time set for bid opening by delivering written, email or telegraphic notice to the location for receipt of bids.
- B. Withdrawn bids may be resubmitted up to the time and date designated for receipt of bids provided they are fully in conformance with these instructions

to Bidders. Bid security shall be in an amount sufficient for the bid as modified and resubmitted.

- C. After bid opening, no modification in bid prices or other provisions of bid shall be permitted. A low bidder alleging a mistake, which makes the bid non-responsive, may be permitted to withdraw bid if:
  - 1. Mistake is evident on Bid Form.
  - 2. Bidder submits evidence convincingly demonstrating that a mistake was made.
- D. Any decision by the Owner to permit or deny withdrawal of Bid on the basis of a mistake shall be supported by a determination setting forth grounds for decision. If withdrawal is permitted, bid security will not be forfeited.
- E. The Owner will require time for bid evaluation to study each bid and to determine the proposal it deems to be in the best interest of the Owner to accept. In consideration thereof, no bid may be withdrawn after the scheduled closing time for receipt of bids for at least 90 days.

## **19. OPENING OF BIDS**

- A. Refer to Advertisement for Bids for time and location of bid opening.
- B. All proposals shall be made and will be received with the understanding that the bidder accepts the terms and conditions contained in these instructions and that the Contract Agreement will be signed. Person reviewing bids will review the following:
  - 1. Check Sign-in Sheet from Mandatory Pre-bid Conference
  - 2. Check for name of Bidder and New Mexico Contractor's License Number.
  - 3. Check for acknowledgement of Addenda.
  - 4. Check for Non-Collusive Affidavit.
  - 5. Check for Qualification Statement
  - 6. Check for Bidder's Subcontractor List
  - 7. Check for Bid Security.
  - 8. Check Bid Form.

## 20. AWARD OF CONTRACT

- A. It is the Owner's intent to award a contract to the bidder with the lowest responsible Total Bid Amount, inclusive of the Base Bid, Bid Alternate 1, and Bid Alternate 2, provided the bid has been submitted in accordance with the requirements of the bidding documents and does not exceed the funds available. Owner shall have the right to reject or waive informalities and irregularities in a bid received and to accept bid which in the Owner's judgment is in its own best interests. Owner reserves the right to reject any and all bids.
- B. Bid may be rejected if bidder cannot provide necessary equipment and labor force to commence the work at the time specified and if the bidder is already obligated for other work, which would delay the commencement, prosecution, and completion of the work.

## 21. POST-BID SUBMITTALS

- A. If requested by Owner, each bidder shall be prepared to present financial statement showing financial ability to carry out the terms of the contract in addition to other current work. Bidder failing to submit financial statement shall not be entitled to further consideration. Financial statement and financial data provided will be treated by Owner as confidential information.
- B. Within 10 days after Notice of Award, successful Bidder shall submit to the Owner:
  - 1. Required bonds and certificates of insurance.
  - 2. Names of manufacturers, products, and suppliers of principal items, systems, and equipment proposed for the project.
  - 3. Resume of proposed site superintendent.
- C. Bidder may be required to establish to the satisfaction of the Owner the reliability and responsibility of persons or entities proposed for furnishing and performing work described in Bidding Documents.

## 22. EXECUTION OF CONTRACT

- A. Owner reserves the right to accept any bid, and reject any and all bids, when such is deemed by the Owner to be in its best interest.
- B. Bidders shall be prepared to commence work as soon as possible, but



no later than as specified herein. Notwithstanding any delay in the preparation of the formal Contract Agreement, each bidder shall be prepared, upon written notice of bid acceptance, to commence work within 10 days following receipt of Owner's "Notice to Proceed". The accepted bidder shall assist and cooperate with the Owner in preparing the formal Contract Agreement.

### **23. CONTRACTOR PAYMENT**

- A. Progress payments will be made to Contractor monthly based upon the Pueblo of Zuni Accounts Payable Schedule in effect during the contract. The Contractor shall submit requests for payments in a format approved by the Owner based upon the percentage complete of each item listed in the Bid Proposal.
- B. There will be 5% retained from any portion of the contractors payments required in this contract.

### **24. TIME OF COMPLETION AND LIQUIDATED DAMAGES**

- A. Bidder must agree to commence work on or before a date to be specified in the Owner's "Notice to Proceed" and to complete the work within the number of consecutive calendar days allowed for completing the work as stated in the Bid Form. Bidder must agree to pay liquidated damages the sum as stated in the Bid Form for each consecutive day thereafter and to pay for all additional surveying, engineering and inspection services incurred by the Owner due to the delay in completion.

### **25. EXTENDED PAYMENT PROVISION**

- A. Notice of Extended payment Provision. This contract allows the owner to make payment within 45 days after submission of an undisputed request for payment

### **26. ACBM – ASBESTOS CONTAINING BUILDING MATERIALS**

- A. No new Asbestos Containing Building Material (ACBM) will be allowed in any form or shape whatsoever. (This statement takes priority and supersedes any statement or specification section that may contain asbestos use). The Contractor shall certify in writing at the completion of the work that no asbestos has been used.

**◀END OF INSTRUCTIONS▶**



### **III. CONTRACT FORMS**



**BID FORM****BID OF \_\_\_\_\_**

Hereinafter called Bidder, a (corporation, partnership, individual).

State of Incorporation \_\_\_\_\_

TO: Zuni Procurement Office  
Attn: Director  
1203-b N.M. State HWY 53  
Zuni, N.M. 87327

The Bidder, in response to the Advertisement for Bids, and having examined the site and the Bidding Documents prepared by Zuni Pueblo, and the Addenda acknowledged below, and being familiar with all conditions surrounding the construction of the proposed project including the availability of materials equipment, and labor, hereby proposes to perform all work for the construction of Construction of Water Infrastructure for the Commercial Development Area Project for prices stated below.

In submitting this Bid, the Bidder represents that Bidder has financial ability and experience to complete the work and agrees to the following:

1. To hold the Bid open for 90 days.
2. To accept the provisions of the Instructions to Bidders.
3. To enter into and execute a Contract, if awarded, on the basis of this Bid, and to furnish Insurance, Performance and Labor and Materials Payment Bonds.
4. To accomplish work in accordance with the Contract Documents.
5. To the substantial completion of work within the following number of consecutive calendar days from Notice to Proceed:  
For the Base Bid, Two Hundred (200) consecutive calendar days;  
For Alternate 1, Fourteen (14) consecutive calendar days;  
For Alternate 2, Fourteen (14) consecutive calendar days.
6. To pay as liquidated damages, the sum of **\$2000.00** for each consecutive day past the time allowed for the construction of work that is not completed and to pay for all surveying, engineering and inspection services incurred by the Owner due to the delay in completion.

The Bidder acknowledges receipt of the following Addenda:

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

**BID PROPOSAL  
TOTAL BASE BID**

\*Payment for the following items will be based on the description below and that given in Section 01700, Measurement and Payment

Item No.	Description*	Quantity	Unit	Unit Cost	Sub Total
	<b>WATER IMPROVEMENTS</b>				
1	12" C900 DR18 PVC Water Line including fittings and pipe restraints	15,715	LF		
2	12" Ductile Iron Water Line including insulation, fittings and pipe restraints	600	LF		
3	12" HDPE DR 18 Water Line including insulation, 20" HDPE casing, fittings and pipe restraints	700	LF		
4	Heat Trace and Associated Electrical Improvements	1	LS		
5	3" Insulated Pipe in Utility Vault	276	LF		
6	Pipe bridge crossing assembly, including reinforcement of existing pedestrian bridge, penetration of rock wall, transitions from buried to suspended piping, all connections and fasteners	1	LS		
7	Fire Hydrant Assembly, including piping from main and gate valve	15	EA		
8	Combination Air Release Valves, below ground in manhole	13	EA		
9	Combination Air Release Valves, above ground in Hot Box, including associated electrical improvements	2	EA		
10	12" Gate Valve, box and cover	21	EA		
11	12" Expansion Joints, Romac DJ 400	4	EA		
12	3" Expansion Joints, Romac DJ 400	2	EA		
13	Pipe Supports 12" throughout Utility Corridor	27	EA		
14	Pipe Supports 3" throughout Utility Corridor	27	EA		
	<b>WATER IMPROVEMENTS SUBTOTAL</b>				
	<b>SOFT CONSTRUCTION COSTS</b>				
15	Mobilization/Demobilization compl.	1	LS		
16	SWPPP, compl.	1	LS		
17	Construction Staking & Surveying, compl.	1	LS		
18	Traffic Control, compl.	1	LS		
	<b>SOFT COSTS TOTAL</b>				
	<b>SUBTOTAL</b>				
19	Zuni TERO FEE @ 5% of subtotal	5.00%	%		
	<b>TOTAL BASE BID</b>				

**Total Base Bid Amount Written:** \_\_\_\_\_

Item No.	Description*	Quantity	Unit	Unit Cost	Sub Total
	<b>Bid Alternate 1, Extend WL across Zuni Road 4, @ STA 150+55 plus WW Bore</b>				
1-1	12" C900 DR18 PVC Water Line including fittings and pipe restraints	260	LF		
1-2	Jack and Bore and Install 22" steel casing, including bore and receiving pits, casing spacers and end seals	510	LF		
1-3	Mobilization/Demobilization compl.	1	LS		
1-4	SWPPP, compl.	1	LS		
1-5	Construction Staking & Surveying, compl.	1	LS		
1-6	Traffic Control, compl.	1	LS		
	<b>BID ALTERNATE 1: SUB TOTAL</b>				
	Zuni TERO FEE @ 5% of subtotal	5.00%	%		
	<b>ALTERNATE 1 TOTAL</b>				

**Total Bid Alternate 1 Amount Written:** \_\_\_\_\_

Item No.	Description*	Quantity	Unit	Unit Cost	Sub Total
	<b>Bid Alternate 2, Extend WL to STA 171+21</b>				
2-1	12" C900 DR18 PVC Water Line including fittings and pipe restraints	1,680	LF		
2-2	Valve, box and cover	1	EA		
2-3	Combination Air Release Valves, below ground in manhole	1	EA		
2-4	Mobilization/Demobilization compl.	1	LS		
2-5	SWPPP, compl.	1	LS		
2-6	Construction Staking & Surveying, compl.	1	LS		
2-7	Traffic Control, compl.	1	LS		
	<b>BID ALTERNATE 2: SUB TOTAL</b>				
	Zuni TERO FEE @ 5% of subtotal	5.00%	%		
	<b>ALTERNATE 2 TOTAL</b>				

**Total Bid Alternate 2 Amount Written:** \_\_\_\_\_

**TOTAL BASE BID, ALTERNATE 1 AND ALTERNATE 2: \$** \_\_\_\_\_

**TOTAL BASE BID, ALTERNATE 1 AND ALTERNATE 2 AMOUNT WRITTEN:** \_\_\_\_\_

**BID PROPOSAL**

The prices set forth in this Bid Form include all work necessary to complete the construction, including overhead, profit, items of incidental expenses, permits, taxes, and any other expenses applicable to complete the construction. The required Bid Security, Bidder's List of Subcontractors, Qualification Statement, Non-Collusive Affidavit, Certificate of Eligibility, and a Corporate Resolution (if applicable) are enclosed with this Bid Form.

**Submitted By:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Printed Name & Title:** \_\_\_\_\_

**Address of Firm:** \_\_\_\_\_

\_\_\_\_\_

**Telephone No:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**N. M. Contractor's License No.** \_\_\_\_\_

**License Classification** \_\_\_\_\_

**License Expiration Date** \_\_\_\_\_

CORPORATE SEAL

**END OF BID FORM**



### BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_, \_\_\_\_\_ PRINCIPAL, and as SURETY, are held and firmly bound unto herein called the "Owner" in the penal sum of \$ \_\_\_\_\_, lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted this accompanying bid, dated \_\_\_\_\_, for the **Construction of Water Infrastructure for the Commercial Development Area.**

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period specified, within ninety (90) days after the said opening, and shall within the period specified therefore, or, if no period specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the bid as accepted, and have the required performance and payment security for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and give security within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said bid and the amount for which the Owner may procure the required work or supplies or both, if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise it shall remain in full force and effect.

IN WITNESS WHEREOF, the above bound parties have executed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

\_\_\_\_\_  
Principal Surety

\_\_\_\_\_  
Title

(Signatures must be notarized.)

(Power-of-Attorney for person signing for Surety Company must be attached to bond.)



## BIDDER'S LIST OF SUBCONTRACTORS

This form shall be completed by Bidder and submitted with Bid Form.

- A. Names of subcontractors to be used on Project must be listed. List all subcontractors who will perform work or render services for **professional geotechnical services**, preparation or inspection of **SWPPP Plans** or who will perform work or render services in an amount in excess of **\$5,000.00**. Give names, address, telephone number, and nature of work to be performed, There shall be only one subcontractor listed for each category. The bidder has the option of listing other names of subcontractors whose subcontract is less or equal to \$5,000.
- B. Submit category of work, name and address of each subcontractor. There shall be only one subcontractor listed for each category. Failure to comply with this requirement will make bid non-responsive and bid will be rejected.

Category of Work	Subcontractor's Name	Place of Business

◀END OF LISTING▶



## QUALIFICATION STATEMENT

This form shall be completed by Bidder and submitted with Bid Form to demonstrate contractor has experience and qualifications to carry out terms of Contract and successfully complete Work. Provide additional sheets as required.

1. Name of Firm: \_\_\_\_\_

2. Main Office Address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Telephone Number: \_\_\_\_\_

4. New Mexico Contractor's License Number: \_\_\_\_\_

5. License Classification: \_\_\_\_\_

6. License Expiration Date: \_\_\_\_\_

7. Date Firm Organized: \_\_\_\_\_

8. Years Engaged in Contracting Under Present Name: \_\_\_\_\_

9. General Character of Work Performed By Firm:

\_\_\_\_\_

\_\_\_\_\_

10. Similar Projects Completed By Firm in Past 5 Years.

(List client, location, construction amount, and date completed):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Previous Clients during Past Five Years  
(Provide name of contact and telephone number):

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12. Current Projects under Contract  
(List construction amount and estimated completion date):

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13. Name of Superintendent to Oversee Construction at Site. (Attach resume of proposed superintendent. Include education, training, previous construction experience of individual and list of projects for which individual has served as construction superintendent. Include number of years that individual has been employed by Contractor and positions and responsibilities):

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**NON-COLLUSIVE AFFIDAVIT**

State of New Mexico \_\_\_\_\_)

County of \_\_\_\_\_)

\_\_\_\_\_, being first duly sworn, deposes and says:

That he is, \_\_\_\_\_ the party making the foregoing proposal for bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has no colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not, in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Owner or any person interested in the proposed contract, and that all statements in said proposal for bid are true.

Project: Construction of Water Infrastructure for the Commercial Development Area

Location: **Pueblo of Zuni, New Mexico**

Signature \_\_\_\_\_

Name and Title \_\_\_\_\_

Date \_\_\_\_\_

(Signature should be notarized.)



**CERTIFICATION OF ELIGIBILITY**

By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

- (1) Be awarded contracts by any agency of the United States Government or,
- (2) Participate in HUD programs pursuant to 24 CFR Part 24.

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(Name of Bidder)

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(Address)

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BY: \_\_\_\_\_

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

**NOTE:** This certification is a material representation of fact upon which reliance is placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal programs.



**NOTICE OF AWARD**

Date:

Contractor:

Address:

**Project Description:**

The OWNER has considered the BID submitted by you for the above-described work in response to its Advertisement for Bids dated June 18, 2015 and June 25, 2015 and the Instruction to Bidders.

You are hereby notified that your **Total Bid Amount** in the amount of \$\_\_\_\_\_ has been accepted.

The accepted **Total Bid Amount** includes:

**Base Bid for the amount of** \$\_\_\_\_\_.

**Bid Alternate 1 for the amount of** \$\_\_\_\_\_.

**Bid Alternate 2 for the amount of** \$\_\_\_\_\_.

The **Total Contract Amount** shall be \$\_\_\_\_\_.

You are required by the Instructions to Bidders to execute the Construction Contract and furnish required Certificates of Insurance, Labor and Materials Bond and Performance Bond within **10 calendar days** from the date of this notice.

If you fail to execute the Construction Contract and to furnish said Certificates and Bonds within **Ten (10) calendar days** from the date of this Notice of Award, the Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this \_\_\_\_ Day of \_\_\_\_\_, 2015.

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

Val R. Panteah, Sr.

Governor

Pueblo of Zuni, Owner

**ACCEPTANCE OF NOTICE**

Receipt of the above Notice of Award is hereby acknowledged by \_\_\_\_\_,

\_\_\_\_\_ on this \_\_\_\_ day of \_\_\_\_\_, 2015.

(Title)

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



## CONSTRUCTION CONTRACT

This contract made this \_\_\_\_ day of \_\_\_\_\_, 2015 by and between **Pueblo of Zuni** herein called the “**OWNER**” and \_\_\_\_\_ doing business as a corporation hereinafter called “**Contractor**”.

WITNESSTH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The Contractor will commence and complete the Construction of Water Infrastructure for the Commercial Development Area.
2. The Contractor will furnish all the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the Project described herein.
3. The Contractor will commence the work required by the Contract Documents within **10 Calendar days** after the date of the Notice to Proceed and will substantially complete the same within **200 calendar days for the Base Bid, 214 days for the Base Bid plus Additive Alternate #1, or 228 days for the Base Bid plus Additive Alternate #1 and #2**, from the Notice to Proceed unless, the period is extended otherwise by the Contract Documents. Contractor will substantially complete the work as specified unless the period is extended otherwise by the Contract Documents. The Contractor agrees to pay liquidated damages, the sum of **\$2,000** for each calendar day needed to substantially complete the work past the date established by the Notice to Proceed and to pay for all surveying, engineering and inspection services incurred by the Owner due to the delay in completion.
4. The Contractor agrees to perform all of the work described in the Contract Documents and comply with the terms therein for the Total Contract Amount of \$\_\_\_\_\_ or as shown in the Notice of Award.
5. The term “Contract Documents” means and includes the following:
  - (1) Advertisement for Bids
  - (2) Instructions to Bidders
  - (3) Bid Form
  - (4) Bid Bond
  - (5) Bidders list of subcontractors
  - (6) Qualification Statement
  - (7) Non-Collusive Affidavit
  - (8) Certificate of Eligibility
  - (9) Notice of Award
  - (10) Construction Contract
  - (11) Clarification to Construction Contract
  - (12) Corporate Certificate
  - (13) Labor and Material Bond
  - (14) Performance Bond
  - (15) Certification of Insurance
  - (16) Notice to Proceed
  - (17) General Conditions

- (18) Owner's Supplemental Conditions
- (19) Technical Specifications
- (20) Project Manual prepared by Zuni Office of Planning & Development dated May 2015.
- (21) Plan Set for Construction of Water Infrastructure for the Commercial Development Area dated May 22, 2015 prepared by Bohannon Huston, Inc.
- (22) Addenda:

6. The Owner will pay to the Contractor in a manner and at such times as set forth in the Instructions to Bidders, General Conditions and in such amounts as required by the Contract Documents.

7. This Construction Contract shall be binding upon all parties and their respective heirs, executors, administrators, successors and assigns.

**In Witness Whereof**, the parties hereto have executed or caused to be executed by their duly authorized official, this Construction Contract in five (5) copies each of which shall be deemed an original on the date first above written.

## CONTRACTOR

By \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_ (Printed Name)  
 \_\_\_\_\_ (Street Address)  
 \_\_\_\_\_ (City, State, Zip code)

Employee Identification Number: \_\_\_\_\_  
 N.M. Contractor's License Number: \_\_\_\_\_  
 License Classification: \_\_\_\_\_  
 License Expiration Date: \_\_\_\_\_

(SEAL)

ATTEST:

\_\_\_\_\_  
 Name



\_\_\_\_\_  
**OWNER**

By \_\_\_\_\_  
Val R. Panteah, Sr  
Governor  
Pueblo of Zuni

(SEAL)

ATTEST:

Name: \_\_\_\_\_

Title:



## Clarification to Construction Contract

### Pueblo of Zuni and Contractor

WHEREAS, the Pueblo of Zuni, Owner, and \_\_\_\_\_ Contractor (the "Parties"), on this date entered into a Construction Contract for the Construction of Water Infrastructure for the Commercial Development Area,

and

WHEREAS, the Parties desire to clarify the terms of the Construction Contract.

THEREFORE, the Parties agree to clarify the Construction Contract as follows:

1. General Conditions, Article 33, Section B, Paragraph 7 is revised to include the following additional sentences:

*Notwithstanding the foregoing, the Zuni Tribal Courts shall have exclusive original jurisdiction over any court action which may be brought under the Construction Contract, except as otherwise provided under federal law. On that basis, the agreement to utilize the rules or procedures of the American Arbitration Association does not include consent to any provision within the Rules of the American Arbitration Association, including, but not limited to Rule R-48(c) (July 1, 2003 edition), which pertains to the court enforcement, appeal, or judicial or governmental jurisdiction over any aspect of the Rules or proceedings.*

Except as provided above, all remaining terms of the Construction Contract remain as written and unaffected by this Clarification.

AGREED TO this \_\_\_\_th day of \_\_\_\_\_ 2015

\_\_\_\_\_  
Val R. Panteah, Sr.  
Governor, Pueblo of Zuni

Contractor: \_\_\_\_\_

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



**CORPORATE CERTIFICATE**

I, the undersigned,

\_\_\_\_\_ of

\_\_\_\_\_ (company name), a

legally chartered Corporation, certify that on \_\_\_\_\_

(date) the following resolutions were duly adopted by a majority of the Board of  
\_\_\_\_\_ (company name) and that such resolutions

remain in effect:

1. Resolved that \_\_\_\_\_ (company name), accept the Notice of Award issued by the Pueblo of Zuni for the Construction of Water Infrastructure for the Commercial Development Area ("Zuni Project") pursuant to a proposal submitted by \_\_\_\_\_ (company name); and

2. Be it further resolved that \_\_\_\_\_ (company name), enter into an agreement with the Pueblo of Zuni for the construction of the Zuni Project in accordance with the Contract Documents herein; and

3. Be it further resolved that \_\_\_\_\_ President of \_\_\_\_\_ (company name), be and is hereby authorized to execute the Contract Documents with the Pueblo of Zuni and any and all other documents required in connection herewith.

Dated this \_\_\_\_\_ Day of \_\_\_\_\_, 2015

\_\_\_\_\_  
Company Name

By \_\_\_\_\_

Title \_\_\_\_\_



# LABOR AND MATERIAL BOND

## KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ as Principal, hereunder called the contractor and \_\_\_\_\_ a corporation organized and existing under and by virtue of the laws of the State of New Mexico and authorized to do business in the State of New Mexico, hereinafter called the Surety, as held and firmly bound unto the Zuni Tribe, New Mexico, hereinafter called the Owner, in the amount of \_\_\_\_\_ (\$ \_\_\_\_\_) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated \_\_\_\_\_, 20\_\_\_\_, entered into a contract described as follows: \_\_\_\_\_ which contract is by reference made a part hereof and is hereinafter referred to as the Contract.

NOW, THEREFORE, the condition of this obligation is such that if the Contractor shall pay as they become due, all just claims for labor performed and materials and supplies furnished upon or for the work under said contract, whether said labor be performed and materials and supplies be furnished under the original contract or any contract thereunder, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

SIGNED AND SEALED ON \_\_\_\_\_, 20\_\_\_\_

OWNER: Zuni Tribe, McKinley County, New Mexico

BY: \_\_\_\_\_

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

\_\_\_\_\_  
(Surety)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

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

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

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

Countersigned

---

Surety's Authorized New Mexico Agent

STATE OF NEW MEXICO     )

Ss

COUNTY OF \_\_\_\_\_)

SUBSCRIBED AND SWORN to before me by \_\_\_\_\_ (Surety's Authorized NM Agent) this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

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Notary Public

My Commission Expires: \_\_\_\_\_

[Note: This bond is issued simultaneously with performance bond in favor of the Owner for the faithful performance of the contract.]



**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ Principal, herein after called the Contractor, and \_\_\_\_\_  
\_\_\_\_\_ a corporation organized and existing under and by virtue of the laws of  
the State of New Mexico and authorized to do business in the State of New Mexico, hereinafter called the Surety,  
are held and firmly bound unto The Zuni Tribe, McKinley County, New Mexico as obligee,  
hereinafter called the Owner, in the amount of \_\_\_\_\_  
\_\_\_\_\_ for the payment whereof Contractor  
and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and  
severally firmly by these presents.

WHEREAS, Contractor has by written agreement dated \_\_\_\_\_, 20\_\_ entered into a contract  
Described as follows: \_\_\_\_\_

Which contract is by reference made a part hereof and is hereafter referred to as the Contract.

NOW THEREFORE, the condition of this obligation is such that, if Contractor shall faithfully perform and  
complete said contract according to its terms and comply with all requirements of law, then this obligation shall be  
null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or expansion of time made by the Owner.

Whenever the Contractor shall be, and declared by the Owner to be, in default under the said contract, the Owner  
having performed its obligations hereunder, the Surety may promptly remedy the default or shall promptly:

Complete the contract in accordance with its terms and conditions, or

Obtain a bid or bids for submission to the Owner for completing said contract in accordance with its terms and  
conditions and, upon determination by the Owner and Surety of the lowest responsible bidder, arrange for a  
contract between such bidder and the Owner and make available as work progresses (even though there should be  
a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph)  
sufficient funds to pay the cost of completion less the balance of the contract price but not exceeding, including  
other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph  
hereof. The term "balance of the contract price", as used in this paragraph shall mean the total amount payable by  
the Owner to the Contractor under said contract and any amendments thereto, less the amount properly paid by  
Owner to the Contractor.

The Surety acknowledges that said contract may contain express guarantees and agrees that said guarantees, if  
any are covered by the Surety's obligation hereunder.

Any suite under this bond must be instituted before the expiration of four years from the date on which final  
payment under the contract falls due, except that, with respect to express guarantees of a longer term, a suit  
thereon must be initiated within one year following the expiration of said express guarantees, if any

Right of action with respect to any express guarantees, if any, in said contract shall accrue following completion  
and formal acceptance of the work under said contract.

No right of action shall accrue on this bond to or for the use of any person or corporation mother than the Owner  
named herein or its successors or assigns.

SIGNED AND SEALED on \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
(Surety)

BY \_\_\_\_\_ Title \_\_\_\_\_

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

By \_\_\_\_\_ Title \_\_\_\_\_

Countersigned:

\_\_\_\_\_  
Surety's Authorized New Mexico Agent

STATE OF NEW MEXICO

ss.

COUNTY OF \_\_\_\_\_)

SUBSCRIBED AND SWORN to before me by \_\_\_\_\_ (Surety's Authorized NM  
Agent) this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

SURETY Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Contact Person \_\_\_\_\_

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

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

**NOTICE TO PROCEED**

Date:

Contractor:

Address:

**Project Name: Construction of Water Infrastructure for the Commercial  
Development Area**

**Contract Amount:**

**Location: Pueblo of Zuni, N.M.**

Gentlemen:

Pursuant to the terms of your Contract, dated \_\_\_\_\_, 2015, you are hereby notified to commence work at the start of business \_\_\_\_\_, 2015.

The contract is to be substantially complete no later than **200 consecutive calendar days for the base bid, 14 additional, consecutive calendar days for Bid Alternate 1, and 14 additional, consecutive calendar days for Bid Alternate 2**, including the starting day, from the date of this Notice to Proceed.

This establishes:

\_\_\_\_\_, 2015 as the date for substantial completion of the Base Bid,

\_\_\_\_\_, 2015 as the date for substantial completion of the Base Bid and Bid Alternate 1,

\_\_\_\_\_, 2015 as the date for substantial completion of the Base Bid and Bid Alternate 1, and Bid Alternate 2

Please acknowledge receipt of this Notice to Proceed by signing, dating, and returning this document to the Contracting Officer.

Sincerely,

\_\_\_\_\_  
Val R. Panteah, Sr. Date  
Governor  
Pueblo of Zuni

**RECEIVED AND ACCEPTED:**

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

Title:



#### **IV. GENERAL CONDITIONS**



**GENERAL CONDITIONS****Table of Contents****SECTION**

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## GENERAL CONDITIONS

### 1. DEFINITIONS

Architect or Engineer - The party designated by the Owner to perform architectural or engineering and other related services in connection with the Contract.

Contract - "Contract" means the entire agreement entered into between the Owner and the Contractor. It includes the Advertisement for Bids, Instructions to Bidders, the Bid Form, the Bid Bond or Letter of Credit, Bidders List of Subcontractors, Non-Collusive Affidavit, Qualification Statement, Certificate of Eligibility, Notice of Award, Construction Contract, Clarification to Construction Contract, Corporate Certificate, Performance and Payment Bond (or other form of assurance of completion), Certification of Insurance, Notice to Proceed, General Conditions, Owner's Supplementary Conditions, Technical Specifications and Plans. It includes all formal changes to any of those documents by addendum, change order, or other modification.

Contracting Officer - The Director, Office of Planning & Development, Zuni Tribe is authorized to administer the Contract for the Owner. This person need not be the person executing the Contract for the Owner. The Owner shall advise the Contractor as to the identity of the designated Contracting Officer, and may change such designation from time to time by notification to the Contractor.

Contract Work - The work to be performed under the Contract.

Drawings - The Plans of Zuni Construction of Water Infrastructure for the Commercial Development Area Project dated May 22, 2015 prepared by Bohannon Huston, Inc.

Owner - The **Zuni Tribe** which is the party to the Contract with the Contractor.

Project - The Project to be constructed in whole or in part under this Contract.

Technical Specifications - the written or referenced technical requirements for construction, including the criteria and tests for determining whether the requirements of the Contract are met.

Total Contract Amount – The total amount payable to the Contractor under the Contract.

### 2. PRE-CONSTRUCTION CONFERENCE AND NOTICE TO PROCEED

A. Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a pre-construction conference with representatives of the Owner, its Architect or Engineer, and other interested parties convened by the Owner. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The Owner will provide the Contractor with the date, time, and place of the conference.

B. The Contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

### 3. OBLIGATIONS OF CONTRACTOR

A. Except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat and power, transportation, superintendence, temporary construction of every nature, taxes legally payable because of Contract work, and all other services and facilities of every nature whatsoever necessary to perform the Contract work and deliver it complete in every respect within the specified time.

B. The Contractor shall supervise the work, and shall have a competent superintendent on the work at all times with full authority to act for the Contractor. The Contractor shall also provide a staff adequate to coordinate and expedite his work and that of his subcontractors to ensure compliance with Contract requirements.

C. The Contractor may authorize his superintendent or other individuals to sign for him and his name if the Contractor has filed with the Owner a notarized statement evidencing such authorization and authenticating the signature to be so honored.

D. The Contractor shall lay out the work and be responsible for all lines, levels, and measurements of all work executed under the Contract. He shall verify the the figures before laying out the work and will be held responsible for any error resulting from his failure to do so.



E. The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the Owner, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work, which may have been accepted under the contract.

F. The Contractor shall confine all operations (including storage of materials) to areas authorized or approved by the Contracting Officer.

G. The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the Owner and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.

H. The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the **warranties** specified elsewhere in the contract.

#### 4. OTHER CONTRACTS

The Owner may award other contracts for additional work, and the Contractor shall fully cooperate with such other contractors and carefully fit his own work to that provided under other contracts as may be directed by the Owner. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other Contractor. Where other contractors are employed for such additional work, it shall be the responsibility of the Owner, or designee, to coordinate the work of all such contractors unless otherwise expressly provided elsewhere in this Contract.

#### 5. ASSIGNMENT OF CONTRACT

The Contractor's obligations and duties under this Contract shall not be assigned in whole or in part by the Contractor without the written approval of the Owner, but this shall not prohibit the assignment of the proceeds due hereunder to a bank or financial institution, nor shall this provision preclude the Contractor from subcontracting, in accordance with this Contract, parts of the work in accordance with the general practice of the building industry. No assignment shall be made except to an entity authorized to accept such assignment.

#### 6. CONSTRUCTION PROGRESS SCHEDULE

A. The Contractor shall, within **five days** after the work commences on the contract or other periods of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a **Gantt Chart** of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

B. The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Owner. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

C. Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

## 7. SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

A. The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads, (3) uncertainties of weather, river stages, moist or wet areas, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials, or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

B. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner. Nor does the Owner assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

## 8. DIFFERING SITE CONDITIONS

A. The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

B. The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the Owner within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

C. No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (A) above for giving written notice may be extended by the Contracting Officer.

D. No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

## 9. SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION

A. The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

B. Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

C. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word

"provided" as used herein shall be understood to mean, "provide complete in place", that is "furnished and installed".

D. "Shop drawings" means drawings, submitted to the Owner by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The Owner may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

E. If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with order requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Owner's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (F) below.

F. If shop drawings show variations from the contract requirements; the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Engineer or Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

G. It shall be the responsibility of the Contractor to make timely requests of the Owner for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

H. The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Owner and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

I. This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

## **10. AS-BUILT DRAWINGS**

A. "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "record drawings."

B. As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final location of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

C. This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

## **11. MATERIAL AND WORKMANSHIP**

A. All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. Reference in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

B. The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

C. The Contractor shall comply with the prohibition against the use of lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

## **12. SAMPLES, CERTIFICATES AND TESTS**

A. When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

B. Certificates shall be submitted, describing each sample submitted for approval, and certifying that the material, equipment, or accessory complies with Contract requirements. They shall include the name and brand of the product, name of manufacturer, and the location where produced.

C. Approval of any material, equipment, or accessory by the owner shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. Materials, equipment, and accessories may be rejected by the Owner for cause even though such articles have been given approval.

D. Wherever materials are required to comply with recognized standards for Federal Specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other Contract requirement". The Owner may require laboratory test reports on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use, only as frequently as the Owner considers necessary to ensure compliance of materials.

A. Except as otherwise specifically stated in the Contract, the costs of sampling, testing and furnishing test reports to the Owner by a certified geotechnical engineer, approved by the Owner, will be the responsibility of the Contractor without extra costs:

- (1) the Contractor will furnish all testing required by the contract documents.
- (2) the Contractor will furnish all certified materials test results by email to the Owner within five (5) calendar days after the test results are determined;
- (3) the Contractor will assume all costs of re-testing materials which fail to meet Contract requirements;

F. After approval, samples will be kept in the Contractor's project office until completion of work. Materials representing approved samples may be built into the work as approved by the Owner or the Owner's designee.

## **13. COMPLIANCE WITH APPLICABLE LAW**

A. The Contractor shall give all notices and comply with all applicable Federal, state, tribal and local laws (including ordinances, codes, rules, and regulations, and waivers). The intent of this provision is that the Contractor shall base his bid upon the drawings and specifications, but that all work installed shall comply with applicable laws and waivers. Before performing the Contract Work, the Contractor shall examine the drawings and the specifications for compliance with the applicable laws and waivers, and shall immediately report any noncompliance to the Owner/Owner's designee when the requirements of the drawings and specifications do not comply with such applicable law, unless waivers have been obtained.

B. The Contractor shall secure and pay for all permits, fees and licenses necessary for the proper execution and completion of the work. Where the Owner can arrange for the issuance of all or any of these permits, fees, and licenses without cost to the Contractor, the Contract Price shall be reduced accordingly.

**14. REQUESTS FOR SUPPLEMENTARY INFORMATION**

It shall be the responsibility of the Contractor to make timely requests of the Owner for such large scale and full size drawings, color schemes, and other additional information, not already in the Contractors possession, which the Contractor will require in the planning and production of the work. Such requests may be submitted from time to time as the need is approached, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

**15. HEALTH, SAFETY, AND ACCIDENT PREVENTION**

A. In performing this contract, the Contractor shall:

1. Adhere to the provisions of the standards under the Occupational Safety and Health Act of 1970 (Pub. L. 91-576) (See 36CFR part 1910; and
2. State and local codes, to the extent that they are more stringent.
3. Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

B. For these purposes, the Contractor shall:

1. Provide appropriate safety barricades, signs, and signal lights.
2. Furnish, install, and maintain ample sanitary facilities for the workers. These facilities shall be sufficient to meet the project needs and be located to the satisfaction of the Contracting Officer. All such facilities and services shall be furnished in strict accordance with governing health regulations; and,
3. Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

C. The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. The Contractor shall report this data in the manner prescribed by the Contracting Officer.

D. The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

E. The Contractor shall be responsible for its subcontractor's compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the Owner, TERO, or the Secretary of Labor shall direct as a means of enforcing such provisions.

**16. PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES AND IMPROVEMENTS**

A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which is not to be removed under this contract, and which does not unreasonably interfere with the work required under this contract.

B. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

C. The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground on the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.

B. The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the



excavations or other operations connected with the construction of the project.

E. Any new equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

F. New work which connects to existing work shall correspond in all respects with that to which it connects unless otherwise required by the specifications.

G. No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.

H. If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.

I. The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.

J. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

K. The Contractor shall repair any damage to vegetation, structure, equipment, utilities, or improvements, including those that are the property of third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

## 17. SITE REQUIREMENTS

A. The Owner has, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800.4, undertaken investigations to identify historic properties with the project's area of potential effect. However, should evidence of subsurface archeological or historic properties be discovered during the course of construction, the Contractor shall halt construction, take all necessary steps to protect the property, and immediately notify the Contracting Officer or his/her representative. The Owner shall have the authority to take all necessary steps to determine the property's significance and make a determination of eligibility in accordance with 36 CFR 800.11. In addition, should human skeletal remains and/or associated funerary objects be discovered during construction, the Contractor shall suspend earthmoving operations, take all necessary steps to protect the remains, and immediately notify the Contracting Officer or his/her representative. Construction work in the vicinity of the remains shall be suspended until the Owner confers with the appropriate Tribal Members as to the disposition of the skeletal remains and objects in accordance with provisions of the Zuni Tribal burial policy and the Native American Graves Protection and Repatriation Act. The duration of such investigations will vary according to the type and volume of materials discovered, their significance, and the amount of effort required to retrieve the data if so required following consultation with the Local Historic Preservation Officer and the Advisory Council on Historic Preservation. If possible, the Contracting Officer or his/her representative shall direct the Contractor to work outside the area of investigations. As it is not possible to determine in advance whether such discovery situations will occur, payment for any downtime or movement to another portion of the project shall be negotiated at the time of occurrence for a modification to the contract. It shall be the responsibility of the Contractor to keep careful written records of any and all personnel and equipment costs involved commencing when any remains are encountered and concluding when work has restarted.

B. The Contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities. The SWPPP must be prepared in accordance with good engineering practices and must: 1) Identify all potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site; 2) Describe practices to be used to reduce pollutants in storm water discharges from the construction site; and 3) Assure compliance with the terms and conditions of the NPDES General Permit. A copy of the NPDES General Permit can be obtained from the EPA web site at the following location ([www.epa.gov/npdes/pubs/cgp2003\\_entirepermit.pdf](http://www.epa.gov/npdes/pubs/cgp2003_entirepermit.pdf)).

If the Contractor is not experienced in the preparation of SWPPP, he/she shall retain the services of an environmental

firm regularly engaged in the preparation of SWPPP to perform said service. The completed SWPPP must be approved by the Owner or Owner's Representative at least 10 calendar days before the start of construction so that a Notice of Intent can be sent to the EPA by the Contractor. The Contractor shall fully implement the SWPPP from the commencement of construction until final stabilization, as defined in the NPDES General Permit, is achieved. The Contractor shall maintain and update the SWPPP, as required in the NPDES General Permit, for the life of the project. Updates shall include amendments required as a result of ineffective controls discovered through the course of inspections or investigations conducted by the Owner or Owner's Representative, site staff, or by local, state, tribal or federal officials. The Contractor shall submit a Notice of Intent to the EPA to obtain permit coverage, modify the coverage as necessary, and terminate permit coverage once final stabilization is achieved.

Preparation, implementation, maintenance and removal of SWPPP improvements shall be paid on a lump sum basis as shown on the Bid Schedule, which shall be full compensation for plan preparation including required revisions for Owner's acceptance and updates to the SWPPP for the life of the project.

Implementation of the SWPPP shall be paid on a lump sum basis as shown on the Bid Schedule, and shall include full compensation for implementation of the SWPPP including, but not limited to, Permit application, inspections, installation and maintenance of controls, modification of controls as determined by inspections, removal of pollutants due to failed controls, and Permit termination.

C. Provide one Project Identification Sign ( $\frac{3}{4}$ " x 48" x 96" w/3 - 4" x 4" supports) identifying the project, funding agencies, Owner and Contractor in accordance with the sign plate shown in Section V, Owners Supplementary Conditions including seals, logos, etc. Install identification sign at a location approved by the Contracting Officer.

D.. Provide one weather proofed bulletin board ( $\frac{3}{4}$ " x 48" x 96" w/3 - 4"x4" supports) for wage rate posting, safety bulletins, work schedules, phone numbers for emergency contacts and other information as required or approved by the Contracting Officer.

E. The Contractors field offices, staging areas, stockpiles, storage, and temporary buildings shall be placed in areas secured by the Contractor and approved by the Contracting Officer.

F. Water for compaction, dust abatement and other construction may be obtained from a location approved by the Contracting Officer. The pumping area or water loading area shall be restored to its original condition after use. Arrangements and payment for the use of this water shall be made with the Pueblo of Zuni Reality Office in accordance with Zuni Royalty Rate Resolution M70-2002-B045.

G. Prior to construction activities, the Contractor shall fence and/or mark the cultural areas as shown on the plans that shall not be disturbed under this contract. Isolated areas within the work area that is not be disturbed shall be marked or fenced as shown on the plans. Monuments, markers and stakes shall be protected by the Contractor at all times. Any such monuments, markers or stakes destroyed or moved by the Contractor shall be replaced at the Contractor's expense.

## **18. TEMPORARY HEATING**

The Contractor shall provide and pay for temporary heating, covering and enclosures necessary to protect properly all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the Owner in the condition, and at the time, required by the Specifications.

## **19. AVAILABILITY AND USE OF UTILITY SERVICES**

A.. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Owner or, where the utility is produced by the Owner, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

B. The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Owner, the Contractor shall remove all the temporary connections, distribution lines, meters and associated paraphernalia.

## **20. TEMPORARY BUILDINGS AND TRANSPORTATION OF MATERIALS**

A. Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials

furnished by the Contractor without expense to the Owner. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

B. The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged berms, curbs, sidewalks, or roads.

## 21. INSPECTION AND ACCEPTANCE OF CONSTRUCTION

A. As used in this clause:

1. "Acceptance" means the act by which the Contracting Officer assumes ownership of the work performed under this contract. Acceptance may be partial or complete.

2. "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.

3. "Testing" means that element of inspection that determines the properties or elements, including functional operation, materials, equipment, or their components, by the application and established scientific principles and procedures.

B. The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to Owner inspection and testing at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract. However, all instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer only and not by anyone else.

C. Owner inspections and tests are for the sole benefit of the Owner and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the Owner after acceptance of the completed work under paragraph (J) below.

D. The presence or absence of the Owner's inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization.

E. The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Owner may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes re-inspection or retest necessary. The Owner shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size and performance tests shall be performed as described in the contract.

F. The Owner may conduct routine inspections of the construction site on a daily basis.

G. The Contractor shall, without charge, replace or correct work found by the Owner not to conform to contract requirements, unless the Owner decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

H. If the Contractor does not promptly replace or correct rejected work, the Owner may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.

I. If any work requiring inspection is covered up without approval of the Owner, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. Further, if at any time before final acceptance of the entire work, the Owner considers it necessary or advisable to make an examination of work already covered or completed, the Contractor shall on request promptly furnish all necessary facilities, labor, and material to uncover the work for such examination and for satisfactory reconstruction after the examination. If such work is found to be



defective or non-conforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

J. The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Engineer or Architect determines that the state of preparedness is as represented, the Owner will promptly arrange for the inspection. Unless otherwise specified in the contract, the Owner shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final except for latent defects, fraud, gross mistakes amounting to fraud, or the Owner's right under any warranty or guarantee.

## 22. WARRANTY OF TITLE

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work, and agrees to deliver the premises and all improvements free from any claim, lien, security interests, or charges, and agrees further that neither he nor any other person, firm, or corporation shall have any right to a lien or security interest upon the premises or improvements.

## 23. WARRANTY OF CONSTRUCTION

A. In addition to any other warranties in this Contract, the Contractor warrants, except as provided in paragraph (J) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of **1 year (one year unless otherwise indicated)** from the date of final acceptance of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of **1 Year (one year unless otherwise indicated)** from the date of substantial completion. The Owner and/or his representative to assure warranty compliance will hold an inspection **eleven (11) months** after the date of substantial completion.

B. The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to Owner-owned or controlled real or personal property when the damage is the result of:

1. The Contractor's failure to conform to contract requirements; or
2. Any defects of equipment, material, workmanship or design furnished by the Contractor.

C. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for **1 Year (One year unless otherwise indicated)** from the date of repair or replacement.

D. The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

E. If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Owner shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.

F. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and material furnished under this contract, the Contractor shall:

1. Obtain all warranties that would be given in normal commercial practice;
2. Require all warranties to be executed in writing, for the benefit of the Owner, and
3. Enforce all warranties for the benefit of the Owner.

G. In the event the Contractor's warranty under paragraph (A) of the clause has expired, the Owner may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

H. Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the Owner nor for the

repair of any damage that results from any defect in Owner furnished material or design.

I. Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (A) and (C) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract 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 its obligation other than specifically to correct the work.

J. This warranty shall not limit the Owner's rights under the Inspection and Acceptance of Construction section of this contract with respect to latent defects, gross mistakes or fraud.

## 24. CONTRACT PERIOD

The Contractor shall complete all work required for substantial completion under this Contract within **200 Calendar Days** of the effective date of the contract if the Base Bid is selected, or within **214 Calendar Days** of the effective date of the contract if the Base Bid and Bid Alternate 1 is selected, or within **228 Calendar Days** of the effective date of the contract if the Base Bid and Bid Alternate 1 and Bid Alternate 2 is selected, or within the time schedule established in the **Notice to Proceed** issued by the Contracting Officer, whichever is shorter.

## 25. CONFLICT OF LAWS

In the event of a conflict between these General Conditions and the Technical Specifications, the General Conditions shall prevail. In the event of a conflict between the Contract and applicable law, the applicable law shall prevail. For the purposes of this Section 25 "applicable law" shall mean Tribal law; however, if such Tribal law is in conflict with applicable federal law, including any applicable federal statute, regulation or executive order, then "applicable law" for the purpose of this Section 25 shall mean federal law.

## 26. SUBCONTRACTS

A. As used in this provision and throughout the Contract:

1. "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

2. "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

B. the Contractor shall not:

1. Enter into any subcontract with any subcontractor who is presently suspended or debarred from participating in contracting programs by any agency of the United States Government or of the State New Mexico.

2. Subcontract with a proposed person or entity to whom the Owner or the Owners Representative has made a reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

3. Change a Subcontractor, person or entity previously selected if the Owner or the Owners Representative makes reasonable objection to such substitute.

C. The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.

D. The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this Contract insofar as they are applicable to the work of subcontractors.

E. Nothing contained in this Contract shall create any contractual relationship between any subcontractor and the Owner.

**27. PAYMENTS**

A. The Owner shall pay the Contractor monthly based upon the Pueblo of Zuni Accounts Payable Payment Schedule in effect during the contract period. The Contractor shall submit requests for payments in a format approved by the Owner based upon the percentage complete of each item listed in the bid proposal.

B. Before the first progress payment under this Contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total Contract Price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer. If the Contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the Contract or include overhead and profit in unit prices. The first payment request shall include the total amount of TERO Tax as shown on the Bid Proposal.

C. The Contractor shall submit, on forms approved by the Owner, periodic estimates showing the value of the work performed during each period based upon the approved breakdown of the contract price. Such estimates shall be submitted not later than 7 days in advance of the date set for payment and are subject to appropriate approved payment schedule. The estimates must be approved by the Contracting Officer with the concurrence of the Engineer or Architect (if applicable) prior to payment. If the Contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

D. Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made:

I hereby certify, to the best of my knowledge and belief, that:

1. The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the Contract;

4. Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,

3. This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

\_\_\_\_\_  
(Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

E. Except as otherwise provided under applicable laws, the Owner shall **retain five (5) percent** of the amount of progress payments until completion and acceptance of all work under the contract.

F. The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments. Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any payment which includes delivered material is made, the Contractor shall furnish documentation the Contracting Officer requires to assure the protection of the Owner's interest in such materials. The Contractor shall be responsible for such stored material notwithstanding the transfer of title to the owner.

G. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Owner, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the Owner to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the Owner in the course of their employment, the Contractor shall restore such damaged work without cost to the Owner and to seek redress for its damage only from those who directly caused it.

H. The Owner shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the Owner arising by virtue of this Contract, other than claims, in stated amounts that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this Contract has been signed.

I. The following Close-out documents shall be submitted prior to final payment: Certificate of Substantial Completion, Engineer and Owner Acceptance Letter, Certification of Labor Standards Compliance, Release of Liens, Davis-Bacon Act Certification, O & M Manuals or Letter from Owner accepting Manuals, Record Drawings or Letter from Owner accepting Record Drawings, Final Pay Request and Final Adjusting Change Order.

J. The Owner shall not (1) determine or adjust any claims for payment or disputes arising thereunder between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the Owner to withhold moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bonds furnished under this Contract.

## 28. CONTRACT MODIFICATIONS

A. Only the Contracting Officer has authority to modify any term or condition of this Contract. Any contract modification shall be authorized in writing.

B. The Contracting Officer may modify the contract unilaterally: (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the Owner's address). All other contract modifications shall be in the form of supplemental agreements (i.e., change orders) signed by the Contractor and the Contracting Officer.

## 29. CHANGES

A. The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:

1. In the specifications (including drawings and designs);
2. In the method or manner of performance of the work;
3. Owner furnished facilities, equipment, materials, services, or site; or,
4. Directing the acceleration in the performance of the work.

B. Any other written order or oral order (which, as used in this paragraph (B), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

C. Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

D. If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no proposal for any change under paragraph (B) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the Owner is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

E. The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (A) of this clause, or (2) the furnishing of a written notice under paragraph (B) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (B) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

F. The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with the itemized breakdown of all increases and decreases in the contract with at least the following details:

1. Direct Costs. Materials (list individual items, the quality and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours and unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/or revision to shop drawings resulting from the change; Worker Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA and, Bond Costs when size of change warrants revision.

2. Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

3. Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net change in direct costs for the Contractor or subcontractor performing the work.

G. The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

H. The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

I. Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

J. Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

K. Field Orders are written or oral orders from the Contracting Officer to the Contractor that does not modify any term or condition of this contract.

### **30. SUSPENSION OF WORK**

A. The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Owner.

B. If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

C. A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

### **31. DISPUTES**

A. "Claim," as used in this clause means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted

is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

B. Except for disputes arising under the Section 41 of the Contract, entitled Disputes Concerning Labor, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved in accordance with this clause.

C. All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the Owner against the Contractor shall be subject to a written decision by the Contracting Officer.

D. The Contracting Officer shall, within **Sixty (60) unless otherwise indicated days** after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

E. The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the Owner in accordance with the Owner's policy and procedures, or (2) in accordance with the procedures set forth below, refers the appeal to an independent mediator, and if mediation fails, then the appeal may be referred to binding arbitration, or (3) files suit in a court of competent jurisdiction. Prior to filing suit, a party to the Contract must have attempted in good faith to resolve the dispute by exercise of one or more of the other remedies set forth above.

F. Appeals as referenced in this Disputes section must be made within **Thirty Days (30 unless otherwise indicated)** after receipt of the Contracting Officer's decision. Further, the remedies contained in this Disputes section shall be cumulative. Except as expressly stated herein, the exercise of any one of the remedies outlined above shall not preclude the exercise of any of the other remedies outlined above.

G. The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

### 32. INDEPENDENT MEDIATION

The Owner or Contractor may initiate independent mediation by filing a written request for such mediation with the American Arbitration Association (AAA). Subject to mutual consent in writing by the Owner and the Contractor, any claim, controversy, or dispute arising out of or related to the Contract may be settled by independent mediation in accordance with the current Construction Industry Mediation Rules of the AAA. Prior to submitting a matter to arbitration, a party to the Contract must refer the claim, controversy, or dispute to an independent mediator for resolution.

### 33. ARBITRATION

A. Matters submitted to Arbitration. Any claim, controversy, or dispute arising out of or related to the Contract may be settled by arbitration in accordance with the following procedures, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof.

#### B. Procedure.

1. Upon failure to obtain a satisfactory resolution to a claim, controversy, or dispute through independent mediation, either party may demand such arbitration in writing, which demand shall include the name and address of the arbitrator appointed by the party demanding arbitration, together with a statement of the matter of controversy.

2. Within 20 days after such demand, the other party shall designate its arbitrator in writing by name and address, or in default of such designation, such arbitrator shall be designated by the American Arbitration Association. The two arbitrators so selected shall name a third arbitrator within 20 days after the second arbitrator is designated. In the event that no agreement on a third arbitrator is reached by the two arbitrators, the appointment shall be made by the American Arbitration Association. Questions regarding hearing procedures and introduction of evidence shall be decided by the third arbitrator.

3. The arbitration costs and expenses of such party (e.g. witness expenses and attorney fees) shall be borne by that party, and all arbitrators' fees and other expenses shall be borne equally by both parties.

4. The arbitration hearing shall be held at such time and place as designated by the arbitrators on at least 20 days written notice to the parties. The arbitration hearing shall not commence, however, until the project has reached the date of substantial completion as determined by the Owner. In exceptional circumstances, the

arbitration hearing may be held prior to the date of substantial completion for the project. The arbitration hearing shall be held either in the county in which the Indian tribe is located or in the county in which the project site is located.

5. An award rendered by a majority of the arbitrators appointed pursuant to this agreement shall be final and binding on all parties to the proceeding, and the parties hereto agree to be bound by such award. If a party after being notified fails to appear or participate in arbitration proceedings, or fails to produce evidence demanded by the arbitrators, the arbitrators are authorized to make their award based on the evidence produced at the hearings by the party who does participate. No award shall be enforceable for a monetary amount in excess of the total grant amount for the project.

6. As to any procedures regarding the conduct of the arbitration that are not specified either in this Contract or in, another written agreement signed in advance of the hearing, the parties shall follow the current Construction Industry Arbitration Rules of the American Arbitration Association.

7. The award may be enforced by having a judgment entered in accordance with applicable law in any court having jurisdiction.

C. Survival of the Arbitration Agreement. The arbitration provision of this Contract shall, with respect to such controversy or dispute, survive the termination or expiration of this contract.

D. Statute of Limitations. A demand for arbitration shall be made within a reasonable time after the claim; dispute or other matter in question has arisen. In no event shall the demand for arbitration be made after the date when the initiation of legal or equitable proceedings based on such claim would be barred by the applicable statute of limitations.

E. Lack of Arbitrator's Authority to Modify Contract.

1. Nothing contained in this Contract shall be deemed to give the arbitrators any authority, power, or right to alter, change, amend, modify, add to, or subtract from any of the provisions of this Contract.

F. Federal Responsibilities. Nothing herein shall prohibit any agency of the Federal Government from discharging its administrative and contractual duties to the Owner.

### 34. DEFAULT

A. If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this Contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to proceed with the work (or separable part of the work) that has been delayed. In this event, the Owner may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Owner resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Owner in completing the work.

B. The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if:

1. The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the Owner or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the Owner, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors for supplies at any tier arising from unforeseeable causes beyond the control and with the fault or negligence of both the Contractor and the subcontractors or supplies; and

2. The Contractor, within **Ten Days (10) days unless otherwise indicated** from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes section of this contract.

A. If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the

termination had been for the convenience of the Owner.

### 35. LIQUIDATED DAMAGES

A. If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the Owner as liquidated damages, the sum of **\$2,000 for each Calendar Day** of delay and to pay for all additional architectural, engineering and inspection services incurred by the Owner due to the delay in completion. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in the contract, liquidated damages shall not be due the Owner. The Contractor remains liable for damages caused other than by delay.

B. If the Owner terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Owner in completing the work.

1. If the Owner does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

### 36. TERMINATION FOR CONVENIENCE

A. The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the Owner. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.

B. If the performance of the work is terminated, either in whole or in part, the Owner shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt of the Owner of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the Owner to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the Owner or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the Owner; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.

C. The Contracting Officer will act on the Contractor's claim within **Sixty Days (60) days unless otherwise indicated** of receipt of the Contractor's claim.

D. Any disputes with regard to this section are expressly made subject to the provisions of the Disputes section of this contract.

### 37. INSURANCE

- A. Before Notice to Proceed or commencing any work, the Contractor and each subcontractor shall furnish the Owner with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract. The limits of liability for insurance required shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverage:

- |  |            |
|--|------------|
| a. State:                                    | Statutory  |
| b. Applicable Federal (e.g., Longshoremen's) | Statutory  |
| c. Employer's Liability                      | \$ 500,000 |

2. Contractor's General Liability which shall include completed operations and product liability coverage and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

- |  |              |
|--|--------------|
| a. General Aggregate                         | \$ 2,000,000 |
| b. Products – Completed Operations Aggregate | \$ 1,000,000 |



- |   |              |
|---|--------------|
| c. Personal and Advertising Injury  | \$ 1,000,000 |
| d. Each Occurrence (Bodily Injury and Property Damage)  | \$ 1,000,000 |
| e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverage where applicable. | \$1,000,000  |
| f. Excess or Umbrella Liability General Aggregate   | \$ 5,000,000 |
| Each Occurrence   | \$ 5,000,000 |
3. Automobile Liability:
- |                             |              |
|-----------------------------|--------------|
| a. Bodily Injury:           |              |
| Each Person                 | \$ 1,000,000 |
| Each Accident               | \$ 1,000,000 |
| b. Property Damage:         |              |
| Each Accident               | \$ 1,000,000 |
| c. Combined Single Limit of | \$ 1,000,000 |
4. The Contractual Liability coverage shall provide coverage for not less than the following amounts:
- |                     |              |
|---------------------|--------------|
| a. Bodily Injury:   |              |
| Each Person         | \$ 2,000,000 |
| Each Accident       | \$ 2,000,000 |
| b. Property Damage: |              |
| Each Accident       | \$ 2,000,000 |
| Annual Aggregate    | \$ 2,000,000 |

B. Before Notice to Proceed or commencing work, the Contractor shall furnish the Owner with a certificate of insurance evidencing the Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the Owner as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the Owner shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the Owner. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the Owner. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the Owner. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the Owner's existing fire and extended coverage policy can be endorsed to include such work.

C. All insurance shall be carried with companies which are financially responsible and admitted to do business in the State of New Mexico. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or not renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

### 38. ROYALTIES AND PATENTS

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 resulting from use of a particular design or process or the product of a particular manufacturer or manufacturers specified in the Contract, but if the Contractor has reason to believe that the design or process or product specified is an infringement of a patent, the Contractor shall be responsible for such loss unless he promptly gives such information to the Owner.

### 39. PAYROLLS AND RELATED REPORTS

- A. Payrolls and basic records relating thereto shall be maintained during the course of the work and

preserved by the Contractor and all subcontractors for a period of three years thereafter for all laborers and mechanics employed in the development of the Project. Such records shall contain the name and address of each such employee, and the employee's correct classification, rates of pay, daily and weekly number of hours worked, deductions made and actual wages paid.

B. A submission to the Owner of a "Weekly Statement of Compliance" is required under this Contract and the Copeland Regulations of the Secretary of Labor (29 CFR Part 3).

C. The Contractor shall also furnish to the Owner any other information or certifications relating to employees in such forms as the Owner may request.

#### 40. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or against otherwise qualified disabled individuals.

B. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or disability. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

C. The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this cause.

D. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or disability.

E. The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

F. The Contractor shall comply with Federal Executive Order 11246 of September 24, 1965, entitled "Equal Opportunity" as amended by Executive Order 11375 of October 13, 1967 and as supplemented in Department of Labor regulations (41 CFR chapter 60).

G. The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

H. In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

I. The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

J. Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self Determination and Education Assistance Act and the Indian Preference clause of this contract.

**41. SUBCONTRACTING WITH SMALL AND MINORITY BUSINESS FIRMS, WOMEN'S BUSINESS ENTERPRISES AND LABOR SURPLUS AREA FIRMS**

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to Indian owned, small business firms, minority firms, women's business enterprises, and labor surplus area firms:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- B. Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;
- C. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;
- D. Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and
- E. Using the services and assistance of the U. S. Small Business Administration, the Minority Business Development Agency of the U. S. Department of Commerce, and State and local governmental small business agencies.

**42. INTEREST OF MEMBERS OF CONGRESS**

No member of or delegate to the Congress of the United States of America or Resident Commissioner shall be admitted to any share or part of this Contract or to any benefit to arise here from, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

**43. CONFLICT OF INTEREST**

No member, officer, or employee of the Owner, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the Owner was activated, and no other public official of such locality or localities which exercises any functions or responsibilities with respect to the project shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

**44. REVIEW OF WORK: ACCESS TO RECORDS**

The Owner, or any of their duly authorized representatives, shall at all times and places have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, contracts, books of account, and other relevant data and records.

**45. CLEAN AIR AND WATER**

A. Definition. "Facility" means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by the Contractor or any subcontractor, used in the performance of the contract or any subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the Environmental Protection Agency (EPA) determines that independent facilities are collocated in one geographical area.

B. In compliance with regulations issued by the United States Environmental Protection Agency (EPA), 40 CFR Part 15, pursuant to the Clean Air Act, as amended ("Air Act"), 42 U.S.C. 7401, et seq., the Federal Water Pollution Control Act, as amended ("Water Act"), 33 U.S.C. 1251, et seq., and Executive Order 11738, the Contractor agrees to:

- 1. Not utilize any facility in the performance of this contract or any subcontract which is listed on the EPA List of Violating Facilities pursuant to Part 15 of the regulations for the duration of time that the facility remains on the list;
- 2. Promptly notify the Contracting Officer if a facility the Contractor intends to use in the performance of this contract is on the EPA List of Violating Facilities or the Contractor knows that it has been recommended to be placed on the List;
- 3. Comply with all requirements of the Air Act and the Water Act, including the requirements of Section 114 of the Air Act and Section 308 of the Water Act, and all applicable clean air and clean water standards.

END OF GENERAL CONDITIONS



## **V. OWNER'S SUPPLEMENTARY CONDITIONS**

- **Royalty Rates – Resolution M70-2002-B045**
- **Project Identification Sign**
- **TERO Contractor's Requirements**
- **Wage Rate Determinations**





ZUNI TRIBAL COUNCIL  
ZUNI, NEW MEXICO

August 7, 2002

RESOLUTION NO. M70-2002-B045

WHEREAS, the Zuni Tribal Council, consisting of the Governor, Lieutenant Governor, and six Tenientes, is declared to be the legislative authority of the Pueblo of Zuni by Article V, Section 1, of the Constitution of the Zuni Tribe; and,

WHEREAS, the Zuni Tribal Council is empowered to regulate the use of tribal resources involving water and minerals by Article VI, Section 1, paragraph f, of the Constitution of the Zuni Tribe; and,

WHEREAS, the Zuni Tribal Council has sand, gravel, and water resources that are purchased by contractors for various construction projects on the Zuni Indian Reservation; and,

WHEREAS, in recognition of the need to generate income on some non-renewable resources of the Tribe, the Tribal Council has reviewed and increased the current royalty rates established in 1996 under which business operators, and contractors may purchase sand, gravel, flagstone, and water for construction projects of the Zuni community; and,


WHEREAS, the following royalty rates are hereby increased effective the date of this resolution which will replace Resolution No. M70-96-E067.

<u>RESOURCES</u>	<u>ON RESERVATION</u>
1. Gravel (Contractor Excavation and Crushing)	\$ 3.00/Ton \$ 1.50/Ton
2. Fill and Borrow Material and Blending Sand (including crusher waste material).	\$ 1.25/Ton
3. Crushed Gravel (Various sizes stockpiled), if available.	\$ 10.00/Ton
4. Lake Water (Source distance approx. 12 miles one way – Domestic water supply allowable <u>only</u> for testing/flushing system)	\$ 6.00/Per 1,000 gal
5. Riprap Material (Various sizes not necessarily screened), if available.	\$50.00/cu.yd.
6. Native Sandstone (Cut, shape or natural flagstone). (Contractor Excavation and cutting)	\$ 85.00/Ton \$ 35.00/Ton

NOW, THEREFORE, BE IT RESOLVED THAT, all permits for the above referenced shall be issued with the above rates.

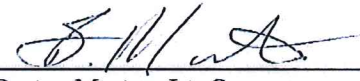
ZUNI TRIBAL COUNCIL:

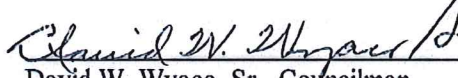
  
Malcolm B. Bowekaty, Governor

  
Eldred P. Bowekaty, Head Councilman

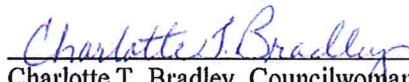
  
Arden Kucate, Councilman

  
Vivian M. Hattie, Councilwoman

  
Barton Martza, Lt. Governor


  
David W. Wyaco, Sr., Councilman

  
Dan Simplicio, Councilman

  
Charlotte T. Bradley, Councilwoman

CERTIFICATION

I hereby certify that the foregoing resolution was duly considered by the Zuni Tribal Council at a duly called meeting at Zuni, New Mexico, at which a quorum was present and that the same was approved by a vote of 7 in favor and 0 opposed on August 07, 2002.

  
Eldred P. Bowekaty, Secretary  
Zuni Tribal Council

APPROVED / DISAPPROVED

 8-07-2002  
Malcolm B. Bowekaty, Governor Date



CONSTRUCTION OF WATER INFRASTRUCTURE FOR THE COMMERCIAL DEVELOPMENT AREA

PUEBLO OF ZUNI – Val R. Panteah, Sr., Governor

OFFICE OF PLANNING & DEVELOPMENT – Andrew Othole, Director

CONTRACTOR -



Seals of fuinding agencies

Financed by:

Name of funding agency

SIGN DIMENSIONS: 3/4" x 4' x 8'

PLYWOOD PANEL (APA RATED A-B GRADE - EXTERIOR)

PROJECT IDENTIFICATION SIGN



**TRIBAL EMPLOYMENT RIGHTS OFFICE  
(TERO)**

**CONTRACTOR'S REQUIREMENTS  
(14 Pages)**





Pueblo of Zuni  
Department of TERO/Taxation  
Contractor Requirements

Before any construction takes place, you must possess a Pueblo of Zuni Contractor's License. Ordinance No 47, Pueblo of Zuni Business License and Tax Code, regulates all business and construction activities within the Zuni Indian Reservation, including contractors. These requirements apply to all primary and subcontractors.

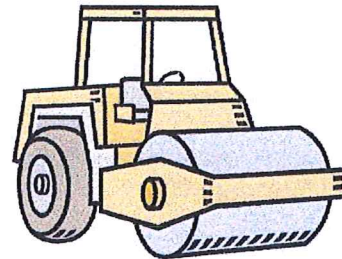
To obtain an application for a contractor's license, please contact the TERO/Taxation Office at (505) 782-7111/7113.

You will be provided with the following

- Application for a Pueblo of Zuni Contractor's License.
  - You must provide a copy of your State Contractor's License, Bonding, and Insurance Documents.
- License Fee is based on the price of your contract work on the Reservation.
- A brief summary of Ordinance No 47 Pueblo of Zuni Business License and Tax Code

Other Department to be contacted:

1. Ms. Shirley Bellson, Pueblo of Zuni Real Estate Services, P.O. Box 339, Zuni, NM 87327  
(505) 782-7105/7106  
Gravel, Sand and Water Permits



Contractor's License Application  
Check List

Contractor's Name: \_\_\_\_\_

Type of Business: \_\_\_\_\_

Incorporated: ☐ Yes ☐ No

Address: \_\_\_\_\_

☐ New License

☐ Renewal of Contractor's License

☐ Prime

☐ Subcontractor for \_\_\_\_\_

Prime Contractor \_\_\_\_\_

Listing of all Subcontractors: \_\_\_\_\_

☐ Project \_\_\_\_\_

☐ Contract Work - Entity \_\_\_\_\_

☐ Contact Info ☐ On File ☐ N/A

☐ Partners ☐ On File ☐ N/A

☐ References ☐ On File ☐ N/A

☐ Articles of Incorporation/Bylaws ☐ On File ☐ N/A

☐ Fee Paid ☐ Fee Waived

☐ State Contractor's License ☐ N/A Expiration Date: \_\_\_\_\_

☐ Insurance ☐ On File ☐ N/A

☐ Bond ☐ On File ☐ N/A

Comments/Notes: \_\_\_\_\_

Pueblo of Zuni  
Taxation & Revenue Department  
Contractor's License Fee Schedule

**CLASS 4: CONTRACTORS**

a) Annual sales less than \$50,000  
Annual Fee - \$25.00

b) Annual sales between \$50,000 and \$100,000  
Annual Fee - \$75.00

c) Annual sales more than \$100,000  
Annual Fee - \$100.00



## Taxation & Revenue

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### BUSINESS LICENSE AND TAX CODE

The following sections on Contractor's Licenses are excerpts from the Pueblo of Zuni Business License and Tax Code (Ordinance No. 47, Title XVI)

#### Sec. 16-2-3: Classification of Licenses

In addition to the classification of licenses specifically established in the succeeding sections, the Director with the approval of the Tribal Council and Governor may establish additional classifications of business licenses and prescribe the applicable requirements, terms, and conditions relating thereto.

Persons carrying on more than one class of business on the Reservation will be required to secure a license for each class of business.

Zuni Business Licenses shall be available and are required for persons carrying on the following classes of activities.

#### Class 4: Contractors

All building and construction activities and property that will be involved in a construction project, except those for Zuni religious purposes.

#### Sec. 16-2-7. Contractor's License

Every person who engages in building or construction contracting for another shall be required to have a Contractor's License specifying the type of work authorized to be done (e.g. general contracting or electrical or plumbing, etc.).

In addition to demonstrating proof of training or competence as a condition to receiving a Contractor's License, any person receiving a Contractor's License shall be subject to any limitations as to the type of work to be performed indicated in the license

Any person receiving a Contractor's License shall be required to conform all work performed to not less than the minimum Uniform, Federal or any Tribal codes, standards or regulations in existence or which may be established to govern the type of work performed.

All contractors or other individuals subject to the requirements of obtaining a Contractor's License shall, before any work is commenced, obtain a surety bond in an amount equal to the contract price, for each separate contract to be performed, and conditioned for the faithful performance of the contract and prompt payment for materials furnished and labor performed under the contract. Such bond shall run to the owner of the project and to any person who has furnished labor or materials and not been paid within forty (40) days, and such persons shall have a direct right of action against the sureties on the bond for enforcement of payment or completion of the project. Such bond shall be exhibited to any interested person upon demand and a copy of the bond shall be filed with the Director.

#### Sec. 16-2-9. Fee and Bonds





Pueblo of Zuni  
Department of Commerce/Taxation  
PO Box 339  
Zuni, NM 87327  
505-782-7101  
Application for License  
Business \_\_\_\_\_ Contractors' \_\_\_\_\_  
New \_\_\_\_\_ Renewal \_\_\_\_\_

APPLICANT NAME \_\_\_\_\_

NAME TO READ ON LICENSE \_\_\_\_\_

ADDRESS & TELEPHONE NUMBER \_\_\_\_\_

BUSINESS LOCATION \_\_\_\_\_

LIST ALL OWNERS OR PARTNERS AND THEIR ADDRESSES

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

TYPE OF BUSINESS: \_\_\_\_\_

ESTIMATED ANNUAL SALES: \_\_\_\_\_

FEDERAL ID NUMBER \_\_\_\_\_ STATE ID NUMBER \_\_\_\_\_

NAMES AND ADDRESSES OF THREE REFERENCES:

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

DO YOU HAVE AN APPROVED LEASE IN PLACE WITH THE PUEBLO OF ZUNI REAL ESTATE SERVICES?

YES \_\_\_\_\_ NO \_\_\_\_\_ N/A \_\_\_\_\_

ARE YOU DELINQUENT IN ANY PAYMENT DUE TO THE ZUNI TRIBE? (I.E. SALES TAX, WATER, ETC.)

YES \_\_\_\_\_ NO \_\_\_\_\_ N/A \_\_\_\_\_

I HAVE READ AND UNDERSTAND THE PUEBLO OF ZUNI BUSINESS LICENSE AND TAX CODE AND THE SECTIONS THAT APPLY TO ME. (Please initial) \_\_\_\_\_

Please attach: 1) Articles of Incorporation and By-Laws, if Incorporated, 2) Bond or Security Documents, 3) Insurance Documents and 4) Copy of State Contractor's License.

I certify that this application is true and correct to the best of my knowledge.

\_\_\_\_\_  
Applicant Signature Title Date

Office Use Only

License Issued \_\_\_\_\_ Renewed \_\_\_\_\_ Period \_\_\_\_\_ Fee Paid \_\_\_\_\_

Type Issued & Number: Business \_\_\_\_\_ Contractor's \_\_\_\_\_

Expiration Date: \_\_\_\_\_ Issued By: \_\_\_\_\_





## **Tribal Employment Rights Office (TERO)**

### **Contractor Requirements**

1. Before any work commences, each contractor must submit and receive approval of their Indian Preference Compliance Agreement. The following information is requested:
  - a. Contractor and subcontractor company information
  - b. Applicable TERO Tax
  - c. Indian Preference Plan
  - d. Pre-Job Manpower Data Report
2. TERO Hiring Policies. With the exception of approved Core Crew members, all new hires must go thru TERO. TERO maintains records on individuals and work histories to ensure contractors receive qualified workers. In the event TERO cannot locate a qualified Indian, the contractor then is allowed to hire a non-Indian.

Hiring individuals off-the-street is NOT permitted. Any individual hired without contacting TERO will subject the contractor to a sanction each day the unauthorized person is on the job.
3. TERO is to be notified prior to any change in employment status such as: demotion, layoff, or termination. TERO will ensure these actions are not discriminatory and the contractor remains in compliance with the Compliance Agreement.
4. Each contractor is required to submit copies of Certified Payroll at least monthly. This assists in resolving any compensation claims and is used for program statistical reports.

### TERO Services

Human resource services, employee counseling and guidance is available to all individuals referred for employment.

The Equal Employment Opportunity Commission contracts with TERO to investigate and process any claim of employment discrimination, hostile work environment and retaliation. TERO, through Title XX of the Zuni Labor Code is authorized to investigate and conduct hearings of non-compliance of the Zuni Labor Code.

Failure to comply with the above requirements carries a penalty up to \$500.00 per sanction per day.

There is no charge for any TERO Service





**PUEBLO OF ZUNI**  
**TRIBAL EMPLOYMENT RIGHTS OFFICE**

**Zuni Labor Code and TERO Indian Preferences**  
**Compliance Agreement**

Company Name: \_\_\_\_\_

Project: \_\_\_\_\_

Tribal Business License #: \_\_\_\_\_

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

**ANY EMPLOYER NOT SUBMITTING AN ACCEPTABLE COMPLIANCE PLAN MAY BE  
DENIED THE RIGHT TO COMMENCE OR CONTINUE DOING BUSINESS ON THE  
ZUNI INDIAN RESERVATION.**

Check one

Company Name: \_\_\_\_\_ Prime ☐ Subcontractor ☐

Mailing and Physical Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Anticipated starting date: \_\_\_\_\_ Anticipated Ending Date: \_\_\_\_\_

Project Superintendent/Foreman: \_\_\_\_\_

Contact #: \_\_\_\_\_

If/when a project office is established, please forward this number to TERO.

TRIBAL TAXES

A TERO Tax Fee generally applies only to Prime Contractors when the dollar amount of the contract is over \$100,000.

PROJECT CONTRACT AMOUNT: \_\_\_\_\_

TERO Fee at 5% of above amount = \$ \_\_\_\_\_

Have you received a copy of the Zune Labor Code and TERO Ordinance? Yes \_\_\_\_\_ No \_\_\_\_\_

Have you received a copy on a prior project? Yes \_\_\_\_\_ No \_\_\_\_\_

TERO Tax is required to be paid in FULL prior to ANY construction activity commencing. If an incremental payment schedule is needed, please fill out the information below.

Proposed pay schedule: \_\_\_\_\_ based on: \_\_\_\_\_

First payment date: \_\_\_\_\_ Last payment date: \_\_\_\_\_

Financial Contact/Title: \_\_\_\_\_

Telephone/fax/email addresses: \_\_\_\_\_

ADVANCE APPROVAL is required otherwise full payment is due before any work commencing.

**ADDITIONAL PRIME CONTRACTOR INFORMATION**

It is the prime contractor's responsibility to ensure each subcontractor is in full compliance with the Zuni Labor Code and Indian Preference regulations.

Please list your subcontractors (if identified):

Company Name	Trade Area	Contact Person & Phone
1.		
2.		
3.		
4.		
5.		
6.		
7.		

**APPROVAL AND SIGNATORY**

Any mediation or conflict resolution pertaining to Indian Preference, TERO Regulations or EEOC equal employment issues will occur with the affected contractor first. It will then move to the prime contractor and contracting/funding agency, if necessary.

**I HAVE READ THE TERO COMPLIANCE PLAN AGREEMENT AND AGREE TO ABIDE BY THE STATED CONDITIONS.**

CONTRACTOR'S SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

TITLE: \_\_\_\_\_

TERO OFFICIAL'S SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

## INDIAN PREFERENCE AGREEMENT

Contractor: \_\_\_\_\_

Project: \_\_\_\_\_

The following is the Indian Preference Plan/Agreement pertaining to labor, suppliers and subcontractors for above referenced project. Wages for this project have been established by:

\_\_\_\_\_

### CONDITIONS:

1. For anticipated labor needs, preference in employment will be given to local qualified Indians, then non-local Indians, then non-Indians. Prior to hiring a non-Indian, the contractor is required to contact the Zuni Tribal Employment Rights Office. The TERO Office will have 48 hours to refer a qualified Indian worker, except when the company can demonstrate that a need exists and must have a worker in a lesser period of time. The existence of an emergency hire must be approved by the TERO Office.
2. Any affiliated Labor Union(s) must be notified that this Project is Indian Preference. It will not be necessary for Indians to become Union Members in order to be employed with any project contractor, nor will workers be required to travel to a Union Hall to register for work.
3. Local Indian Preference in subcontracting and purchase of supplies for the project will be enforced. If no local Indian subcontractor or supplier is available, the preference is applied to non-resident Indian subcontractors and supplier. If no Indian subcontractor or supplier is available, the use of non-Indian subcontractors and/or suppliers is authorized.
4. Pueblo of Zuni & TERO participates in an Apprenticeship Program. The Program is accepted and approved by the federal Department of Labor. If there are any openings for Apprentices, the Company/Contractor will contact the TERO Office and discuss using the Zuni Apprenticeship Program. All union apprentices assigned to this Project must be approved by the New Mexico State Labor Board and registered for the Project prior to performing any work.
5. Reasonable accommodations to the religious beliefs and practices of the Zuni workers will be made, as long as such accommodations are not inconsistent with business necessity. The company will meet with TERO Officials to discuss what accommodations, if any, are required.
6. \_\_\_\_\_ agrees to abide by the Zuni Labor Code, TERO, New Mexico Public Work Statutes and State of New Mexico Labor Board guidelines and will work with TERO in resolving any disputes (Labor, Wages, Sanctions, etc.) that may arise prior, during or after project operations.

CONTRACTOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TERO OFFICIAL'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

TRIBAL EMPLOYMENT RIGHTS OFFICE  
PRE-JOB MANPOWER DATA REPORT

Mark appropriate Contractor status:

CONTRACTOR \_\_\_\_\_ SUBCONTRACTOR \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Project: \_\_\_\_\_

Type of work to be performed: \_\_\_\_\_

**CONTRACTOR LABOR FORCE NEEDS AND ANALYSIS**

List the number of trade positions for this project and the total number of individuals expected to be employed in each area:

TRADE	NUMBER	TRADE	NUMBER
1.		5.	
2.		6.	
3.		7.	
4.		8.	

List any job positions you feel need highly specialized skills.

1.		5.	
2.		6.	
3.		7.	
4.		8.	

Explain briefly the duties and responsibilities of the above job positions.

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The Zuni Tribe allows Contractors to bring in their Core Crew members. The other, non-permanent positions will be filled according to Indian Preference regulations.

**Core Crew Definition:** A member of a contractor's or subcontractor's crew who is a regular permanent employee and is in a supervisory or other key-position such that the employer would face a serious financial loss if that position were filled by a person who had not previously worked for that employer.

Core Crew: Employee Name	Job Classification
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Estimated Number for Workers Needed by Job Trade/Title  
(Please fill in according to information provided in above tables)

Trade or Job Title	Total Needed	(-)	Core Crew	=	To be filled thru TERO
1.					
2.					
3.					
4.					
5.					
6.					
7.					
TOTAL					




Reason for such a lay off (explain briefly): \_\_\_\_\_

Estimate peak employment: Month and Year: \_\_\_\_\_

# of Hires	% of total hires	What point of project Schedule
	25%	_____ week of the project
	50%	_____ weeks of project work
	75%	_____ weeks/months of project work
	100%	_____ weeks/months of project work

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TERO OFFICIAL'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_



## **WAGE RATE DETERMINATIONS**

**DAVIS-BACON WAGE RATES  
NEW MEXICO DEPARTMENT OF WORKFORCE SOLUTIONS  
General Decision Number: NMDWFS DECISION  
(12 Pages)**



General Decision Number: NM150011 01/02/2015 NM11

Superseded General Decision Number: NM20140011

State: New Mexico

Construction Type: Heavy

Counties: Cibola, Colfax, Guadalupe, Harding, Los Alamos, McKinley, Mora, Quay, Rio Arriba, San Miguel and Union Counties in New Mexico.

#### HEAVY CONSTRUCTION PROJECTS

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/02/2015

ELEC0611-011 04/28/2014

CIBOLA, COLFAX, GUADALUPE, HARDING, MCKINLEY, MORA, QUAY, RIO ARRIBA, SAN MIGUEL, AND UNION COUNTIES

	Rates	Fringes
ELECTRICIAN		
Zone 1.....	\$ 29.90	9.70

ZONE 1: Mileage calculated from the main post office in the following towns: Albuquerque-40 miles, Belen-12 miles, Carrizozo-12 miles, Clovis-12 miles, Espanola-14 miles, Farmington-6 miles, Gallup-10 miles, Las Vegas-8 miles, Los Lunas-12 miles, Portales-12 miles, Ratan-6 miles, Roswell-12 miles, Ruidoso-12 miles, Santa Fe-10 miles, Tucumcari-6 miles.

ZONE 2: Extending up to 20 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 9% above Zone 1 rate.

ZONE 3: Extending up to 30 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 15% above Zone 1 rate.

ZONE 4: Extending more than 30 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 26% above Zone 1 rate.

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 \* ELEC0611-013 04/28/2014

Los Alamos County

	Rates	Fringes
ELECTRICIAN.....	\$ 34.39	10.22

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 IRON0495-003 06/01/2014

	Rates	Fringes
IRONWORKER		
Structural and Reinforcing..	\$ 26.12	12.73

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 SUNM2009-005 09/14/2010

	Rates	Fringes
CARPENTER.....	\$ 22.26	6.20
LABORER: Common or General.....	\$ 13.26	0.35
LABORER: Flagger.....	\$ 10.90	0.00
OPERATOR: Backhoe.....	\$ 17.00	0.00
OPERATOR: Grader/Blade.....	\$ 18.79	2.35
OPERATOR: Loader (Front End)....	\$ 17.43	0.26
OPERATOR: Scraper.....	\$ 14.03	0.00
PLUMBER.....	\$ 26.27	7.69
TRUCK DRIVER: Dump Truck.....	\$ 11.90	0.00
TRUCK DRIVER: Water Truck.....	\$ 13.72	5.25

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 WELDERS - Receive rate prescribed for craft performing  
 operation to which welding is incidental.

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Unlisted classifications needed for work not included within  
 the scope of the classifications listed may be added after  
 award only as provided in the labor standards contract clauses  
 (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification  
 and wage rates that have been found to be prevailing for the  
 cited type(s) of construction in the area covered by the wage  
 determination. The classifications are listed in alphabetical

order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is

based.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.



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□           END OF GENERAL DECISION



New Mexico Department of Workforce Solutions

Public Works

121 Tijeras Ave. NE, Suite 3000, Albuquerque, NM 87102

Phone: (505)-841-4400 fax to: (505) 841-4424 or Email to: [public.works@state.nm.us](mailto:public.works@state.nm.us)

Wage Decision # **MC-15-0718 A**

**NOTIFICATION OF AWARD (NOA)**

**THIS WAGE DECISION # EXPIRES FOR BIDS ON**

**09/17/15**

**Description and Location of Work:** Zuni Commercial Developement Area Water Infrastructure  
Construction of 17,725 LF of 12" Waterline, including crossing Blackrock Dam crest and Spillway, and pedestrian bridge crossing, with Freeze Protection where required, all appurtenances such as Air Release Valves, Hydrants, and Valves.

City of Zuni

County of McKinley

1203B State Highway 53

**REMINDER for Agency Conducting BID Process:**

After the Contracting Agency awards this project the Wage Rate Poster, Sub-List and the Project Requirement Document, excluding this NOA must be delivered to the **GENERAL/PRIME CONTRACTOR**. The Contracting Agency or its agent must complete this form and submit with the sub-list listing all of the subcontractors including all tiers of subcontractors and fax or email it to the address above. **If the project is canceled**, this form must be completed by the Contracting agency conducting the bid process and the wording "Cancelled" written on the form and send to the Labor Relations Division. Failure to submit the NOA in a timely manner is a violation of paragraph 11.1.2.9.B (3) of the Public Works Minimum Wage Act Policy Manual.

General/Prime Contractor Company Name: \_\_\_\_\_ License#: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Project Contact's name: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Approximate Date Work to Start: \_\_\_\_\_

Estimated Completion Date: \_\_\_\_\_

Estimated Cost of Project: \_\_\_\_\_

Bid Opening Date: \_\_\_\_\_

Note: The General/Prime Contractor **MUST** mail/fax in their Statement of Intent to Pay Prevailing Wages to the Contracting Agency or its agent before beginning work on the project. Each Subcontractor (and all tiers of subcontractors) **MUST** also mail/fax their Statement of Intent to Pay Prevailing Wages to the General/Prime Contractor 3 days after award of project. After work on the project is completed **and before, final payment**, is made to subcontractors and all tiers of subcontractors, the contractor and sub-contractors must mail/fax their Affidavit of Wages paid to the Contracting Agency for final payment.

**Signature for Contracting Agency (or agent)** \_\_\_\_\_

**Printed Name** \_\_\_\_\_

**Email address for Contracting Agency (not agent)** \_\_\_\_\_ **Required Field**

**Date** \_\_\_\_\_



## SUBCONTRACTOR LIST

**DO NOT** list suppliers or professional services (such as surveyors)  
**INCLUDE** individual subcontractor dollar amount for project

Email to: public.works@state.nm.us or fax to: (505) 841-4424

Please include **2nd & 3rd Tier** subcontractors. Make extra copies of form if necessary.

Wage Decision. # **MC-15-0718 A**

### **General Contractor:**

---

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_ License No.: \_\_\_\_\_  
Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_ Sub \_\_\_\_\_ 2<sup>nd</sup> TIER \_\_\_\_\_ 3<sup>rd</sup> TIER \_\_\_\_\_  
(To Whom) (To Whom)  
Work to be performed: \_\_\_\_\_ Start Date: \_\_\_\_\_ Amount (\$): \_\_\_\_\_

---

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_ License No.: \_\_\_\_\_  
Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_ Sub \_\_\_\_\_ 2<sup>nd</sup> TIER \_\_\_\_\_ 3<sup>rd</sup> TIER \_\_\_\_\_  
(To Whom) (To Whom)  
Work to be performed: \_\_\_\_\_ Start Date: \_\_\_\_\_ Amount (\$): \_\_\_\_\_

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Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_ License No.: \_\_\_\_\_  
Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_ Sub \_\_\_\_\_ 2<sup>nd</sup> TIER \_\_\_\_\_ 3<sup>rd</sup> TIER \_\_\_\_\_  
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Work to be performed: \_\_\_\_\_ Start Date: \_\_\_\_\_ Amount (\$): \_\_\_\_\_

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Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
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(To Whom) (To Whom)  
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Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_ Sub \_\_\_\_\_ 2<sup>nd</sup> TIER \_\_\_\_\_ 3<sup>rd</sup> TIER \_\_\_\_\_  
(To Whom) (To Whom)



**Zuni Commercial Development Area Water Infrastructure: Wage Decision: MC-15-0718 A**

Construction of 17,725 LF of 12" Waterline, including crossing Blackrock Dam crest and Spillway, and pedestrian bridge crossing, with Freeze Protection where required, all appurtenances such as Air Release Valves, Hydrants, and Valves.

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

*Effective January 1, 2015*

Trade Classification	Base Rate	Fringe Rate
Bricklayer/Blocklayer/Stonemason	17.74	0.26
Carpenter/Lather	15.99	0.44
Cement Mason	15.52	0.26
Ironworker	21.77	6.03
Painter (Brush/Roller/Spray)	17.56	0.44
<b>Electricians (outside)</b>		
Groundman	26.79	11.03
Equipment Operator	29.61	11.03
Lineman/Wireman or Tech	30.20	11.03
Cable Splicer	31.38	11.03
Plumber/Pipefitter	28.30	4.07
<b>Laborers</b>		
Group I	13.73	0.35
Group II	14.03	0.35
Group III	14.43	0.35
<b>Operators</b>		
Group I	15.74	0.26
Group II	15.94	0.26
Group III	16.52	0.26
Group IV	16.54	0.26
Group V	16.53	0.26
Group VI	16.69	0.26
Group VII	16.74	0.26
Group VIII	16.89	0.26
Group IX	17.39	0.26
Group X	18.19	0.26
<b>Truck Drivers</b>		
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 AND INCENTIVE PAY DO NOT APPLY TO TYPE "A" CONSTRUCTION.





## **VI. TECHNICAL SPECIFICATIONS**



## **PUEBLO OF ZUNI**

### **STANDARD SPECIFICATIONS**

Incorporation of New Mexico Standard Specifications: The New Mexico Standard Specifications for Public Works Construction, 2006 Edition, as updated, and in effect during this project are incorporated by reference, the same as if fully written herein and shall govern this project except where revised, updated or supplemented by the Pueblo of Zuni, Department of Utilities Standard Drawings or the Supplemental Technical Specifications.

The New Mexico Standard Specifications for Public Works Construction, 2006 Edition (NM APWA), may be purchased from Albuquerque Reprographics, 4716 McLeod N.E., Albuquerque, NM (505) 884-0862.



**TECHNICAL SPECIFICATIONS  
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01600	PRODUCT REQUIREMENTS
01700	MEASUREMENT AND PAYMENT

**DIVISION 13 – SPECIAL CONSTRUCTION**

13411	WORK NEAR BLACKROCK DAM
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**DIVISION 15 – MECHANICAL**

15064	INSULATED PIPE
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**DIVISION 16 – ELECTRICAL**

16885	HEAT TRACE
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## **SECTION 01001 GENERAL REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.01 PROJECT DESCRIPTION**

- A. A brief description of the work is stated in Section 01010, SUMMARY OF WORK. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in the several parts of these Contract Documents.

#### **1.02 SUBMITTALS**

The following shall be submitted in accordance with Section 01300 Contractor Submittals for the approval of the Engineer and Owner.

- A. Notice of Intent form
- B. Storm Water Pollution Prevention Plan
- C. Notice of Termination of Coverage

### **PART 2 - SEQUENCE OF OPERATIONS**

#### **2.01 SCHEDULING**

- A. Plan the work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work, confer with the Engineer's and Owner's representatives to develop an approved work schedule that will permit the facilities to function normally as practical. Do not make connections between existing work and new work until necessary inspection and tests have been completed by the Owner on the new work have been found to conform in all respects to the requirements of the Contract Documents.
- B. All work shall be performed on a schedule and in a manner that will permit the existing facilities to be fully operational at the end of the contractual construction period.

#### **2.02 COMPLIANCE WITH STORM DRAINAGE DISCHARGE REQUIREMENTS**

- A. This project is subject to the U.S. Environmental Protection Agency (EPA), National Pollutant Discharge Elimination System (NPDES) Regulations for Storm Water Discharges, 40 CFR, Parts 122, 123 and 124.

### **PART 3 - EXECUTION**

#### **3.01 SITE INVESTIGATION AND REPRESENTATION**

- A. The Contractor acknowledges satisfaction as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of

the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters that can in any way affect the work or the cost thereof under this Contract.

- B. The Contractor further acknowledges satisfaction as to character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records of exploratory work furnished by the Owner or included in these Contract Documents. Failure by the Contractor to become acquainted with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- C. The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

### 3.02 INFORMATION ON SITE CONDITIONS

#### A. General:

Any information obtained by the Engineer regarding site conditions, record drawings for existing facilities, photos, operating and maintenance manuals, and similar data will be available for inspection at the office of the Engineer upon request. Such information is offered as supplementary information only. Neither the Engineer nor the Owner assumes any responsibility for the completeness or interpretation of such supplementary information. The following information is available:

1. Photos of the project site.
2. Operation and Maintenance Manuals for the existing Blackrock Booster Station and Elevated Water Storage Tank.
3. Record drawings of the existing Blackrock Storage Tank.

### 3.03 SUBSURFACE INVESTIGATION

- A. The Contractor may make arrangements with the Owner for permission to conduct subsurface investigation as may be necessary to verify existing conditions.
- B. A geotechnical investigation was completed by AMEC in March of 2010 and is included in these documents for information only. Additional geotechnical investigation is required for the tank design per these documents.



### 3.04 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

- A. Where the Contractor's operations could cause damage or inconvenience to telephone, television, power, oil, gas, water, sewer, or irrigation systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor. The Contractor shall not be reimbursed for downtime or standby time while protecting existing utilities.
- B. Notify all utility offices that are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.
- C. Protect all power poles from damage. If interfering power poles, telephone poles, guy wires, or anchors are encountered, notify the appropriate utility company at least 30 days in advance of construction operations to permit the necessary arrangements for protection or relocation of the interfering structure.
- D. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage that may result from the construction operations under this Contract.
- E. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.
- F. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed unless prior approval is granted from the Owner.
- G. The Contractor shall repair or replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents or ordered by the Engineer.

### 3.05 LAND MONUMENTS

- A. The Contractor shall notify the Engineer prior to disturbing any existing federal, state, county, city, and private land monuments. Private and government land monuments shall be preserved or replaced by a licensed surveyor at the Contractor's expense.

### 3.06 STORM WATER DISCHARGE REQUIREMENTS

- A. The Contractor shall complete an EPA Notice of Intent (NOI) for Storm Water Discharges Associated

with Construction Activity Under a NPDES General Permit, Form 3510-9, and file it electronically, as directed on the EPA website: <http://cfpub.epa.gov/NPDES/stormwater/enoi.cfm>

- B. The Contractor is required by EPA regulations to prepare a Storm Water Pollution Prevention Plan and shall prepare that plan in accordance with those regulations.
- C. The Contractor is the designated "Operator" of the NPDES Permit, and is solely responsible for execution of the project construction in conformance with NPDES Permit condition(s) and requirement(s), including work performed by any subcontractor(s). The Contractor shall immediately correct conditions related to the project that are in violation of NPDES permit requirements. Failure by the Contractor to correct such conditions in a timely manner may subject the Contractor to fines and/or penalties.
- D. The Contractor shall indemnify, defend and hold the Owner harmless from any fines and/or penalties issued for violations of NPDES Permit conditions.
- E. In the event the Contractor fails to comply with NPDES Permit requirements, the Owner retains the right to enter upon the project site and perform corrective measures. Any costs associated with corrective measures shall be the responsibility of, and shall be paid by, the Contractor. The Owner shall be entitled to deduct such costs from remaining contract amounts, and if insufficient contract amounts exist, the Contractor shall reimburse the Owner for any deficiency.
- F. After final acceptance of the construction of the project, the CONTRACTOR shall prepare and submit a Notice of Termination (NOT) of coverage for storm water discharges in accordance with the current General Permit for Stormwater Discharges from Construction Activities, issued January 8, 2009. Copies of the Notice of Termination (Form 3510-13-13) and instructions can be found on the EPA Web Site ([www.epa.gov/npdes](http://www.epa.gov/npdes)).

#### **PART 4 - SAMPLING, TESTING, MANIFEST, AND DISPOSAL OF HAZARDOUS WASTE**

##### **4.01 GENERAL**

- A. Contractor shall be responsible for containment, packaging, treatment, transportation, and disposal of all debris generated while completing the work and pay for all associated costs. Waste materials that are generated as part of this Contract that are determined through testing to be hazardous waste shall be treated, manifested, and disposed of offsite by the Contractor at an EPA-approved hazardous waste facility. Storage, treatment, transportation, and disposal shall be in accordance with all federal, state, and local requirements and regulations. Copies of the treatment, transportation, and disposal documentation shall be provided to the Engineer and Owner within 10 calendar days of removal of the waste from the project site. Owner reserves the right to withhold payment if Contractor fails to provide the documentation as specified.

- B. The following are examples of some of the present EPA-approved landfill sites for toxic metal hazardous waste disposal:

Rollins/Highway 36  
10855 U. S. Highway 36  
Deer Trail, Colorado 80105  
(800) 392-1036  
U.S. Pollution Control  
Grassy Mountain Site, Utah  
(801) 323-8900

Laidlaw Environmental Services  
Lone Mountain Site  
Route 2, Box 170  
Waynoka, Oklahoma 73860  
(405) 697-3500

This information is offered as supplementary information only. The Contractor is responsible for identifying appropriate methods of treatment, disposal, and location of disposal and must verify the disposal site is EPA-approved at the time of disposal.

- C. Requirements in this section are minimum requirements for this Contract. Contractor shall also comply with all current local, state, and federal regulations.

## **PART 5 - SAFETY AND CONVENIENCE**

### **5.01 CONSTRUCTION SAFETY PROGRAM**

- A. This section outlines the health and safety requirements to be followed by the Contractor during the performance of the work.
- B. Contractor will be solely and completely responsible for conditions of the jobsite, including safety of all persons (including employees) and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Safety provisions will conform to U.S. Department of Labor, Occupational Safety and Health Act, any equivalent state law and all other applicable federal, state, county, and local laws, ordinances, and codes.
- C. Contractor shall submit to Engineer for information purposes four copies of Contractor's health and safety program.
- D. Identify the health and safety officer and present his/her education and experience.
- E. The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

### **5.02 SAFETY EQUIPMENT**

- A. Contractor shall be solely responsible for worker and public safety for the duration of the work. This requirement shall apply continuously and not be limited to normal working hours.

- B. The Contractor, as part of his safety program, shall maintain at his office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of any person who may be injured on the jobsite.
- C. The Contractor shall do all work necessary to protect the general public from hazards, including, but not limited to, surface irregularities or un-ramped grade changes in pedestrian sidewalk or walkway, and trenches or excavations in roadway. Barricades, lanterns, and proper signs shall be furnished in sufficient amount to safeguard the public and the work.
- D. The performance of all work and all completed construction, particularly with respect to ladders, platforms, structure openings, scaffolding, shoring, lagging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.
- E. During construction, the Contractor shall construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railing, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets, sidewalks, floors, roofs, and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety.
- F. Contractor shall provide barricades and flagging around any open excavation of type and number to comply with all regulations.

#### 5.03 ACCIDENT REPORTS

- A. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Engineer. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.
- B. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

#### 5.04 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

- A. Authorized representatives of the Zuni Tribe, Bureau of Indian Affairs, McKinley County, State of New Mexico, and other government officials shall at all times have safe access to the work, and the Contractor shall provide proper facilities for such access and inspection.

#### 5.05 TRAFFIC MAINTENANCE AND SAFETY

- A. Comply with all rules and regulations of the state, county, and city authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the Owner. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience

of the general public and residents adjacent to the project, and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

- B. When flagmen and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved safety green apparel and other regulation traffic-control devices.

#### 5.06 PROTECTION OF PROPERTY

- A. Protect stored materials, cultivated trees and crops, and other items located adjacent to the proposed work.
- B. During construction operations, construct, and maintain such facilities as may be required to provide continuous access by the Owner.
- C. All trees and shrubs damaged during Contractor's operation shall be replaced at Contractor's sole expense.

#### 5.07 SNOW REMOVAL

- A. Snow removal will be the Contractor's responsibility wherever construction has not been completed on any portion of public or private roads or areas subject to normal vehicular access. Snow removal shall be performed promptly and efficiently by means of suitable equipment whenever necessary for safety, and as may be directed.

#### 5.08 USE OF EXPLOSIVES

- A. The Contractor shall not use any form of explosive in completing his work.

#### 5.09 FIRE PREVENTION AND PROTECTION

- A. The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate firefighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable federal, state, and local fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

#### 5.10 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

- A. Notify the fire and police department and postal service before closing any street or portion thereof. Notification and closure shall be in compliance with the local government and postal service requirements. No closing shall be made without the Owner's approval. Notify affected departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the fire department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.

- B. The Contractor shall leave a night emergency telephone number or numbers with the police department, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.
- C. Maintain postal service facilities in accordance with the requirements of the U.S. Postal Service. If necessary, move mailboxes to temporary locations designated by the U.S. Postal Service, and at the completion of the work in each area, replace them in their original location and in a condition satisfactory to the U.S. Postal Service.

## **PART 6 - PRESERVATION, RESTORATION, AND CLEANUP**

### **6.01 SITE RESTORATION AND CLEANUP**

- A. At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.
- B. Store materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences, regardless of whether these are on private property, or on state, county, or city rights-of-way. Remove all materials from grassed and planted areas, and leave these surfaces in a condition equivalent to their original condition.
- C. All existing drainage ditches and culverts shall be reopened and graded and natural drainage restored. Restore culverts broken or damaged to their original condition and location.

### **6.02 FINISHING OF SITE, BORROW, AND STORAGE AREAS**

- A. Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property and seeded.

### **6.03 REMOVAL OF ROCK FROM FINISHED SURFACES**

- A. Remove and dispose of all loose rock and boulders larger than 2-inch diameter occurring on the finished surfaces as a result of the construction operations.

### **6.04 STREET CLEANUP DURING CONSTRUCTION**

- A. Thoroughly clean all spilled dirt, gravel, or other foreign material caused by the construction operations from all streets and roads at the conclusion of each day's operation.

### **6.05 DUST PREVENTION**

- A. Give all unpaved areas or haul roads used in the construction area an approved dust-preventive treatment or periodically water to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

### **6.06 PRESERVATION OF DRAINAGE DITCHES**

- A. After construction activities are complete, restore all storm drain ditches destroyed, damaged, or otherwise modified during construction to a condition equivalent to the condition of the ditch before construction. Ditches so reconstructed shall be built in their original locations.

## **PART 7 - SUPPLIERS'/MANUFACTURERS' SPECIAL SERVICES**

### **7.01 INSTALLATION ASSISTANCE**

- A. Competent and experienced technical personnel shall represent the manufacturers of all equipment and systems as may be necessary to resolve assembly or installation problems at the worksite that are attributable to, or associated with, the equipment furnished.

### **7.02 FUNCTIONAL TESTING**

- A. Where functional testing services are called for in the Technical Specifications, or when technical assistance is necessary to resolve performance problems that may become apparent during the performance test, the manufacturer's representative shall provide such assistance as necessary to demonstrate the specified performance.

### **7.03 FACILITY STARTUP**

- A. Where facility startup services are called for in the Technical Specifications, or when technical assistance is necessary due to any malfunction of the equipment or system furnished, the manufacturer's representative shall provide such services as necessary to provide the Owner with an acceptable operating facility.

### **7.04 TRAINING OF OWNER'S PERSONNEL**

- A. Where training is called for in the Technical Specifications, the manufacturer's or supplier's representative shall provide classroom and on-the-job training for the Owner's personnel in the operation and maintenance of the specified equipment.
- B. Owner shall have the right to video tape training sessions.

### **7.05 SCHEDULING AND COORDINATION OF SERVICES**

- A. The Contractor shall designate and provide one person to be responsible for scheduling, coordinating, and expediting the specified services. Scheduling the services shall be done in cooperation with, and with the approval of the Engineer and Owner's operating personnel. Such schedule shall be arranged with the appropriate subcontractors, manufacturers, and suppliers in sufficient time to assure their compliance with the service requirements.

### **7.06 COSTS FOR SERVICES**

- A. Costs for providing services during installation, testing, and for the training of Owner's personnel shall be included in the costs for providing the applicable specified equipment.
- B. Where the number of days for services is stated in the Technical Specifications, this shall be considered as the minimum number of days. Should additional time be required for services, such

time shall be at the expense of the manufacturer, supplier, or Contractor as applicable, and at no additional cost to the Owner.

- C. Where the number of days for services is not stated in the Technical Specifications, services shall be furnished for installation, testing, and facility startup as recommended by manufacturer or supplier to provide the Owner with a satisfactory operating facility.

## **PART 8 – ALLOWANCES**

- A. **Materials Testing Allowance.** The Materials Testing Allowance is included in the Bid form to pay for field and laboratory testing of construction materials required by the Contract Documents. Such testing of construction materials will include, but not be limited to, compaction testing of trench backfill and subgrade, strength testing of Portland cement concrete, and potable water disinfection testing. The Contractor shall hire a Testing Agency to perform the materials testing. The Owner will reimburse the Contractor the actual cost, not to exceed the amount listed in the Bid Proposal, for all such materials testing based on invoices received from the Testing Agency. The Owner will reimburse the Contractor for initial tests to establish that the work has been performed in accordance with the Contract Documents. In the event that the initial testing shows defective work, materials, supplies or equipment, all subsequent testing shall be at the Contractor's sole expense.
- B. **Utility Relocation Allowance.** Where conflicts with existing utilities determined to be unavoidable by the Engineer, the private utility shall be relocated. The Contractor shall notify the utility owner at least 30 days 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 shall submit a utility relocation estimate from the utility owner to the Engineer for review and approval. The Utility Relocation allowance is included in the Bid Form to pay for utility relocations by the utility owner. The Owner shall reimburse the Contractor for the actual cost, not to exceed the amount listed in the Bid Proposal, for all such utility relocations based on invoices received from the utility owner.

## **PART 9 - PAYMENT**

### **8.01 GENERAL**

- A. Costs for the work in this section shall be included in the lump sum and unit price bid amounts stated in the Bid Proposal.
- B. Fifty (50) percent of the Lump Sum unit price as listed on the Bid Proposal for the Storm Water Pollution Prevention Plan (SWPPP) shall be paid after review and approval of the SWPPP and Notice of Intent (NOI) and submittal of the NOI to the EPA. Payment for the remaining fifty (50) percent of the Lump Sum unit price for this item shall be made based on completion of the EPA Notice of Termination (NOT) of Coverage and Best Management Practice (BMP) removal. A copy of the NOT must be



delivered to the Owner and the original filed with the EPA. BMPs must be removed as defined in the SWPPP.

END OF SECTION



## **SECTION 01010 SUMMARY OF WORK**

### **PART 1 - GENERAL**

#### **1.01 SECTION INCLUDES**

- A. This section describes the project and the work to be performed under this Contract. Detailed requirements and extent of work are stated in applicable Specification sections and shown on the Drawings.

#### **1.02 ORGANIZATION AND INTERPRETATION OF CONTRACT DOCUMENTS**

- A. Specifications and Drawings included in these Contract Documents establish the performance, quality requirements, location and general arrangement of materials and equipment, and establish the minimum standards for quality of workmanship and appearance.
- B. A part of the work that is necessary or required to make each installation satisfactory and operable for its intended purpose, even though it is not specifically included in the Specifications or on the Drawings, shall be performed as incidental work as if it were described in the Specifications and shown on the Drawings.

#### **1.03 DESCRIPTION OF PROJECT**

- A. The Owner of the Project is the Zuni Tribe.
- B. The Engineer for the Project is Bohannon Huston.
- C. The work included in this contract consists of the construction of approximately 17,700 feet of 12-inch waterline with all appurtenances, including approximately 1,300 feet of 12" insulated pipe, 300 feet of 3" insulated pipe, 1,600 feet of heat tracing with associated electrical improvements, air release valves, pipe supports, and hydrants.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

### **PART 4 - PAYMENT**

#### **4.01 GENERAL**

- A. Costs for the work in this section shall be included in the lump sum and unit price bid amounts stated in the BID PROPOSAL and payment therefore will be made accordingly.

END OF SECTION



**SECTION 01300**  
**CONTRACTOR SUBMITTALS**

**PART 1 – GENERAL**

**1.01 GENERAL**

- A. CONTRACTOR "Submittals" may be Shop Drawings, schedules, surveys, reports, samples, plans, lists, drawings, documents, findings, programs, manuals, data, or any other item or information required by the Contract Documents to be submitted or offered by the CONTRACTOR in accomplishing the Work.
- B. Wherever Submittals are required hereunder, all such documents shall be furnished to the OWNER'S CONSTRUCTION MANAGER.
- C. The CONTRACTOR shall be responsible for the accuracy, completeness, and coordination of all Submittals, including but not limited to, Submittals of or from an item, product, thing, service, person or firm which is specified in the Contract Documents; such specified Submittals shall not be presumed to be acceptable to the OWNER and shall be subject to the same approval process as all other Submittals. The CONTRACTOR shall not delegate this responsibility in whole or in part to any Subcontractor. Submittals may be prepared by the CONTRACTOR, Subcontractor, or Supplier, but the CONTRACTOR shall ascertain that each Submittal meets the requirements of the Contract and the Project. The CONTRACTOR shall ensure that there is no conflict with other Submittals and shall notify the OWNER'S CONSTRUCTION MANAGER in each case where its Submittal may affect the work of another Contractor or the OWNER. The CONTRACTOR shall ensure coordination of Submittals of related crafts and Subcontractors.
- D. Failure to make timely submittals in accordance with the requirements of the specifications shall constitute grounds for the OWNER to withhold compensation for the equipment to which the submittal is related, or, in the case of information lists, record drawings, investigation findings, safety plans, quality plans, and similar items, the OWNER may withhold the value of the information in the submittal.

**1.02 PRE-CONSTRUCTION CONFERENCE SUBMITTALS**

At the preconstruction conference, submit the following items for review:

- A. A preliminary schedule of Shop Drawings, Samples, and proposed Substitute ("Or-Equal") submittals.
- B. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit, the expected date of submittal for the permit, and required date for receipt of the permit.
- C. A preliminary schedule of values.
- D. A graphic construction schedule prepared by the critical path method of analysis, listing all significant construction activities and items of work, in expected sequence and depicting expected duration.

- E. The names and qualifications of Designated Safety Representative.

#### 1.03 PROGRESS REPORTS

- A. Furnish a progress report to OWNER'S CONSTRUCTION MANAGER with each Application for Payment. If the Work falls behind schedule, submit additional progress reports at such intervals as OWNER'S CONSTRUCTION MANAGER may request.
- B. Each progress report shall include sufficient narrative to describe any current and anticipated delaying factors, effect on the construction schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to OWNER'S CONSTRUCTION MANAGER, must be substantiated with satisfactory evidence.
- C. Each progress report shall include a list of the activities completed with their actual start and completion dates, a list of the activities currently in progress, and the number of working days required to complete each.

#### 1.04 SHOP DRAWINGS

- A. Wherever called for in the Contract Documents, or where required by the ENGINEER, furnish to the OWNER'S CONSTRUCTION MANAGER for review, nine copies of each Shop Drawing Submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication, and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. Whenever the CONTRACTOR is required to submit design calculations as part of a Submittal, such calculations shall bear the signature and seal of a professional engineer registered in New Mexico unless otherwise directed.
- B. All Shop Drawing Submittals shall be accompanied by a Submittal transmittal form acceptable to the OWNER'S CONSTRUCTION MANAGER. Any Submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal.
- C. Organization
  - 1. A single Shop Drawing Submittal transmittal form shall be used for each technical specification section or item or class of material or equipment for which a Submittal is required. A single Submittal covering multiple sections will not be acceptable, unless the primary specification references other sections for components. Example: If a pump section references other sections for the motor, protective coating, anchor bolts, local control panel, and variable frequency drive, a single Submittal would be accepted; a single Submittal covering vertical turbine pumps and horizontal split case pumps would not be acceptable.
  - 2. On the transmittal form, index the components of the Submittal and insert tabs in the Submittal to match the components. Relate the Submittal components to specification paragraph and subparagraph, drawing number, detail number, schedule title, or room number or building name,

as applicable.

3. Unless otherwise approved by OWNER, terminology and equipment names and numbers used in Submittals shall match the Contract Documents.

D. Format

1. Minimum sheet size shall be 8.5 inches by 11 inches. Maximum sheet size shall be 24 inches by 36 inches. Every page in a Submittal shall be numbered in sequence. Each copy of a Submittal shall be collated and stapled or bound, as appropriate. The OWNER'S CONSTRUCTION MANAGER will not collate copies.
2. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with all pertinent data, capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports. Sufficient level of detail shall be presented for assessment of compliance with the Contract Documents.
3. Each Submittal shall be assigned a unique number. Submittals shall be numbered sequentially. The Submittal numbers shall be clearly noted on the transmittal. Original Submittals shall be assigned a numeric Submittal number. Resubmittals shall bear an alpha-numeric system which consists of the number assigned to the original Submittal for that item followed by a letter of the alphabet to represent that it is a subsequent Submittal of the original. For example, if Submittal 25 requires a resubmittal, the first resubmittal will bear the designation "25-A" and the second resubmittal will bear the designation "25-B" and so on.

- E. Disorganized Submittals which do not meet the requirements above will be returned without review.
- F. Except as may otherwise be indicated herein, the OWNER'S CONSTRUCTION MANAGER will return each Submittal to the CONTRACTOR, with its comments noted thereon, within 28 calendar days following their receipt by the OWNER'S CONSTRUCTION MANAGER. For resubmittal of Submittals, the OWNER'S CONSTRUCTION MANAGER will be allowed the same review period as for the original Submittal. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable Submittal to the OWNER'S CONSTRUCTION MANAGER by the second submission of a Submittal item. Should the ENGINEER be required to review third and subsequent submittals, OWNER will withhold from CONTRACTOR'S next payment request an amount based on ENGINEER'S current fee schedule, including applicable miscellaneous expenses, so that OWNER may reimburse ENGINEER for such reviews.
- G. If three copies of a Submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said Submittal will not be required.
- H. If three copies of a Submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and resubmission of said Submittal will not be required.

- I. If a Submittal is returned to the CONTRACTOR marked "NOTE MARKINGS-RESUBMIT," the CONTRACTOR shall revise said Submittal and resubmit the required number of copies. Resubmittal of portions of multi-page or multi-drawing Submittals will not be allowed. For example, if a Shop Drawing Submittal that consists of ten drawings contains only one drawing that needs to be amended and resubmitted, the Submittal as a whole is deemed as "NOTE MARKINGS-RESUBMIT," and all ten drawings of the Submittal are required to be resubmitted.
- J. If a Submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said Submittal and resubmit the required number of copies. Resubmittal of portions of multi-page or multi-drawing Submittals will not be allowed. For example, if a Shop Drawing Submittal that consists of ten drawings contains only (one) drawing that is rejected and needs to be resubmitted, the Submittal as a whole is deemed as "REJECTED-RESUBMIT," and all ten drawings of the Submittal are required to be resubmitted.
- K. Any changes made on a resubmittal, other than those made or requested by the ENGINEER or OWNER'S CONSTRUCTION MANAGER, shall be identified and flagged on the resubmittal.
- L. Fabrication of an item shall commence only after the ENGINEER has reviewed the pertinent Submittals and the OWNER'S CONSTRUCTION MANAGER has returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on Submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements.
- M. All CONTRACTOR Shop Drawing Submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR prior to submission. Each Submittal shall be dated and signed with the following: "I have verified that the equipment or material in this Submittal meets all the requirements specified or shown in the Contract Documents without exception." In the case of Shop Drawings, each sheet shall be so dated, signed, and certified. No consideration for review of any submittals will be made for any items which have not been so certified. All non-certified submittals will be returned without action taken, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
- N. The OWNER'S CONSTRUCTION MANAGER'S and/or ENGINEER'S review of Shop Drawing Submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions and for compliance with the Contract Documents. The CONTRACTOR shall assume all responsibility and risk for any problems due to any errors in Submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.



- O. No changes in the Contract times will be considered for schedule delays resulting from non-compliant Submittals.
- P. Within 30 Days of the Notice to Proceed, the CONTRACTOR shall submit a complete list of anticipated Submittals which includes Specification and Drawing references. The list shall be updated with "early start" Submittal dates within 15 Days of Submittal of the CONTRACTOR'S construction schedule. The Submittal dates shall be updated whenever the schedule is updated. Any additional Submittals identified after the initial Submittal shall be included in the updates.
- Q. If the CONTRACTOR submits an incomplete Submittal, the Submittal may be returned without review. A complete Submittal shall contain sufficient data to demonstrate that the items contained therein comply with the Contract Documents, meet the minimum requirements for Submittals as described in the Contract Documents, and include all corrections as required from previous Submittals.

#### 1.05 SAMPLES

- A. Whenever in the Specifications samples are required, submit not less than three samples of each item or material to the OWNER'S CONSTRUCTION MANAGER for acceptance at no additional cost to the OWNER.
- B. Samples, as required herein, shall be submitted for acceptance a minimum of 21 days prior to ordering such material for delivery to the jobsite, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the Work.
- C. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Manufacturer's name for identification. Upon receiving acceptance of the ENGINEER, one set of the samples will be stamped and dated and returned to the CONTRACTOR, and one set of samples will be retained, and one set of samples shall remain at the job site until completion of the Work.
- D. Unless indicated otherwise, all colors and textures of specified items presented in sample Submittals shall be from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products, or equipment lines and their selection will require an increase in contract time or price, clearly indicate same on the transmittal page of the Submittal.

#### 1.06 EXCESSIVE SUBMITTALS

- A. The CONTRACTOR shall reimburse the OWNER for ENGINEER'S costs to review Excessive Submittals
- B. The CONTRACTOR is allowed two (2) submittals on any one (1) item of material, product, equipment system, or O&M Manual to demonstrate compliance with the requirement of the Contract Documents.

- C. Any and all subsequent submittals for the item of material, product, equipment system, or O&M Manual following the first two (2) submittals that CONTRACTOR still needs to make to demonstrate compliance with the requirements of the Contract Documents are defined as Excessive Submittals.
- D. OWNER will charge CONTRACTOR for all of ENGINEER'S labor and incidental costs to review Excessive Submittals based on ENGINEER'S standard billing rates. The total amount owed by CONTRACTOR to OWNER for review of Excessive submittals will be deducted from the amounts owed CONTRACTOR on the Final Adjusting Change Order.
- E. In accordance with Paragraph 1.06, C., above, whenever the ENGINEER marks the first re-submittal (i.e., the second submittal) on a particular item with the Action Code: "C – Reviewed and Not Accepted. Correct and Resubmit", this will constitute written notice by the OWNER to the CONTRACTOR and that Excessive Submittals for the item in question will be required of the CONTRACTOR and that the OWNER will deduct ENGINEER'S labor and incidental costs to review any and all subsequent submittals on the item in question from the Contract Price on the final Application for Payment for this project.

1.07 SURVEY DATA

- A. The CONTRACTOR shall make available for examination throughout the construction period all field books, notes, and other data developed by CONTRACTOR in performing the surveys required by the Work and shall submit all such data to OWNER'S CONSTRUCTION MANAGER with documentation required for final acceptance of the Work.

1.08 UTILITY INVESTIGATION

- A. The CONTRACTOR shall submit the findings of all utility investigations performed.

1.09 DAILY FORCE REPORT

The CONTRACTOR and each Subcontractor shall submit to the OWNER'S CONSTRUCTION MANAGER, or designee, a daily force report. Deliver report not later than 9:00 A.M. of the workday following the report date and include the following:

- A. Day of week, date, CONTRACTOR name and Report number.
- B. Summary of work in progress (segregated by CONTRACTOR and Subcontractor).
- C. Details of work accomplished including quantities of work installed.
- D. Summary of equipment working and where working.
- E. Summary of manpower by work element and Subcontractor.
- F. Receipt of major equipment or materials.
- G. All required testing performed and, if available, documented results.

#### 1.10 OPERATIONS AND MAINTENANCE MANUAL

- A. The CONTRACTOR shall submit technical operation and maintenance information for each item of mechanical, electrical and instrumentation equipment in an organized manner in the OPERATIONS AND MAINTENANCE MANUAL. It shall be written so that it can be used and understood by the OWNER'S operation and maintenance staff.
- B. The initial submittal of the OPERATIONS AND MAINTENANCE MANUALS shall be furnished to the OWNER'S CONSTRUCTION MANAGER upon delivery of the respective equipment. Failure to meet the initial Submittal requirement at the time of equipment delivery will result in withholding compensation for that equipment.
- C. The OPERATIONS AND MAINTENANCE MANUAL shall be subdivided first by specification section number; second, by equipment item; and last, by "Part." "Parts" shall conform to the following (as applicable):
  1. Part 1 - Equipment Record:
    - a. Summary: An Equipment Record Form shall indicate the equipment name, equipment number, and process area in which the equipment is installed.
    - b. Form: The CONTRACTOR shall also complete an Equipment Record Form for each item of mechanical, electrical and instrumentation equipment in the Work. The form shall be included in the O&M Manual.
  2. Part 2 - Operational Procedures:

Procedures: Manufacturer-recommended procedures on the following shall be included in Part 2:

    - Installation
    - Adjustment
    - Startup

Location of controls, special tools, equipment required, or related instrumentation needed for operation:

    - Operation procedures
    - Load changes
    - Calibration
    - Shutdown
    - Troubleshooting
    - Disassembly
    - Reassembly
    - Realignment
    - Testing to determine performance efficiency

- Tabulation of proper settings for all pressure relief valves, low and high pressure switches, and other protection devices
  - List of all electrical relay settings including alarm and contact settings
  - Lubrication
3. Part 3 - Preventive Maintenance Procedures:
- a. Procedures: Preventive maintenance procedures shall include all manufacturer-recommended procedures to be performed on a periodic basis, both by removing and replacing the equipment or component, and by leaving the equipment in place.
  - b. Schedules: Recommended frequency of preventive maintenance procedures shall be included. Lubrication schedules, including lubricant SAE grade, type, and temperature ranges, shall be covered.
4. Part 4 - Parts List:
- a. Parts List: A complete parts list shall be furnished, including a generic description and manufacturer's identification number for each part. Addresses and telephone numbers of the nearest supplier and parts warehouse shall be included.
  - b. Drawings: Cross-sectional or exploded view drawings shall accompany the parts list.
5. Part 5 - Wiring Diagrams:
- Diagrams: Part 5 shall include complete internal and connection wiring diagrams for electrical equipment items.
6. Part 6 - Shop Drawings:
- Drawings: This part shall include approved shop or fabrication drawings, complete with dimensions.
7. Part 7 - Safety:
- Procedures: This part describes the safety precautions to be taken when operating and maintaining the equipment or working near it.
8. Part 8 - Documentation:
- All equipment warranties, affidavits, and certifications required by the Technical Specifications shall be placed in this part.
- D. The CONTRACTOR shall furnish to the OWNER'S CONSTRUCTION MANAGER four identical OPERATIONS AND MAINTENANCE MANUALS. Each set shall consist of one or more volumes, each of which shall be bound in a standard size, 3-ring, loose-leaf, vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches. A table of contents indicating all equipment in the manuals shall be prepared. The title of each volume shall be displayed on the cover and spine.

- E. OPERATIONS AND MAINTENANCE MANUALS shall be submitted in final form not later than the 75 percent of construction completion date. All discrepancies found by the OWNER'S CONSTRUCTION MANAGER or ENGINEER in the OPERATIONS AND MAINTENANCE MANUALS shall be corrected by the CONTRACTOR within 30 Days from the date of written notification. Final, verified, and complete OPERATIONS AND MAINTENANCE MANUALS shall be submitted in PDF electronic format on CD-ROM. Four copies of the CD's shall be provided to the OWNER'S CONSTRUCTION MANAGER.

#### 1.12 RECORD DRAWINGS

- A. The Contractor shall, during the course of the work, keep a written record of all changes and corrections to the Contract Drawings. This record shall show the actual field locations of pipe fittings, appurtenances, equipment items, and any other changes or deviations that vary from the original Contract Documents. The horizontal and vertical location of any buried or concealed construction and utility features shall be surveyed and recorded on the record drawings. The Contractor shall include any detailed sketches required to fully illustrate the constructed work.
- B. The record 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's representative. If these drawings are not found to be complete and updates, the Contractor's progress payment may be withheld.
- C. The record drawing format shall be red-line markups on 24" X 36" paper Drawings.
- D. Upon completion of construction and prior to final payment, the Contractor shall submit to the Owner's representative one (1) copy of the record drawings 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 record drawings shall be completed and certified by a New Mexico professional licensed surveyor.

#### 1.11 SPARE PARTS LIST

The CONTRACTOR shall furnish to the OWNER'S CONSTRUCTION MANAGER five identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment. The spare parts list shall include the current list price of each spare part. The spare parts list shall be limited to those spare parts which each manufacturer recommends be maintained by the OWNER in inventory at the plant site. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to facilitate the OWNER in ordering. Cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring, loose-leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

**PART 2 - PRODUCTS**

**NOT USED**

**PART 3 - EXECUTION**

**NOT USED**

**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.

END OF SECTION

## SECTION 01600

### PRODUCT REQUIREMENTS

#### PART 1 – GENERAL

##### 1.1 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products, and includes:
  - 1. Substitution requests.
  - 2. Basis-of-design specification.
  - 3. Single source.
  - 4. Product delivery, storage, and handling.
  - 5. Product warranties.
  - 6. Product options.
  - 7. Product selection procedures.
  - 8. Comparable products.
  - 9. Product Substitutions.
- B. Related Sections include the following:
  - 1. General Conditions , Section 22, Warranty of Construction, and applicable portions of these Technical Specifications.

##### 1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the items "material," "equipment," "system," and terms of similar intent.
- B. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of the effective date of the Contract Documents.
- C. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
- D. Comparable Products: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product. Burden of proof of acceptability as a comparable product,

or better product, is the responsibility of the CONTRACTOR, and shall be fully investigated and documented by the CONTRACTOR prior to submittal to the ENGINEER for consideration.

1. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by CONTRACTOR.
2. Basis-of-Design Product Specification: Where a specific manufacturer's product is named whether accompanied or not by the words "basis of design," including make or model number or other designation to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers. The product named shall be used to judge the minimum standard for compliance of any product used for the application intended. Other products will not be approved for use on the project that are not at least equal to, or better than, the product named; as judged by the ENGINEER.
3. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to OWNER.
4. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for OWNER.

#### E. SUBMITTALS

1. Substitution Requests: With submittal of the bidding documents, the CONTRACTOR shall submit to the office of the ENGINEER (Bohannon Huston, Inc. 7500 Jefferson Street NE, Albuquerque, NM 87109) three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - a. Substitution Request Form: Use form as provided at the back of this Specification Section. Improperly or incompletely filled out form may be returned to CONTRACTOR, without action by ENGINEER, for correction.
  - b. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - i. Statement indicating a substitution is being requested.
    - ii. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by OWNER and separate contractors that will be necessary to accommodate proposed substitution.



- iii. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - iv. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - v. Samples, where applicable or requested.
  - vi. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners.
  - vii. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - viii. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - ix. Detailed comparison of CONTRACTOR'S Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - x. Cost information, including a proposal of change, if any, in the Contract Sum.
  - xi. CONTRACTOR'S certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - xii. CONTRACTOR'S waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- c. By making request for substitution, when forwarded by the CONTRACTOR to the ENGINEER, the CONTRACTOR:
- i. Represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
  - ii. CONTRACTOR and the manufacturer will provide the same, or better, guarantee for the substitution that they would for that specified;
  - iii. Certifies that the cost data presented is complete and includes all related costs under this Contract, but excludes costs under any separate contracts and the ENGINEER'S redesign costs, and that he waives all claims for additional costs related to the substitution which subsequently becomes apparent; and;

- iv. Will coordinate the installation of the accepted substitute making such changes as may be required for the Work to be complete in all respects.
  - d. OWNER and ENGINEER'S Action: The OWNER and ENGINEER may reject or allow substitutions, at their sole judgment and discretion. If necessary, ENGINEER will request additional information or documentation for evaluation within 7 calendar days of receipt of a request for substitution. ENGINEER will notify the CONTRACTOR of acceptance or rejection of proposed substitution within 14 calendar days of receipt of request, or 7 calendar days of receipt of additional information or documentation, whichever is later.
    - i. Form of Acceptance: Submittal marked "No Exceptions Taken".
    - ii. Use product specified if ENGINEER does not render a decision on use of a proposed substitution within time allocated.
  - e. Substitutions will not be considered if:
    - i. They are indicated or implied on Shop Drawings, Product Data, or Sample submissions without the formal Substitution Request; or
    - ii. For their implementation they require a substantial revision of the Contract Documents or work of the OWNER or separate Contractors in order to accommodate their use.
- 2. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01300 – Contractor Submittals and the submittal requirements in the applicable technical specification.

F. QUALITY ASSURANCE

- 1. Compatibility of Options: If CONTRACTOR is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- 2. Single Source: All materials or products related to a specified warranty shall be from the same prime product manufacturer, or approved in writing by the prime product manufacturer, and installed by the same entity; providing the OWNER with a single source system warranty.

G. PRODUCT DELIVERY, STORAGE, AND HANDLING

- 1. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  - a. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - b. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

- c. Deliver products to Project site in undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - d. Inspect products on delivery to ensure compliance with Contract Documents and to ensure that products are undamaged and properly protected.
  - e. Store products to allow for inspection and measurement of quantity or counting of units.
  - f. Store materials in a manner that will not endanger Project structure.
  - g. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
  - h. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - i. Protect stored products from damage.
2. Storage: Provide a secure location and enclosure, as necessary, at Project site for storage of materials and equipment by OWNER'S construction forces. Coordinate location with OWNER.

#### H. PRODUCT WARRANTIES

- 1. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents, and Manufacturer's standard warranty. Manufacturer's disclaimers and limitations on product warranties do not relieve CONTRACTOR of obligations under requirements of the Contract Documents.
- 2. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - a. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - b. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate for properly executed.
  - c. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- 3. Submittal Time: Warranty information shall be submitted prior to final payment.

## PART 2 - PRODUCTS

### 2.01 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. OWNER reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," ENGINEER will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is ENGINEER'S.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where a product is specified and accompanied by the term "or equal" or "or approved equal" or "or approved," or similar language; comply with provisions in "Comparable Products" and "Substitution Requests" requirements to obtain approval for use of an unnamed product. The term "equal" shall not be construed as requiring products to be exact in every characteristic, unless the ENGINEER determines that exact matching of all characteristics is required for the intended result. The term "equal" shall, subject to the ENGINEER'S interpretation, mean generally equivalent in essential features for quality and performance for the intended result. The ENGINEER shall be the sole judge of the essential features for quality and performance, and the intended result.

**B. Product Selection Procedures:**

Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "product" name a single product and manufacturer, provide the product named or submit the proposed substitution with the bid. Where specified elsewhere, certain products must be pre-approved prior to the bid submittal.
2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.  
Substitutions may be considered, unless otherwise indicated as "no substitute," or similar wording.
3. Products: Where Specification paragraphs or subparagraphs titled "products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

Substitutions may be considered, unless otherwise indicated as "no substitute," or similar wording.

4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

Substitutions may be considered, unless otherwise indicated as "no substitute," or similar wording.

5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" and "Substitution Request" Articles to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" and "Substitution Requests" Articles to obtain approval for use of an unnamed manufacturer's product.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Comparable Products" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" and "Substitution Requests" Article to obtain approval for use of a product.
  - a. Substitutions will not be considered, unless otherwise indicated
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches ENGINEER'S sample. ENGINEER'S decision will be final on whether a proposed product matches satisfactorily.
  - b. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of "Product Substitutions" for selection of a matching product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, ENGINEER will select color, pattern, or texture from manufacturer's product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, ENGINEER will select color, pattern, or texture from manufacturer's product line that includes both standard and custom or premium items.

## 2.02 PRODUCT SUBSTITUTIONS

- A. Timing: Refer to Par. E, 1, this Section, "Substitution Requests." ENGINEER will consider requests for substitutions for named products received with the bid for the project, or prior to the bid where pre-approval is required prior to the bid opening for this project. Requests received after the bid opening date may be considered or rejected at discretion of ENGINEER. After that time, CONTRACTOR has the burden of proof that the substitution is requested due to events or specified product unavailability beyond the CONTRACTOR'S control.
- B. Conditions: ENGINEER will consider CONTRACTOR'S request for substitution when, in the ENGINEER'S judgment, the following conditions are satisfied. If the following conditions are not satisfied, ENGINEER will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers OWNER a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities OWNER must assume. OWNER'S additional responsibilities may include compensation to ENGINEER for redesign and evaluation services, increased cost of other construction by OWNER, and similar considerations.
  2. Requested substitution does not require extensive revisions to the Contract Documents.
  3. Requested substitution is consistent with the Contract Documents and will produce indicated or better results.
  4. Substitution request is fully documented and properly submitted.
  5. Requested substitution will not adversely affect CONTRACTOR'S Construction Schedule.
  6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  7. Requested substitution is compatible with other portions of the Work.
  8. Requested substitution has been coordinated with other portions of the Work.
  9. Requested substitution provides specified or better warranty.

10. Requested substitution is due to events or specified product unavailability beyond the CONTRACTOR'S control.

#### 2.03 COMPARABLE PRODUCTS

Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named on the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified or better warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
5. Samples, if applicable, or requested.

#### **PART 3 – EXECUTION**

- 3.01 CONTRACTOR SUBSTITUTION REQUEST FORM IS ATTACHED.

#### **PART 4 – PAYMENT**

- 4.01 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

**Pueblo of Zuni  
Commercial Development Area  
Water and Wastewater Infrastructure**

**CONTRACTOR SUBSTITUTION REQUEST FORM**

The undersigned, as CONTRACTOR for the above project, requests that the following product be accepted for use in the Project in lieu of \_\_\_\_\_ Specified in Section \_\_\_\_\_

PRODUCT: \_\_\_\_\_

MODEL NO: \_\_\_\_\_

MANUFACTURER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

Reason for substitution request is as follows: \_\_\_\_\_

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

The following items are attached:

- Product description including specifications, performance and test data, and applicable reference standards.
- Samples
- Tabulated comparison with specified product.
- Documentation of reason for request.
- Cost data for comparing proposed substitution with specified product.
- Other: \_\_\_\_\_

The undersigned certifies that unless stated otherwise:

- Proposed substitution has been thoroughly investigated and function, appearance and quality meet or exceed that of specified product.
- Same warranty will be provided for substitution as for specified product.

Use of substitution will not adversely affect:

- Dimensions shown on Drawings.
- Construction schedule and date of completion.
- Work of other trades.
- Maintenance service and replacement parts for proposed substitution will be readily available in Albuquerque area.

Any changes to Contract Sum related to use of proposed substitution are included in price listed below.

CONTRACTOR waives claims for additional costs related to acceptance of substitution which may subsequently become apparent.

Costs of modifying project design caused by use of proposed substitution which subsequently become apparent will be paid for by CONTRACTOR.



If substitution request is accepted:

- Contract Sum will be (decreased, increased) by \$ \_\_\_\_\_
- Contract Time will be (decreased, increased)by \$ \_\_\_\_\_ calendar days \_\_\_\_\_

Submitted By:

CONTRACTOR/SUPPLIER

ADDRESS: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

NAME OF PERSON SUBMITTING REQUEST: \_\_\_\_\_

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_



**SECTION 01700  
MEASUREMENT AND PAYMENT**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

This section describes the measurement and payment for the work by each bid item. Contractor's overhead and profit, construction survey and staking, required testing, site security, and material storage shall be included in the unit cost for items of work listed in the Bid Form.

**1.02 MEASUREMENT AND PAYMENT**

- A. **MOBILIZATION/DEMobilIZATION** – Mobilization and Demobilization shall all activities and associated costs for transportation of Contractor's personnel, equipment, and operating supplies to the site to initiate the work, and from the site at the conclusion of the work; establishment of offices, buildings, yards, and other necessary general facilities for the Contractor's operations at the site; premiums paid for performance and payment bonds, including coinsurance and reinsurance agreements as applicable.

Payment for this bid item will be fifty (50) percent at the start of the project (first payment application) and fifty (50) percent at the end of the project (final payment application).

- B. **TRAFFIC CONTROL** – Per the Bid Form, this is a Lump Sum item, for traffic control per Standard Specification 1200, to include permitting, preparation of traffic control plans for permitting, barricade and devices, and personnel to provide temporary traffic control along all corridors with vehicular travel within the project area.

Payment for this item will be fifty (50) percent at the time of approval of the Traffic Control plan, and fifty (50) percent at the completion of work requiring Traffic Control

- C. **CONSTRUCTION STAKING AND SURVEYING** –Per the bid form this is a lump sum item. The Contractor shall furnish all labor and materials necessary to perform all surveying and staking necessary for the completion of construction in conformance with the Drawings, Specifications, and Contract Documents.

- D. **SWPPP** – Per the Bid Form, the Stormwater Pollution Prevention Plan is a Lump Sum item, and includes all work described in Section 01001, Par 3.06, STORM WATER DISCHARGE REQUIREMENTS.

- E. **WATERLINE** - Payment for waterline shall be on a linear foot basis measured horizontally over the pipeline length to all bury depths, to include clearing, pipe, fittings, restraints, trench backfill and compaction and final grading, connections, and tracer wire. Payment for this item shall include disinfection and testing.

- F. HEAT TRACE AND ASSOCIATED ELECTRICAL IMPROVEMENTS – Per the Bid Form, this is a Lump Sum item. This item will include installation of a new electrical service, extension of power within the utility vault, installation of heat trace within the insulated pipe for a total distance of approximately 1300 feet on the insulated 12-inch pipe, centered at the power source, and installation of heat trace on 300 feet of 3-inch well discharge piping, complete system in place.
- G. INSULATED PIPE WITHIN UTILITY VAULT – Per the Bid Form, these items will be paid on a linear foot basis measured horizontally over the pipeline length to all bury depths.
- H. BRIDGE CROSSING – Payment for the pipe crossing of the pedestrian bridge will be on a Lump Sum Basis, per the bid form, to include reinforcement of the existing bridge, penetrations of the rock wall, construction of the pipe support assembly, and installation of the pre-insulated piping across the bridge. This item includes the length of pre-insulated piping across the bridge.
- I. FIRE HYDRANTS ASSEMBLY – Payment for fire hydrants will include piping from the main line, isolation valve, restraints and /or blocking, and will be per each fire hydrant installed.
- J. COMBINATION AIR RELEASE VALVES, BELOW GROUND IN MANHOLE – Per the Bid Form, these will be paid per each installation, including excavation and backfill, valve and piping, manhole, ring and cover, complete in place per the referenced standard detail.
- K. COMBINATION AIR RELEASE VALVE, ABOVE GROUND IN HOT BOX - Per the Bid Form, these will be paid per each installation, to include the valve and piping, Hot Box enclosure with heater, and associated extension of electrical service, including electric cable across the bridge within a manufacturer-provided channel in the pre-insulated pipe.
- L. VALVES – Per the Bid Form, valves will be paid per each, to include valve, box and cover, complete in place with concrete ring per the referenced detail.
- M. JACK AND BORE – Per Standard Specification Section 710 and the bid form, this item will be paid on a linear foot basis to include the casing pipe, excavation and backfill of bore and receiving pits, installation of steel casing, end seals, and casing spacers per the reference detail and specifications. Carrier pipe will be paid in accordance with the waterline pay items.
- N. EXPANSION JOINTS –Per the bid form, expansion joints will be paid per each, complete in place.
- O. PIPE SUPPORTS –Per the bid form, pipe supports will be paid per each to include installation per the reference detail and keyed notes.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION (NOT USED)**

**PART 4 – PAYMENT (NOT USED)**

END OF SECTION

**SECTION 13500**  
**WORK IN VICINITY OF BLACKROCK DAM**

**PART 1- GENERAL**

**1.01 SCOPE**

The work of this project will include waterline installation along parts of the Blackrock Dam historic structure, including the auxiliary spillway, pedestrian access bridge and original dam crest.

**1.02 JURISDICTIONAL AGENCIES**

The Blackrock Dam is under the jurisdiction of the Bureau of Indian Affairs (BIA) and is a historic resource of the Zuni Tribe.

**1.03 RECORD INFORMATION**

The auxiliary spillway for the dam includes a HDPE liner covered with approximately 1.5' of soil. Care must be taken to avoid damaging the liner. The available drawings for the dam are attached to this specification section. These drawings are not complete but represent the available information, including details of the liner installation.

**1.04 SUBMITTALS**

- A. Name, contact information and qualifications of Contractor's representative or subconsultant with special expertise in HDPE liners for dams.

**PART 2 – PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

- A. When work is performed in the auxiliary spillway or across the Blackrock Dam, the Contractor must provide a representative with special expertise in dam liners to observe the work and make recommendations for repairs if necessary.
- B. Any damage to the existing dam liner must be repaired and restored to original or better condition.
- C. Where the pipe penetrates the liner, provide a watertight connection between the pipe and the liner.
- D. Digital photographs of the modified liner, including cut and restore areas, shall be taken when the liner is exposed and immediately following repair or restoration, prior to backfill, to illustrate and document the repair condition and quality. Photographs shall be submitted to the owner for documentation.

**PART 4 – MEASUREMENT AND PAYMENT**

Work of this section will not be paid separately but is included in the bid items for waterline and appurtenance installation.

END OF SECTION



## SECTION 15064 INSULATED PIPE

### PART 1 – GENERAL

#### 1.01 DESCRIPTION

This section specifies insulated water pipe to be used at located designated on the Drawings. Piping of 3-inch and 12-inch nominal diameter is included in this project.

#### 1.02 SUBMITTALS

The following submittals shall be provided in accordance with Section 01300.

- A. Catalog cut sheets showing the dimensions and materials of construction.
- B. Layout drawings showing manufactured fittings, channels for heat trace and piping outlets for valves and electrical cable.

### PART 2 – PRODUCTS

#### 2.01 INSULATED HDPE PIPE.

##### 2.01.1 Insulated HDPE pipe

2.01.2 Insulated HDPE pipe shall be PolyCor HDPE as manufactured by THERMACOR PROCESS, L.P, or approved equal. The carrier pipe shall be HDPE, SDR 25, conforming to ASTM D-3350. Pipe and fittings shall be manufactured from extra high molecular weight polyethylene compound and fabricated to Standard Dimension Ratio (SDR) wall thickness in standard IPS sizes.

2.01.3 WORKING PRESSURE. Pipe shall be suitable for working pressures up to 150 psi.

2.01.4 INSULATION. Insulation shall be rigid, 90-95% closed cell polyurethane with a 2.0 to 3.0 pounds per cubic foot density and coefficient of thermal conductivity (K factor) of 0.14 and shall conform to ASTM C-591. The polyurethane foam shall completely fill the annular space between the service pipe and jacket and shall be bonded to both.

2.01.5 The manufacturer shall provide channels within the insulation for heat trace and electrical service to the hot box enclosures shown on the Plans.

2.01.6 JACKET. The outer protective jacket shall be HDPE, 125 mil thickness minimum, seamless and tested for watertight integrity.

#### 2.02 INSULATED DUCTILE IRON PIPE

2.02.1 Carrier pipe shall be Pressure Class 150 ductile iron pipe.

2.02.2 Pipe fittings shall be as shown in the Plans.

2.02.3 INSULATION. Insulated ductile iron pipe shall be insulated with a minimum 3" thick, aluminum clad insulation. Insulation shall be rigid, 90-95% closed cell polyurethane with a 2.0 to 3.0 pounds per cubic

foot density and coefficient of thermal conductivity (K factor) of 0.14 and shall conform to ASTM C-591. Insulation shall accommodate heat trace installation and electrical service to the hot box enclosures shown on the Plans.

- 2.02.4 Aluminum cladding shall be 0.032" thick, with a stucco embossed finish, made of 3105 series aluminum, meeting ASTM B-209 Standards, and painted on interior and exterior clear finish.

2.03 FITTINGS. All Fittings shall be insulated.

### **PART 3 – EXECUTION**

- 3.01 INSTALLATION. Installation shall be per the manufacturer's instructions and the Drawings. HDPE Pipe and fittings shall be joined in the field using approved methods for butt-fusion welding.
- 3.02 FIELD ALTERATIONS. Field cuts and welding shall be done in accordance with the manufacturer's instructions.
- 3.03 TESTING. Hydrostatic pressure testing shall be performed before installation of the pipe insulation. Test pressure shall be 150 psi.
- 3.03.1 HDPE pipe pressure testing shall comprise an expansion phase and a test phase, as recommended by the manufacturer. The piping system shall be restrained from uncontrolled movement in the event of a failure.

END OF SECTION



## SECTION 16855

### PIPE HEAT TRACE SYSTEM

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Furnish and install a complete UL Listed, CSA Certified, or FM Approved system of heating cables, connection kits, power distribution panel, and thermostatic controller to prevent above grade and below grade pipes from freezing. This project includes insulated piping or iron and plastic materials for utility chase, bridge and underground installations.

##### 1.02 SYSTEM REQUIREMENTS

- A. The system shall be designed based on maintaining a 40°F water temperature and -10°F outside temperature. The design shall be coordinated with the supplier of the pipe insulation.

#### PART 2 – PRODUCTS

##### 2.01 SELF REGULATING HEATING CABLE

- A. The self-regulating, parallel resistance heating cable shall consist of two (2) 10 AWG nickel-copper bus wires embedded in parallel in a self-regulating polymer core that varies its power output to respond to temperature all along its length, allowing the heating cable to be cut to length in the field. The heating cable shall be covered by a crosslinked, modified polyolefin dielectric jacket. To provide a ground path and to enhance the heating cable's ruggedness, the heating cable shall have a braid of tinned copper and an outer jacket of (select: modified polyolefin (-CR) or fluoropolymer (-CT)), as required per section 427-23 of the NEC-1996.
- B. Heating cable wattage requirements shall be verified by manufacturer based on the design information provided on the drawings and in this specification.
- C. In order to conserve energy and to prevent overheating, the heating cable shall have a self-regulating factor of at least 90 percent. The self-regulation factor is defined as the percentage reduction, without thermostatic control, of the heating cable output going from 40°F pipe temperature operation to 150°F pipe temperature operation.
- D. The heating cable shall operate on line voltages of 208, 240 or 277 volts without the use of transformers.
- E. The heating cable for metal-pipe freeze protection shall be sized for the system requirements by the manufacturer.

- F. The heating cable shall be XL-Trace cable as manufactured by Raychem Corporation, or approved equal.
- G. All heating cable connection kits shall be Raychem Rayclic type components or equal. All components shall be UL listed, CSA Certified and FM approved for use as part of the heat trace system to prevent freezing of the domestic water piping. All component enclosures shall be rated NEMA 4X to prevent water ingress and corrosion. All components shall be UV stabilized.

## 2.02 CABLE POWER CONNECTION

- A. Power connection, end seal, splice, and tee kit components shall be applied in the field.

## 2.03 GROUND FAULT DEVICE

- A. Heating cable circuit shall be protected by a ground-fault circuit breaker device for equipment protection.

## 2.04 SYSTEM POWER DISTRIBUTION AND CONTROL

- A. Contractor shall furnish a Pentair DigiTrace model HTPG or equal heat trace power panel to provide power distribution for heat tracing system.
  - 1. Panel to be UL 508 certified.
  - 2. Heat tracing circuits shall be protected by 30mA ground fault type EPD breakers.
  - 3. Provide indication lights for trace operation.
  - 4. Enclosure to be NEMA 4X rated.
- B. Contractor shall furnish a Pentair DigiTrace model AMC-F5 or equal fixed set point freeze protection thermostat to control heat tracing system.
  - 1. Thermostat shall have a fixed set point of 40 degrees F for ambient sensing
  - 2. Thermostat shall be NEMA 4X rated.
  - 3. Thermostat shall be UL Listed and CSA Approved.

# PART 3 – EXECUTION

## 3.01 INSTALLATION

- A. Install electric heating cable according to the drawings and the manufacturer's instructions. The installer shall be responsible for providing a complete functional system, installed in accordance with applicable national and local requirements.

- B. Apply the heating cable linearly on the pipe after piping has been successfully pressure-tested with the use of High-temperature, glass filament tape for attachment of heating cable to water piping. Cable ties are not permitted.
- C. Pipe insulation system shall be installed over the heat trace cable.
- D. Apply "Electric Traced" warning labels to the outside of the thermal insulation at 10 foot intervals, opposite sides of the pipe.

### 3.02 TESTING

- A. Subject heating cable to testing using a 2500-Vdc Megger, minimum insulation resistance shall be 20 megohms or greater. Provide report to Engineer on test results for all cables.

### 3.03 PROJECT MATERIALS SCHEDULE

- A. Power Panel and Thermostat:
  - 1. Pentair DigiTrace HTPG or equal
  - 2. Service voltage: 120/240 VAC, single-phase, rated 200 amperes with 200 ampere main circuit breaker.
  - 3. Branches:
    - i. Four – 40 ampere circuit breaker and contactor circuits for four 8-watt trace circuits.
    - ii. One – 20 ampere circuit breaker and contactor circuit for one 5-watt trace circuit.
    - iii. One – 20 ampere circuit breaker for air relief valve enclosure heaters.
  - 4. Thermostat control: Pentair DigiTrace AMC-F5 or equal
- B. Self-Regulated Heating Cable:
  - 1. 12-inch ductile iron or HDPE pipe freeze protection – 8 watt heating cable, Raychem 8XL2-CR or equal).
  - 2. 3-inch galvanized steel pipe freeze protection – 5 watt heating cable, Raychem 5XL2-CR or equal.

## PART 4 – PAYMENT

- A. Payment for this item will be on a Lump Sum basis to include all components of the heat trace system including controls, the installation of a new electrical service and extension of power to the heat trace system.

END OF SECTION





**30 March 2010  
AMEC Project No. 10-517-00001**

**GEOTECHNICAL ENGINEERING STUDY  
ZUNI COMMERCIAL DEVELOPMENT  
PIPELINES & RAW WATER STRUCTURES  
ZUNI, NEW MEXICO**

**Submitted To:**

**Bohannon Huston, Inc.  
Courtyard One  
7500 Jefferson, NE  
Albuquerque, New Mexico 87109**

**Submitted By:**

**AMEC Earth & Environmental, Inc.  
8519 Jefferson, N.E.  
Albuquerque, New Mexico 87113**



30 March 2010  
AMEC Project No. 10-517-00001

Bohannon-Huston, Inc.  
Courtyard One  
7500 Jefferson, NE  
Albuquerque, New Mexico 87109

**Attention: Ms. Deborah Dixon**

**RE: GEOTECHNICAL ENGINEERING STUDY  
ZUNI COMMERCIAL DEVELOPMENT INFRASTRUCTURE PROJECT  
ZUNI, NEW MEXICO**

Our Geotechnical Engineering Study Report for the referenced project is enclosed. The study was performed in general accordance with our proposal PF09-1207, dated 22 December 2009. This report includes the results of test drilling, laboratory analyses and geotechnical recommendations for pipeline support and related earthwork.

Should any questions concerning this report or you require further clarification, please contact us at (505) 821-1801.

Respectfully submitted,

**AMEC Earth & Environmental, Inc.**

  
Lee J. Mitchell, P.E.  
Project Engineer



**Reviewed by:**

  
Ralph E. Crockett, P.E.  
Senior Geotechnical Engineer

LJM:rrk

Copies: Addressee (3)

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## **1.0 INTRODUCTION**

This report is submitted for a geotechnical engineering study made by this firm of the proposed Zuni Commercial Development Infrastructure Project in Zuni, New Mexico. The objectives of this study were to characterize and evaluate subsurface conditions underlying the proposed structure sites and transmission pipeline alignments and to provide geotechnical data for design and construction of the structures, pipelines and related earthwork.

## **2.0 PROPOSED CONSTRUCTION**

We understand that the project consists of the following:

- 20,000 lineal feet of 12" diameter water line, including a portion along the top of the existing Black Rock Reservoir Dam
- A small water booster station
- An at-grade 275,000 gallon water storage tank
- 5,000 lineal feet of sewer collection line
- A package "Advantex" wastewater treatment system, later changed to a lagoon system.

Should final design details vary significantly from those outlined above, we should be notified for review and possible modification of recommendations.

## **3.0 INVESTIGATION**

### **3.1 Subsurface Investigation**

Thirteen (13) exploratory borings were drilled along the proposed alignment, at the raw water lift station and booster station, near the water storage tank and wastewater treatment plant between January 7 and March 4, 2010. The borings were advanced utilizing a truck-mounted CME rotary drill rig equipped with 7.25-inch O.D. hollow stem auger, and a portable "Beaver" drill rig equipped with 6-inch diameter hollow stem auger, to depths ranging from 3.5 to 20 feet below existing grade. Standard penetration testing and open-end drive sampling were performed at selected intervals in the borings. During the field study, the soils encountered were continuously examined, visually classified, and logged. Results of the field study are presented in Appendix A, which includes a brief description of drilling and sampling equipment and procedures, a boring location plan showing the boring locations, and logs of the test borings.

It should be noted that due to ground surface conditions, the boring at the water storage tank site (W-1) was drilled at a location as close as possible, but away from the proposed tank footprint.

### **3.2 Percolation Test**

A percolation test was performed in the proposed lagoon area. The percolation test was performed in accordance with New Mexico Environment Department guidelines. Two test holes were drilled to between 56 and 58 inches below ground surface. The bottom of each hole was filled with approximately 2 inches of gravel, filled with water and allowed to saturate for a minimum of four

hours before refilling and taking readings. The percolation test results are presented in Appendix B of this report. The average percolation rate was calculated to be 8.34 minutes per inch.

### **3.3 Laboratory Analysis**

Moisture content determinations were made on most open-end drive samples recovered. Dry densities were determined on selected relatively undisturbed 2.42-inch I.D. "ring" samples. Results of these tests are shown on the boring logs.

Grain-size analysis and Atterberg limits tests were performed in general accordance with ASTM C117/C136 and ASTM4318, respectively, on selected samples to aid in soil classification. A consolidation test was performed on a selected relatively undisturbed "ring" sample in general accordance with ASTM D5333-03). Test results are presented in Appendix B, along with a brief description of soil mechanics testing procedures.

## **4.0 SITE CONDITIONS & GEOLOGICAL PROFILE**

### **4.1 Site Conditions**

The project site stretches from the Black Rock Reservoir in a northeasterly direction along the Black Rock Dam North Access Road towards the proposed commercial development. The new water tank site is located off BIA Route 4 on the north end of the proposed development. The proposed development site consists primarily of vacant, undeveloped land. Topography slopes to the east/southeast. Vegetation consists of native grasses, shrubs and cacti.

### **4.2 Subsurface Profile**

As indicated by the exploratory borings, the geotechnical profile along the pipeline alignments generally consists of silty sand (SM), with lesser strata of relatively clean sands (SP, SP-SM), sandy clay (CL) and basalt. The silty sand is non plastic to low plasticity, predominantly fine grained, and occasionally contains a trace of gravel to 3/8-inch. The clean sands are nonplastic, predominantly fine grained and occasionally contain a trace of gravel to 3/4-inch. The sandy clay occurs locally within the profile. The clay is of medium plasticity, ranges from soft to moderately firm in consistency and contains fine grained sand. The basalt is gray, porous and very dense.

### **4.3 SOIL MOISTURE & GROUNDWATER CONDITIONS**

Groundwater was not encountered in any of the borings during our field study. Soil moisture contents ranged from 2 to 11 percent, with the majority below 8 percent.

## **5.0 DISCUSSION & RECOMMENDATIONS**

### **5.1 STRUCTURES**

#### **5.1.1 Analysis of Results**

Some of the silty sand soils underlying the booster station and water storage tank sites are in a loose state and are susceptible to collapse upon wetting. As a result, excessive vertical movement of footings and slabs-on-grade could occur if substantial moisture increases in the supporting soils were to occur. However, the structures at these sites, which bear on the sandy soils encountered to depths ranging from 11 feet below site grade near the Water Storage Tank site to 20 feet at the Booster Station site, can be safely supported on spread-type or mat-type footings bearing on densified native soils provided the guidelines concerning site preparation and site drainage measures contained in the following sections of this report are carried out. The recommended site preparation consists of prewetting and proofrolling the silty sands below the entire Booster Station and Water Tank structure footprints using a heavy vibratory roller.

It should be noted that a degree of risk is involved with the recommended foundations. Should a broken water line or other source of moisture occur, excessive movements of slabs and lightly loaded foundations could occur, at least in some areas of the sites.

#### **5.1.2 Foundations – Water Tank**

The following recommendation is based upon the assumption that the soils at the water tank site are similar to those in Boring W-1 which was drilled as close as possible to the water tank site. Soil borings should be drilled at the water tank site prior to final foundation design of the structure.

Continuous spread-type foundations, mat-type foundations or monolithic slabs with turned-down edges bearing in the silty sands encountered to a depth of 20 feet below grade, in conjunction with recommended site preparation presented in Appendix C and moisture protection provisions given in Section 5.1.6, are recommended for support of the water tank structure. Site preparation consists of scarifying the soils below foundations, prewetting to bring the upper 5 feet of subgrade soils to optimum moisture content or above, and surface compaction using a heavy steel-drum vibratory roller. A safe soil bearing pressure of 2,000 psf is recommended for the design of continuous spread-type or mat-type foundations bearing in the sandy soils. Minimum depths of footings should be 2.5 feet below the lowest adjacent finished grade for perimeter footings. Two feet is the minimum recommended width of continuous footings. Turned-down edges should bear a minimum of 24 inches below finished grade. Turned-down edges should have a minimum width of 12 inches.

#### **5.1.3 Foundations – Booster Station**

Spread-type foundations, mat-type foundations or monolithic slabs with turned down edges bearing at uniform depths below finished grade, in conjunction with the recommended site preparation and moisture protection provisions, are recommended for support of the booster station structure. A safe soil bearing pressure of 1,500 psf is recommended for the design of spread-type or mat

foundations bearing on prepared native soils. Two feet and 1.33 feet are the minimum recommended widths of square and continuous footings, respectively. Turned-down edges should bear a minimum of 24 inches below finished grade. Turned-down edges should have a minimum width of 12 inches.

The bearing pressures presented above apply to full dead, plus realistic live loads, and can be increased by one-third for total loads including wind and seismic forces.

Vertical movements of footings designed as recommended above are estimated not to exceed 3/4-inch for compaction moisture contents introduced during construction. Differential movements are expected to be less than 50 percent of the total settlement. Significant moisture increases above these contents could create additional movements and could create excessive movements, at least in some areas of the sites.

#### **5.1.4 Lateral Loads**

The passive soil resistance against edges of footings, stem walls, etc., with properly compacted backfill should be considered as being equal to forces exerted by a fluid of 350 pounds per cubic foot unit weight. A coefficient of friction of 0.35 is recommended for computing lateral resistance between the bases of footings and slabs and the soil.

Lateral pressure against below-grade walls will depend upon their degree of restraint. Walls which are restrained so as to limit movement at the top to less than 0.001 times the height of the wall, should be designed for an "at-rest" earth pressure of 50 pounds per square foot per foot of depth. Walls free to move at the top can be designed for an "active" earth pressure equal to 35 pounds per square foot per foot of depth. The recommended equivalent fluid pressures are applicable to a condition of horizontal backfill without surcharge loads. An analysis of earth pressures produced by sloping backfill or surcharge loads can be provided by this firm upon request.

#### **5.1.5 Site Grading & Slab Support**

Subgrade preparation below concrete slabs associated with the structures along the raw water pipeline, should consist of scarifying the native sandy soils below the slabs, moisture conditioning to bring the moisture content of the upper 5 feet of soils to optimum moisture content or above, and compacting the subgrade surface using a heavy steel drum vibratory roller.

Guide specifications relative to site grading for slab and footing support are presented in Appendix C. These specifications will result in subgrade preparation which will provide adequate support for lightly loaded slab-on-grade floors. Thus, the use of granular base for structural support of lightly loaded slabs is not considered necessary. However, should it be desired as a working surface, a course of granular base can be placed beneath concrete floor slabs.

Heavily loaded floor slabs bearing directly on prepared subgrade or structural fill can be designed utilizing a subgrade modulus (k) value of 200 pci. This value can be increased to 300 pci if a 6-inch thickness of granular base is placed below the slabs.

Where granular base is used, it should meet the following grading requirements as determined in accordance with ASTM D422.

<u>Sieve Size (Square Openings)</u>	<u>Percent Passing by Dry Weight</u>
1 inch	100
3/4 inch	85-100
No. 4	45-95
No. 200	0-8

The granular base should have a plasticity index of no greater than 3 when tested in accordance with ASTM D4318. The coarse aggregate should have a percent of wear, when subjected to the Los Angeles abrasion test (ASTM C131), of no greater than 50. Granular base should be compacted to at least 95 percent of ASTM D1557 maximum dry density or 70 percent of ASTM D4253 maximum relative density, as applicable.

#### **5.1.6 Site Drainage & Moisture Protection**

Substantial moisture increase in the subsoils underlying the structures would reduce their support value and increase foundation movements. Therefore, positive site drainage should be provided during construction and maintained thereafter. Where pavements or sidewalks do not immediately adjoin the structures, the ground surface should be sloped away from the structure perimeters in a manner to allow flow along the drainage lines at a minimum grade of 2 percent to points at least 15.0 feet away. Positive drainage should be provided from these points to streets or natural water-courses. In no case should long-term ponding of water be allowed around the perimeter of the structures. Positive drainage of surface water from precipitation or adjacent irrigation should be maintained during and after construction.

The possibility of moisture infiltration beneath the structures, in the event of plumbing leaks, should be considered in the design and inspection of underground water and sewer conduits. Landscaping adjacent to the structures should be minimized. When landscaping is utilized adjacent to the structures, plants should be of low-water demand varieties or be placed in watertight planter boxes with provisions for surface drainage of excess irrigation water.

All utility trench backfill as well as footing and stem wall backfill should be compacted to the minimum requirements outlined in Appendix C. This is considered critical to reduce the permeability of the backfill materials so that rapid infiltration of surface water is minimized. The owners should be made aware of the risk of excessive landscape watering around the perimeters of the structures.

## **5.2 PIPELINES**

### **5.2.1 Analysis of Results - Pipelines**

It is assumed that the pipelines will be installed using cut and cover construction methods. Trenches for 12-inch pipes will probably need to be 4 to 5 feet wide at the base of the trench and

about 5 feet deep in order to maintain the required 4 feet of cover. At street intersections or arroyo crossings, alternate methods of construction, such as pipe jacking, may be considered to minimize disruption of traffic. Since the lengths which "trenchless" construction methods may be considered are relatively short (about 100 feet or less to cross major arterial streets or arroyos) pipe jacking is considered the most likely method of "trenchless" construction.

Trenches required for installation of the pipeline can be excavated utilizing methods and procedures outlined in the OSHA Regulations Standard No. 1926. Detailed recommendations for the required trench preparation and design are presented in the following sections of this report.

### **5.2.2 General**

Trench support will be required for construction of the pipeline in all areas along the alignment.

Contractors have various options available for trench support. The Contractor will have control of construction means and methods; therefore, we recommend that the design of trench support be the responsibility of the Contractor.

### **5.2.3 Trench Excavations**

The subsoils underlying the alignment consist primarily of sands, and low to moderate plasticity clays, which classify as OSHA Type C and A soils, respectively. All simple slope excavations that are 20 feet in depth or less should be made with a maximum allowable slope of 1.5:1 (horizontal:vertical), though some loose or poorly cemented soils may require slopes of 2:1. If trenches with vertical sides are required, these portions should be shielded with a shoring system or trench box to a height of at least 18 inches above the top of the excavation. Shoring systems should be designed in accordance with OSHA standards. All material removed from the trench excavations should be placed a minimum of 2 feet away from the edge of the excavations.

Should trench excavations exceed 20 feet in depth, a specific engineering design and analysis of the excavation and shoring systems will be required as outlined in OSHA standards.

### **5.2.4 Modulus of Soil Reaction, $E'$**

The modulus of soil reaction,  $E'$ , is a hybrid modulus that is used in the Iowa deflection formula (Watkins and Spangler, 1958). It is the product of the modulus of passive resistance of the soil used in Spangler's original formula and the radius of the pipe. A table showing the results of our calculations of  $E'$  at each boring location are presented in Appendix D.

## **5.3 CONSTRUCTION CONSIDERATIONS**

The soils throughout the project area that will be encountered during pipeline earthwork operations are generally non-cemented to weakly cemented and can be excavated with normal earth moving equipment. Based upon the data available, it appears that the excavated soils will be suitable for

reuse as backfill fill, although some imported fill may be necessary. Heavier equipment will be required if excavating into the basalt is necessary.

#### **5.4 CONSTRUCTION OBSERVATION & TESTING**

Recommendations presented in the previous sections of this report are predicated on there being continuous observation and testing by the engineer's representative during earthwork operations. Verification of recommended moisture increases and required degree of compaction in the various areas of the project should be performed in accordance with "Specifications for Earthwork", Appendix C.

#### **5.5 SEISMIC CONSIDERATIONS**

Using the USGS Earthquake Hazard Program, a Mapped Spectral Acceleration for short periods ( $S_s$ ) of 0.349g, and a mapped spectral acceleration for long periods ( $S_1$ ) of 0.146g was determined for the site location. A Site Classification D was determined for the on-site soil conditions. Site Coefficients  $F_a = 1.6$  at short periods, and  $F_v = 2.4$  for 1-second periods were determined as a function of the site class and the mapped spectral response accelerations.





## **APPENDIX A**

**Test Drilling Equipment & Procedures**

**Unified Soil Classification**

**Terminology Used to Describe the Relative  
Density, Consistency or Firmness of Soils**

**Site Plan**

**Logs of Test Borings**



## **TEST DRILLING EQUIPMENT & PROCEDURES**

**Drilling Equipment** - Truck-mounted drill rigs powered with gasoline or diesel engines are used in advancing test borings. Drilling through soil or softer rock is performed with hollow-stem auger or continuous flight auger. Carbide insert teeth are normally used on the auger bits so they can often penetrate rock or very strongly cemented soils, which require blasting or very heavy equipment for excavation. Where refusal is experienced in auger drilling, the holes are sometimes advanced with tricone gear bits and NX rods using water or air as a drilling fluid.

**Sampling Procedures** - Dynamically driven tube samples are usually obtained at selected intervals in the borings by the ASTM D1586 procedures. In most cases, 2-inch O.D., 1-3/8-inch I.D. samplers are used to obtain the standard penetration resistance. "Undisturbed" samples of firmer soils are often obtained with 3-inch O.D. samplers lined with 2.42-inch I.D. brass rings. The driving energy is generally recorded as the number of blows of a 140-pound, 30-inch free-fall drop hammer required to advance the samplers in 6-inch increments. However, in stratified soils, driving resistance is sometimes recorded in 2 or 3-inch increments so that soil changes and the presence of scattered gravel or cemented layers can be readily detected and the realistic penetration values obtained for consideration in design. These values are expressed in blows per foot on the logs. "Undisturbed" sampling of softer soils is sometimes performed with thin-walled Shelby tubes (ASTM D1587). Where samples of rock are required, they are obtained by NX diamond core drilling (ASTM D2113). Tube samples are labeled and placed in watertight containers to maintain field moisture contents for testing. When necessary for testing, larger bulk samples are taken from auger cuttings.

**Continuous Penetration Tests** - Continuous penetration tests are performed by driving a 2-inch O.D. blunt nosed penetrometer adjacent to or in the bottom of borings. The penetrometer is attached to 1-5/8-inch O.D. drill rods to provide clearance to minimize side friction so that penetration values are as nearly as possible a measure of end resistance. Penetration values are recorded as the number of blows of a 140-pound, 30-inch free-fall drop hammer required to advance the penetrometer in one-foot increments or less.

**Boring Records** - Drilling operations are directed by our field engineer or geologist who examines soil recovery and prepares boring logs. Soils are visually classified in accordance with the Unified Soil Classification System (ASTM D2487), with appropriate group symbols being shown on the logs.

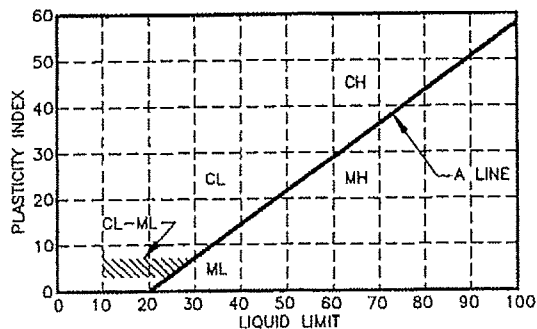
## UNIFIED CLASSIFICATION SYSTEM FOR SOILS

Soils are visually classified by the Unified Soil Classification System on the boring logs presented in this report. Grain-size analysis and Atterberg Limits Tests are often performed on selected samples to aid in classification. The classification system is briefly outlined on this chart. For a more detailed description of the system, see "The Unified Soil Classification System" ASTM Designation: D2487.

MAJOR DIVISION				GRAPH SYMBOL	GROUP SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS (Less than 50% passes No. 200 sieve)	GRAVELS (50% or less of coarse fraction passes No. 4 sieve)	CLEAN GRAVELS (Less than 5% passes No. 200 sieve)			GW	Well graded gravels, gravel-sand mixtures or sand-gravel-cobble mixtures.
		GRAVELS WITH FINES (More than 12% passes No. 200 sieve)	Limits plot below "A" line & hatched zone on plasticity chart		GP	poorly graded gravels, gravel-sand mixtures, or sand-gravel-cobble mixtures.
			Limits plot above "A" line & hatched zone on plasticity chart		GM	Silty gravels, gravel-sand-silt mixtures.
		CLAYEY GRAVELS (More than 12% passes No. 200 sieve)			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction passes No. 4 sieve)	CLEAN SANDS (Less than 5% passes No. 200 sieve)			SW	Well graded sands, gravelly sands.
		SANDS WITH FINES (More than 12% passes No. 200 sieve)	Limits plot below "A" line & hatched zone on plasticity chart		SP	Poorly graded sands, gravelly sands.
			Limits plot above "A" line & hatched zone on plasticity chart		SM	Silty sands, sand-silt mixtures.
		CLAYEY SANDS (More than 12% passes No. 200 sieve)			SC	Clayey sands, sand-clay mixtures.
FINE-GRAINED SOILS (50% or more passes No. 200 sieve)	SILTS LIMITS PLOT BELOW "A" LINE & HATCHED ZONE ON PLASTICITY CHART	SILTS OF LOW PLASTICITY (Liquid Limit Less Than 50)			ML	Inorganic silts, clayey silts with slight plasticity.
		SILTS OF HIGH PLASTICITY (Liquid Limit More Than 50)			MH	Inorganic silts of high plasticity, silty soils, elastic silts.
	CLAYS LIMITS PLOT ABOVE "A" LINE & HATCHED ZONE ON PLASTICITY CHART	CLAYS OF LOW PLASTICITY (Liquid Limit Less Than 50)			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		CLAYS OF HIGH PLASTICITY (Liquid Limit More Than 50)			CH	Inorganic clays of high plasticity, fat clays, silty and sandy clays of high plasticity.

NOTE: Coarse-grained soils with between 5% & 12% passing the No. 200 sieve and fine-grained soils with limits plotting in the hatched zone on the plasticity chart to have dual symbol.

PLASTICITY CHART



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
Boulders	Above 300mm (12in.)
Cobbles	300mm to 75mm (12in. to 3in.)
Gravel	75mm (3in.) to No. 4 sieve
Coarse gravel	75mm to 19mm (3in. to 3/4in.)
Fine gravel	19mm (3/4in.) to No. 4 sieve
Sand	No. 4 to No. 200
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Fines (silt or clay)	Below No. 200 sieve

**TERMINOLOGY USED TO DESCRIBE THE RELATIVE DENSITY,  
CONSISTENCY OR FIRMNESS OF SOILS**

The terminology used on the boring logs to describe the relative density, consistency or firmness of soils relative to the standard penetration resistance is presented below. The standard penetration resistance (N) in blows per foot is obtained by ASTM D1586 procedure using 2" O.D., 1-3/8" I.D. samplers.

1. Relative Density Terms for description of relative density of cohesionless, uncemented sands and sand-gravel mixtures.

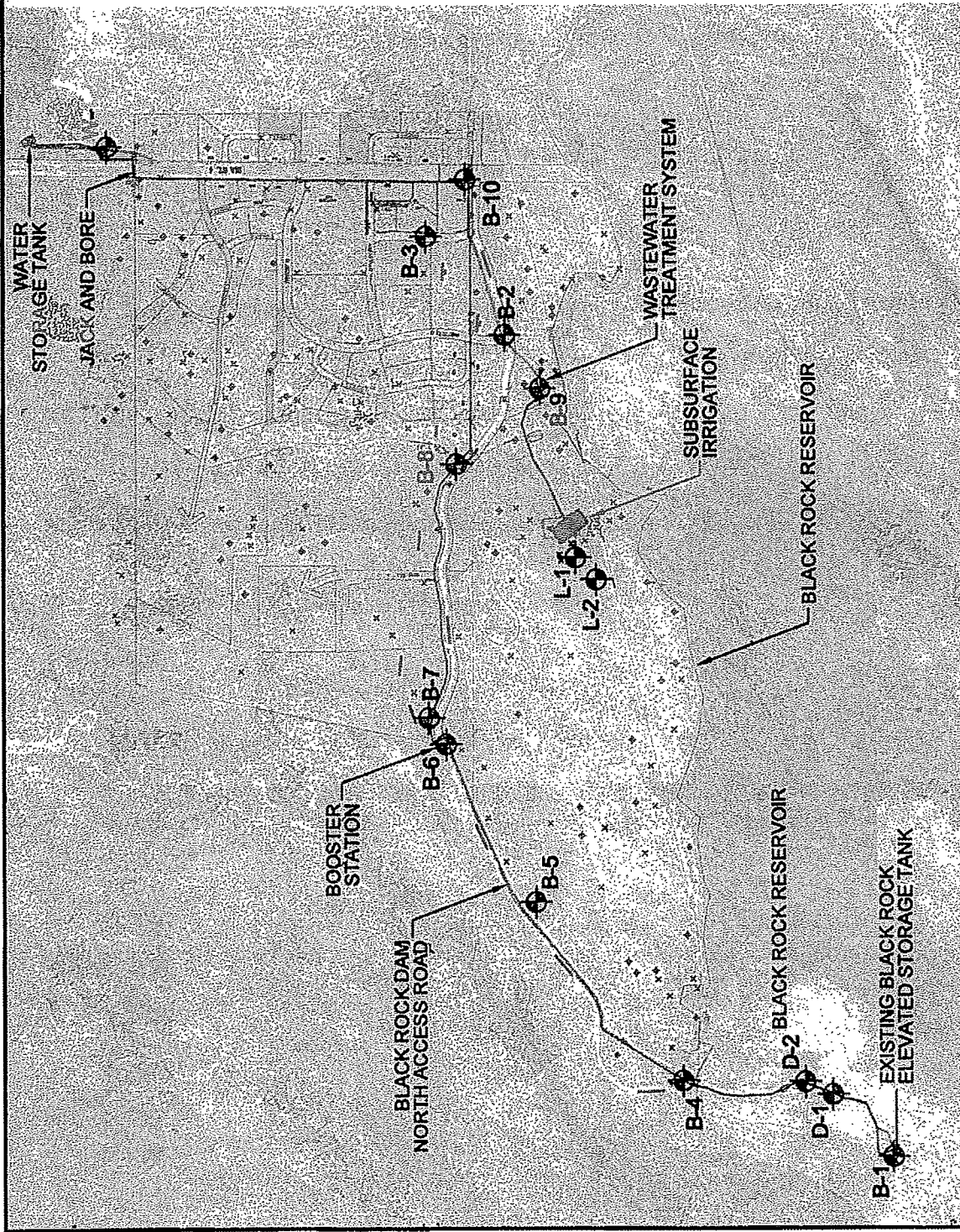
<u>N</u>	<u>Relative Density</u>
0-4	Very loose
5-10	Loose
11-30	Medium dense
31-50	Dense
50+	Very dense


2. Relative Consistency Terms for the description of clays which are saturated or near saturation.

<u>N</u>	<u>Relative Consistency</u>	<u>Remarks</u>
0-2	Very Soft	Easily penetrated several inches with fist
3-4	Soft	Easily penetrated several inches with thumb
5-8	Medium stiff	Can be penetrated several inches with thumb with moderate effort
9-15	Stiff	Readily indented with thumb, but penetrated only with great effort
16-30	Very stiff	Readily indented with thumbnail
30+	Hard	Indented only with difficulty by thumbnail

3. Relative Firmness Terms for the description of partially saturated and/or cemented soils which commonly occur in the Southwest including clays, cemented granular materials, silts and silty and clayey granular soils:

<u>N</u>	<u>Relative Density</u>
0-4	Very soft
5-8	Soft
9-15	Moderately firm
16-30	Firm
31-50	Very firm
50+	Hard



CLIENT LOGO	CLIENT	BOHANNAN HUSTON		DWN BY:	BDP	PROJECT	ZUNI COMMERCIAL DEVELOPMENT INFRASTRUCTURE		REV. NO.	
<b>AMEC Earth &amp; Environmental</b> 3519 Jefferson Rd NE Albuquerque, New Mexico 87113				CHKD BY:	LJM	TITLE	SOIL BORING LOCATION MAP			DATE
										MAR 2010
				DATUM:	N/A		PROJECT NO:			10-517-00001
				PROJECTION:	N/A		FIGURE NO.			1
				SCALE:	AS SHOWN					

AMEC PROJECT NO. 10-517-00001

BORING NO. B-1

DATUM

**SAMPLE TYPE**

**AMEC Earth & Environmental**

A-Auger cuttings; NR-No Recovery  
S-2" O.D. 1.38" I.D. tube sample.  
U-3" O.D. 2.42" I.D. tube sample,  
T-3" O.D. thin-walled Shelby tube.

PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico  
 DATE 1/8/10  
 AMEC PROJECT NO. 10-517-00001

Page 1 of 1

BORING NO. B-2

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	medium dense to very dense	SILTY SAND fine to medium grained, nonplastic, reddish-brown cemented gravel (basalt) to 1"
5				S	35		3			
				S	51		4			cemented gravel (basalt)
				S	50/3"		2		very dense	Basalt, porous, gray Refusal @ 7' 5" due to basalt
10										
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

GEOTECH\_BH\_10517-001.ZUNI COMMERCIAL DEVELOPMENT.GPJ AGRA\_ALB.GDT 3/26/10



PROJECT Zuni Commercial DevelopmentZuni Pueblo, New MexicoDATE 1/7/10AMEC PROJECT NO. 10-517-00001

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BORING NO. B-3LOCATION See Site PlanRIG TYPE CME-75BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	medium dense	SILTY SAND fine grained, nonplastic, reddish-brown
5			X	S	24		5			
			X	S	23		3			
10			X	S	7		1	SP	loose to medium dense	SAND, predominantly fine grained, nonplastic, brown
			X	S	12		1			End of boring @ 10'
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth &amp; Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings: NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

GEOTECH BH 10517-001 ZUNI COMMERCIAL DEVELOPMENT.GPJ AGRA ALB.GDT 3/26/10

PROJECT Zuni Commercial Development

Zuni Pueblo, New Mexico

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DATE 1/7/10

BORING NO. B-4

AMEC PROJECT NO. 10-517-00001

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL	soft to firm	SANDY CLAY fine sand, medium plasticity, reddish-brown
				s	8		5			
				s	12		7			
5				s	19		8			
				s	29		6	SM	medium dense	SILTY SAND fine grained, nonplastic, reddish-brown
				s	35		4			End of boring @ 7' 5"
10										
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth &amp; Environment

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico

DATE 1/7/10

AMEC PROJECT NO. 10-517-00001

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BORING NO. B-5

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content of Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SC	moderately firm to firm	CLAYEY SAND sulfate, damp, reddish-brown
			X	S	10		8			
					23					
5			X	S	28		6	SM	medium dense	SILTY SAND fine grained, nonplastic, reddish-brown
			X	S	23		6			
			X	S	22		3			
10										End of boring @ 7' 5"
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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GEOTECH. BH 10517-001 ZUNI COMMERCIAL DEVELOPMENT.GPJ AGFA ALB.GDT 3/26/10

PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico

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DATE 1/7/10

BORING NO. B-6

AMEC PROJECT NO. 10-517-00001

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	loose to medium dense	SILTY SAND fine grained, nonplastic, reddish-brown
5					12		3			
					8		5			
					14	99	2	SP-SM	loose to dense	SAND, with silt, fine grained, trace gravel to 3/4", nonplastic, brown
10					16		1			
15					16		2			
20					35		2			End of boring @ 20'
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environment

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

GEOTECH\_BH 10517-001.ZUNI COMMERCIAL DEVELOPMENT.GPJ AGRA\_ALB.GDT 3/28/10

PROJECT Zuni Commercial DevelopmentZuni Pueblo, New MexicoDATE 1/7/10AMEC PROJECT NO. 10-517-00001

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BORING NO. B-7LOCATION See Site PlanRIG TYPE CME-75BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM		
			X	S	13		11		medium dense to loose	SILTY SAND fine grained, nonplastic, reddish-brown
			X	S	14		6			
5			X	S	10		4			
			X	S	6		3			
			X	S	16		5			
10										End of boring @ 7' 5"
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth &amp; Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

GEOTECH. BH 10517-001 ZUNI COMMERCIAL DEVELOPMENT.GPJ AGFA\_ALB.GDT 3/26/10

PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico  
 DATE 1/7/10  
 AMEC PROJECT NO. 10-517-00001

Page 1 of 1  
 BORING NO. B-8

LOCATION See Site Plan  
 RIG TYPE CME-75  
 BORING TYPE 8" HSA  
 SURFACE ELEV. \_\_\_\_\_  
 DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	loose to medium dense	SILTY SAND, fine grained, nonplastic, reddish-brown
			X	S	6		6			
			X	S	10		7			
5			X	S	7		3			
			X	S	11		3			
			X	S	14		6			
10										End of boring @ 7' 5"
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environment

DEPTH	HOUR	DATE
▽ none		
▽		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico

DATE 1/8/10

AMEC PROJECT NO. 10-517-00001

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BORING NO. B-9

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV. \_\_\_\_\_

DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	medium dense to very dense	SILTY SAND fine grained, nonplastic, reddish-brown
5				S	13		2			
				S	24		3			
				U	50/3" no rec				very dense	Basalt, cemented, gray, porous
10				U	50/1" no rec					End of boring @ 9' due to refusal of basalt
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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PROJECT Zuni Commercial Development

Zuni Pueblo, New Mexico

DATE 1/8/10

AMEC PROJECT NO. 10-517-00001

Page 1 of 1

BORING NO. B-10

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 8" HSA

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	8			SM	loose to medium dense	SILTY SAND fine grained, nonplastic, reddish-brown
				S	7					
				S	14					
5				S	14					
				S	15					
10										End of boring @ 7' 5"
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth &amp; Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.



PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico  
 DATE 3/4/10  
 AMEC PROJECT NO. 10-517-00001

Page 1 of 1

BORING NO. D-1

LOCATION See Site Plan  
 RIG TYPE Breaver  
 BORING TYPE 7" HSA  
 SURFACE ELEV. \_\_\_\_\_  
 DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	13		7	SM	medium dense to very loose	SILTY SAND fine to medium grained, with gravel, nonplastic, reddish-brown
				S	14		9			
				S	11		5			
5				S	3					
				S	no rec.					
					2					
					no rec					
10										no cuttings coming out of hole Stud @ 8'
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

DATE 3/4/10  
AMEC PROJECT NO. 10-517-00001

BORING NO. D-2

RIG TYPE Breaver

BORING TYPE 7" HSA

SURFACE ELEV.

DATUM

SAMPLE TYPE

**AMEC Earth & Environment**

	DEPTH	HOUR	DATE
▽	none		
▼			

A-Auger cuttings; NR-No Recovery  
S-2" O.D. 1.38" I.D. tube sample.  
U-3" O.D. 2.42" I.D. tube sample.  
T-3" O.D. thin-walled Shelby tube.

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PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico  
 DATE 3/4/10  
 AMEC PROJECT NO. 10-517-00001

Page 1 of 1  
 BORING NO. L-1

LOCATION See Site Plan  
 RIG TYPE Breaver  
 BORING TYPE 7" HSA  
 SURFACE ELEV. \_\_\_\_\_  
 DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0					2		11	SM	loose to vrey dense	SILTY SAND medium grained, nonplastic, reddish-brown
					50/6"		10			
5										Refusal @ 3' 5", moved 7' and continued, same results
										Refusal due to basalt
10										
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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Zuni Pueblo, New Mexico

DATE 3/4/10

AMEC PROJECT NO. 10-517-00001

Page 1 of 1

BORING NO. L-2

LOCATION See Site Plan

RIG TYPE Breaver

BORING TYPE 7" HSA

SURFACE ELEV.

**DATUM**

[illegible]

**AMEC Earth & Environment**

	DEPTH	HOUR	DATE
▽	none		
▼			

A-Auger cuttings; NR-No Recovery  
S-2" O.D. 1.38" I.D. tube sample.  
U-3" O.D. 2.42" I.D. tube sample.  
T-3" O.D. thin-walled Shelby tube.

GEOTECH BH 10517-001.ZUNI COMMERCIAL DEVELOPMENT.GPJ AGRA\_ALB.GDT 3/26/10

PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico  
 DATE 3/4/10  
 AMEC PROJECT NO. 10-517-00001

Page 1 of 1

BORING NO. W-1

LOCATION See Site Plan  
 RIG TYPE Breaver  
 BORING TYPE 7" HSA  
 SURFACE ELEV. \_\_\_\_\_  
 DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	5		10	SM	loose to very dense	SILTY SAND fine grained, nonplastic, reddish-brown
				S	24		9			
				U	42	97	3			
5				S	35		3			
				S	35		5			
10				U	50/3"					
				S	no rec					
15										
20										
25										
30										
35										
40										
45										
50										

Refusal @ 11'

GROUNDWATER

SAMPLE TYPE

AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

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## **APPENDIX B**

### **Laboratory Testing Procedures**

#### **Classification Test Data**

#### **Consolidation Test Results**

#### **Percolation Test Results**

## LABORATORY TESTING PROCEDURES

Direct Shear Tests Direct shear tests are performed in general accordance with ASTM D3080 and run using a Clockhouse or Soiltest apparatus of the strain-control of approximately 0.05 inches per minute. The machine is designed to receive one of the one inch high, 2.42 inch diameter specimens obtained by tube sampling. Generally, each sample is sheared under a normal type equivalent to the effective overburden pressure at the point of sampling. In some instances, samples are sheared at several normal loads to obtain the cohesion and angle of internal friction. When necessary, samples are saturated and/or consolidated before shearing in order to approximate the anticipated controlling field loading conditions.

Consolidation Tests Soiltest or Clockhouse apparatus of the "floating-ring" type are employed for the one-dimensional consolidation tests. They are designed to receive one inch high, 2.5 inch O.D. brass liner rings with soil specimens as secured in the field. Procedures for the tests generally are those outlined in ASTM D2435. Loads are applied in several increments to the upper surface of the test specimen and the resulting deformations are recorded at selected time intervals for each increment. For soils which are essentially saturated, each increment of load is maintained until the deformation versus log of time curve indicates completion of primary consolidation. For partially saturated soils, each increment of load is maintained until the rate of deformation is equal or less than 1/10,000 inch per hour. Applied loads are such that each new increment is equal to the total previously applied loading. Porous stones are placed in contact with the top and bottom of the specimens to permit free addition or expulsion of water. For partially saturated soils, the tests are normally performed at in situ moisture conditions until consolidation is complete under stresses approximately equal to those which will be imposed by the combined overburden and foundation loads. The samples are then submerged to show the effect of moisture increase and the tests continued under higher loadings. Generally, the tests are continued to about twice the anticipated curve due to overburden and structural loads, with a rebound curve then being established by releasing loads.

Expansion Tests The same type of consolidometer apparatus described above is used in expansion testing. Undisturbed samples contained in brass liner rings are placed in the consolidometers, subjected to appropriate surcharge loads and submerged. The loads are maintained until the expansion versus log of time curve indicates the completion of "primary swell".



Client: Bohannon - Huston Inc.

Courtyard One

7500 Jefferson NE

Albuquerque, NM 87109-

Ms. Deborah Dixon

Project Name: Zuni Commercial Development

Zuni, NM

Project Manager: Ralph Crockett

Report Date: March 16, 2010

Project #: 10-517-00001

Work Order #: 1

Sampled By: Ralph Crockett

Date Sampled:

Sieve Analysis (ASTM C117-04/C136-06)

Plasticity Index (ASTM D4318-05)

Soil Classification (ASTM D2487-06)

SOILS / AGGREGATES

Sample Location	Soil Class.	L.L.	P.I.	#200	#100	#50	#40	#30	#16	#10	#8	#4	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	6"	12"	Lab Number
D-1 @ 3.0-4.5'	SM		NV NP	38	82	97	99	100																	10-0323-03
D-2 @ 4.5-6.0'	SM		NV NP	46	82	91	94	95	97	97	98	99		100											10-0323-09
L-2 @ 4.0-5.0'	SP-SM		NV NP	10	22	55	71	80	90	94	94	98		100											10-0323-15
W-1 @ 4.0'-5.0'	SM		NV NP	14	68	94	98	100																	10-0323-20
1 @ 6.0-7.5'	SM		NV NP	13	36	81	95	98	99	99	99	100													10-0323-27
2 @ 5.0-6.5'	SM		NV NP	20	34	95	46	48	51	55	56	63		73	77	82	100								10-0323-29
3 @ 7.5-9.0'	SP		NV NP	3.4	12	54	82	95	98	99	99	99		100											10-0323-33
4 @ 4.5-6.0'	CL		37 21	55	87	97	99	100																	10-0323-38
4 @ 6.0-7.5'	SM		NV NP	46	83	97	100																		10-0323-39
5 @ 4.5-6.0'	SM		NV NP	30	91	100																			10-0323-43
6 @ 7.5-8.5'	SP-SM		NV NP	7.3	36	82	92	95	96	97	97	97		97	97	100									10-0323-47
7 @ 4.5-6.0'	SM		NV NP	21	64	94	98	99	100																10-0323-54
8 @ 4.5-6.0'	SM		NV NP	38	74	93	97	99	100																10-0323-59
10 @ 4.5-6.0'	SM		NV NP	48	88	98	99	100																	10-0323-66

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Email: ☐

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Client: Bohannon - Huston Inc.  
Courtyard One  
7500 Jefferson NE  
Albuquerque, NM 87109-  
Attn: Ms. Deborah Dixon  
Project Name: Zuni Commercial Development  
Zuni, NM

Report Date: March 22, 2010

Project #: 10-517-00001  
Work Order #: 1  
Lab #: 10-0323-47  
Sampled By: Ralph Crockett  
Date Sampled:  
Visual Description of See Boring Log  
Material:  
Sample Source: 6 @ 7.5-8.5'

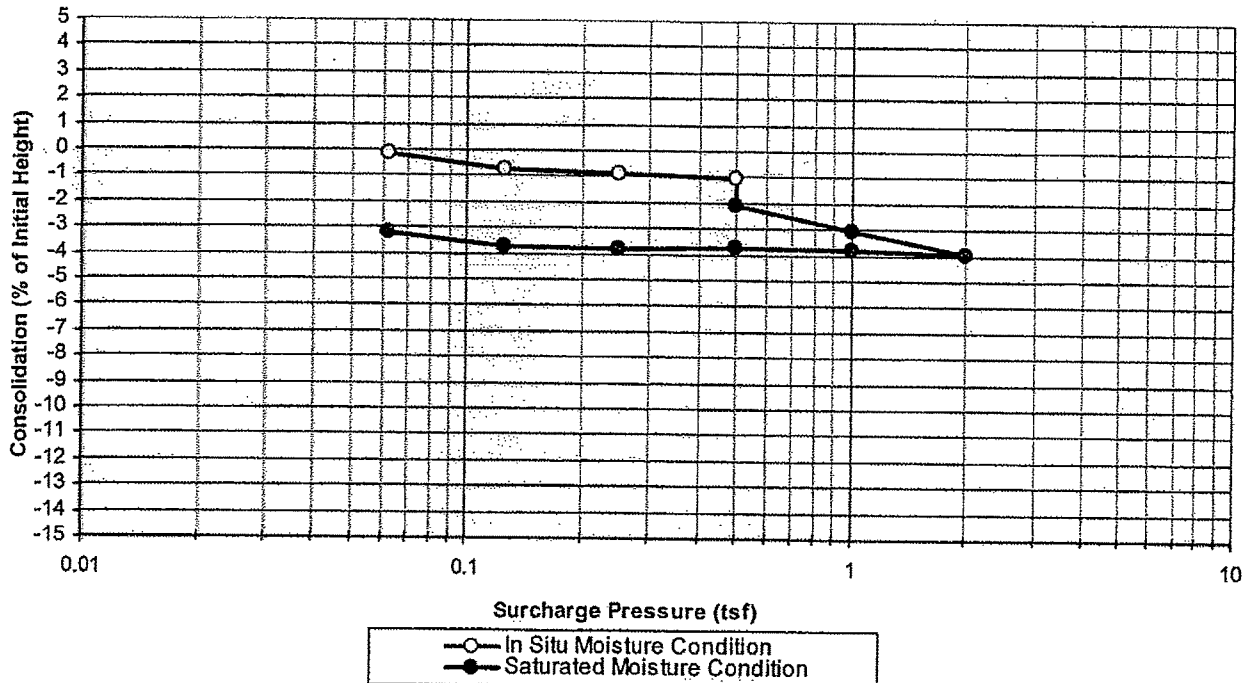
Project Manager: Ralph Crockett

### SOILS / AGGREGATES

#### Measurement of Collapse Potential of Soils (ASTM D5333-03)

Sample Preparation: In-situ

Initial Volume (cu.in.):	4.60	Final Volume (cu.in.):	4.46
Initial Moisture (%):	1.6%	Final Moisture (%):	24.1%
Initial Dry Density (pcf):	99.5	Final Dry Density (pcf):	102.6
Initial Degree of Saturation:	6%	Final Degree Saturation:	105%
Initial Void Ratio:	0.7	Final Void Ratio:	0.6
Estimated Specific Gravity:	2.651	Saturated at:	0.5 tsf
Soil Classification:	SP-SM	Consolidation at Max Load:	3.76%

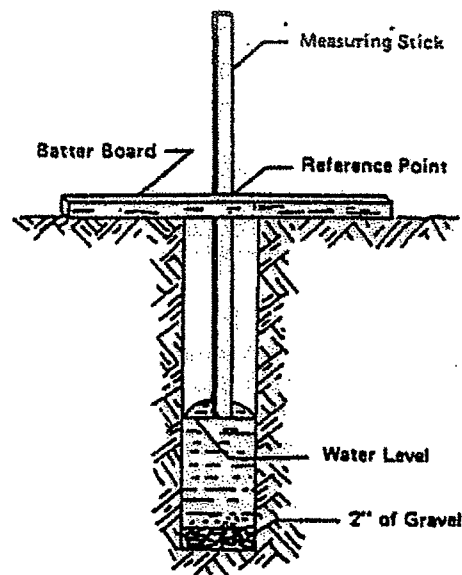


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Email: ☐

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8519 Jefferson NE  
Albuquerque, NM 87113  
Tel 5058211801  
Fax 5058217371

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- 1 Preparation of Percolation Test Holes - Percolation test holes shall be dug or bored with vertical sides and a width of four to twelve inches to the depth of the proposed drainfield trench bottom (36 inches minimum depth). Carefully scratch the sides of the holes to disturb any smeared surfaces. In clay and loam soils, two inches of fine gravel should be added to protect the bottom of the percolation test holes from sediment. Be sure loose soil materials are removed from the holes. Two test holes are required 50 feet apart in the proposed drainfield area for individual lots.
- 2 Saturation and Swelling of Soil - Percolation test holes shall be filled with water and saturated for minimum of four hours prior to testing. Clayey soils should be saturated overnight, as should soils tested during the dry season.
- 3 Percolation Rate Measurement - From a fixed reference point, measure the distance from the ground surface to the bottom of the hole and to the water surface. Adjust the water level to approximately six inches above the bottom. In sandy soils, measure the water level every ten minutes for an hour (refill to six inches as necessary). Divide ten by the inches of drop in the last ten minutes to find the percolation rate. In tighter soils, measure the drop in water level every 30 minutes for four hours (refill to six inch level as necessary) and divide 30 by the inches of drop during the last 30 minutes to find the percolation rate. Record the times and reading below.



Test Hole Number		Test Hole Number	
TIME	WATER DEPTH	TIME	WATER DEPTH
13:00	10.75	13:01	8.5
13:10	14	13:11	17.25
13:20	16.5	13:21	23.25
13:30	18.5	13:31	27.5
13:40	19.75	13:41	30.75
13:50	21.5	13:51	33.5
14:00	22.5	14:01	36.5
14:10	23.5	14:11	38

TEST HOLE	HOLE DEPTH
Number 1	56 inches
Number 2	58 inches
PERCOLATION RATE (min/inch)	
Number 1	10
Number 2	6.67
AVERAGE	
8.34	

Test Completed by: Carlton Pine

☐ Owner ☒ Contractor ☐ Other - specify \_\_\_\_\_

5 Location of Property: Zuni, New Mexico

Owner: Pueblo of Zuni

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

Address: \_\_\_\_\_

6 Report Reviewed By: \_\_\_\_\_

Title: Project Engineer

Date: 30-Mar-10

## **APPENDIX C**

### **Specifications for Earthwork**



## **SPECIFICATIONS FOR EARTHWORK**

### **1. SCOPE**

Includes all clearing and grubbing, removal of obstructions, general excavating, grading and filling, and any related items necessary to complete the grading for the entire project in accordance with these specifications.

### **2. SUBSURFACE SOIL DATA**

Subsurface soil investigations have been made, and the results are available for examination by the contractor. The contractor is expected to examine the site and determine for himself the character of materials to be encountered.

No additional allowance will be made for rock removal, site clearing and grading, filling, compaction, disposal, or removal of any unclassified materials.

### **3. CLEARING & GRUBBING**

**A. General:** Clearing and grubbing will be required for all areas shown on the plans to be excavated or on which fill is to be constructed and shall be performed in accordance with New Mexico's Standard Specifications for Public Works Construction Section 201.

### **4. EARTH EXCAVATION**

**A.** Earth excavation shall consist of the excavation and removal of suitable soils for use as excavation backfill, as well as the satisfactory disposal of all vegetation, debris, and deleterious materials encountered within the transmission line alignment.

**B.** Excavated areas shall be continuously maintained such that the surface shall be smooth and have sufficient slope to allow water to drain from the trench excavations.

### **5. BACKFILL**

**A. General:** Backfill shall consist of a controlled fill constructed in areas indicated on the project plans.

#### **B. Materials:**

**(1) Physical Characteristics:** Backfill material in the trenches shall consist of soils that conform to the characteristics set forth in the New Mexico Standard Specification for Public Works.

**(2) Borrow:** When the quantity of suitable material required for fill is not available within the limits of the jobsite, the contractor shall provide sufficient materials to construct the embankments to the lines, elevations, and cross-sections shown on the drawings from borrow areas. The contractor shall obtain from owners of said borrow areas the right to excavate material, shall pay all expenses in developing the source including the cost of right-of-way required for hauling the material.

**(1)a. Structure Area Treatment – Water Tank & Booster Station:** Prior to construction of structure pad fills in sandy soils, native soils beneath the structure pad and extending a minimum distance of 15 feet beyond the perimeter of the water tank structure and 2 feet beyond the booster station, shall be scarified to a minimum of 12 inches and watered to bring the moisture content of the upper 5.0 feet below finished pad elevations or cut surfaces to optimum or above the optimum moisture content. Moisture increases achieved shall be verified by a representative of the geotechnical engineer by augering small holes to 5.0 feet and obtaining representative samples in order to confirm proper prewetting. In the event infiltration does not take place to the prescribed depth, the geotechnical engineer's representative shall make a decision based upon the nature of the soil in question. The ground surface shall then be subjected to 20 coverages of a heavy steel drum vibratory roller (10-ton minimum weight).

The upper 12 inches of the native soils in the building areas, shall then be compacted to the minimum dry density of 95 percent of ASTM D1557 maximum density.

**(1)b. Trenched Area Treatment:** Trenched areas shall be backfilled with the excavated materials to the requirements of Section 701 of the New Mexico Standard Specifications for Public Works Construction. Prior to backfilling, the base of the trenches shall be compacted to the requirements of Section 701 of the New Mexico Standard Specifications for Public Works Construction.

Prior to placement of backfill, excavated areas shall be inspected and approved by a representative of the geotechnical engineer to insure proper compaction of the trench base and the removal of any deleterious material.

Where vibratory compaction equipment is used, it shall be the contractor's responsibility to insure that the vibrations do not damage nearby buildings or other adjacent property.

**(2) Compaction:** Fill shall be spread and compacted in accordance with the New Mexico Standard Specifications for Public Works Construction.

**(3) Weather Limitations:** Controlled fill shall not be constructed when the atmospheric temperature is below 35 degrees F. When the temperature falls below 35 degrees, it shall be the responsibility of the contractor to protect all areas of completed work against any detrimental effects of ground freezing by methods approved by the geotechnical engineer. Any areas that are damaged by freezing shall be reconditioned, reshaped, and compacted by the contractor in conformance with the requirements of this specification without additional cost to the owner.

## **6. INSPECTION & TESTS**

**A. Field Inspection & Testing:** The owner shall employ the services of a registered, licensed geotechnical engineer to observe and test all controlled earthwork. The geotechnical engineer shall provide continuous on-site observation by experienced personnel during construction of controlled earthwork. The contractor shall notify the engineer at least two working days in advance of any field operations of controlled earthwork or of any resumption of operations after stoppages. Tests of fill materials and embankments will be made in accordance with the New Mexico Standard Specifications for Public Works.

All trench excavations shall be inspected daily by the contractor and whenever a change of conditions occurs in accordance with OSHA guidelines. At a minimum, inspection of the trench excavations shall include:

1. Observation of the side of the opened excavation and the surface area adjacent to the excavation for the occurrence of tension cracks, soil spall or other evidence of soil movement.
2. Inspection of the area around the excavation and the excavation itself for evidence of existing utilities and previously disturbed soils.
3. Inspection of the excavation and areas adjacent to, for the presence water seeping into the excavation, surface water and the level of existing water table.
4. Inspect the areas adjacent to the excavation for sources of vibration that may affect the stability of the excavation.

**B. Report of Field Density Tests:** The geotechnical engineer shall submit, daily, the results of field density tests required by these specifications.

**C. Costs of Tests & Inspection:** The costs of tests, inspection, and engineering, as specified in this section of the specifications, shall be borne by the owner.





## **APPENDIX D**

### **Modulus of Soil Reaction, $E'$**



Boring No.	Pipe Diameter (in)	Invert Depth (ft)	Narrow (N) or Wide (W) Trench	E' (psi)
B-1	12	5	N	540
B-2	12	5	N	3935
B-3	12	5	N	1775
B-4	12	5	N	733
B-5	12	5	N	2160
B-6	12	5	N	617
B-7	12	5	N	772
B-8	12	5	N	540
B-9	12	5	N	1852
B-10	12	5	N	2251
D-1	12	5	N	231
D-2	12	5	N	231
L-1	12	5	N	3858
L-2	12	5	N	2083
W-1	12	5	N	2083



## **APPENDIX E**

### **Calculations**



BUCKMAN DIRECT DIVERSION PROJECT									
8-517-000042									
JTZ 6/27/2008									
Boring No.	Pipe Dia., Inches	Invert Depth (ft)	Narrow (N) or Wide (W) Trench	Silty Clay = 1, Silty Sand = 2, Sand/Gravel = 3	N <sub>60</sub> Ave. Blowcount, (Use Max = 40)	$N_{70} = 1.286 * N_{60}$	$E' \text{ (psi)} = K * N_{70}$		
G-1	30	8	N	3	15	19.3	2411		
G-2	30	8	N	2	10	12.9	772		
G-3	30	8	N	2	5	6.4	386		
G-4	30	8	N	3	23	29.6	3697		
G-5	30	8	N	1	16	20.6	617		
G-6	30	8	N	1	6	7.7	231		
G-7	24	8	N	2	12	15.4	926		
G-8	24	8	N	1	6	7.7	231		
G-9	16	6	N	1	11	14.1	424		
G-10	16	6	N	1	24	30.9	926		
G-11	16	6	N	3	26	33.4	4180		
G-12	16	6	N	1	30	38.6	1157		
G-13	16	6	N	2	24	30.9	1852		
G-14	16	6	N	2	15	19.3	1157		
G-15	16	6	N			0.0	0		
G-16	16	6	N						
G-17	24	8	N	1	23	29.6	887		
G-18	24	8	N	1	26	33.4	1003		
G-19	30	8	N	1	22	28.3	849		
G-24	30	8	N	3	16	20.6	2572		
G-25	30	8	N	2	23	29.6	1775		

2010047



15 April 2010  
AMEC Project No. 10-517-00001

Bohannon Huston, Inc.  
Courtyard One  
7500 Jefferson, NE  
Albuquerque, New Mexico 87109

**Attention:** Ms. Deborah Dixon

**RE: GEOTECHNICAL ENGINEERING STUDY  
ZUNI COMMERCIAL DEVELOPMENT INFRASTRUCTURE PROJECT  
ZUNI, NEW MEXICO**

This letter is intended to provide additional considerations for trench excavation and compaction equipment at the dam, an update of our Geotechnical Engineering Study dated March 30, 2010 Appendices D and E, and provide recommendations for anchoring pipe supports into bedrock for a proposed pipe bridge at the referenced site. This addendum should be attached to the original report and made a part thereof.

### **5.2.3 Trench Excavations**

The subsoils underlying the trench alignment consist primarily of sands, and low to moderate plasticity clays. Sandy and clayey soils encountered along the trench alignment classify as OSHA Type C. All slope excavations that are 20 feet in depth or less should be made with a maximum allowable slope of 1.5:1 (horizontal:vertical), though some loose or poorly cemented soils may require slopes of 2:1. If trenches with vertical sides are required, those vertical sided portions should be shielded with a shoring system or trench box to a height of at least 18 inches above the top of the excavation. Shoring systems should be designed in accordance with OSHA standards. All material removed from the trench excavations should be placed a minimum of 2 feet away from the edge of the excavations.

Should trench excavations exceed 20 feet in depth, a site specific engineering analysis and design of the excavation and shoring systems will be required as outlined in OSHA standards.

In order to reduce the potential of damaging the dam (see attached location map near D-1 and D-2), portable, light weight equipment should be used for trench excavation. To compact trench backfill soils, a small, remote controlled vibratory compactor is recommended.

### **5.2.4 Modulus of Soil Reaction, $E'$**

The modulus of soil reaction,  $E'$ , is a hybrid modulus that is used in the Iowa deflection formula (Watkins and Spangler, 1958). It is the product of the modulus of passive resistance of the soil used in Spangler's original formula and the radius of the pipe. A revised table showing the results of our calculations of  $E'$  at each boring location are presented in Appendix D, and the calculations are shown in Appendix E.



Zuni Infrastructure Project  
Zuni, New Mexico  
AMEC Project No. 10-517-00001  
15 April 2010



### 5.2.5 Sewer Pipe Bridge Supports

A sewer pipe bridge is planned across an arroyo at the site near the location of Boring B-9. According to information provided by Bohannon Huston, the maximum depth of the arroyo is about 4 feet. The pipe supports consist of 8-inch diameter steel pipe and will be socketed and grouted into basalt bedrock below the arroyo bottom. Two concrete footings, each 3 feet by 3 feet by 2 feet, will be placed on top of the bedrock. Native soil will be backfilled around and above the footing to the natural channel depth. Each footing will be constructed around the pipe support and will bear on the basalt bedrock. AMEC used the LPile program to model the pipe supports and their resistance to lateral movement in a flood. Bohannon Huston provided the design pressure for the flood event, 315 pounds per square foot. Based on the results of our lateral analysis, AMEC recommends socketing the pipe supports a minimum of 2.0 feet into the basalt. The 8-inch diameter pipe support should consist of a minimum of Schedule 80 structural tubing with a 0.5 inch thick wall. Heavy equipment capable of excavating the basalt is recommended.

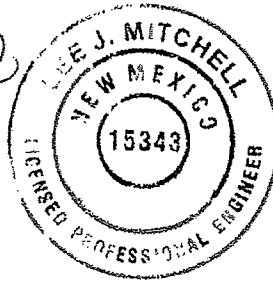
If questions arise concerning these results, we would be pleased to discuss them with you.

Respectfully submitted,  
AMEC Earth & Environmental, Inc.

Reviewed by:

A handwritten signature in cursive script, reading "Lee J. Mitchell".

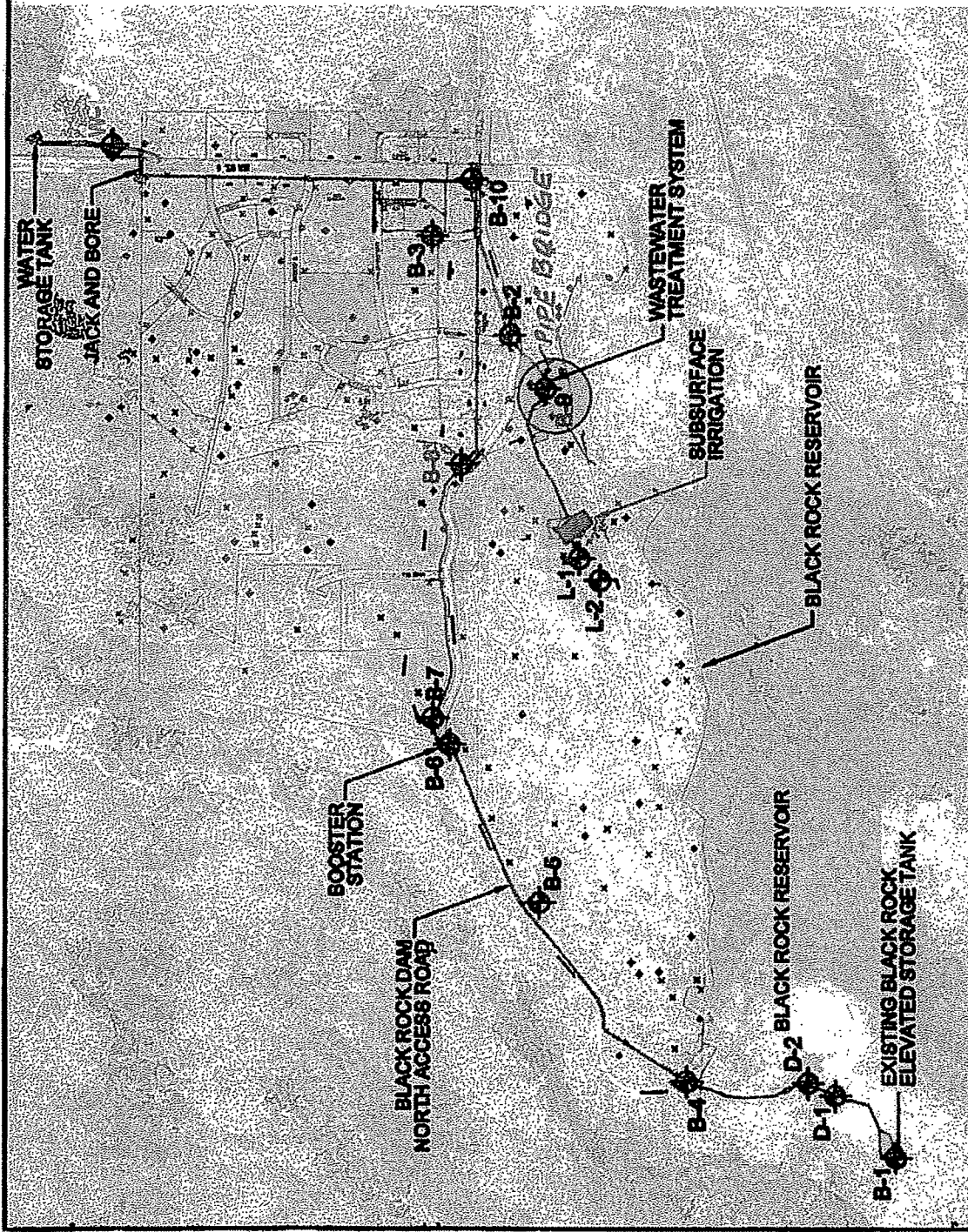
Lee J. Mitchell, P.E.  
Project Engineer




A handwritten signature in cursive script, reading "John C. Lommier".

John C. Lommier, Ph.D., P.E.  
Principal Geotechnical Engineer

Copies: Addressee (2)



CLIENT LOGO	CLIENT	BOHANNAN HUSTON		DWN BY: BDP	PROJECT	ZUNI COMMERCIAL DEVELOPMENT INFRASTRUCTURE		KEY NO.
<b>AMEC Earth &amp; Environmental</b> 3519 Jefferson Rd NE Albuquerque, New Mexico 87113				CHKD BY: LJM	TITLE	SOIL BORING LOCATION MAP		
				DATE: N/A				
				PROJECTION: N/A	DATE: MAR 2010			
				SCALE: AS SHOWN	PROJECT NO: 10-517-00001			
					FIGURE NO: 1			

PROJECT Zuni Commercial Development  
Zuni Pueblo, New Mexico

Page 1 of 1

DATE 1/8/10  
 ANEC PROJECT NO. 10-517-00001

BORING NO. B-9

LOCATION See Site Plan  
 RIG TYPE CME-75  
 BORING TYPE 8" HSA  
 SURFACE ELEV. \_\_\_\_\_  
 DATUM \_\_\_\_\_

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blowft. 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								SM	medium dense to very dense	SILTY SAND fine grained, nonplastic, reddish-brown
5			X	S	13		2			
			X	S	24		3			
			U	U	50/3"				very dense	Basalt, cemented, gray, porous
10			U	U	no rec 50/1" no rec					End of boring @ 9' due to refusal of basalt
15										
20										
25										
30										
35										
40										
45										
50										

GROUNDWATER

SAMPLE TYPE

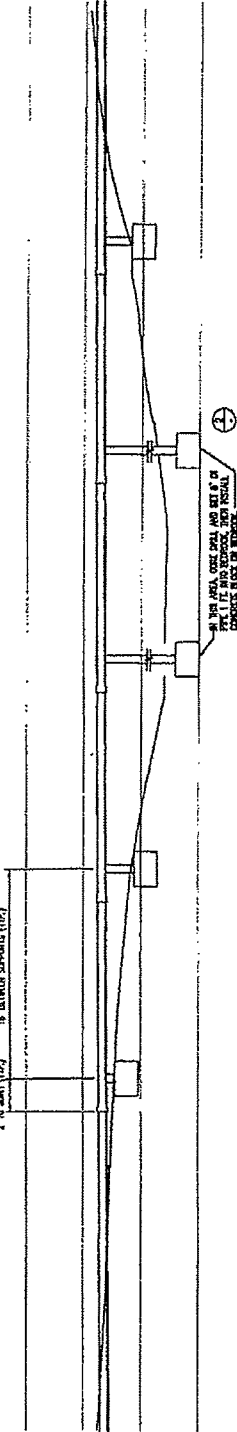
AMEC Earth & Environmental

DEPTH	HOUR	DATE
none		

A-Auger cuttings; NR-No Recovery  
 S-2" O.D. 1.38" I.D. tube sample.  
 U-3" O.D. 2.42" I.D. tube sample.  
 T-3" O.D. thin-walled Shelby tube.

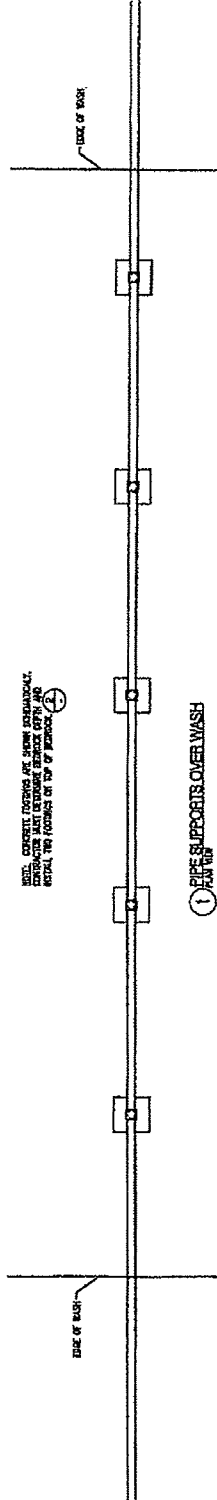
GEOTECH. 04 10517-001 ZUNI COMMERCIAL DEVELOPMENT GP.1 AGR. ALB. ODT 3/25/10

IF EXISTING SUPPORTS (NOT)

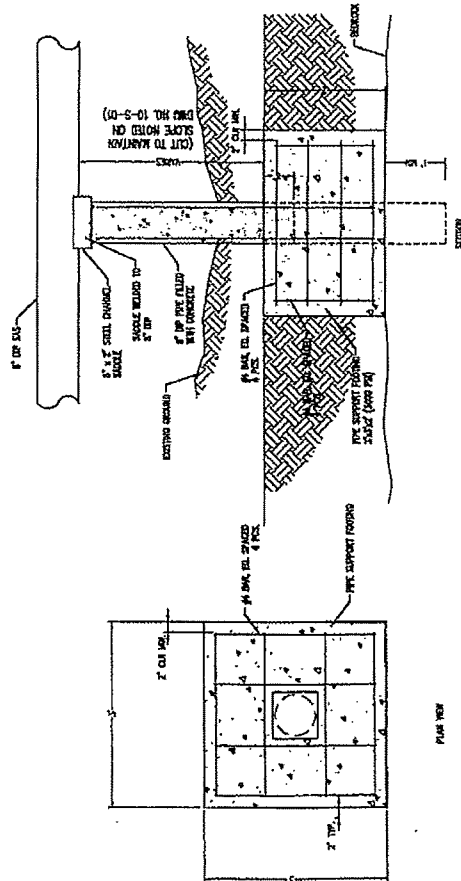


PIPE SUPPORTS OVER WASH SCHEMATIC

NOTE: CONCRETE FOOTINGS ARE SHOWN CONFORMANCE WITH EXISTING STRUCTURE. EXISTING TWO FOOTINGS ON TOP OF WASH.



PIPE SUPPORTS OVER WASH



PIPE SUPPORT DETAIL

NOTE: ALL WAS PIPES SHALL BE SUPPORTED JOINT TO THE FIRST SUPPORT JOINT ON EACH SIDE OF WASH.



**Stephen A. Bristow**  
Professional Engineer  
State of Florida - License No. 12545

**PLANETARY ENGINEERS INC.**

**ZUNI UTILITY INFRASTRUCTURE**  
WASTEWATER PIPE PROJECT

PROJECT NO. 20100147  
SHEET NO. 01-S-05  
SHEET 36 OF 38

NO.	DATE	REMARKS	BY
1	12/15/2009	DESIGN	SA
2	12/15/2009	REVISIONS	SA
3	12/15/2009	DESIGN	SA
4	12/15/2009	DESIGN	SA
5	12/15/2009	DESIGN	SA
6	12/15/2009	DESIGN	SA
7	12/15/2009	DESIGN	SA
8	12/15/2009	DESIGN	SA
9	12/15/2009	DESIGN	SA
10	12/15/2009	DESIGN	SA
11	12/15/2009	DESIGN	SA
12	12/15/2009	DESIGN	SA
13	12/15/2009	DESIGN	SA
14	12/15/2009	DESIGN	SA
15	12/15/2009	DESIGN	SA
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97	12/15/2009	DESIGN	SA
98	12/15/2009	DESIGN	SA
99	12/15/2009	DESIGN	SA
100	12/15/2009	DESIGN	SA

ENGINEER'S SEAL

AS-BUILT INFORMATION

VIII. SLOPING AND BENCHING.

- A. **SLOPING.** Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

TABLE V:2-1. ALLOWABLE SLOPES.

Soil type	Height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	3/4:1	53°
Type B	1:1	45°
Type C	1 1/2:1	34°
Type A (short-term)	1/2:1	63°

(For a maximum excavation depth of 12 ft)

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.

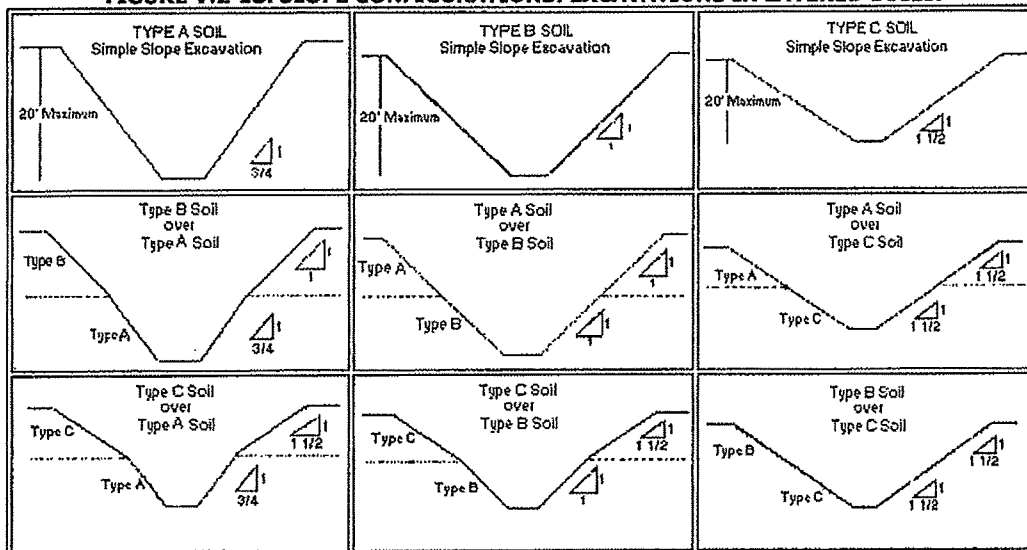
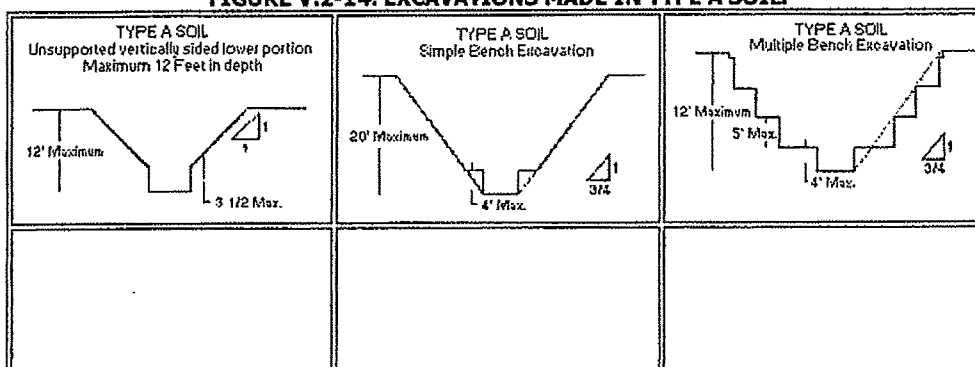


FIGURE V:2-14. EXCAVATIONS MADE IN TYPE A SOIL.





## **APPENDIX D**

### **Summary of Modulus of Soil Reaction, $E'$**





Boring No.	Pipe Diameter (in)	Invert Depth (ft)	Narrow (N) or Wide (W) Trench	E' (psi)
B-1	12	5	N	1157
B-2	12	5	N	3935
B-3	12	5	N	1775
B-4	12	5	N	733
B-5	12	5	N	2160
B-6	12	5	N	617
B-7	12	5	N	772
B-8	12	5	N	540
B-9	12	5	N	1852
B-10	12	5	N	1080
D-1	12	5	N	231
D-2	12	5	N	231
L-1	12	5	N	3858
L-2	12	5	N	2083
W-1	12	5	N	2083



## **APPENDIX E**

### **E' Calculations**



# ZUNI INFRASTRUCTURE PROJECT

10-517-00001

LJM 4/12/2010

Boring No.	Pipe Dia., Inches	Invert Depth (ft)	Narrow (N) or Wide (W) Trench	Silty Clay = 1, Silty Sand = 2, Clean Sand/Gravel = 3	N <sub>90</sub> Ave. Blowcount, (Use Max = 40)	$N_{70} = 1.286 * N_{90}$	E' (psi) = K * N <sub>70</sub>
B-1	12	5	N	2	15	19.3	1157
B-2	12	5	N	2	51	65.6	3935
B-3	12	5	N	2	23	29.6	1775
B-4	12	5	N	1	19	24.4	733
B-5	12	5	N	2	28	36.0	2160
B-6	12	5	N	2	8	10.3	617
B-7	12	5	N	2	10	12.9	772
B-8	12	5	N	2	7	9.0	540
B-9	12	5	N	2	24	30.9	1852
B-10	12	5	N	2	14	18.0	1080
D-1	12	5	N	2	3	3.9	231
D-2	12	5	N	2	3	3.9	231
L-1	12	5	N	2	50	64.3	3858
L-2	12	5	N	2	27	34.7	2083
W-1	12	5	N	2	27	34.7	2083



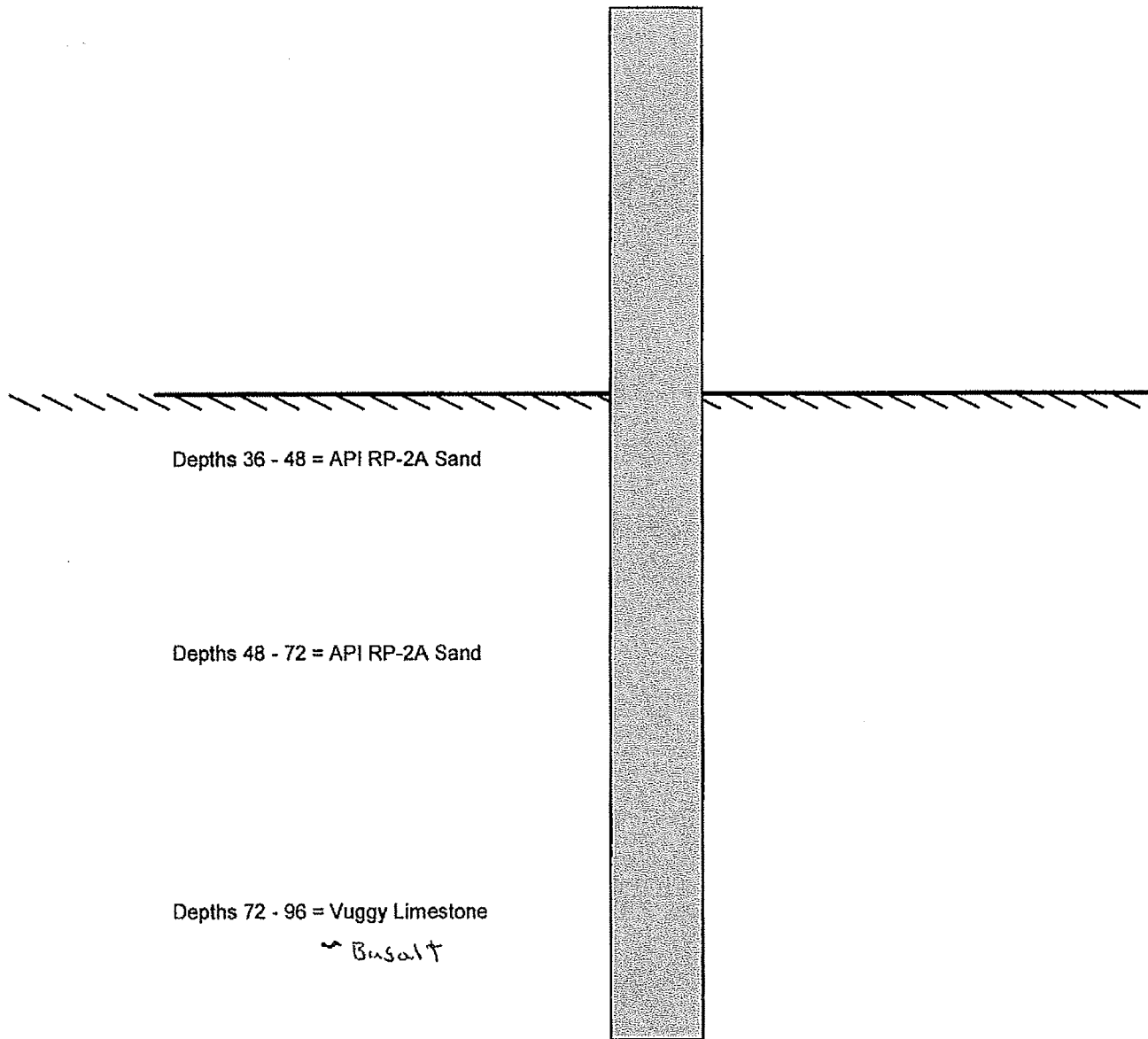


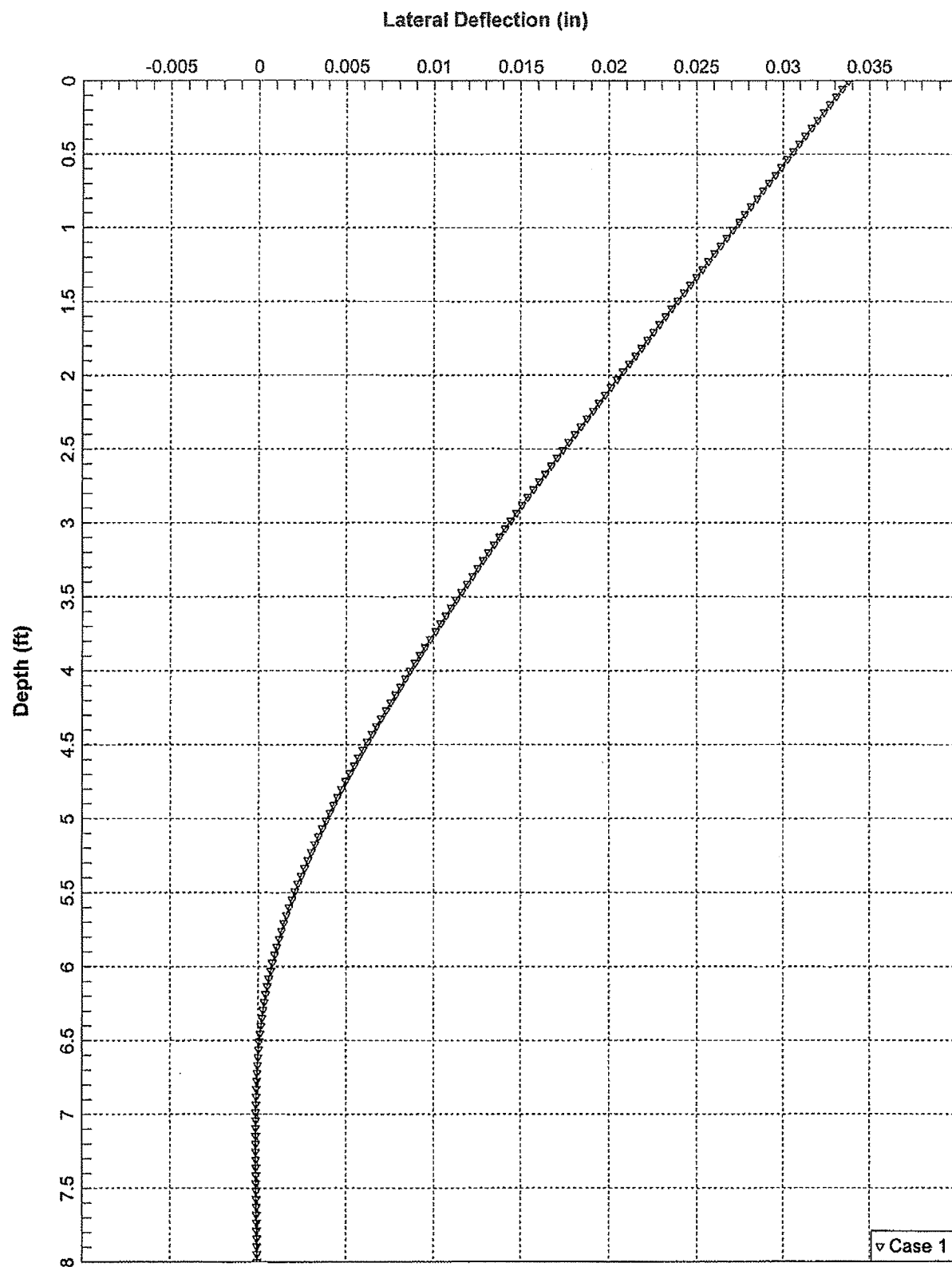
## **APPENDIX F**

### **L-Pile Output Data**

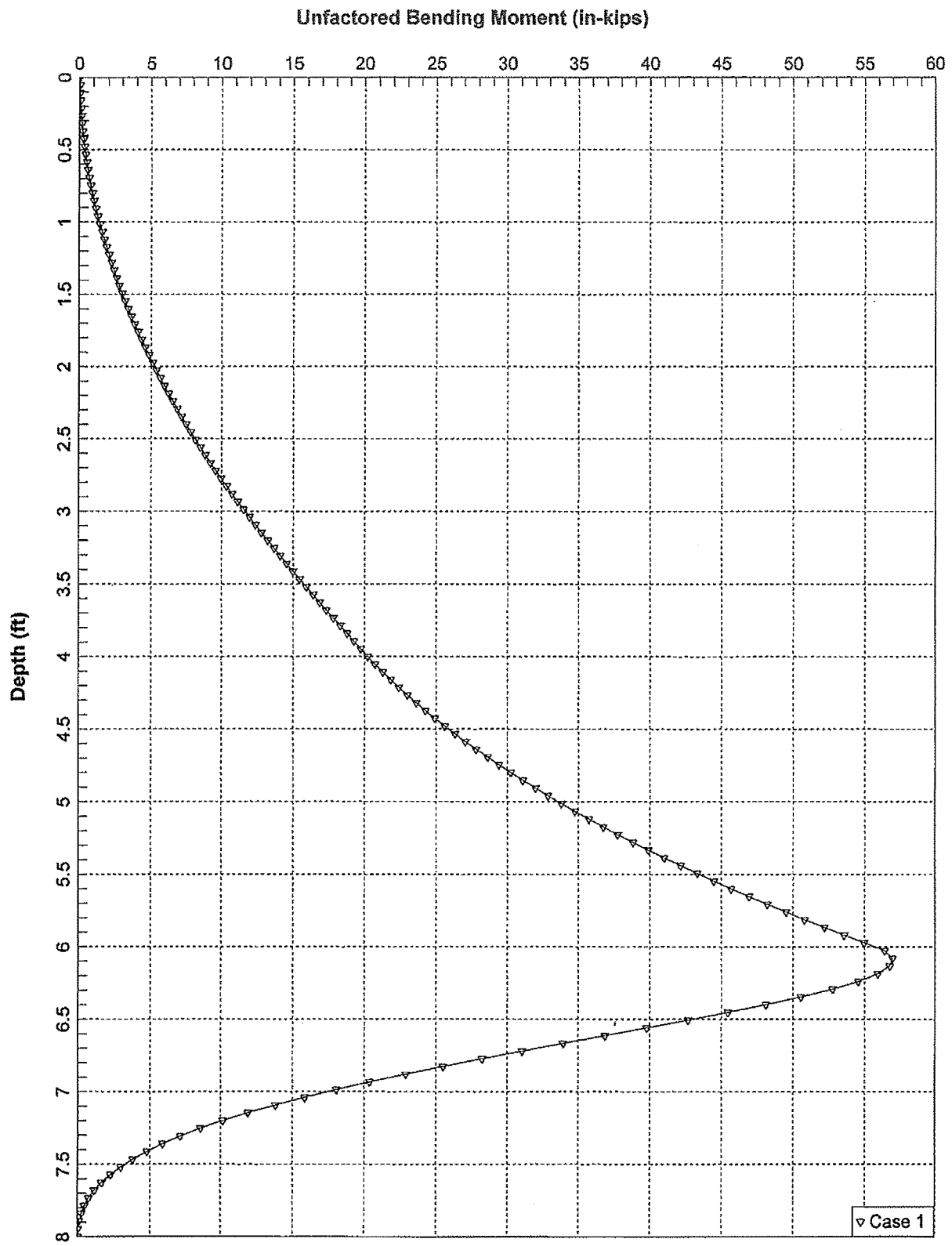




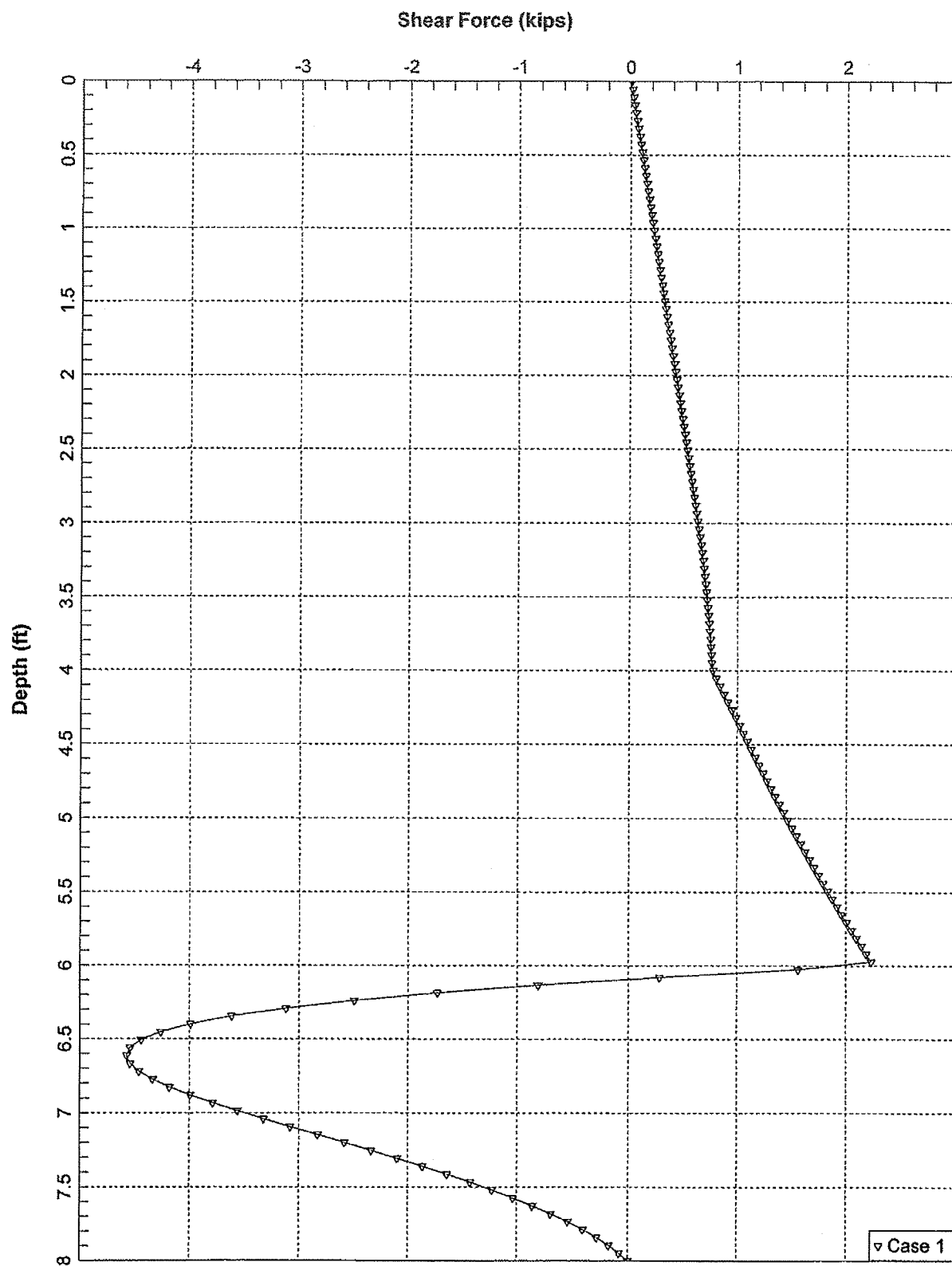




**Lateral Deflection of 8-inch diameter pipe support**



8-inch diameter pipe support



8-inch diameter pipe support

Lateral Analysis B-9.lpo

LPILE Plus for Windows, Version 5.0 (5.0.24)

Analysis of Individual Piles and Drilled Shafts  
subjected to Lateral Loading Using the p-y Method

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Lee Mitchell  
AMEC Earth & Environmental

Path to file locations: P:\consulting\projects\10\10-517-00001 Zuni Pipe  
Line\Calculations\  
Name of input data file: Lateral Analysis B-9.lpd  
Name of output file: Lateral Analysis B-9.lpo  
Name of plot output file: Lateral Analysis B-9.lpp  
Name of runtime file: Lateral Analysis B-9.lpr

Time and Date of Analysis

Date: April 15, 2010 Time: 14: 5: 0

Problem Title

Zuni Infrastructure Project

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 1:

- Computation of Lateral Pile Response Using User-specified Constant EI

Computation Options:

- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis includes automatic computation of pile-top deflection vs. pile embedment length
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:

# Lateral Analysis B-9.lpo

- Number of pile increments = 150
- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

## Printing Options:

- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

## Pile Structural Properties and Geometry

Pile Length = 96.00 in  
 Depth of ground surface below top of pile = 36.00 in  
 Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	8.62500000	106.0000	12.8000	29000000.
2	96.0000	8.62500000	106.0000	12.8000	29000000.

## Soil and Rock Layering Information

The soil profile is modelled using 3 layers

Layer 1 is sand, p-y criteria by API RP-2A, 1987

Distance from top of pile to top of layer = 36.000 in  
 Distance from top of pile to bottom of layer = 48.000 in  
 p-y subgrade modulus k for top of soil layer = 100.000 lbs/in\*\*3  
 p-y subgrade modulus k for bottom of layer = 100.000 lbs/in\*\*3

Layer 2 is sand, p-y criteria by API RP-2A, 1987

Distance from top of pile to top of layer = 48.000 in  
 Distance from top of pile to bottom of layer = 72.000 in  
 p-y subgrade modulus k for top of soil layer = 200.000 lbs/in\*\*3  
 p-y subgrade modulus k for bottom of layer = 200.000 lbs/in\*\*3

Layer 3 is strong rock (vuggy limestone)

Distance from top of pile to top of layer = 72.000 in  
 Distance from top of pile to bottom of layer = 96.000 in

(Depth of lowest layer extends .00 in below pile tip)

## Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth  
 is defined using 6 points

Point      Depth X      Eff. Unit Weight

Lateral Analysis B-9.lpo		
No.	in	lbs/in**3
1	36.00	.06900
2	48.00	.06900
3	48.00	.07800
4	72.00	.07800
5	72.00	.07800
6	96.00	.07800

-----  
 Shear Strength of Soils  
 -----

Distribution of shear strength parameters with depth  
 defined using 6 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k <sub>rm</sub>	RQD %
1	36.000	.00000	32.00	-----	-----
2	48.000	.00000	32.00	-----	-----
3	48.000	.00000	32.00	-----	-----
4	72.000	.00000	32.00	-----	-----
5	72.000	3000.00000	.00	-----	-----
6	96.000	3000.00000	.00	-----	-----

Notes:

- (1) Cohesion = uniaxial compressive strength for rock materials.
- (2) Values of E50 are reported for clay strata.
- (3) Default values will be generated for E50 when input values are 0.
- (4) RQD and k<sub>rm</sub> are reported only for weak rock strata.

-----  
 Loading Type  
 -----

Static loading criteria was used for computation of p-y curves

-----  
 Distributed Lateral Loading  
 -----

Distributed lateral load intensity defined using 4 points

Point No.	Depth X in	Dist. Load lbs/in
1	.000	17.50000
2	47.990	17.50000
3	48.000	78.75000
4	72.000	78.75000

Lateral Analysis B-9.lpo  
Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)

Shear force at pile head = 10.000 lbs  
Bending moment at pile head = 50.000 in-lbs  
Axial load at pile head = 100.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Computed Values of Load Distribution and Deflection  
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)

Specified shear force at pile head = 10.000 lbs  
Specified moment at pile head = 50.000 in-lbs  
Specified axial load at pile head = 100.000 lbs

Non-zero moment for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res p lbs/in
0.000	.033794	50.0000	10.0000	-.0005510	9.8467	0.0000
.640	.033441	58.2273	18.4000	-.0005509	10.1814	0.0000
1.280	.033089	73.6225	29.6000	-.0005509	10.8078	0.0000
1.920	.032736	96.1858	40.8000	-.0005509	11.7257	0.0000
2.560	.032384	125.9170	52.0000	-.0005509	12.9353	0.0000
3.200	.032031	162.8163	63.2000	-.0005509	14.4365	0.0000
3.840	.031679	206.8835	74.4000	-.0005508	16.2293	0.0000
4.480	.031326	258.1188	85.6000	-.0005508	18.3138	0.0000
5.120	.030974	316.5220	96.8000	-.0005507	20.6899	0.0000
5.760	.030621	382.0933	108.0000	-.0005506	23.3576	0.0000
6.400	.030269	454.8325	119.2000	-.0005506	26.3169	0.0000
7.040	.029916	534.7398	130.4000	-.0005504	29.5678	0.0000
7.680	.029564	621.8150	141.6000	-.0005503	33.1104	0.0000
8.320	.029212	716.0582	152.8000	-.0005502	36.9446	0.0000
8.960	.028860	817.4694	164.0000	-.0005500	41.0704	0.0000
9.600	.028508	926.0486	175.2000	-.0005498	45.4878	0.0000
10.240	.028156	1041.7958	186.4000	-.0005496	50.1969	0.0000
10.880	.027804	1164.7110	197.6000	-.0005494	55.1976	0.0000
11.520	.027453	1294.7941	208.8000	-.0005492	60.4899	0.0000
12.160	.027102	1432.0453	220.0000	-.0005489	66.0738	0.0000
12.800	.026750	1576.4644	231.2000	-.0005486	71.9493	0.0000
13.440	.026399	1728.0515	242.4000	-.0005482	78.1165	0.0000
14.080	.026049	1886.8065	253.6000	-.0005478	84.5753	0.0000
14.720	.025698	2052.7296	264.8000	-.0005474	91.3257	0.0000
15.360	.025348	2225.8206	276.0000	-.0005470	98.3677	0.0000
16.000	.024998	2406.0796	287.2000	-.0005465	105.7014	0.0000
16.640	.024648	2593.5066	298.4000	-.0005460	113.3266	0.0000
17.280	.024299	2788.1015	309.6000	-.0005454	121.2435	0.0000



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17.920	.023950	2989.8644	320.8000	-.0005448	129.4520	0.0000
18.560	.023602	3198.7952	332.0000	-.0005442	137.9522	0.0000
19.200	.023254	3414.8940	343.2000	-.0005435	146.7439	0.0000
19.840	.022906	3638.1608	354.4000	-.0005428	155.8273	0.0000
20.480	.022559	3868.5955	365.6000	-.0005420	165.2023	0.0000
21.120	.022212	4106.1982	376.8000	-.0005411	174.8689	0.0000
21.760	.021866	4350.9688	388.0000	-.0005403	184.8271	0.0000
22.400	.021521	4602.9073	399.2000	-.0005393	195.0770	0.0000
23.040	.021176	4862.0138	410.4000	-.0005383	205.6185	0.0000
23.680	.020832	5128.2882	421.6000	-.0005373	216.4516	0.0000
24.320	.020488	5401.7306	432.8000	-.0005362	227.5763	0.0000
24.960	.020145	5682.3409	444.0000	-.0005351	238.9926	0.0000
25.600	.019803	5970.1191	455.2000	-.0005338	250.7006	0.0000
26.240	.019462	6265.0652	466.4000	-.0005326	262.7002	0.0000
26.880	.019122	6567.1792	477.6000	-.0005312	274.9914	0.0000
27.520	.018782	6876.4612	488.8000	-.0005298	287.5742	0.0000
28.160	.018443	7192.9111	500.0000	-.0005284	300.4486	0.0000
28.800	.018106	7516.5288	511.2000	-.0005268	313.6147	0.0000
29.440	.017769	7847.3145	522.4000	-.0005252	327.0723	0.0000
30.080	.017434	8185.2680	533.6000	-.0005236	340.8216	0.0000
30.720	.017099	8530.3895	544.8000	-.0005218	354.8625	0.0000
31.360	.016766	8882.6788	556.0000	-.0005200	369.1951	0.0000
32.000	.016433	9242.1361	567.2000	-.0005181	383.8192	0.0000
32.640	.016102	9608.7612	578.4000	-.0005162	398.7350	0.0000
33.280	.015773	9982.5541	589.6000	-.0005141	413.9424	0.0000
33.920	.015444	10363.5150	600.8000	-.0005120	429.4414	0.0000
34.560	.015117	10751.6437	612.0000	-.0005098	445.2320	0.0000
35.200	.014792	11146.9402	623.2000	-.0005075	461.3142	0.0000
35.840	.014468	11549.4046	634.4000	-.0005052	477.6880	0.0000
36.480	.014145	11959.0369	645.3876	-.0005027	494.3535	-.6638912
37.120	.013824	12375.5651	655.8895	-.0005002	511.2995	-1.5175
37.760	.013505	12798.6395	665.8569	-.0004976	528.5119	-2.3343
38.400	.013187	13227.9256	675.3136	-.0004949	545.9769	-3.1136
39.040	.012871	13663.1042	684.2836	-.0004921	563.6817	-3.8553
39.680	.012557	14103.8716	692.7910	-.0004892	581.6139	-4.5590
40.320	.012245	14549.9393	700.8601	-.0004862	599.7617	-5.2249
40.960	.011935	15001.0347	708.5152	-.0004831	618.1140	-5.8529
41.600	.011627	15456.9006	715.7804	-.0004799	636.6605	-6.4433
42.240	.011321	15917.2951	722.6797	-.0004767	655.3911	-6.9962
42.880	.011017	16381.9917	729.2371	-.0004733	674.2968	-7.5120
43.520	.010715	16850.7792	735.4762	-.0004698	693.3690	-7.9909
44.160	.010415	17323.4613	741.4204	-.0004663	712.5995	-8.4334
44.800	.010118	17799.8569	747.0929	-.0004626	731.9812	-8.8399
45.440	.009823	18279.7995	752.5167	-.0004589	751.5072	-9.2107
46.080	.009531	18763.1371	757.7145	-.0004550	771.1713	-9.5464
46.720	.009241	19249.7323	762.7085	-.0004511	790.9679	-9.8474
47.360	.008953	19739.4617	767.5208	-.0004470	810.8920	-10.1143
48.000	.008669	20232.2161	778.8374	-.0004428	830.9392	-20.6247
48.640	.008387	20736.4303	806.2598	-.0004386	851.4526	-21.0338
49.280	.008107	21264.2848	843.0883	-.0004342	872.9279	-21.3772
49.920	.007831	21815.6389	879.7177	-.0004297	895.3591	-21.6561
50.560	.007557	22390.3784	916.1887	-.0004251	918.7418	-21.8719
51.200	.007287	22988.4148	952.5414	-.0004204	943.0723	-22.0259
51.840	.007019	23609.6852	988.8148	-.0004155	968.3480	-22.1196
52.480	.006755	24254.1510	1025.0471	-.0004106	994.5675	-22.1545
53.120	.006494	24921.7980	1061.2754	-.0004054	1021.7300	-22.1320
53.760	.006236	25612.6355	1097.5360	-.0004002	1049.8360	-22.0537
54.400	.005981	26326.6954	1133.8641	-.0003948	1078.8868	-21.9212
55.040	.005730	27064.0320	1170.2937	-.0003892	1108.8846	-21.7362
55.680	.005483	27824.7211	1206.8579	-.0003835	1139.8324	-21.5005
56.320	.005240	28608.8593	1243.5887	-.0003776	1171.7343	-21.2159
56.960	.005000	29416.5630	1280.5167	-.0003716	1204.5948	-20.8841
57.600	.004764	30247.9682	1317.6715	-.0003654	1238.4197	-20.5071

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58.240	.004532	31103.2292	1355.0814	-.0003590	1273.2151	-20.0869
58.880	.004304	31982.5183	1392.7685	-.0003524	1308.9881	-19.6408
59.520	.004081	32886.0180	1430.7512	-.0003457	1345.7460	-19.1631
60.160	.003862	33813.9241	1469.0525	-.0003387	1383.4969	-18.6456
60.800	.003647	34766.4485	1507.6967	-.0003316	1422.2494	-18.0912
61.440	.003437	35743.8183	1546.7067	-.0003243	1462.0127	-17.5024
62.080	.003232	36746.2747	1586.1037	-.0003167	1502.7966	-16.8822
62.720	.003032	37774.0715	1625.9067	-.0003089	1544.6114	-16.2334
63.360	.002837	38827.4747	1666.1331	-.0003010	1587.4680	-15.5589
64.000	.002647	39906.7605	1706.7985	-.0002928	1631.3776	-14.8617
64.640	.002462	41012.2143	1747.9164	-.0002844	1676.3519	-14.1449
65.280	.002283	42144.1298	1789.4983	-.0002757	1722.4027	-13.4116
65.920	.002109	43302.8074	1831.5538	-.0002668	1769.5423	-12.6650
66.560	.001941	44488.5528	1874.0903	-.0002577	1817.7831	-11.9083
67.200	.001779	45701.6760	1917.1133	-.0002483	1867.1378	-11.1450
67.840	.001624	46942.4896	1960.6258	-.0002386	1917.6190	-10.3785
68.480	.001474	48211.3076	2004.6288	-.0002287	1969.2395	-9.6122
69.120	.001331	49508.4437	2049.1209	-.0002186	2022.0122	-8.8500
69.760	.001194	50834.2102	2094.0983	-.0002081	2075.9496	-8.0954
70.400	.001064	52188.9162	2139.5551	-.0001974	2131.0644	-7.3523
71.040	.000942	53572.8660	2185.4824	-.0001864	2187.3690	-6.6247
71.680	.000826	54986.3575	2231.8692	-.0001751	2244.8754	-5.9166
72.320	.000717	56429.6809	1566.4101	-.0001635	2303.5955	-2152.3930
72.960	.000617	56991.3834	285.7087	-.0001517	2326.4478	-1849.7987
73.600	.000523	56795.4075	-808.6225	-.0001398	2318.4747	-1569.9862
74.240	.000438	55956.3645	-1731.1387	-.0001281	2284.3391	-1312.8771
74.880	.000359	54579.5663	-2496.2629	-.0001166	2228.3255	-1078.1359
75.520	.000288	52761.1629	-3118.1344	-.0001054	2154.3457	-865.2124
76.160	.000224	50588.3678	-3610.4838	-9.4647E-05	2065.9477	-673.3796
76.800	.000167	48139.7558	-3986.5314	-8.4369E-05	1966.3285	-501.7690
77.440	.000116	45485.6185	-4258.9060	-7.4623E-05	1858.3477	-349.4018
78.080	7.17E-05	42688.3657	-4439.5840	-6.5444E-05	1744.5444	-215.2169
78.720	3.27E-05	39802.9594	-4539.8442	-5.6857E-05	1627.1546	-98.0963
79.360	-1.04E-06	36877.3723	-4570.2387	-4.8875E-05	1508.1301	3.1134
80.000	-2.99E-05	33953.0601	-4540.5762	-4.1501E-05	1389.1575	89.5819
80.640	-5.42E-05	31065.4401	-4459.9171	-3.4733E-05	1271.6777	162.4779
81.280	-7.43E-05	28244.3706	-4336.5783	-2.8559E-05	1156.9054	222.9558
81.920	-9.07E-05	25514.6234	-4178.1466	-2.2962E-05	1045.8485	272.1434
82.560	-.0000104	22896.3459	-3991.4986	-1.7923E-05	939.3266	311.1317
83.200	-.000114	20405.5076	-3782.8268	-1.3415E-05	837.9894	340.9675
83.840	-.000121	18054.3293	-3557.6704	-9.4116E-06	742.3342	362.6463
84.480	-.000126	15851.6906	-3320.9490	-5.8821E-06	652.7221	377.1081
85.120	-.000128	13803.5153	-3076.9997	-2.7950E-06	569.3942	385.2334
85.760	-.000129	11913.1314	-2829.6159	-1.1791E-07	492.4859	387.8409
86.400	-.000129	10181.6069	-2582.0873	2.1821E-06	422.0406	385.6862
87.040	-.000126	8608.0594	-2337.2400	4.1381E-06	358.0225	379.4615
87.680	-.000123	7189.9392	-2097.4777	5.7827E-06	300.3277	369.7958
88.320	-.000119	5923.2872	-1864.8211	7.1477E-06	248.7953	357.2561
88.960	-.000114	4802.9673	-1640.9476	8.2643E-06	203.2162	342.3485
89.600	-.000109	3822.8733	-1427.2293	9.1623E-06	163.3421	325.5210
90.240	-.000102	2976.1126	-1224.7697	9.8700E-06	128.8926	307.1654
90.880	-9.59E-05	2255.1668	-1034.4383	1.0415E-05	99.5616	287.6201
91.520	-8.91E-05	1652.0302	-856.9044	1.0821E-05	75.0236	267.1733
92.160	-8.20E-05	1158.3278	-692.6678	1.1114E-05	54.9379	246.0661
92.800	-7.48E-05	765.4140	-542.0879	1.1314E-05	38.9526	224.4959
93.440	-6.75E-05	464.4538	-405.4109	1.1442E-05	26.7083	202.6198
94.080	-6.02E-05	246.4866	-282.7940	1.1516E-05	17.8406	180.5580
94.720	-5.28E-05	102.4760	-174.3282	1.1553E-05	11.9816	158.3976
95.360	-4.54E-05	23.3450	-80.0582	1.1566E-05	8.7623	136.1963
96.000	-3.80E-05	0.0000	0.0000	1.1568E-05	7.8125	113.9856

Output Verification:

# Lateral Analysis B-9.lpo

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection = .03379404 in  
 Computed slope at pile head = -.00055095  
 Maximum bending moment = 56991.38338 lbs-in  
 Maximum shear force = -4570.23874 lbs  
 Depth of maximum bending moment = 72.96000000 in  
 Depth of maximum shear force = 79.36000000 in  
 Number of iterations = 5  
 Number of zero deflection points = 1

## Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Type 1 = Shear and Moment, y = pile-head displacement in  
 Type 2 = Shear and Slope, M = Pile-head Moment lbs-in  
 Type 3 = Shear and Rot. Stiffness, V = Pile-head Shear Force lbs  
 Type 4 = Deflection and Moment, S = Pile-head Slope, radians  
 Type 5 = Deflection and Slope, R = Rot. Stiffness of Pile-head in-lbs/rad

Load Type	Pile-Head Condition 1	Pile-Head Condition 2	Axial Load lbs	Pile-Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
1	V= 10.000	M= 50.000	100.0000	.0337940	56991.3834	-4570.2387

## Pile-head Deflection vs. Pile Length

Boundary Condition Type 1, Shear and Moment

Shear = 10. lbs  
 Moment = 50. in-lbs  
 Axial Load = 100. lbs

Pile Length in	Pile Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
96.000	.03379404	56991.38338	-4570.23874
91.200	.03405175	56945.43501	-4938.25978
86.400	.03639533	56400.53285	-6321.34017
81.600	.04633619	52038.29191	-8521.74329
76.800	.11158469	34560.64273	-10622.38163

The analysis ended normally.