

CITY OF GALLUP  
CENTRAL PURCHASING OFFICE  
P.O. BOX 1270  
GALLUP, NEW MEXICO 87305-1270  
Phone: 505-863-1232; Fax: 505-722-5133  
**FOX RUN GOLF COURSE IRRIGATION PROJECT**

AMENDMENT NO.: **One (1)**

FORMAL BID NO.: **1520**

THE FOLLOWING REVISIONS, ADDITIONS, DELETIONS, 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:

**GENERAL:**

1. The drawings, specifications and Amendments from Formal Bid No. 1515 are still applicable except as amended by this Amendment.
2. Delete all reference to FORMAL BID NO. 1515 and substitute FORMAL BID NO. 1520.

**PROJECT MANUAL:**

1. 00 1113 Advertisement for Bids:  
Delete this section in its entirety and replace with new **ADVERTISEMENT FOR BIDS, City of Gallup, New Mexico, Formal Bid No. 1520** (attached).
2. Revised Bid Cover Sheet showing Bid Opening Date as **January 7, 2016** (attached).
3. General Conditions, Page 1 of 36:
  - a. Second paragraph, delete first sentence and substitute "Bids will be accepted until 2:00 P.M. local time on **Tuesday, December 8, 2015** at the City of Gallup Purchasing Office: 110 West Aztec (87301); P.O. Box 1270; Gallup, New Mexico 87305 and substitute: "Bids will be accepted until 2:00 P.M. local time on **Thursday, January 7, 2016** at the City of Gallup....."
4. General Conditions, pages 15 thru 27:
  - a. Delete Bidders Qualification Statement; Subcontractor Listing; Proposal Form of Contract; Bid Proposal Form; Unit Price Form and Bid Bond and substitute with revised forms attached. Note: An Excel Spreadsheet of the Unit Price Form is available to Bidders upon request.
5. Section 32 8400 Landscape Irrigation Systems
  - a. Delete this section in its entirety and substitute with revise Section 32 8400 attached.

**DRAWINGS:**

1. Sheets I-101; CG-110 and LP-107:
  - a. For Hole 15, delete reference to "New Tee" location. Existing Tee location to remain. See revised irrigation sketch attached.
2. Sheet LP-107:
  - a. Delete Additive Alternate #1, 30' HT. Ball Stop Netting.

This Amendment consists of Forty Two (42) pages. If you do not receive all pages please contact the Purchasing Office.

City of Gallup:

BY/S/ \_\_\_\_\_  
Frances Rodriguez, Purchasing Agent

Contractor:

BY/S/ \_\_\_\_\_  
Authorized Signature of Seller/Bidder

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

DATE: December 28, 2015

Acknowledge

Receipt No. 1

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

**ADVERTISEMENT FOR BIDS**

**City of Gallup, New Mexico**

**Formal Bid No. 1520**

**Fox Run Golf Course Irrigation Project (Re-Bid)**

Sealed Bids will be received by the City of Gallup, New Mexico at the Purchasing Department located at 110 West Aztec, Gallup, NM 87301 no later than **Thursday, January 7, 2016 at 2:00 P.M.**, at which time the bids will be opened and read aloud. Envelopes are to be sealed and plainly marked **Formal Bid No. 1520. No faxed or electronically transmitted bids nor bids submitted after the above date and time will be considered, and will be returned unopened.**

**DESCRIPTION OF PROJECT:** The Project consists of the full replacement of the Fox Run Golf Course Irrigation System with a new irrigation pump station, new pump station building, drainage improvements, re-grading, re-seeding and new plantings.

**No Mandatory Pre-Bid Meeting will be held**

For instructions to bidders, including proposal forms, contract documents, etc., to be used in connection with the submission of bids, the bidders may obtain a bid package, for a **\$200 refundable deposit** at **Albuquerque Reprographics, 4716 McLeod Rd. NE, Albuquerque, New Mexico, Albuquerque NM 87109, (505) 884-0862**. Any questions concerning the General and Contractual Conditions of the bid shall be directed to Frances Rodriguez, Purchasing Director at (505) 863-1334, [frodriquez@gallupnm.gov](mailto:frodriquez@gallupnm.gov). Questions regarding the specifications and scope should be directed to the Architect, Howard Kaplan, Wilson & Company Project Manager at (505) 348-4011, [Howard.Kaplan@wilsonco.com](mailto:Howard.Kaplan@wilsonco.com). Documents may also be examined at the following Plan Rooms:

- Construction Reporter, 1607 Second St. NW, Albuquerque, NM 87107, (505)243-9793
- Builders News & Plan Room, 3435 Princeton NE, Albuquerque, NM 87107, (505)884-1752
- Reed Construction Data, [www.reedconnect.com](http://www.reedconnect.com), (800)424-3996 for user name & password
- Plan Room at Sun Glass, 602 W. Main, Farmington, NM 87401 (505)327-0700
- FW Dodge, 1615 University Blvd., N.E., Albuquerque, NM 87102 (505)243-2817

Plans, Specifications and Bidding Documents may also be viewed at the office of the City of Gallup Purchasing Department, 110 West Aztec Avenue, Gallup NM 87031, (505) 863-1232. Information regarding this bid may also be accessed at [gallupnm.gov/bids](http://gallupnm.gov/bids)

The City of Gallup (Owner) reserves the right to accept or reject any or all bids, to delete portions of bids depending on availability of funds, to waive technicalities, to make any investigations deemed necessary of a bidder's ability to perform the work covered by the specifications and to accept the bid it deems to be in the best interest of the City.

Dated the 16<sup>th</sup> day of December, 2015

By: /S/ Jackie McKinney, Mayor

Legal Advertisement Publish Date: Gallup Independent: December 19, 2015

Albuquerque Journal: December 23, 2015



**CITY OF  
GALLUP**

City of Gallup, New Mexico  
Purchasing Division  
P.O. Box 1270  
Gallup, New Mexico 87305-1270  
Office: (505) 863-1232  
Fax: (505) 722-5133  
[gallupnm.gov/purchasing](http://gallupnm.gov/purchasing)

**INVITATION TO BID**  
FORMAL BID NO NO. 1520

**FOX RUN GOLF COURSE IRRIGATION PROJECT**  
Gallup, NM

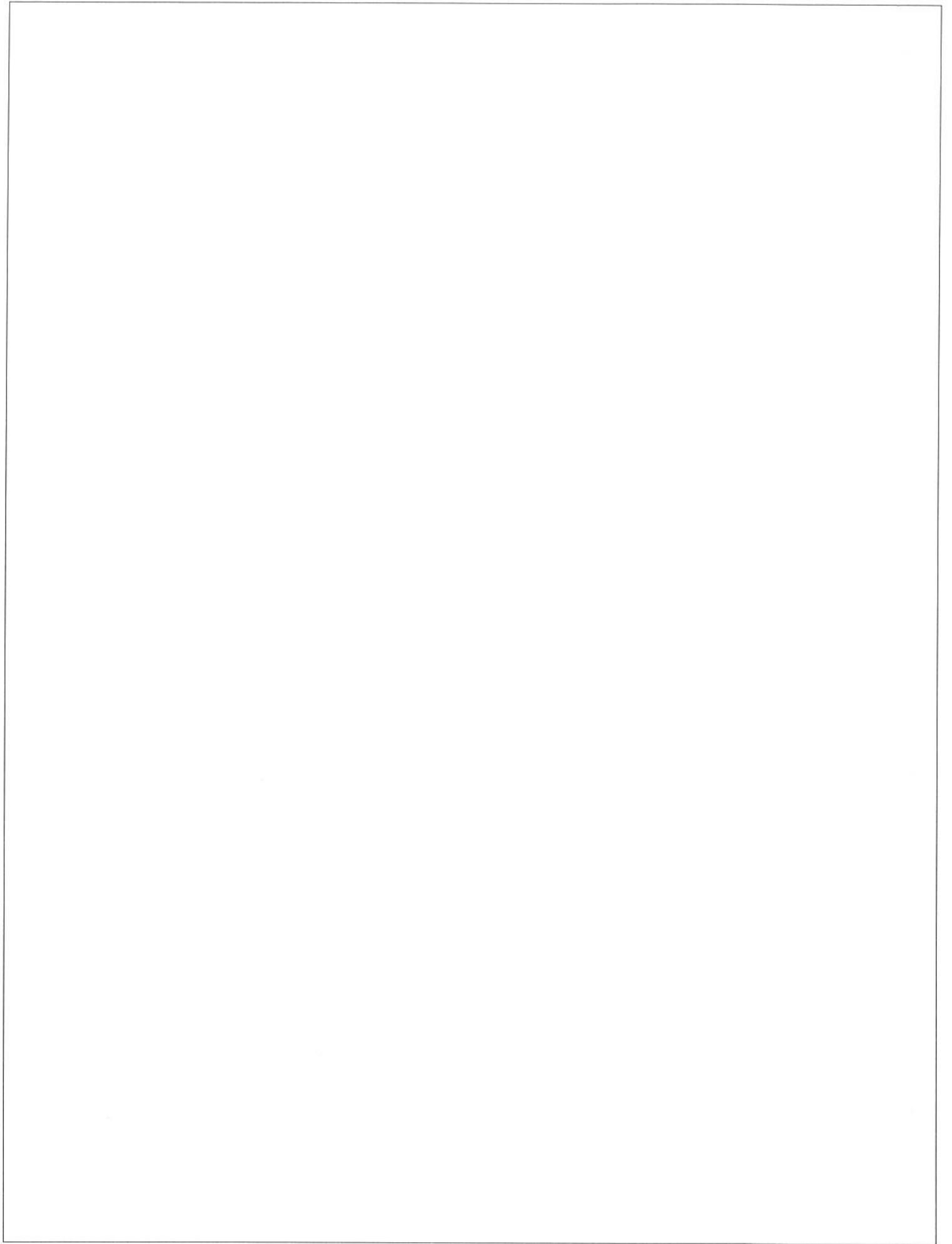
ISSUE DATE: December 19, 2015  
BID OPENING DATE: January 7, 2016  
BID OPENING TIME: 2:00 p.m. Local Time

**Notes:**

F.O.B. Point : Destination

Payment Terms: Net 30, unless otherwise stated

Quantities may be increased or decreased  
within reasonable amounts



**BIDDERS QUALIFICATION STATEMENT**  
**(ATTACH ADDITIONAL PAGES AS NECESSARY)**

PROJECT TITLE: Fox Run Golf Course Irrigation Project

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

(Print or Type Name of Bidder)

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

To be completed by the Bidder. **If Bidder is not a Golf Course Irrigation Contractor, submit a separate form for the Golf Course irrigation sub-contractor.** The undersigned certifies the truth and correctness of all statements and of all answers to questions made hereinafter:

1. How many years has your organization been in business under its present name?  
\_\_\_\_\_
  
2. If a corporation, answer the following:
  - a. Date of Incorporation: \_\_\_\_\_
  - b. State of Incorporation: \_\_\_\_\_
  
3. If individual or partnership, answer the following:
  - a. Date of Organization: \_\_\_\_\_
  
4. If other than corporation or partnership, describe organization and name principals:
  
  
5. Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with the contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project:
  
  
6. Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences, including name of owner, architect or engineer, and surety, and name and date of project.
  
  
7. List projects, contract amount, percent complete and scheduled completion of the construction projects your organization has in process on this date:

a. List the projects competed by your firm within the past 3 years, with the final cost of the project, and project contact information:

b. List your construction experience in projects similar to this project **that used HDPE Irrigation Pipe and Fittings:**

8. List name and construction experience of the principals in your organization, including officers:

9. List the states and categories of construction in which you organization is legally qualified to do business:

10. List name, address, and telephone number of an individual who represents each of the following and who may be contacted for a financial reference:

a. A surety: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. A bank: \_\_\_\_\_  
CREDIT AVAILABLE: \$ \_\_\_\_\_

c. A major material supplier: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

Bidder: \_\_\_\_\_  
(Print or Type Name of Bidder)

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

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

Seal of Corporation

CITY OF GALLUP  
SUBCONTRACTOR LISTING

**Formal Bid No. 1520**

The Subcontractor Listing Threshold For This Project Is \$5,000, And Attached To The Bid In Compliance With 13-4-32 Thru 13-4-43 NMSA 1978, Together With The City Or County Location Of Their Place Of Business Listed. The Following Subcontractors Will Work On The Construction Of The Project If My Proposal Is Accepted. List only one Entry for each category of work as defined by Contractor.

Bidder Represents That He Is Licensed And Qualified To Perform 100% Of The Category Of Work For Which No Subcontractor Is Listed. D.W.S. Registration Number Required If Amount Of Work Exceeds \$60,000.

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
Amount (\$): \_\_\_\_\_  
License No.: \_\_\_\_\_  
DWS Registration No. \_\_\_\_\_

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
Amount (\$): \_\_\_\_\_  
License No.: \_\_\_\_\_  
DWS Registration No. \_\_\_\_\_

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
Amount (\$): \_\_\_\_\_  
License No.: \_\_\_\_\_  
DWS Registration No. \_\_\_\_\_

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
Amount (\$): \_\_\_\_\_  
License No.: \_\_\_\_\_  
DWS Registration No. \_\_\_\_\_

Company Name: \_\_\_\_\_  
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City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
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DWS Registration No. \_\_\_\_\_

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DWS Registration No. \_\_\_\_\_

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/County: \_\_\_\_\_ State: \_\_\_\_\_  
Work to be Performed: \_\_\_\_\_  
Amount (\$): \_\_\_\_\_  
License No.: \_\_\_\_\_  
DWS Registration No. \_\_\_\_\_

-No Contractor whose Proposal is accepted shall permit any subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the original Proposal without the consent of the using agency.

-No Contractor whose Proposal is accepted, other than in the performance of change orders causing changes or deviations from the original contract, shall sublet or subcontract any portion of the work in excess of the listing threshold as to which his original Proposal did not designate a Subcontractor unless:

(1) the Contractor fails to receive a Proposal from a category of work. Under such circumstances, the contractor may subcontract. The Contractor shall designate on the listing form that **no Proposal was received** or;

(2) the Contractor fails to receive more than one Proposal for a category of work. Under such circumstances, the Contractor may subcontract. The Contractor shall state on the listing form that **only one Subcontractor's Proposal was received**, together with the name of the Subcontractor. This designation shall not occur more than one time on the Subcontractor list.

**ADDITIONAL COPIES MAY BE MADE IF NECESSARY**

CITY OF GALLUP

**PROPOSAL FORM FOR CONTRACT**

**Formal Bid No. 1520**

Project: **Fox Run Golf Course Irrigation Project**

Proposal of \_\_\_\_\_ (hereinafter called the bidder), a corporation, organized and existing under the laws of the State of New Mexico, a partnership or an individual doing business as

\_\_\_\_\_ to the City of Gallup (hereinafter called the Owner).

The bidder in compliance with your invitation for bids for the above-named project, has examined bidding documents and the site of the proposed work, and being familiar with all of the existing building and conditions surrounding the construction of the proposed project, including the availability of materials and supplies and to construct the project in accordance with the contract documents within the time set forth and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part, including any applicable building permit or other fees.

**Bid Security:** Shall be submitted with the bid and made payable to the owner in the amount of five percent (5%) of the bid sum. Security shall be by cash, certified or cashiers' check or a bid bond prepared on a form acceptable to the owner, issued by a surety licensed to do business in the state where the project is located. The Owner will retain these securities for 45 days or until a contract has been entered into, whichever is shorter. Should the low bidder refuse to enter into a contract, the owner will retain his security as liquidated damages, not as a penalty. If the lowest bidder fails to enter into a contract, then the next lowest bidder will be considered as the lowest bidder.

**Performance and Payment Bond:** In addition the successful bidder shall execute a performance bond and a payment bond each with a corporate surety authorized to do business in the State of New Mexico and said surety to be approved in Federal Circular 570 as published by the U.S. Treasury Department, each in the sum of 100% of the total bid price, within Fifteen (15) days of Notice of Award.

**Liquidated Damages:** Liquidated damages in the amount of \$1,000 per day shall be assessed for every calendar day past the stated completion date.

**Taxes:** The proposal total shall exclude all applicable taxes. The City will pay any taxes due on the contract based upon billing submitted by the contractor, at the applicable tax rate. Taxes shall be shown as a separate amount on any billing or request for payment.

Bidder hereby agrees to commence work under this contract on the date specified in the Notice to Proceed. Bidder shall provide a certificate of insurance in compliance with the State of New Mexico Construction Industries Division rules and regulation and the terms of this bid. If required by law, bidder shall provide evidence of Workmen's Compensation Insurance

Wages will be paid in accordance with the State of New Mexico wage rates as required by statute.



**BID PROPOSAL FORM**  
**FORMAL BID NO. 1520**  
(FOR LUMP SUM CONTRACT ONLY)

THE BIDDER AGREES TO PERFORM ALL THE WORK AS DESCRIBED IN THE GENERAL CONDITIONS AND PLANS TO PROVIDE IRRIGATION AND OTHER GOLF COURSE IMPROVEMENTS FOR THE FOLLOWING LUMP SUM:

- **BASE BID (EXCLUDING TAXES):**

\_\_\_\_\_ \$ \_\_\_\_\_  
(SHOW AMOUNTS IN FIGURES AND WORDS)

- PLUS NEW MEXICO GROSS RECEIPTS TAX (@ 8.3125%)

\_\_\_\_\_ \$ \_\_\_\_\_  
(SHOW AMOUNTS IN FIGURES AND WORDS)

- **TOTAL BID (INCLUDING TAXES)**

\_\_\_\_\_ \$ \_\_\_\_\_  
(SHOW AMOUNTS IN FIGURES AND WORDS)

IN THE CASE OF A DISCREPANCY, THE AMOUNTS SHOWN IN WORDS SHALL GOVERN.

SUBMITTED BY: Business Name \_\_\_\_\_

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

Authorized Signature

\_\_\_\_\_  
Name Printed or Type

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Address

\_\_\_\_\_  
Phone & Fax Number

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
D.W.S. Registration No.

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

**THE CONTRACT WILL BE AWARDED AS A LUMP SUM CONTRACT BASED UPON THE TOTAL OF THE UNIT PRICES.** THE UNIT PRICES LISTED BELOW ARE TO BE USED SOLELY FOR DETERMINING THE COST OF POSSIBLE CHANGES IN THE WORK AND FOR DETERMINING THE VALUE OF THE WORK COMPLETED FOR PROGRESS PAYMENTS. THE FURNISHED QUANTITIES ARE APPROXIMATE ONLY, BEING GIVEN AS A BASIS FOR COMPARISON OF BIDS.

ALL UNIT PRICES TO INCLUDE CONTRACTOR OVERHEAD AND PROFIT AND APPLICABLE TAXES, STATE AND/OR FEDERAL AND ANY OTHER SPECIAL TAXES, **BUT ARE EXCLUSIVE OF NEW MEXICO GROSS RECEIPTS TAX WHICH IS IN ADDITION TO THE CONTRACT.**

# Fox Run Golf Course Irrigation Project

Gallup, New Mexico

Item	Description	Unit	Est. QTY	Unit Price	Total
<u>GENERAL</u>					
1	Project Sign	EA	1	\$ -	\$ -
2	NPDES, SWPPP Management, Compl.	LS	1	\$ -	\$ -
3	Testing, Compl.	LS	1	\$ -	\$ -
4	Mobilization and Demobilization	LS	1	\$ -	\$ -
Subtotal					\$ -
<u>STAKING AND LAYOUT</u>					
5	Site Clearing & Grubbing, Compl	LS	1	\$ -	\$ -
6	GPS Survey, Layout and Staking	LS	1	\$ -	\$ -
7	As-Builts Record Drawing (GPS mapped, Sub-meter accuracy)	LS	1	\$ -	\$ -
Subtotal					\$ -
<u>IRRIGATION SYSTEM</u>					
8	Rain Bird Eagle Rotor A-900-IC-80-60 (range)	EA	60	\$ -	\$ -
9	Rain Bird Eagle Rotor A-700-IC-80-44 (Fwy internal)	EA	297	\$ -	\$ -
10	Rain Bird Eagle Rotor A-751-IC-80-44 w/rear spreader nozzle (Fwy perimeters)	EA	366	\$ -	\$ -
11	Rain Bird Eagle Rotor A-751-IC (tee & green's heads)	EA	187	\$ -	\$ -
12	Rain Bird 5-NP 1" Quick Coupling Valve Full Assembly	EA	18	\$ -	\$ -
13	Rain Bird Stratus II Central Computer control system - Complete	EA	1	\$ -	\$ -
14	14 GA two-wire armored trunk line com cable	LF	16,000	\$ -	\$ -
15	14 GA Lateral two-wire maxi Com cable	LF	60,000	\$ -	\$ -
16	Rain Bird ICSD Grounding Assembly Complete	EA	58	\$ -	\$ -
17	14" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	100	\$ -	\$ -
18	10" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	600	\$ -	\$ -
19	8" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	1,000	\$ -	\$ -
20	6" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	5,950	\$ -	\$ -
21	6" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-blue stripe	LF	1,650	\$ -	\$ -
22	4" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	8,100	\$ -	\$ -
23	4" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-blue stripe	LF	8,100	\$ -	\$ -
24	3" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	9,800	\$ -	\$ -
25	3" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-blue stripe	LF	6,400	\$ -	\$ -
26	2" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-purple stripe	LF	56,800	\$ -	\$ -
27	2" HDPE, DR13.5/4710 Mainline Pipe and All Fittings-blue stripe	LF	5,400	\$ -	\$ -
28	8" American AVK Series 45 (MJ x MJ) Ductile Iron Valve Assembly	EA	1	\$ -	\$ -
29	6" American AVK Series 45 (MJ x MJ) Ductile Iron Valve Assembly	EA	6	\$ -	\$ -
30	4" American AVK Series 45 (MJ x MJ) Ductile Iron Valve Assembly	EA	4	\$ -	\$ -
31	3" American AVK Series 45 (MJ x MJ) Ductile Iron Valve Assembly	EA	5	\$ -	\$ -
32	3" Harco Lateral Isolation Valve Assembly	EA	71	\$ -	\$ -
33	Air and Vacuum Relief Valve Assembly	EA	10	\$ -	\$ -

34	1" Rain Bird RCV assembly	EA	12	\$	-	\$	-
35	Removal of existing surface irrigation components	LS	1	\$	-	\$	-
36	Turnover Equipment	LS	1	\$	-	\$	-
Subtotal						\$	-

GRADING & DRAINAGE

37	Excavate & Dispose Unclassified Material, more than 2' deep, for roadways, compl.	CY	25,000	\$	-	\$	-
38	Rock Excavation	CY	1,500	\$	-	\$	-
39	Subgrade Prep. 12" at 95% compaction, cip.	SY	2,075	\$	-	\$	-
40	Aggregate Base Course, crushed, 6" at 95% compaction, cip.	SY	390	\$	-	\$	-
41	Concrete Pavement, 6" thick, Portland Cement Concrete with fly ash, cip	SY	37.3	\$	-	\$	-
42	Existing Pavement, PC Concrete, up to 4" thick, sawcut, remove & dispose, compl.	SY	74	\$	-	\$	-
43	18" Culvert Pipe per Supplemental Specification Section 570, Furnished & Install in open trench, Incl. Structural Backfill, CIP.	LF	1,208	\$	-	\$	-
44	24" Culvert Pipe per Supplemental Specification Section 570, Furnished & Install in open trench, Incl. Structural Backfill, CIP.	LF	174	\$	-	\$	-
45	30" Culvert Pipe per Supplemental Specification Section 570, Furnished & Install in open trench, Incl. Structural Backfill, CIP.	LF	879	\$	-	\$	-
46	36" Culvert Pipe per Supplemental Specification Section 570, Furnished & Install in open trench, Incl. Structural Backfill, CIP.	LF	1,017	\$	-	\$	-
47	Plain Riprap, Class C, D50=9", Incl Filter fabric and Subgrade Compaction, compl.	CY	45	\$	-	\$	-
48	Drainline Removal & Disposal, 10" to 18", Incl. trenching, compl.	LF	240	\$	-	\$	-
49	Drainline Removal & Disposal, 21" to 48", Incl. trenching, compl.	LF	392	\$	-	\$	-
50	4" Geoweb GW30V4 with topsoil infill Spillway, incl. all appurtenances per specs and Western Excelsior PP5-8 Turf Reinforcement Mat, compl.	SF	9,800	\$	-	\$	-
51	Ported Riser Water Quality Structure, CIP	EA	1	\$	-	\$	-
Subtotal						\$	-

POND AND BOOSTER STATION

52	Intake Screen	EA	1	\$	-	\$	-
53	Intake Screen Concrete support block, CIP.	CY	6.7	\$	-	\$	-
54	24" SDR-35 PVC Pipe from Pond 3 to Irrigation Pump booster Station, incl. Trenching, Backfill, and Compaction, CIP.	LF	160	\$	-	\$	-
55	Effluent Reuse Irrigation Pump Station, 3-60-Hp, 1500-gpm total flow, 120-psi, compl.	EA	1	\$	-	\$	-
56	Potable Irrigation Pump Station, one 30-Hp, 250-gpm total flow, 120-psi, compl.	EA	1	\$	-	\$	-
57	30,000 gal Potable Water Steel Storage Tank, compl.	EA	1	\$	-	\$	-
58	Concrete Ringwall tank foundation, cip.	CY	16.7	\$	-	\$	-
59	Tank Foundation	SY	666.7	\$	-	\$	-
60	Structural Fill for Potable Water Tank, cip	CY	18.8	\$	-	\$	-
61	Clean Sand Fill, cip	CY	6.3	\$	-	\$	-

62	Clean Oiled Sand Foundation, cip	CY	2.4	\$	-	\$	-	
63	Rip Rap Splash Pad, cip	SF	27	\$	-	\$	-	
64	2" Potable Water Service Line	LF	975	\$	-	\$	-	
65	Building Piping both non-potable and potable, incl. fittings valves and appurtenances, cip.	LS	1	\$	-	\$	-	
66	60-mil HDPE Pond Liner. Cip	SF	6,000	\$	-	\$	-	
67	Remove and Replace Clay Pond Liner, 18" Thickness Assume 20% Clay added, CIP	SF	7,530	\$	-	\$	-	
68	Demolition of existing concrete pond liner	SF	6,000	\$	-	\$	-	
69	Excavation of unsuitable material from Pond 3	CY	137	\$	-	\$	-	
70	Install new conc. Pond 2 side slope liner	SF	1,530	\$	-	\$	-	
71	24" SDR-35 PVC Pipe from Pond 1 to Pond 2, incl. dewatering, trenching, backfill, and compaction, cip.	LF	145	\$	-	\$	-	
72	24" SDR-35 PVC Pipe from Pond 2 to Pond 3, incl. dewatering, trenching, backfill, and compaction, cip.	LF	60	\$	-	\$	-	
73	Removing of existing pumps and piping	EA	1	\$	-	\$	-	
74	Backfill of existing building pipe pit	CY	34	\$	-	\$	-	
75	Concrete foundation in existing building	CY	6	\$	-	\$	-	
76	Valves - 8"	EA	3	\$	-	\$	-	
77	Valves - 24"	EA	3	\$	-	\$	-	
78	Pump Station Building	SF	483	\$	-	\$	-	
79	Electrical for Pump Station, Compl.	EA	1	\$	-	\$	-	
Subtotal							\$	-

#### LANDSCAPE

80	Tree Protection and Temporary Fencing	EA	20	\$	-	\$	-
81	Remove and Relocate Boulders	LS	1	\$	-	\$	-
82	Earth Shaping - Cut	CY	1,100	\$	-	\$	-
83	Earth Shaping - Fill	CY	2,250	\$	-	\$	-
84	6" Concrete Path with Turndown Curb	SF	240	\$	-	\$	-
85	6" Concrete Path	SF	2,580	\$	-	\$	-
86	2" - 4" Cobblestone Swale	SF	6,300	\$	-	\$	-
87	Boulder Retaining Walls	LF	110	\$	-	\$	-
88	Access Control Boulders	EA	18	\$	-	\$	-
89	4" Base Course Cart Path	SF	3,650	\$	-	\$	-
90	Gravel Sump	CF	3,500	\$	-	\$	-
91	Turf Seeding @ New Tee Locations	AC	0.4	\$	-	\$	-
92	Turf Seeding @ Fairways	AC	28.7	\$	-	\$	-
93	Reclamation Seeding	SF	248,500	\$	-	\$	-
94	Riparian Seeding	SF	219,100	\$	-	\$	-
95	Rio Grande Cottonwood -2 1/2" caliper B & B	EA	26	\$	-	\$	-
96	Honeylocust - 2 1/2" caliper B & B	EA	45	\$	-	\$	-
97	Pinyon Pine - 5' -7' height B & B	EA	62	\$	-	\$	-
98	Netleaf Hackberry - 24" box	EA	27	\$	-	\$	-
99	Purchase and install 4" perf pipe with stone, sand, wire - French Drainage (see detail sheet LP-501)	LF	10,000	\$	-	\$	-

100	Purchase and install 4" solid drain pipe - outfall pipe for French Drainage	LF	2,000	\$	-	\$	-
101	Purchase and install 6" solid drain pipe	LF	2,500	\$	-	\$	-
102	Purchase and install 8" solid drain pipe	LF	1,200	\$	-	\$	-
103	Purchase and install 8" in-line drain with perf riser, sand & gravel (see detail sheet LP-501)	EA	28	\$	-	\$	-
						<hr/>	
Subtotal						\$	-
TOTAL FOX RUN GOLF COURSE IRRIGATION PROJECT BID						\$	-

**BID BOND**

**BIDDER** (Name and Address):

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

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

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

**OWNER** (Name and Address):

City of Gallup  
110 West Aztec Ave., PO Box 1270  
Gallup, NM

**BID**

BID DUE DATE:

PROJECT (Brief Description Including Location):

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

**BOND**

BOND NUMBER: \_\_\_\_\_

DATE (Not later than Bid due date): \_\_\_\_\_

PENAL SUM \_\_\_\_\_

(Words)

(Figures)

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

BIDDER

SURETY

(Seal)

(Seal)

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

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

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

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

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

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

- Note: (1) Above addresses are to be used for giving required notice.  
 (2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.
1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

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

SECTION 32 8400  
LANDSCAPE IRRIGATION SYSTEMS

PART 1 SCOPE AND DIRECTION

1.1 PURPOSE

The objective of these specifications is to provide an assembled and installed sprinkler system, which will operate in an efficient and satisfactory manner, so that the finished system shall efficiently irrigate all areas to be covered and shall prove satisfactory in all aspects to the Owner. The specifications, design details, and irrigation designs are to be considered a part of the irrigation system contract, and it is expected that the chosen Contractor will follow specifications with due perseverance.

1.2 SCOPE OF WORK

The plans and specifications are intended to include everything obviously requisite and necessary for the proper installation of the work, whether each necessary item is mentioned herein or not, unless otherwise specified, and the Contractor is expected to provide for the same.

The new irrigation system at Fox Run Golf Course will be supplied with recycled water from the City of Gallup waste water treatment system. All components must be installed per New Mexico State Requirements for recycled water use.

All work herein specified or called for in the drawings, in the specifications or in the detail drawings, shall be executed in accordance with all governing ordinances, laws and regulations and shall meet all local conditions and any changes and/or conditions will be made without additional expense to the Owner, but such change shall have the proper written approval of the Owner.

Please consider all other golf course work and necessary synchronization of effort with the Project Manager and golf course contractor.

1.3 BIDDING INSTRUCTIONS

The contractor is instructed to complete the bid form for the complete system as specified. The contractor is to prepare his bid on the enclosed form, and include a company resume and other supporting quality assurance documents.

No substitutions are requested or considered, unless the bid form lists "or equal".

The unit pricing schedule will be used for determining the total cost of the project. All unit costs are installed costs, including the necessary fittings, other hardware, materials as required for proper installation, and shall include amounts for profit and overhead. All construction as required by the plans and specifications and construction documents will be constructed by the Contractor and accounted for by the Contractor, Project Manager, and Irrigation Consultant for the total sum price of this contract.

Note: The sum of all unit prices using Rainbird equipment will be considered the bid price.

- A. All unit prices shall include all labor, materials, fittings, misc, Required to install a complete automatic irrigation system.
- B. The only changes will be the number of units installed that are listed on bid sheet.
- C. All linear units (pipe, wire, etc...) will be GPS mapped by Contractor using Sub-Meter mapping equipment as a minimum. GPS measurement for linear units will be two dimensional (2D) and must be submitted for progress and final payments. No written field notes will be accepted as verification of units installed. Consultant will verify contractor quantities and spot check GPS measurements. Contractor must account for any waste, splices, 3D topographical changes, or any other circumstances that may affect 2D measurements in bid. All measurable units must be submitted in GPS mapped format for payment.
- D. All quantities listed on bid sheet are estimated plan quantities with no additions for scrap, waste, or topography.
- E. Item numbers below correlate to item number on excel bid sheet. Item descriptions are not considered to be all inclusive, refer to specifications for more detail.
  - 1. Furnish and install a Rainbird A-900-IC-80-60 full circle valve-in-head sprinkler on approved swing joint including aqua fuse service fitting, and any other materials required for proper installation. (full circle heads for driving range equilaterally spaced at 85') (GM estimate 60)
  - 2. Furnish and install a Rainbird A-700-IC-80-44 valve-in-head sprinkler on approved swing joint including aqua fuse service fitting, and any other materials required for proper installation. (full circle heads for fairway interiors equilaterally spaced at 70') (GM estimate 297)
  - 3. Furnish and install a Rainbird A-751-IC-80-44 valve-in-head sprinkler on an approved swing joint, Aqua Fuse service fitting, and any other materials required for proper installation. (Fairway perimeter heads spaced at 70', most perimeter heads will rear spreader tail nozzle) (GM estimate 366 )
  - 4. Furnish and install a Rainbird A-751-IC-80-40 valve-in-head sprinkler on an approved swing joint, Aqua Fuse service fitting, and any other materials required for proper installation.(Green in/outs will be regulated to 70 psi, tee heads on effluent system will be regulated to 80 psi and require a range of nozzles to cover spacing from 45'-65") (GM estimate 187 )
  - 5. Furnish and install a Rainbird 44-5NP quick coupling valve on swing joint, including round valve box, stabilizer, and Aqua Fuse service fitting, and any other materials required for proper installation. (GM estimate 18 )

6. Furnish and install Rainbird Stratus II central control computer in the turfgrass care center office with all equipment required for Rain Bird Integrated Control system (IC), Smart Pump module, wireless equipment required for communication with pump station, and Freedom module radio system including (2) handhelds.
7. Furnish and install 14 gauge trunk line armored communication wire, Paige electric part# P71168D- Rev 6, with wire paths of unique colors. Includes all connectors and DCFD fuses, and any other materials required for proper installation. (GM estimate 16,000')
8. Furnish and install 14 gauge maxi-wire lateral communication wire for IC/decoder control. All lateral wire one unique color different than trunk lines. Include all connectors, and any other materials required for proper installation. (GM estimate 60,000')
9. Furnish and install Rain Bird ICSD grounding assembly for IC system. Grounding assembly must meet Rain Bird specifications. Include all equipment necessary including surge protection, ground rods/plates, earth contact materials, Cadweld, connectors, valve box, and any other materials required for proper installation. (GM estimate 58)
10. Furnish and install 14" HDPE, SDR 13.5/4710 resin mainline pipe with purple stripe, fittings, and materials required for proper installation. (GM estimate 100')
11. Furnish and install 10" HDPE, SDR 13.5/4710 resin mainline pipe with purple stripe, fittings, and materials required for proper installation. (GM estimate 600' )
12. Furnish and install 8" HDPE, SDR 13.5/4710 resin mainline pipe with purple stripe, fittings, and materials required for proper installation. (GM estimate 1,000' )
13. Furnish and install 6" HDPE, SDR 13.5/4710 resin mainline pipe with purple stripe , fittings, and materials required for proper installation. (GM estimate 5,950' )
14. Furnish and install 6" HDPE, SDR 13.5/4710 resin mainline pipe for green's system with blue stripe, fittings, and materials required for proper installation. (GM estimate 1,650' )
15. Furnish and install 4" HDPE, SDR 13.5/4710 resin mainline pipe with purple stripe, fittings, and materials required for proper installation. (GM estimate 8,100' )
16. Furnish and install 4" HDPE, SDR 13.5/4710 resin mainline pipe for green's system with blue stripe, fittings, and materials required for proper

installation. (GM estimate 8,100' )

17. Furnish and install 3" HDPE, SDR 13.5/4710 resin lateral header pipe with purple stripe, fittings, and materials required for proper installation. (GM estimate 9,850')
18. Furnish and install 3" HDPE, SDR 13.5/4710 resin lateral header pipe for green's system with blue stripe, fittings, and materials required for proper installation.(GM estimate 6,400')
19. Furnish and install 2" HDPE, SDR 11/4710 resin for lateral pipe with purple stripe and drain lines, fittings, and materials required for proper installation. 7% added to plan quantity for field adjustments and lateral pipe rerouting. (GM estimate 56,800' )
20. Furnish and install 2" HDPE, SDR 11/4710 resin for lateral pipe with purple stripe and drain lines, fittings, and materials required for proper installation. (GM estimate 5,400' )
21. Furnish and install 8" Ductile Iron Valve main line gate valve, 2" Nut Operator, valve box, sleeve, and any other materials required for proper installation. (GM estimate 1)
22. Furnish and install 6" Ductile Iron Valve main line gate valve, 2" Nut Operator, valve box, sleeve, and any other materials required for proper installation. (GM estimate 6)
23. Furnish and install 4" Ductile Iron Valve main line gate valve, 2" Nut Operator, valve box and sleeve, other materials required for proper installation. (GM estimate 4)
24. Furnish and install 3" Ductile Iron Valve main line gate valve, 2" Nut Operator, valve box and sleeve, other materials required for proper installation. (GM estimate 5)
25. Furnish and install 3" Harco valve assembly with sidewall branch swivel saddle, valve box, sleeve, and all fittings and materials required for lateral header to mainline connection. (GM estimate 71)
26. Furnish and install 1" air and vacuum relief valve, including ball valve, branch saddle, valve box and sleeve, and all necessary fittings. (GM estimate 10)
27. Furnish and Install Rain Bird Remote Control Valve 100-PESB-R-IC including isolation valve, service saddle, valve box and sleeve, and all fittings and materials required for proper installation. (GM estimate 12)
28. Remove all existing surface irrigation components and store or dispose as directed by Owner (lump sum)

29. Supply Owner with Turnover Equipment listed in Part 3.8 - Materials
30. Supply Client and Consultant with GPS As-Built in .pdf or .dwg form using GPS sub-meter accuracy equipment at a minimum. Consultant will use this data to provide client with final as built drawing. (lump sum)

## 1.4 QUICK SPECIFICATION CHECK SHEET

### ALL HDPE PIPE SHALL HAVE COLORED PURPLE STRIP

- A. Mainline Pipe: HDPE: PE4710, SDR 13.5 based on size, with purple stripe for effluent system and blue stripe for green's system
- B. Mainline Fittings: HDPE: PE4710 Molded DR11
- C. Lateral Pipe: HDPE: PE4710 SDR 13.5 with purple stripe for effluent system and blue stripe for green's system
- D. Lateral Fittings: HDPE: Socket Fusion Fittings are permitted on 2" or 3" shall be DR11 or "stronger" per ASTM D2683
- E. Service Fittings: Aqua Fuse HDPE fused service fitting, or equal
- F. Mainline Gate Valve: American AVK Series 45 (MJ x MJ) with 2" operator nut, or approved equal
- G. Lateral Gate Valve: 3" Harco lateral isolation valve, or approved equal
- H. Air Relief Iso Valve: 2" AquaFuse HDPE ball valve, or approved equal
- I. Drain Valve: 2" AquaFuse HDPE ball valve, or approved equal-NIC
- J. Valve Boxes: Carson Series, or approved equal, supported with scrap HDPE pipe. All valve box lids shall be colored purple.
  - 1. Carson 0809 Round (QCV, Gate Valve only, Drain Valve, Splice)
  - 2. Carson 1419 Standard Rectangular (Gate Valve with Surge Device)
  - 3. Carson 1220 Jumbo Rectangular (Air Release Valve)
- K. Swing Joints: Rain Bird - standard - 12" lay arm - 1.25" for 700 series, 1.5" for 900 series, 1" for QC.
- L. QCV: Rain Bird 44-5NP with Harco stabilizer
- M. Sprinklers: Rain Bird IC eagle rotors, or approved equal. Effluent system sprinkles pressure regulates to 80 psi, green's system regulates to 70 psi. The sprinklers shall have top snap ring colored purple. All sprinklers shall have acme inlets.
- N. Sprinkler Tools: Four complete sets
- O. Sprinkler nozzles: Most fairway and fairway perimeter sprinklers will use #44

nozzle. Most fairway perimeter sprinklers must be equipped with rear nozzle. Green's sprinklers will primarily be #40. Tee nozzle size will vary and in all cases contractor must supply nozzles as needed for proper balance and adjustment of system

- P. Splice Kits: 3M DBY-6 or DBR-6 (NO STANDARD DBY OR DBR!)
- Q. Comm Wire:
  - 1. Main Trunk Line: 14/2 Paige Electric Armored cable part# P7168D- Rev 6, in various colors.
  - 2. Laterals: 14/2 Maxi/Toro/Hunter YELLOW.
  - 3. Wires and cables shall be supplied by Paige Electric, or Regency Wire.
- R. Grounding Fields: Rod or grounding plate with Cadweld, connected to Rain Bird ICSD device, as shown on plans, plus additional locations as staked.
- S. Fused Cable Switches: Paige Electric Decoder Cable Fuse Device (DCFD)
- T. Stakes: ¾" x 30" PVC stakes and colored flags provided by Contractor
- U. Staking: By Consultant and Contractor
- V. As-built: Final As-built provided by Consultant, using GPS data collected by Contractor.
- W. Programming: By Consultant
- X. Training: By Distributor
- Y. Ground Check: All check-out procedures 3rd party (local Electrical Contractor or Distributor) at Contractor expense and approved by consultant

#### 1.5 DRAWING, EXPLANATIONS & VERIFICATION OF DIMENSIONS

All plot dimensions are approximate but scaled to the dimensions that are shown on the plans. Before proceeding with the work, the Contractor shall carefully check and verify all dimensions and shall report all variations from those indicated in the plan to the Owner and Designer.

For purposes of clearness and legibility, the piping lines and the electrical lines are diagrammatic, the size and location of equipment are drawn to scale wherever possible.

No consideration will be given to any design changes until after the awarding of the contract. Should any changes be deemed necessary after awarding of the contract, for proper installations and operation of the system, the Owner with the Contractor will negotiate such changes on a unit basis.

## 1.6 CHANGES IN WORK

The Owner reserves the right to require alterations, additions to or deletions from, the work shown on the drawings, or described in the specifications without rendering the contract void. The changes shall not in any way effect the time of completion of the work as agreed upon, except as shall be further agreed at the time such changes are made.

## 1.7 WORKING DURING ADVERSE WEATHER

Actual construction on the site will cease during heavy rains or other inclement weather that will adversely affect the quality of the work or cause damage to the site, when in the opinion of the Irrigation Consultant damage to the site may result. The Contractor will be required to protect all work and materials against damage or injury from weather. If in the opinion of the Irrigation Consultant, any work or materials have been damaged or injured by reason of failure to protect such, all such materials or work shall be removed and replaced at the expense of the Contractor.

## 1.8 PAYMENTS, SCHEDULES, REPORTS and RECORDS

The Contractor shall make adaptations or adjustments in his work that may be required to make several parts come together properly and fitted to receive or be received by work of other Contractors shown upon or reasonably implied from the drawings and specifications for the completed project.

The Contractor will furnish (2) instruction manuals, which shall be provided in three ring binders with tabs and an index/table of contents, a permanent label on front and side with project title, project number, street address, Contractor/Subcontractor name, address, phone number(s), and manual title/contents description. Include all wiring diagrams and parts lists. Manuals shall be submitted to the Owner for approval prior to Final Inspection and prior to any final payment.

## PART 2 GENERAL CONDITIONS

### 2.1 SYSTEM WARRANTY

All work included under this contract shall be guaranteed by the Contractor against defects and malfunctions due to faulty workmanship or defective material for a period of one (1) years from the date of final acceptance by the owner. The HDPE pipe and fusion of such pipe shall be guaranteed by the Contractor against defects and malfunctions due to faulty workmanship or defective material for a minimum period of five (5) years from the date of final acceptance by the owner. This five year HDPE pipe and fusion guarantee shall be the result of the successful completion of the required HDPE fusion training by all of the Contractor pipe fusion technicians and any testing requirements as may be set forth by the HDPE pipe manufacturer.

All product warranties provided by various system component manufacturers shall be provided in writing to the Owner by the Contractor.

Upon being informed by the owner of any defects or malfunctions, the Contractor shall affect all necessary repairs and/or replacements in reasonable expedient manner at no additional cost to the Owner.

Emergency repairs, when necessary, may be made by the Owner without relieving the Contractor of his guarantee obligation.

The Contractor is obligated for any and all damaged plantings and repair of any damaged hardscape, which may occur during the guarantee period, as a result of a warranty claim.

If the Contractor does not respond to the Owner's request for repair work within a period of 48 hours notice, the Owner may proceed with such necessary repairs and charge the Contractor for expenses incurred in the repair work.

### PART 3 MATERIALS

All material shall be new and unused and of the highest quality available. These materials must be without flaws or defects. All materials must be approved by the Irrigation Consultant. The materials chosen for the design of the sprinkler system have been specifically referred to by manufacturer so as to enable the irrigation designer to establish the level of quality and performance required by the system design. While terms such as "or equal to" allow the contractor to consider the use of non-specified equipment, said equipment must be approved by Irrigation Consultant as it may require modifications to other elements of the work. If a substitution is allowed by the Consultant, the Contractor will use the same brand equipment consistently throughout the contract.

#### 3.1 IRRIGATION MATERIAL PIPE

All irrigation pipe must either have colored purple strip, or colored blue stripe for green's system. All pipe must have a minimum of two colored stripes. All piping 2" diameter pipe through 14" diameter pipe shall be HDPE, IPS diameters, DR 13.5 or SDR 11, and manufactured from a PE 4710 resin listed with the Plastic Pipe Institute as TR4. The PE 4710 resin material shall meet the specifications of ASTM D3350-09 with a cell classification of PE 445474C. Pipe shall be manufactured to the dimensions and requirements of ASTM F714. The pipe shall contain no recycled compounds except that generated in the manufacturers own plant from resin of the same specification from the same raw material.

The pipe manufacturer must provide a written 25 year limited warranty.

The supplier must have the capability to train the Contractor's employees in butt fusion, electrofusion, socket fusion, and sidewall fusion of HDPE pipe and fittings.

The supplier must be capable of providing a trained representative on site upon the request of the contractor, owner or consultant to address any problems that are encountered during the installation

##### A. Pipe Fittings

1. All fittings shall be HDPE molded fittings. There shall be no fabricated fittings except in special circumstances and as provided in writing by the owner and consultant. There will be no concrete thrust blocks, (except as needed at pump station discharge) used except by permission of the Owner and Consultant.
2. Fittings for HDPE piping 2” – 14” shall be PE4710 HDPE, cell classification of PE 445474C as determined by ASTM D3350-09.
3. Mechanical connections on 2” pipe for sprinkler connections shall be made using Aqua Fuse HDPE sidewall fusion fitting.
4. Connections made to the mainline for laterals, air relief, or drain valves shall be made with sidewall fusion branch saddles. All saddles shall be DR 11 or "stronger"

### 3.2 ISOLATION VALVES

A- Ductile Iron Main Line Gate Valves shall conform to the latest revision of AWWA C515 covering resilient seated gated valves and be U.L. approved. Gate Valves shall be Series 45 (MJ x MJ) as manufactured by American AVK and supplied by The Harrington Corporation or approved equal.

B- All lateral isolation valves shall be 3” Ductile Iron Angle Valves shall be 200 psi rated with integrally restrained ends. Inlet end shall be male swivel and outlet end shall be integrally restrained push on gasketed joint with “floating grip ring”. Components shall be Ductile Iron and 316 Stainless Steel complying with ASTM A536 and ASTM A276 respectively. Ductile Iron shall be fusion bond epoxy coated. Gasketed joints shall be SBR Rubber and comply with ASTM F477. Internal seals shall be peroxide cured EPDM rubber. Angle Valves shall be as manufactured by The Harrington Corporation or approved equal.

### 3.3 WIRES AND CABLES

Wires connecting the remote ICM/ decoders to the irrigation central shall be two conductors, type Polyethylene. Its construction incorporates two solid copper conductors and polyethylene insulation. The wires shall be UL® listed for direct burial in irrigation systems and be rated at a minimum of 600 VAC. Wires and cables shall be supplied by Paige Electric or Regency Wire.

A. Connectors - Connectors for power wires and cables shall be rated at 600 volts and shall be as follows:

Product	Mechanical Connector	Insulation	Waterproofing Material	Strain Relief
(For installation in valve boxes) 3M #3570G (600 volts)	3M connector (Wire nut with steel spring)		Two-part resin	3M weather resistant cable ties (black).
(For installation in	Paige	3M #33 Electrical		

valve boxes) 3M #4 Series (600 volts)	Electric brass split bolts	Tape, or 3M #23 Rubber Tape, or 3M 130C Rubber Tape		
(For installation in valve boxes) 3M #82-A Series (600 volts)			Two-part resin & plastic housing, included	Built into product design
(For direct burial) 3M #DBYR-6 (600 volts)	Wire nut with steel spring, included		Gel-filled plastic tube, included	Incorporated into lid of plastic tube

Connectors for solenoid valve and valve-in-head sprinkler wire splices shall be rated at a minimum of 30 volts and shall be as follows:

Product	Mechanical Connector	Insulation	Waterproofing Material	Strain Relief
(For installation in valve boxes) 3M #DBYR-6 (30 volts)	Wire nut with steel spring, included		Gel-filled plastic tube, included	Incorporated into lid of plastic tube
(For direct burial, as in "valve-in-head sprinkler" splices) 3M #DBYR-6 (600 volts)				

### 3.4 DECODER CABLE FUSED DEVICE (DCFD)

The Paige Electric Decoder Cable Fuse Devices shall be installed at strategic locations of a Decoder/2-Wire/2-Core system such that it can isolate certain sections of cables for purposes of troubleshooting. The DCFD shall be installed inside an accessible irrigation valve box. Each location shall be clearly shown on the as built drawings. The splices for all connections shall be made using 3M model DBR/Y-6 (Paige Electric 270672) waterproof connectors.

### 3.5 SPRINKLER HEADS

All Sprinklers must have their most visible surface component colored purple. Sprinklers will be of the size and type as indicated on the plan. The performance selection was based on the Center for Irrigation Technology (CIT) space performance testing, with CIT data showing 1.2 or better scheduling co-efficient (SC) and 85% or better distribution uniformity and Christiansen's uniformity.

- A. Swing Joints - Swing joints for sprinklers and quick couplers shall be pre-fabricated o-ring type as manufactured by Rain Bird. All swing joint assemblies shall be available in ACME inlets with ACME outlets.

All 1.5 inch inlet heads shall be mounted on 1.5 inch diameter swing joints. 1.25 inch inlet heads shall be mounted on 1.25 inch diameter swing joints.

Contractor required to use swing joint that gives owner maximum warranty.

- B. Quick Couplers - Quick coupling valves shall be 1" acme type and be same brand as sprinkler heads. A quantity of four (4) of the appropriate quick coupling valve key shall be supplied with the quick coupling valve. The quick coupling key shall be supplied with a 1" hose swivel.
- C. Valve Boxes - All valve boxes shall have purple lids. Carson, or equal, supported with scrap 2" HDPE pipe
  - 1. Carson 0809 Round (QCV, Gate Valve only, Drain Valve, Splice)
  - 2. Carson 1419 Standard Rectangular (Gate Valve with Surge Device)
  - 3. Carson 1220 Jumbo Rectangular (Air Release Valve)
- D. Air Release Valves - Bernad 1" Kinetic Air Relief Valve or equal

### 3.6 GROUNDING EQUIPMENT

The copper grounding plate assemblies shall be 4" x 96" x 0.0625" Paige Electric part number 182199L, or 8' ground rod..

Earth Contact Material shall be in 50 lbs bags with two bags per grounding plate. Power Set® earth contact material, Paige Electric part # 1820058, or equal

### 3.7 CENTRAL CONTROL

Rain Bird Stratus II central control computer with Integrated Control system (IC) will be completely installed as designated on the plans and in accordance with manufacturer's specifications.

Included with Central and Computer shall be Rain Bird Freedom module with (2) radio handhelds, and Smart Pump module with all equipment necessary for communication with pumping stations.

Central components will be warranted for 1 year from date of installation. It will be supported with #800, toll free number with an unlimited number of calls. A 24-hour turn around service arrangement will be included to provide zero down time. Software and hardware upgrades will be provided at no charge for the warranty period.

System to have 2-way communication between central computer and field equipment. The central control system software shall contain detailed diagnostics software that measures a series of parameters related to system operation. These parameters shall include ICI, ICM, and decoder operation. The software diagnostics shall be capable of polling individual station ICM on each wire path and display the number of passed and failed ICM on each wire path. The diagnostics shall also be capable of measuring the total mA draw on each wire path. Individual ICM can be interrogated to confirm communication with the central control software as well as measure the voltage at

each ICM for troubleshooting purposes.

The central control system shall provide user-definable limits for irrigation system capacity to manage system flow and decrease power consumption during peak electrical periods. If so desired, the user shall define irrigation system capacity for each hour of the day to optimize system efficiency according to electrical demand. The software shall automatically increase or decrease system capacity according to these user-defined limits.

### 3.8 TURN-OVER EQUIPMENT

The following equipment will be supplied by the Contractor to the Owner after the final walk-through.

- A. (4) 1" Quick coupling valve keys with 1" hose swivel
- B. (4) Operating keys for each type of isolation valve
- C. (5) 1 ¼" swing joints to match ones as installed on valve-in-head sprinklers
- D. (3) 1.5 " swing joints for large rotors
- E. (3) New sprinklers of each model installed
- F. (6) Sprinkler on-off keys
- G. (4) Complete sets of sprinkler repair tools for each type of sprinklers installed
- H, Sprinkler components listed below:
  - 1. (5) Modules of the type installed
  - 2. (5) Bottom Valve Assy Electric for each type of sprinkler installed
  - 3. (5) Pilot Valve Assy adjustable PSI settings
  - 4. (5) Drive Assembly full circle
  - 5. (5) Stator Assembly Low Flow Main Nozzle for each rotor type
  - 6. (5) Stator Assembly High Flow Main Nozzle for each rotor type
  - 7. (10) Top snap rings for each sprinkler model
  - 8. (5) Snap Ring assembly for Lower Valve
  - 9. (6) Main Nozzle 15-19 GPM
  - 10. (6) Main Nozzle 20-24 GPM

11. ( 5 ) Drive Assembly part circle

12. (30) "tail" type back nozzle to fill in area behind part circle coverage

## PART 4      INSTALLATION SPECIFICATIONS

### 4.1      GENERAL

It is the intent of these specifications to define the work of installing the piping and communication network for Fox Run Golf Course in strict accordance with the manufacturer's recommended procedures, standard industry practices and the plans, material, and specifications, which upon completion, will operate in the manner that was intended in the development of these plans and specifications. The Contractor will be responsible for removing the existing golf rotors, controllers, and any other surface irrigation components, and returning them to the Owner.

The contractor must take great care to stay within limits of work as approved by consultant and owner. Any damage to areas outside of limits of work shall be repaired at contractor expense.

All areas disturbed within limits of work must be returned to finish grade and prepped for seed.

### 4.2      STAKING

The Consultant shall perform the staking of the sprinklers, drain valves, air relief valves, and electric valves, using color-coded flags. The Contractor shall supply the Consultant with a minimum of three employees to assist during the staking process and the Contractor's superintendent shall be available to review sprinkler, pipe, and equipment locations as staked by Consultant. The Contractor shall place a ¾" x 30" PVC stake at the location of each sprinkler head, valve, or controller, and affix the color-coded flag to it for ease of identification. Contractor will be required to provide steel cables for laying out sprinkler heads of the size and length specified by Consultant.

### 4.3      DRAWING OF RECORD PLAN/AS-BUILT

The "Drawing of Record" shall be an original part of the irrigation system as constructed. It shall indicate the location, type and size of all pipe, sprinklers, valves, drains, and other types of fittings, all electrical controls, connections and splices.

The "Drawing of Record" plan shall be made by an agent of the Contractor, utilizing sub meter horizontal accuracy GPS, engineering skills and procedures, and the form of presentation and symbols used shall be acceptable to the Consultant and Owner. It is expected that Contractor will have GPS mapping equipment onsite at all time for collection of all irrigation components.

This plan shall be kept clean, dry, and safe from all damage at all times. It shall be brought up- to-date at the close of the working day on Friday and shall accurately indicate all equipment installed at that time.

On a print of this plan, the Contractor, or his agent shall satisfactorily indicate the

location of work in progress and the staking of work laid out for construction. This plan shall be available to the consultant on the site.

Immediately upon installation of any piping, wire, valves, and sprinkler heads, etc., in locations other than shown on the original drawings or sizes other than indicated, the Contractor shall indicate the changes on this set of drawings.

After final acceptance of the completed installation, the Contractor shall be responsible for having complete "Drawing of Record" drawings prepared showing all such changes and these shall be turned over to the Owner for recording purposes. These GPS mapped as-built drawings shall be submitted with each pay request in order for the pay request to be considered.

#### 4.4 TRAINING

The Contractor, Golf Course Superintendent, and Consultant shall all participate in an HDPE fusion training class, to be held at the site or in a classroom setting at a convenient location, prior to the commencement of any pipe or fitting fusion. This class shall be taught by a independent, certified HDPE fusion expert provided by the Contractor at no cost to the Owner. ALL contractor personnel who will be involved in the fusion of pipe and fittings will be required to be at this training class, with NO EXCEPTIONS. NO EXCEPTIONS WILL BE MADE TO THE REQUIREMENTS OF THE HDPE FUSION TRAINING INSTRUCTOR!

#### 4.5 UNDERGROUND UTILITIES

The contractor will arrange for and coordinate with the local authorities including the City of Gallup to have the location of all underground utilities marked. Contact the local utility location service prior to any excavation.

The contractor is responsible for any and all repairs of underground utilities during construction. The repairs shall be conducted at no additional cost to the owner.

#### 4.6 PIPE ROUTING

Pipe routing shall be in accordance with the irrigation plans. The owner reserves the right to change the routing from that shown on the plans in cases where rock or other obstacles interfere with the intended depth or path. In no event shall these small changes affect the cost of the project.

It is the intent of these plans that the mainline pipe is to come no closer than twenty feet from the edge of the putting surface and a minimum of ten feet from the edge of the teeing surface. In no case shall pipe run on the green or tee surface or through bunkers.

No valve boxes shall be placed in the approach to the green, or inside the tee surface. It is preferential that all valve boxes be on the side or rear of the green and tee complexes.

#### 4.7 EXCAVATION, TRENCHING, AND BACKFILLING

Pipe shall be installed in strict accordance with the manufacturer's recommendations. This should include the bedding of pipe in the bottom of the trench.

All excavation shall be unclassified and shall include all materials encountered. Compaction shall be to industry standard and shall be checked sporadically by the City at their cost. Nonconforming installation shall be subject to rejection and will then be required to meet this standard by the Contractor at their expense. Contractor responsible for any trench settling during warranty period.

The minimum depth of cover piping 6" and larger shall be 24". The minimum depth of cover over piping 4" and smaller shall be 18".

The contractor shall compact trenches with multiple lifts with vibratory tamping applied at each lift.

The contractor may, at his discretion, install lateral piping via trenchless vibratory plow method. All plow lines must be rolled and will be reviewed for approval by the Consultant. Additional material topdressing or filling of the voids left from vibratory plowing may be required in order to achieve the desired result.

ANY damage to the drainage pipe, gravel bedding, or sand layer shall be repaired by the contractor to the satisfaction of the owner's representative.

In general, excavated material should be satisfactory for backfilling. Backfill shall be free from rubbish and stones over ½" diameter. If material is unsuitable for backfill, remove material not suitable for backfilling and bed pipe with clean fill or topsoil from site. In no case shall any rock with sharp edges be placed in the trench as backfill.

Backfilling shall be by hand placing fill under, around, and above pipe to a depth of 6". This material should then be hand tamped. The remaining backfill may be machine filled. This material needs to be mechanically tamped to suitability.

Deleterious materials shall be dug and stockpiled on the side of the trench. The contractor shall supply any additional backfill as approved by the golf course irrigation consultant.

When crossing existing cart paths, care is to be taken to minimize damage. Contractor shall cut asphalt or concrete as needed. The contractor will be responsible for repair to asphalt or concrete cart paths, with the contractor supplying the material and labor for such repairs. In all cases, the Contractor is to exert care with equipment and installation techniques to minimize damage.

All areas disturbed by irrigation installation must be returned to finish grade and prepped for seeding.

#### 4.8 PIPE INSTALLATION

Due to the nature of this "two-pipe" system, special care and attention must always be taken to assure that there are no cross connections between effluent system and greens system. The effluent system will have pipe with a minimum of two purple stripes, the green's system will have pipe with a minimum of two blue stripes. When these pipes are installed together in the same mainline trench, they must be a minimum of 12" apart, with the communication wire installed between the pipes. Whenever possible the effluent pipe should be install so it is closest to the center of the golf hole.

WHENEVER PIPES FROM THE EFFLUENT SYSTEM AND GREENS SYSTEM CROSS, THE EFFLUENT PIPE MUST BE WRAPPED WITH PURPLE CAUTION TAPE.

During loading, transportation and unloading of pipe, every precaution shall be taken to prevent injury to the pipe. No pipe shall be dropped from cars or trucks, or allowed to roll down slides without proper retaining ropes. During transportation each pipe shall rest on suitable pads, strips, skids or blocks securely wedged or tied in place. Any pipe damaged shall be replaced.

Sections of HDPE shall be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe supplier's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe supplier, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and interfacial fusion pressure of 75 p.s.i. The fusion equipment shall be manufactured by McElroy Manufacturing. The butt fusion joining shall produce a joint weld equal to or greater than the tensile strength of the pipe itself.

Electro fusion couplings and fittings shall be PE 4710 HDPE, Cell Classification of PE 445474C as determined by ASTM D3350-09. Electro fusion couplings or fittings shall have a manufacturing standard of ASTM D3261. Couplings and fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Prior to HDPE pipe being installed in the trench, at the beginning of the job, the contractor shall cut out the first butt fusion of each pipe size. The contractor shall prepare the sample for the test. The samples shall be tested in the presence of the owner's representative and / or the irrigation consultant. All samples shall be labeled and saved. Testing must be done at 73 degrees F plus or minus 5 degrees. The test temperature and sample size are critical to testing. The purpose of the test is to determine if a good weld was made. A pass means no failures during the bend back test. This means a good weld. A break means a bad weld. Any failure shall require additional testing.

Prior to HDPE pipe being installed in the trench, after the contractor has begun butt fusion of the pipe, the irrigation consultant and/or the owner's representative reserve the right to select at random two butt fusion joints with a minimum of 18" pipe on each side of the joint). These samples shall be sent to the HDPE supplier for hydrostatic testing at the contractor's expense.

The testing procedure shall be to Factory Mutual Standards. In no case will the failure be in the butt fusion joint. The test will be recorded and sent to the contractor and irrigation consultant. Upon failure of any butt fusion weld; contractor may/will be required to cut and re-weld all questionable butt fusion joints as directed by the Irrigation Consultant.

Prior to HDPE pipe being installed in the trench, after the contractor has begun butt fusion of the pipe, the irrigation consultant and/or the owner's representative reserve the right to select at random two butt fusion joints (with a minimum of 8" pipe on each side of the joint). These samples shall be sent to the HDPE supplier for McSnapper testing at the contractor's expense.

Manufacturer will prepare and test pipe sample with a McSnapper Impact Tensile Test Unit. The test sample must be cut to the exact dimensions required for the McSnapper test. A good weld will provide a ductile failure. A bad weld will be indicated by a brittle failure usually in the weld. The test results will be recorded and sent to the contractor and irrigation consultant. Upon failure of any butt fusion weld; contractor may/will be required to cut and re-weld all questionable butt fusion joints as directed by the Irrigation Consultant.

#### 4.9 WIRING

The cable path has been located for optimum performance. The contractor shall not deviate from the design as shown, unless he notifies the irrigation consultant. The main trunk line of the communication cable shall be ~~12/2 Maxi~~ 14/2 armored wire and shall be of various unique colors. All lateral line communication cable shall be 14/2 Maxi/Toro and yellow in color. Communication cable routing is schematic only and shall be adjusted for on-site conditions. Communication cable shall be installed in accordance with local codes and manufacturer's instructions.

The Contractor shall utilize only stripping tools built for cable outer jacket removal for working with power wire or communication cable. No razor knives of any sort shall be used.

- A. All spliced "tee" cable connections shall have a service coil, such that the splice can be serviced at a height 18 inches above grade. All splices at grounding equipment shall have a service coil that can be serviced 24" above grade.
- B. All spliced "tee" cable connections shall have red electrical phasing tape applied to the "equipment" or "input" side of the connection for ease of troubleshooting.
- C. All splices in the field shall be at a head, lateral isolation valve, or grounding assembly.
- D. Carefully backfill around wire to avoid damage to wire insulation.
- E. All wire inside buildings shall be installed in electrical conduit.

#### 4.10 VALVE BOXES

Each valve installed below grade shall be placed in a non-metallic valve box constructed to withstand vehicle traffic, specified as Carson Specification Series. The

valve box shall be supported with recycled plastic or 2 x 4 lumber, be lined with geofabric and be partially filled with ¾" rock or pea gravel. The consultant reserves the right to reject installation whereby the valve pit is not installed as neatly as possible.

#### 4.11 SPRINKLER HEADS

Sprinkler locations are schematic only and shall be adjusted for trees and landscaping, prevailing wind, mounding, etc. to insure proper coverage with minimal undesirable overthrow.

All valve-in-head sprinklers shall have ACME threads. All sprinklers shall have top snap ring colored purple. Sprinklers shall be installed on pre-fabricated O-ring type swing joints as manufactured by Rain Bird. Sprinklers shall be set to grade at installation. There shall be at least 8" of clean material surrounding the sprinkler body for ease of future maintenance.

Each sprinkler head shall be installed so the top is at the finished grade level. Backfill around each swing joint and sprinkler shall be free of rocks, roots, or foreign debris. Adjust sprinkler nozzles, pressure, and arcs as necessary to eliminate overthrow water into non-turf areas and any fresh water lakes, or across property lines.

Nozzle sizes shall be adjusted by the Contractor in the field to match the limits of areas to be irrigated. To properly balance and adjust the system, the Contractor shall have an adequate number and assortment of main, intermediate, and tail nozzles on job site for all full and part circle sprinkler.

The Contractor shall update his decoder/IC address records DAILY, and have records ready for immediate use by either the Consultant or Golf Course Superintendent.

#### 4.12 QUICK COUPLING VALVES

Quick coupling valves shall be installed as shown on plan.

#### 4.13 AIR RELIEF VALVES

Air relief valves shall be Bermad 1" Air Relief Valve and located in field by Consultant.

#### 4.14 CONTROL SYSTEM, GROUNDING, AND SURGE PROTECTION

Surge protection shall be installed in accordance with manufacturer's instructions to protect each component of the control system from lightning strikes.

#### 4.15 EARTH GROUNDING

Grounding shall follow the manufacturer's specifications. The Rain Bird ICI unit shall be properly grounded following recommended grounding procedures. The grounding grid shall consist of at least one 5/8" x 8' copper clad, UL listed rod and one 4" x 96" x 0.125" grounding plate. The central ground grid shall have an earth ground resistance of 10 ohms or less. Individual wire paths shall have their own grounding at the central control grounding grid. Refer to the grounding specifications included with the central control package specifications for additional information.

Where shown on the drawings and/or where directed, install surge arrestors on the wire path. Ground wires from the surge device shall be attached directly to a 4" x 36" x 0.125" grounding plate, or ground rod, installed near the surge arrestor. One shall be furnished for every 15 units or every 500 feet (whichever is less) as well as at every trunk line dead end. The earth ground resistance shall be 50 ohms or less at each device.

It is responsibility of the installer to connect all electronic irrigation equipment for which he is responsible to earth ground in accordance with Article 250 of the National Electrical Code® (NEC®). Use grounding electrodes that are UL® listed or manufactured to meet the minimum requirements of Article 250 of the 2005 edition of the NEC®. The grounding circuit will include two solid copper ground plates and four 50-pound bags of PowerSet® earth contact material, as defined below and per the following detail. This detail is the minimum requirement for supplementary grounding of any electronic equipment. Other details, for a multitude of field situations, are available from the American Society of Irrigation Consultants, ASIC Guideline 100-2002 ([www.asic.org](http://www.asic.org), "Design Guidelines").

The copper grounding plate assemblies shall be 4" x 96" x 0.0625" [Paige Electric part number 182199L.] A 25-foot continuous length (no splices allowed unless using exothermic welding process) of 6 AWG solid bare copper wire is to be attached to the plate by the manufacturer using an approved welding process. This wire is to be connected to the electronic equipment ground lug. If the equipment ground lug only accepts one wire, connect the second wire to the first with a brass split bolt, as close to the equipment lug as possible. The ground plates are to be installed to a minimum dept of 30", or below the frost line if it is lower than 30", at a location 8 feet and 10 feet from the electronic equipment.

Two 50-pound bags of PowerSet® [Paige Electric part number 1820058] earth contact material must be spread so that it surrounds each of the copper plates evenly along its length within a 6" wide trench. Salts, fertilizers, bentonite clay, cement, coke, carbon, and other chemicals are not to be used to improve soil conductivity because these materials are corrosive and will cause the copper electrodes to erode and become less effective with time. Install all grounding circuit components in straight lines. The earth-to-ground resistance of this circuit is to be measured using a Megger®, or other similar instrument, and the reading is to be no more than 50 ohms. If the resistance is more than 50 ohms, additional ground plates and PowerSet® are to be installed using ASIC Guidelines 100-2002 ([www.asic.org](http://www.asic.org), "Design Guides"). A written summary of the ground ohm readings shall be faxed and mailed to the consultant. No wires are to be connected to the controllers/central control until the consultant has approved the readings. It is required that the soil surrounding copper electrodes within the sphere of influence be kept a minimum moisture level of 15% at all times.

**ALL GROUNDING COMPONENTS MUST BE CONNECTED TO THE EQUIPMENT BEFORE ANY OTHER CONNECTION IS MADE TO THE**

## CONTROLLERS OR CENTRAL.

### 4.16 CENTRAL CONTROL

The central control equipment shall be located in the Golf Course Superintendent's office. The final hook-up, configuration, and testing of these components shall be performed by the local distributor, at the contractor's expense.

All primary and secondary surge lightning protection and line conditioners shall be installed in accordance with manufacturer's instructions.

### 4.17 TESTING

The Contractor is responsible for furnishing a complete system ready to operate. All costs for testing the system and repairs of any leaks or deficiencies of any kind shall be borne by the Contractor.

The entire system shall be constructed to successfully withstand, when completed, a hydrostatic pressure for one hundred twenty (120) pounds per square inch without showing leakage in excess of five (5) PSI per hour. All air shall be expelled from the line before making the test and the section to be tested shut off from all other non-contractual parts of the system, and pressure shall be in the discharge of the pressure maintenance pump for measuring the rate of loss.

The testing for leakage shall be done under the supervision of the Consultant and all pipe joints, and appurtenances will be inspected while the system is under test pressure, and leaks corrected as directed. The testing shall extend over a period of time sufficient to allow for a complete inspection, but in no case for less than one (1) hour.

### 4.18 BALANCING AND ADJUSTMENT

The Contractor shall employ manufacturer's authorized personnel to balance and adjust the various components of the system so the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure relief valves, part circle sprinkler heads, and individual station adjustments on the controllers including all correct nozzles around the golf course. The Contractor shall have the right to call the Consultant or Owner's Representative to aid in balancing and adjusting the system.

### 4.19 NOTICE OF COMPLETION

When the Contractor is satisfied that the system is operating properly, that is balanced and adjusted properly, that all the work and cleanup is complete, he shall issue the notice of completion to the Owner's Representative, in writing, with a copy to the Consultant. The notice of completion shall include a request for final inspection.

### 4.20 TRAINING OF PERSONNEL

Upon completion of the work and acceptance by the Owner, the Contractor shall be responsible for the training of personnel in the operation, maintenance, and repair of

the system, with the exception of the central control software.

The Contractor shall furnish copies of all available parts lists, troubleshooting lists, specification sheets, and catalog sheets to the Owner prior to final payment.

The Contractor shall employ factory authorized personnel to check all hardware in accordance with the specifications or irrigation plan as furnished by the Consultant. Creation of the programming and changes in the schedules and programming of the irrigation system, and instructions on how to make such changes shall be the responsibility of the Consultant of the system.

#### 4.21 FINAL INSPECTION AND ACCEPTANCE

The Owner or his Representative will respond within ten (10) days after the notice of completion is received for the purpose of making a final inspection of the system, and if final acceptance is not given, a "Punch List" will be prepared which, upon completion by the Contractor, will signify final acceptance by the Owner or his Representative.

After final inspection and acceptance of the system, the Contractor shall bind together two (2) copies of the "Drawing of Record" irrigation plan and deliver these plans to the Owner.

## PART 5 CONTRACTOR QUALIFICATIONS

This new irrigation system is paid for by, and being developed for, the enjoyment of the citizens of Gallup, New Mexico and is expected to serve them well for the next 30 years. This new system must be installed by competent, trained, and experienced professionals. This is a system made up of a HDPE piping network, two-wire direct central to sprinkler control, and includes radio communication between pump station, and central control, and state of the art components. It is critical that all interested contactors fully address the two questions below. References will be confirmed.

### 5.1 HDPE RESUME AND EQUIPMENT

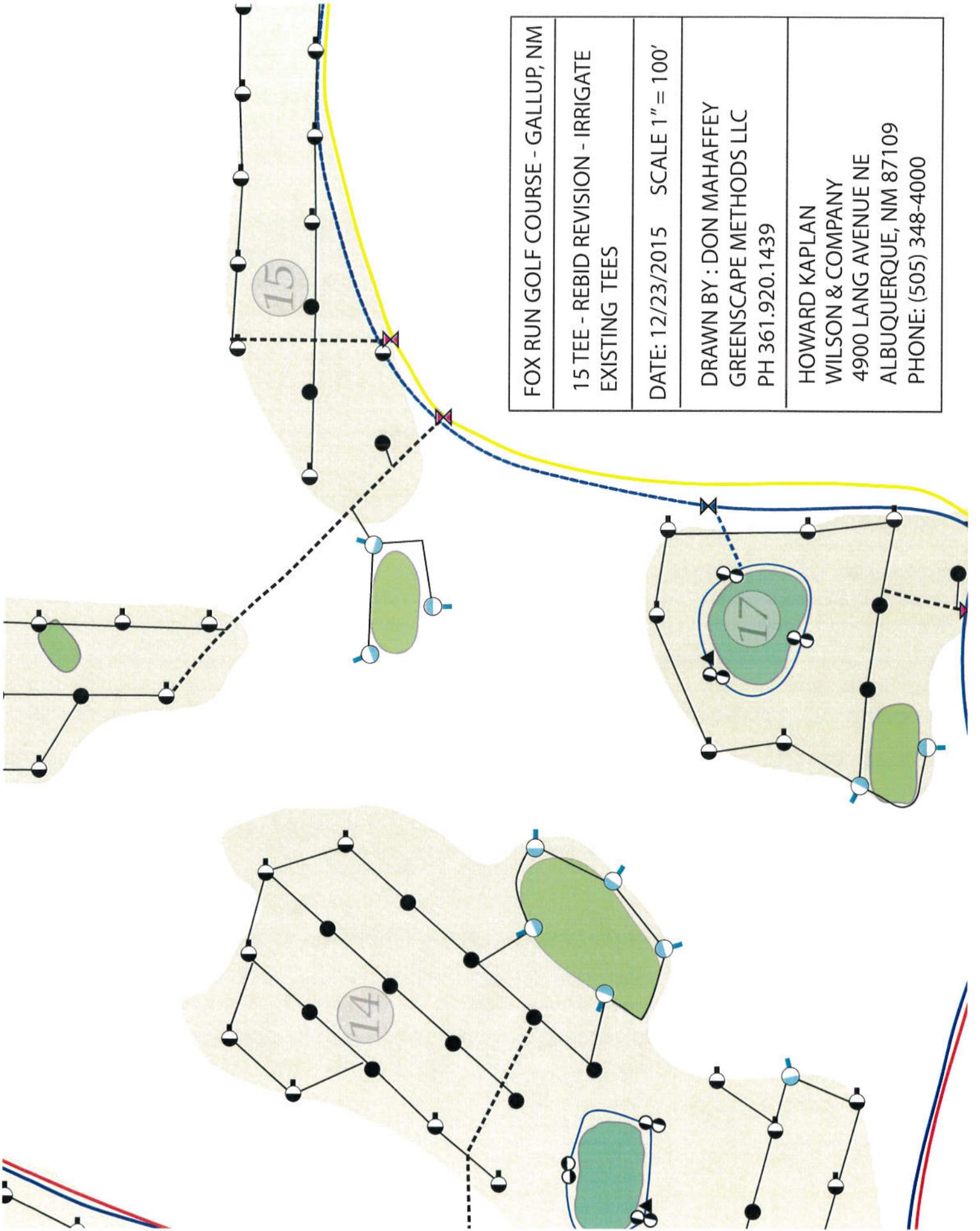
Please describe your company's experience in the construction of HDPE golf irrigation systems. Please list the job name, year constructed, contact name, and phone number or e-mail address.

Please include the name, title, and HDPE certification level of all key personnel who would be involved in this project.

Please describe the HDPE fusion equipment, excavation equipment, and related tooling that you would use on this project, and whether your company owns or rents this equipment.

### 5.2 DECODER OR TWO-WIRE SYSTEM RESUME

On this page, or combined with any collateral material, please describe your company's experience in the construction of golf course decoder/two-wire systems. Please list the job name, year constructed, contact name, and phone number or e-mail address.



FOX RUN GOLF COURSE - GALLUP, NM
15 TEE - REBID REVISION - IRRIGATE EXISTING TEES
DATE: 12/23/2015 SCALE 1" = 100'
DRAWN BY : DON MAHAFFEY GREENSCAPE METHODS LLC PH 361.920.1439
HOWARD KAPLAN WILSON & COMPANY 4900 LANG AVENUE NE ALBUQUERQUE, NM 87109 PHONE: (505) 348-4000