

CITY OF GALLUP
CENTRAL PURCHASING OFFICE
P.O. BOX 1270
GALLUP, NEW MEXICO 87305-1270
Phone: 505-863-1232; Fax: 505-722-5133

**NAVAJO GALLUP WATER SUPPLY PROJECT, REACH 13
CITY OF GALLUP
Gallup Joint Utilities**

**FUNDED BY THE WATER TRUST BOARD THROUGH THE NEW MEXICO FINANCE
AUTHORITY, GRANT NO. WTB #247
AND
U.S. BUREAU OF RECLAMATION COOPERATIVE AGREEMENT NO. R11AC40002**

AMENDMENT NO.: **One (1)**
PAGES: # **(18)**

FORMAL BID NO.: **1402**

THE FOLLOWING REVISIONS, ADDITIONS AND/OR CLARIFICATIONS SHALL FORM A PART OF THE CONTRACT DOCUMENTS AND EACH BIDDER SHALL INDICATE ON THEIR BID THE RECEIPT OF THIS NUMBERED AMENDMENT. REVISIONS, ADDITIONS, AND/OR CLARIFICATIONS ARE AS FOLLOWS:

Attached are the Sign-In sheets and the Agenda furnished at the Pre-Bid viewing held on March 25, 2014 at 10:00 am. These are pages 9 thru 11 of this Amendment.

This Amendment No. 2 Contains the Following:

- Questions and Answers from the 3/25/14 Pre-Bid Site Viewing
- Responses to Inquiries received by the City of Gallup and DePauli Engineering & Surveying, LLC and Miscellaneous Clarifications
- Pre-Bid Meeting Agenda
- Pre-Bid Viewing Attendance Sheet
- Plan Holders List
- Technical Specification 704 Cathodic Protection & Interference Mitigation Testing/Design

Question and responses in regard to proposed construction of subject project during Pre-Bid Site viewing of Tuesday, March 25, 2014 at 9:00am.

Questions at the office:

Q: *Have all the necessary permits been obtained for the Project?*

A: The Utility Permits have been obtained from the New Mexico Department of Transportation; contractor shall obtain a NMDOT work permit and required insurance to perform work in highway right of way. The contractor is also responsible for obtaining the US Army Corps of Engineers 402/404 permits.

Q: *Do we have to write the bid prices in words?*

A: No the Contractor need only write the values in numerical form. However, it is the Contractor's responsibility to assure the written numbers are legible and the math is correct.

Q: *Why is Bid Item 8 Lot 3 listed as \$0?*

A: The City of Gallup grants \$1500 to electrical work on local projects. The electrical work for this project is below that. Any prices that are defined in the Bid Proposal shall remain.

Q: *Are Contractor's responsible for seeding?*

A: Seeding is not identified in the project and is considered incidental to the project. Contractor shall be responsible for seeding as required in SWPPP and Corps of Engineers 401, 402, & 404 permits.

Q: *How should mobilization be factored in, is there a line item for it?*

A: There is no line item for mobilization; it is considered incidental to the project. The Contractor is responsible for including mobilization costs in other items of work.

Q: *Will all 3 of the bid lots be awarded?*

A: Yes, all lots will be awarded.

Q: *Is 'Buy American' required for this project?*

A: As of now no, but President Obama recently signed a bill requiring all Federal Projects to be 'Buy American' if this changes the requirements of this project, all will be notified. **BUY AMERICAN DOES NOT APPLY TO THIS PROJECT.**

Q: *Can we use a pre-cast structure?*

A: Everything has to be equal to that specified in project drawings and specifications, DES will review all submittals and make the final decision.

Q: *Where should water for testing be obtained?*

A: Water should be hauled for general construction. Source locations are provided in the specifications. The contractor can tap an approved City line for testing and flushing, however, a backflow preventer must be installed to prevent backflow.

Q: *Will DES accept a flex ring pipe in lieu of mechanical joint pipe?*

A: Yes, all restrained joint pipes using ductile iron locking segments will be accepted.

Q: *Is there water adequate to flush?*

A: Yes

Q: *In a certain point 42" HDPE casing is called for, is this set in stone?*

A: Yes, Transwestern Pipeline requires plastic pipe under the gas line, HDPE pipe has been approved for crossing.

Q: *Does the HDPE casing need to be de-beaded?*

A: Yes, to allow for installation of carrier pipe.

Q: *Where is the barrow area for bedding?*

A: Material that meets the specifications for granular or engineered fill material can be found in the Rio Puerco. A stockpile of the Rio Puerco material located just west of US Highway 491 at the BNSF overpass and is available on a first come first serve basis. See special conditions for more detail.

Q: *If the bedding material runs out and the Contractor has to get material from the Rio Puerco, will they have to obtain a permit?*

A: No.

Q: *Who are the private land owners in this project?*

A: The majority of the project is constructed on private land. Navajo allotment land is crossed twice. It is IMPERATIVE that all construction activities stay within City of Gallup Right of Way. It is very tight in three areas.

Q: *Are there any special As-built requirements?*

A: Contractors should work closely with DES Surveyors so everything can be shot. Contractor shall indicate changes on project drawings with red lines, but fittings, etc will need to be shot before they are buried.

Stop 1 Questions: 18" Pipe Start

Q: *When is the anticipated project start date?*

A: Usually 4 to 6 weeks after the award of project.

Q: *What is in the building that needs to be moved?*

A: Mostly large rolls of geogrid or non-woven fabric.

Q: *Where does the Contractor put the rock that has been excavated?*

A: There are two types of rock, type A and type B, the Contractor is responsible for disposing of rock. It may be possible to use removed rock at various locations along project. Contractor shall haul and properly dispose of unused rock. Examples of type A & B rock are located at DePauli Engineering.

Q: *Are the outcrops type A or B?*

A: In general, they have been type B, sometimes type A is on top of the outcrops. All rock excavation is neat lined and paid on a pay trench.

Stop 2 Questions: Beginning of Alignment

Q: *Are the bore pits inside of the Highway Right of Way?*

A: Bore is anticipated to be done from west to east. The bore pit would be outside the west right of way with the receiving pit being just inside the east right of way.

Q: *Can we lower the existing well collector lines?*

A: Yes, the project details include the lowering of the collector lines. All work must be coordinated with the City.

Stop 3 Questions: Galanis Well, 30" Crossing

Q: *Would the City consider any other type of pipe besides ductile?*

A: No.

Stop 4 Questions: Near Chee Dodge Elementary and Wash

Q: *Can we use the rock in this area?*

A: Yes, wash crossings may be areas where rock may be used.

Q: *Is there a requirement of getting rid of the rock?*

A: All rock must be disposed of properly, see above

Q: *Is this roadway a private drive?*

A: Yes, it is the City of Gallup's road and may be used for construction.

Q: *Does the Contractor have to pick up the garbage?*

A: Yes, the Contractor is responsible for picking up and properly disposing of trash in areas of work along the entire project.

Q: *Can the Contractor use ADS?*

A: No alternate materials will be pre-approved. The project is calling for culverts to be replaced with CMP pipe.

Stop 5 Questions: Colaianni Well

Q: *Is the City open to any other pipe materials?*

A: No, The City uses ductile iron pipe for all waterlines greater than 12" in diameter. Contractors must use Ductile Iron pipe.

Stop 6 Questions: Adjacent to Reach 27.5

Q: *Who is the owner of the two 30" gas lines?*

A: Transwestern Pipeline.

Q: *Are there any specific working hours?*

A: No, just work as often as possible.

Q: *Can Contractor use 2 crews?*

A: Yes Contractors can use as many crews as they would like.

END OF PROJECT VIEWING QUESTIONS AND ANSWERS

**RESPONSES TO INQUIRIES RECEIVED BY THE CITY OF GALLUP AND DEPAULI
ENGINEERING & SURVEYING AND MISCELLANEOUS CLARIFICATIONS**

Special Conditions

The Special Conditions that are called out are to clarify questions that were asked to the City of Gallup or DePauli Engineering and Surveying, LLC, and make required revisions

Paragraph SC-27 Description of Bid Items and Basis of Payment, Lot 3, Item 4; Page SC-17:

The references to Tie-in "A" and Tie "B" are hereby revised to Tie-in "E" and Tie-in "F".

Technical Specifications

The Technical Specification sections that are called out are to clarify questions that were asked to the City of Gallup or DePauli Engineering and Surveying, LLC, and make required revisions.

Section 501.2.2 Gate Valves,

Valves shall operate clockwise to close.

Bypass lines and valves on valves 18" in diameter and larger shall be an integral part of the valve design and be of the sizes listed below:

Main Valve Size	Bypass Valve Size
18" & 20"	2" ± ½"
24"	2 ½" ± ½"
30"	3" ± ½"

Valves 16" in diameter or larger shall be supplied with spur gearing (vertical installation) or bevel gearing (horizontal installation) to facilitate valve operation.

Section 501.4 Testing of Pipe Lines

The test pressure at the lower end of the new system shall be 325 psig on all CI 350 ductile iron pipe, 250 psig on all CI 250 ductile iron pipe, and 200 psig on all other pipe.

Technical Specification 704 Cathodic Protection & Interference Mitigation Testing/Design,

Technical Specification 704 attached herein is hereby made part of the technical specifications.

Project Drawings

Sheet 2-1 14" Well Collector line Relocation (Lowering):

All references to 14" C900 CI 235 (DR-18) PVC are hereby revised to 14" CL 350 ductile iron pipe.

Sheet 2-1 18" Profile:

The note calling for "Flush Piping" at Station 4+00 is hereby revised to call for a Fire Hydrant Assembly at Station 4+00.

Sheet 3-3 Flow Control Station Electrical Plan, Panel "A" Schedule:

Panel "A" shall be NEMA 3 rated in lieu of NEMA 4.

Contractor Questions: (Questions are taken directly from contractor or supplier emails)

Q: If the contractor elects to cut and cover the casing under the Transwestern Gas lines, we need to know if and what kind of restrictions that Transwestern has when crossing their main distribution lines. Each company usually has their own set of special circumstances as far as limitations / clearances for equipment etc. This information will be very helpful for determining the cost of crossing these lines.

A: The crossing is detailed to conform to Transwestern Pipeline requirements. The casing must be installed by open trench methods in the presence of Transwestern Pipeline personnel. Gas line crossing shall be coordinated with Mike Boatman of Transwestern Pipeline. Contact information is included on Sheet 1-2 of the Project Drawings.

Q: 6" model 43-01 flow control valve (spec 504.2.7) requires an opening speed = 120 seconds and closing speed control = 180 seconds. I feel we can control the opening speed using the standard needle valve in the pilot system and we will pretty likely need to add an "ultra-slow closing speed" feature to the valve.

Do you have a feel for the inlet pressure at the valve during normal operating condition? If spiking of the inlet pressure is not of very high importance, we can also add a surge over ride function. If the inlet pressure to the valve spikes to above the surge setting, the valve will pop back open to relieve that pressure.

A: Any valve appurtenances required to provide the specified opening and closing speeds of flow control water shall be provided. No surge or pressure relief features shall be included with valve.

Q: Is there a specific flushing spec as far as gpm and duration? Also we are to assume that all pressure requirements for testing will be within the designed valves for the project and no extra costs for large bore valves will be required. The pressures for testing were mentioned yesterday at the pre-bid meeting that the pressure may change so I just wanted to put these thoughts out there as well.

A: There is no specific flushing gpm or duration. The flushing stations were provided to aid the contractor with flushing and testing the lines. The revised testing pressures are provided above.

Q: On the Bid Schedule Lot #2 Bid Item Number Five (5), Transwestern Gas Line Water Crossing, can you please clarify if this is an open cut installation, or a bore and jack, or a directional bore installation?

A: The crossing is detailed to conform to Transwestern Pipeline requirements. The casing must be installed by open trench methods in the presence of Transwestern Pipeline personnel. Gas line crossing shall be coordinated

with Mike Boatman of Transwestern Pipeline. Contact information is included on Sheet 1-2 of the Project Drawings.

Q: *Since during the pre-bid it was clarified that pipe joint restraints and, or mechanical joint restraints could be used will there be a requirement to provide concrete thrust blocking on horizontal and vertical fittings?*

A: Concrete thrust blocks will be required as called for in project documents and horizontal and vertical fitting in conjunction with the specified joint restraint. Joint restraint is required on 3 joints upstream and downstream of all vertical bends. Joint restraint must be by mechanical joint pipe with restraining glands or a joint restraint system using ductile iron locking segments. No external joint restraints on standard bell and spigot pipe will be permitted.

Q: *Please clarify if pipe materials are to be domestic or non domestic?*

A: "Buy American" does not apply to this project.

Q: *Is there any specific criteria for Navajo labor preference?*

A: There is no Navajo preference on this project.

Q: *Is there a designated or available waste site for oversize rock?*

A: No sites are designated for wasting oversize rock. See above responses.

Q: *Will there be a charge for testing or flushing the line, if so what will the costs be?*

A: There is no charge on the testing or flushing water. However, water for excessive testing due to pipeline failure may be subject to charge.

Q: *I have a question regarding the wire enclosed rip rap, the specifications call for 'stakes' (205.2.3) yet there are none shown in the design details on the plans, are these to be provided?*

A: The stakes are shown on the Rip-Rap Detail on Sheet 4-5 of the project drawings.

Q: *The descriptions for bid items 1-1, 2-1, 2-2 & 2-3 on SC-5 to SC-9 all contain language saying restrained joints are to be included. Is this only at fittings or are 100% of the push on joints to be restrained? Please clarify.*

A: The items include the restrained joints/glands at fittings (vertical and horizontal) and on the 3 joints upstream and downstream of vertical bends as called for in the project drawings. Not all joints must be restrained, see above response on joint restraint.

Q: *Since there is no bid item for seeding, is it incidental to the project or is it not required? Please clarify.*

A: See above response.

Q: *I was unable to find a specification for the isolation gaskets at the Flow Control Structure. Could you please issue that with Addendum 1?*

A: The Isolating gasket kit shall be Type E Double Isolation Set Flange Isolating Gasket Kit by Advanced Products & Systems, Inc. or Equal.

Q: *On sheet 3-2 the roof details show a concrete "leveling" course. One detail says it can also be a bond beam all around the other 2 say 6" minimum concrete course. Can the top course be a block bond beam all around the building? Please clarify.*

A: Both options are acceptable. However, the block bond beam shall have a minimum thickness of 6" inches.

Q: *Is the bullet resistant door required? What is the brand to the City water facility locks?*

A: Yes, the bullet resistant door is required. The brand of the City locks is Sargent.

END OF RESPONSES TO INQUIRIES RECEIVED BY THE CITY OF GALLUP AND DEPAULI
ENGINEERING & SURVEYING AND MISCELLANEOUS CLARIFICATIONS

This amendment consists of **18** pages. If you do not receive all **18** pages, contact the City of Gallup Purchasing Office immediately.

City of Gallup:

DATE: **April 3, 2014**

BY/S/ Ronald M Caviggia
Ronald M. Caviggia, Purchasing Director

Acknowledge
Receipt No. **One (1)**

Contractor:
BY/S/ _____
Authorized Signature of Seller/Bidder

Company Name: _____

[ACKNOWLEDGE RECEIPT ON BID OR SIGN AND RETURN ONE (1) COPY WITH BID]

PRE-BID MEETING AGENDA

PROJECT NAME: Navajo Gallup Water Supply Project (NGWSP), Reach 13,
Formal Bid No. 1402

MEETING DATE: March 25, 2014

LOCATION/TIME: 9:00 a.m. Depauli Engineering

ORGANIZER: City of Gallup

Meeting Purpose – Pre-Bid Meeting for the NGWSP, Reach 13

1. Welcome & Introductions
2. Procurement Process
 - a. Overview of bid – bids are due April 8, 2014 by 2:00 p.m. local time and are to be delivered to the City of Gallup Purchasing Dept.
 - b. Wages rates – in accordance with attached schedules
 - c. D.W.S. requirements – Contractors and subcontractors bidding more than \$60,000 must be registered with the State of NM Dept. of Workforce Solutions prior to submitting a bid
 - d. Subcontractor listing requirements – \$29,900
 - e. Bond and insurance issues- 5% Bid Bond with bid, 100% Performance and Payment bonds on award. Insurance as specified in bid
 - f. Amendments - revisions to the specifications (if any) will be in a written amendment
 - g. Resident NM Contractor's Preference & NM Veterans Contractor Preference do NOT apply.
 - h. Awarded bidder must furnish Statement of Intent to Pay Prevailing Wages for himself and ALL subcontractors, and furnish a copy of same to the City prior to commencing work.
 - i. An Approved Affidavit of Wages paid is required to be submitted to the City by the Contractor for himself and all subcontractors prior to final payment being processed
 - j. Page **BP-8** for documents to be returned with bid
 - k. Extended Payment Provision, Page N-1 – payment within 45 days
3. Contract Requirements
 - a. Construction schedule – **365** Days
 - b. Liquidated damages -- **\$1,000/Day**
 - c. Bid proposal-must bid all items (Lots 1 thru 3).

	A	B	C	D	E
	PRINTED NAME	COMPANY	PHONE NO.	FAX NO.	EMAIL
1					
2	Daniella Arellano	DES	(505) 863-5440	(505) 863-1919	darellano@depaulieringengineering.com
3	Don Carigina	City	505-863-1235	505-732-5133	RCarigina@GallupP.M.Co
4	Suzanne Moss	Joe Padilla USA	505-550-2083		Suzanne.Moss@jpadillainc.com
5	Angie Seymour	Depauliering	(505) 869-6138	(505) 869-4112	aseymour@jpacri.com
6	Joe Padilla	J PUC INC	(505) 869-6138 602-880-5011	869-4112	jpadillainc@comcast.net
7	Sasha Trulsen	TET CO			trulsen@tetco.com
8	Dustin Case	Ferguson WJ Networks	505-449-4900		Dustin.case@Ferguson.com
9	Vince Sena	Ferguson WJ	602-723-1682		Vince.Sena@Ferguson.com
10	Ben Siegert	T T CONSTRUCTION	480-837-2102	480-837-7049	Estimating@tconstruction.com
11	John SebBrook	GARNEY CONSTRUCTION	(303) 335-6155	(720) 407-8215	jsebbrook@garney.com
12	Brent Bower	RMC I INC	505-345-0008	505-345-0111	bbower@rmsiinc.com
13	Ron Cole	Triad Western	970 565 4257	970 565 1057	rcole@triadwestern.com wmburger@triadwestern.com
14	Ramona Guzman	American Nettle	(818) 655-5398		rguzman@american-usa.com
15	Bill Lindell	NM UNDERGROUND	505-811-2300	877-1272	bill.nm@underground.net
16	Jimmy Walker	Sasquatch, Inc.	505-231-7607	505-471-8593	jimmy.walker@sasquatchconstruction.com

	A	B	C	D	E
	PRINTED NAME	COMPANY	PHONE NO.	FAX NO.	EMAIL
17					
18	Gary Mann	City of Gallup	505 863 1288	505 726 1278	gmann@gallupnm.gov
19	JERRI PIPKIN	AUT Inc	(505) 975-7756	(505) 249-9650	j.pipkin@autinc.net
20	Louise Wagner	Dallaso Corp	505-722-4438	505 863-4433	lwagner@dallaso.com
21	Kurt Spolar	DePauli Engineering	505-863-5440	505-863-1919	kspolar@depauliengineering.com
22	Rylan Edgmon	Smithco Const	575-894-6161	894-6012	rylan@smithco.cc
23	Brent James	KRK Const.	505-285-3332	505-285-3379	krk@krkconstruction.net
24	Stanley Stanley	NECA	(505) 368-3022	(505) 368-3078	stanley@necanet
25	BRETT GREUBBS	NECA	505-368-3026	" "	bretth@navajo.net
26	Rick Adair	TRC Construction	505-743-4795	505-334-0815	Radair@TRC-construction.com
27					
28					
29					
30					
31					
32					

BIDDERS LIST
CITY OF GALLUP, FORMAL BID NO. 1402
NAVAJO GALLUP WATER SUPPLY PROJECT, REACH 13
BID OPENING: 4/8/14
ENGINEER'S ESTIMATE \$5,974,550.00

SET #	SENT TO	PHONE # FAX #	DATE	ADDEN. RETURNED No. 1
1	DePauli Engineering & Surveying Office Copy	Phone: 505-863-5440 Fax: 505-863-1919		
2	Ron Caviggia City of Gallup	Phone: 505-863-1235 Fax: 505-722-5133	3/10/2014 Delivered	
3	Gary Munn Gallup Joint Utilities	Phone: 505-863-1289 Fax: 505-726-1278	3/10/2014 Delivered	
4	Stan Henderson City of Gallup Public Works	Phone: 505-726-6115 Fax: 505-726-2043	3/10/2014 Delivered	
5	Builders News and Plan Room 3435 Princeton NE Albuquerque, NM 87107	Phone: 505-884-1752 Fax: 505-883-1627	3/7/2014 USPS	
6	Dodge Reports 4300 Beltway Place Ste. 180 Arlington, TX 76018	Phone: 817-375-2959 Fax: 817-375-2971	3/7/2014 USPS	
7	Construction Reporter 1609 2nd St. NW Albuquerque, NM 87102	Phone: 505-243-9793 Fax: 505-242-4758	3/7/2014 USPS	
8	The Plan Room at Sun Glass 648 West Broadway Farmington, NM 87401	Phone: 505-327-0700 Fax: 505-324-9885	3/7/2014 USPS	
9	iSqFt Planroom 1030 W. Ellsworth Ave. Unit G Denver, CO 80223	Phone: 800-364-2059 Fax: 866-570-8187	3/7/2014 Fed Ex	X
10	Larry Abel, BOR FCCO 2200 Bloomfield HWY Farmington, NM 87401	Phone: 505-324-5020 Fax:	3/10/2014 Fed Ex	
11	NM Underground Contractors, Inc. 6201 Industry Way SE Albuquerque, NM 87105	Phone: 505-877-2300 Fax: 505-877-1272	3/10/2014 Fed Ex	
12	AUI, Inc. 7420 Reading Ave SE Albuquerque, NM 87105	Phone: 505-242-4848 Fax: 505-242-9050	3/11/2014 Fed Ex	

SET #	SENT TO	PHONE # FAX #	DATE	ADDEN. RETURNED No. 1
13	Dallago Corporation 2411 East Aztec Ave Gallup, NM 87301	Phone: 505-722-6638 Fax: 505-863-9433	3/11/2014 Picked Up	
14	Navajo Engineering Construction Authority P.O. Box 969 Shiprock, NM 87420	Phone: 505-368-3022 Fax: 505-368-3078	3/11/2014 Pick Up	
15	T&T Construction Inc. 12014 N. Falcon Drive Fountain Hills, AZ 85268	Phone: 480-837-2192 Fax: 480-837-7099	3/12/2014 Fed Ex	
16	Joe Padilla Utility Construction, Inc. 341 Tribal Road 10 Bosque Farms, NM 87068	Phone: 505-869-6138 Fax: 505-869-4112	3/12/2014 Fed Ex	
17	S.J. Louis Construction, Inc. 1351 Broadway Street W. Rockville, MN 556369	Phone: 320-253-9291 Fax: 320-253-3533	3/12/2014 Fed Ex	
18	Freeman Electric, Inc. 7200 Reading SE Albuquerque, NM 87105	Phone: 505-873-4858 Fax: 505-877-5449	3/13/2014 Fed Ex	
19 & 20	RMCI, Inc 6211 Chappell Rd. NE Albuquerque, NM 87113	Phone: 505-345-0008 Fax: 505-345-0111	3/12/2014 Fed Ex	
21	AJAC Enterprises, Inc. 8359 Corona Loop NE #100 Albuquerque, NM 87113	Phone: 505-897-0120 Fax: 505-897-0118	3/13/2014 Fed Ex	
22	The Blue Book 800 E. Main St. Jefferson Valley, NY 10535	Phone: 914-245-0200 Fax: 914-243-4936	3/14/2014 Fed Ex	X
23	Smithco Construction, Inc. 1010 King Canyon Loop Caballo, NM 87931	Phone: 575-894-6161 Fax: 575-894-6012	3/17/2014 Fed Ex	
24	Garney Construction 10312 Dayflower NW Albuquerque, NM 87114	Phone: 720-407-8160 Fax: 720-407-8158	3/17/2014 Fed Ex	
25	Reed Construction Data 30 Technology Parkway South, Ste 100 Norcross, GA 30092	Phone: 303-265-6514 Fax: 800-303-8629	3/25/2014 Fed Ex	

SET #	SENT TO	PHONE # FAX #	DATE	ADDEN. RETURNED No. 1	
26	Sasquatch, Inc 2868 Rufina Santa Fe, NM 87505	Phone: 505-471-8403 Fax: 505-471-8593	3/25/2014 Picked Up		
27	KBK Construction 614 N. Hwy 66 Milan, NM 87021	Phone: 505-285-3332 Fax: 505-285-3339	3/25/2014 Picked Up		
28	Merrill Fence Company P.O. Box 681 Gallup, NM 87301	Phone: 505-722-3079 Fax: 505-863-4672	3/25/2014 Picked Up		
29	TRC Construction, Inc. 789 Highway 516 Flora Vista, NM 87415	Phone: 505-334-8220 Fax: 505-334-0815	3/25/2014 Picked Up		
30	Murphy Builders 808 S. Boardman Dr. Gallup, NM 87301	Phone: 505-863-6274 Fax: 505-863-9442	3/27/2014 Picked Up		
22	Knight Electric 310 W. Wilson Gallup, NM 87301	Phone: 505-863-4466 Fax: 505-863-5441	4/1/2014 Picked Up		
32		Phone: Fax:			
33		Phone: Fax:			
34		Phone: Fax:			
35		Phone: Fax:			
36		Phone: Fax:			
37		Phone: Fax:			

**704 CATHODIC PROTECTION & INTERFERENCE MITIGATION
TESTING/DESIGN - INDEX**

704.1 DESCRIPTION

704.2 MATERIAL AND EQUIPMENT

- 704.2.1 ANODES
- 704.2.2 TEST STATION
- 704.2.3 WIRE
- 704.2.4 CONNECTIONS

704.3 TESTING

- 704.3.1 INITIAL COMMISSIONING
- 704.3.2 ANNUAL TESTING

704 CATHODIC PROTECTION & INTERFERENCE MITIGATION TESTING/DESIGN

704.1 DESCRIPTION

This technical specification involves installing a galvanic cathodic protection (CP) system on 1000' of ductile iron waterline. This CP system will mitigate the CP interference caused by the crossing with the Transwestern LS 154 and 254 natural gas pipelines.

704.2 MATERIAL AND EQUIPMENT

704.2.1 Anodes: The anodes shall be prepackaged 32lb high potential magnesium anode with a #8 HMW/PE lead wire. The length of the wire shall be determined in the field.

704.2.2 Test Station: Test stations shall be 3" Cott Big Fink or equivalent, consisting of a minimum 4 terminals with nickel plated brass hardware. The test station shall be mounted on 3" COTTPipe PE. Type 1 test stations shall include a 0.1 Ω Cott Shunt (red) to measure current discharged through the anodes.

704.2.3 Wire:

- Anodes - #8 HMW/PE
- Test Stations
 - Type 1 - Two (2) #12 AWG THHN solid, One (1) #6 AWG HMW/PE stranded
 - Type 2 - Four (4) #12 AWG THHN solid
- Joint Bonds - #6 HMW/PE Stranded

704.2.4 Connections: All connections to the pipe shall be made by exothermic welding or pin brazing. No mechanical connections will be accepted. All exothermic weld connections shall be coated with a non-conductive epoxy. Connectors and accessories shall be Erico Products, Inc., or equal.

704.3 TESTING

704.3.1 Initial Commissioning:

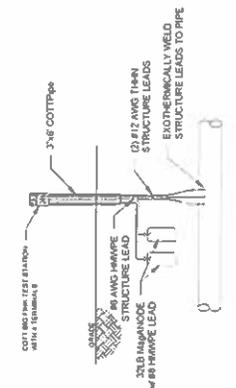
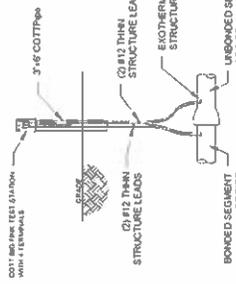
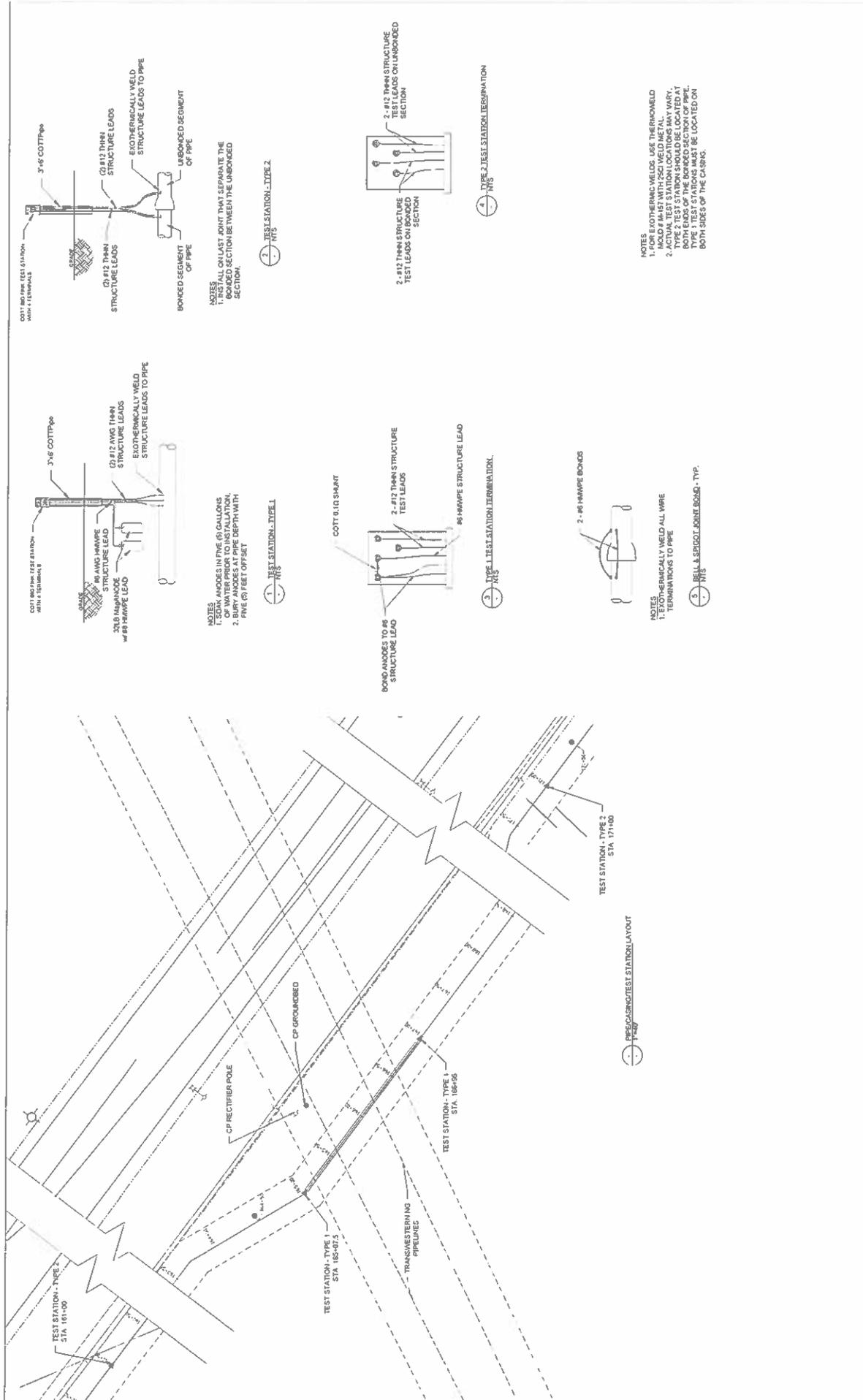
1. With the anodes disconnected in the test station, take static pipe-to-soil potentials using a Cu/CuSO₄ reference electrode and a multimeter at the four test stations.
2. With the permission of Transwestern, install an interrupter on rectifier 666 and test all test stations. Record both "on" and "off" pipe-to-soil at the four test stations.

3. Take pipe-to-soil potentials on both of Transwesterns' pipelines (LS 154 & 254). Use the test wire located at the nearest test station or at the rectifier. Record both "on" and "off" readings.
4. With the rectifier still in interruption, bond the magnesium anodes with the #6 AWG structure wire in the two, type 2 test stations. Record both "on" and "off" pipe-to-soil potentials. Read the current discharged through the shunt in the type 2 test stations.
5. If there is no current discharge at the anodes and both pipelines are not interfering with one another, the anodes may be disconnected.

704.3.2 Annual Testing:

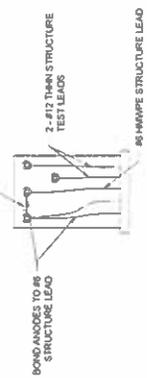
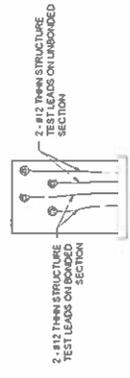
1. All test stations shall be read annually using a Cu/CuSO₄ reference electrode and a multimeter to verify potentials and discharge current.

ATTACHMENT: DRAWINGS #CP2433



NOTES:
 1. ALL CALLOUT JOINT THAT SEPARATE THE BONDED SECTION BETWEEN THE UNBONDED SECTION.
 2. BURY ANODES AT PIPE DEPTH WITH PIPE (1) FEET OFFSET.

NOTES:
 1. SODAK ANODES IN FIVE (5) GALLONS OF WATER PRIOR TO INSTALLATION.
 2. BURY ANODES AT PIPE DEPTH WITH PIPE (1) FEET OFFSET.



NOTES:
 1. ALL ELECTROCHEMICALS, USE THERMOWELD HOLD #10 W/ST WITH Z621 WELD METAL.
 2. ACTUAL TEST STATION LOCATIONS MAY VARY.
 TYPE 2 TEST STATIONS SHOULD BE LOCATED AT BOTH SIDES OF THE CASING.
 TYPE 1 TEST STATIONS MUST BE LOCATED ON BOTH SIDES OF THE CASING.

NOTES:
 1. ELECTROCHEMICALS WELD ALL MWPE TERMINATIONS TO PIPE.



REV.	DATE	DESCRIPTION	BY	CHK.
1	3-21-14	CORRECTIONS PER DEPAULI	JD	DE
0	2-28-14	ISSUED FOR REVIEW	JD	DE

PROJECT NAME	DTY. OF CALLUP	CLIENT
HAWAII CALLUP WATER SUPPLY PROJECT	INTERFERENCE MITIGATION FOR TMR CROSSING	DIPALLI ENGINEERING & SURVEYING
DATE	DFT BY	10487 N. 91st Ave. Peoria, AZ 85015
2/28/2014	JD	DWG NO. CP2433
SCALE	AS NOTED	SHEET NO. CP-201