

CITY OF CRESTVIEW, FLORIDA

REQUEST FOR BID NO. 21-0615A

“BID FOR FOXWOOD GOLF COURSE IRRIGATION”



City of Crestview, Florida
June 2021

Elizabeth M. Roy
City Clerk
Phone (850) 682-1560
Facsimile (850) 682-8077
PO Box 1209/198 N. Wilson Street
Crestview, Florida 32536

SECTION 00020
ADVERTISEMENT FOR BIDS
FOR
CITY OF CRESTVIEW
FOXWOOD GOLF COURSE IRRIGATION
BID NO. 21-0615A

NOTICE IS HEREBY GIVEN: That sealed bids will be received by the City of Crestview, at the City Clerk's Office 198 N. Wilson Street, Crestview, Florida 32536; until **June 15, 2021 at 2:15 p.m.**

Any bids received after the above time will not be accepted under any circumstances. Any uncertainty regarding the time a bid is received will be resolved against the bidder.

Bid opening will be promptly at 2:15 p.m. on June 15, 2021 at the City Hall Council Chambers, 198 N. Wilson Street, Crestview, Florida 32536, at which time all bids received will be publicly opened and read aloud.

DESCRIPTION OF WORK: All work for the Project shall be awarded and constructed, if award is made, under one Contract. Bids shall be submitted for the Work described:

This bid shall include all labor, equipment and incidentals to install a new irrigation system at Foxwood Golf Course according to the plans and specifications provided in the bid documents with the City providing the materials.

Bidders are urged to make on-site inspections of the golf course located at 4927 Antioch Rd, Crestview, FL 32536. If you have any questions, **contact Carlos Jones at 715 N. Ferdon Blvd., Crestview, FL or call 850-682-6132 ext. 104.**

BIDDING DOCUMENTS can be obtained on the city website: www.cityofcrestview.org and reviewed at:

Department of Public Services
715 N. Ferdon Blvd.
Crestview, FL 32536
(850) 682-6132

The City of Crestview reserves the right to accept or reject, in part or total, any or all bids and to waive any informalities as deemed in the best interest of the City. All bids must be marked on the outside of the envelope with the bid name, the time and date of opening. It shall be the Bidder's responsibility to ensure that bids are delivered to the above address by the appointed time.

Bids shall be prepared from complete Bidding Documents.

FOX-GC IRRIGATION
Bid #21-0615A

BID SUBMITTAL: A single bid shall be submitted for the work. The contract will be awarded pursuant to the requirements of applicable state and federal laws and regulations.

Award will be made to the lowest responsible and responsive bidder. As a qualified bidder, all entities not licensed in Florida as a general contractor, plumbing contractor, or irrigation specialty contractor will be rejected as non-responsive. The City of Crestview will in no way be liable for any costs incurred by any bidder in the preparation of its Bid in response to this Invitation to Bid.

The City reserves the right to waive technicalities or irregularities, to reject any or all bids, and to accept that Bid which is in the best interest of the City.

The CITY OF CRESTVIEW, FLORIDA does not discriminate on the basis of race, color, national origin, sex, religion, age, and handicapped status in employment or provision of service.



CITY OF CRESTVIEW, FLORIDA
Crestview, Florida

END OF SECTION

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SECTION 00100

INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS

Terms used in these Instructions to Bidders which are defined in the General Conditions have the meanings assigned to them in the General Conditions, as supplemented. The term "Apparent Low Bidder" means the Bidder submitting the lowest Bid at the Bid opening without correction of numerical discrepancies or determination of responsiveness and responsibility. The term "Successful Bidder" means the Bidder to whom Owner awards or expects to award the Contract. Bidding Documents consist of the Project Manual and Drawings, both as may be modified by Addenda.

2. COPIES OF BIDDING DOCUMENTS

2.1 Complete sets of Bidding Documents in the number and for the sum stated in the Advertisement for Bids may be obtained from the Engineer. This amount represents reproduction costs and is non-refundable.

2.2 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

Each Bidder shall complete the questionnaire included in the Bid Form. To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within seven (7) days of Owner's request, the additional qualifications submittals set forth in Article 20 of the Instructions to Bidders.

4. EXAMINATION OF BIDDING DOCUMENTS AND SITE

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

- 4.2 Reference is made to Section 00200, Information Available to Bidders, for the identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by Engineer in preparing the Drawings and Specifications. Bidders may rely upon the accuracy of the technical data contained in the report, but not upon the non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction. Neither the Engineer, the Owner nor the various engineers guarantee the accuracy of the above reports and the information contained therein is not necessarily representative of actual conditions. The above reports are available for review by the Bidders for general information purposes only, and are not part of either the Bidding or Contract Documents. The information is presented to assist Bidders in assessing the nature and extent of additional testing procedures which the Bidders may deem necessary to make their own determination of actual conditions which will be encountered during the course of the Work and upon which their Bids will be based. No representation is made or will be given concerning actual conditions which will be encountered during the course of this Work. Each Bidder will, at his own expense, make such additional field verifications, investigations, and tests prior to bidding to determine his Contract Price for performance of the Work in accordance with the Contract Time and other terms and conditions of the Bidding Documents.
- 4.3 The land upon which Work is to be performed, rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Supplementary Conditions or Drawings. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor.
- 4.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 4 of the Instructions to Bidders and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.
- 4.5 The submission of the Bid will be an indication that the Bidder has considered normal local weather conditions (daily and monthly variations) and accounted for these circumstances in the preparation of the Bid and Schedule of Construction.
- 4.6 On request, Owner will attempt to provide each Bidder access to the Foxwood Golf Course site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid. Bidders shall schedule such access in advance with the Owner by contacting Carlos Jones, Assistant Director for Public Services (850-682-6132 ext. 104).

5. ADDENDA AND INTERPRETATIONS

- 5.1 Bidders shall promptly notify Engineer of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or the site.
- 5.2 All questions about the meaning or intent of the Bidding Documents shall be submitted to Engineer in writing. Replies considered necessary will be issued through Addenda by e-mail or facsimile to all parties recorded by Engineer as having received complete sets of Bidding Documents up to twenty-four (24) hours before bid time. Questions received less than seven (7) calendar days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from its terms and requirements.

6. BID SECURITY

- 6.1 Bid Security will be submitted and shall be made payable to Owner, in an amount of not less than five percent (5%) of the Bidder's Contract Price and in the form of a cashier's check or a Bid Bond issued by a Surety meeting the requirements of Paragraph 5.01 of the General Conditions as amended by the Supplementary Conditions. The Bid Bond shall be issued by a company having a registered agent in the State of Florida. Personal checks are not acceptable.
- 6.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required payment and performance bonds, whereupon the Bid Security will be returned. If the Successful Bidder fails to furnish the qualifications submittals or fails to execute and deliver the Agreement and furnish the required bonds within fifteen (15) days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the ninety-first (91) day after the Bid opening. Bid Security of other Bidders will be returned approximately seven (7) days after the Bid opening.

7. CONTRACT TIME

The number of consecutive calendar days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Section 00500: Agreement.

8. LIQUIDATED DAMAGES AND INDEMNITY

- 8.1 Provisions for liquidated damages are set forth in the Section 00500: Agreement.

8.2 All Bidders must state in the Bid Form the amount of consideration required by the Bidder in return for the Bidder's promise of indemnity contained in Paragraph 6.20 of the General Conditions and Section 725.00 of the Florida Statutes. The amount to be stated shall be no less than \$1,000.00

9. SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be awarded on the basis of material and equipment described on the Drawings or specified in the Specifications. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor if acceptable to Owner and Engineer, application for such acceptance will not be considered by Owner and Engineer until after the "effective date of the Agreement." The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in the General Conditions, as may be supplemented in Division 1, General Requirements. If a substitution list is provided as part of the prescribed Bid Form, Bidders must identify proposed substitute materials. These substitute materials and equipment shall be evaluated after the "Effective Date of the Agreement." Only the proposed alternatives, substitutions or "or equal" items listed on the Substitution List will be evaluated by the Engineer in accordance with the General Conditions. The cost of changes in related work, additional drawings which may be required to illustrate or define the alternate equipment and its relationship to the other parts or portions of the Work shall be paid by the Contractor. No change will be made in the amount of time in which to complete the Work or in the liquidated damages. If the proposed substitute material or equipment is found to be unacceptable to the Engineer as an "or equal" item, then the material or equipment named in the Specifications or the Bid Form (circled item) shall be furnished by the Contractor.

10. SUBCONTRACTORS, ETC.

10.1 Each Bid must identify the names and addresses of the Subcontractors listed in Part 7 of Section 00301: Questionnaire. If requested by the Owner or Engineer, the Successful Bidder, and any other Bidder so requested, shall, within seven (7) days after the date of the request, submit to Owner an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person and organization. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, other person or organization, either may, before giving the Notice of Award, request the Successful Bidder to submit an acceptable substitute without an increase in Contract Price nor Contract Time. If the Successful Bidder declines to make any such substitution, the Owner may elect not to award the Contract to such Bidder. A Bidder's declining to make any such substitution will not constitute grounds for sacrificing his Bid Security.

10.2 Procedures for approval of other Subcontractors after execution of the Agreement are described in the General and Supplementary Conditions.

- 10.3 List of Subcontractors (AIA Document G805) shall be completed and submitted with the Bid Form. Minority business enterprises shall be indicated on the list of subcontractors.
- 10.4 Minority Vendors: The Bidder is encouraged to utilize "minority business enterprises," as defined in Section 288.703, F.S., as subcontractors or sub-vendors when permitted under this Contract, and shall report same to OWNER on the form "List of Subcontractors."

11. BID FORM

- 11.1 The Bid Form is included in the Contract Documents.
- 11.2 One completed Bid Form and one bid form in electronic format PDF must be submitted.
- 11.3 Bids by Corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. If requested, the person signing a Bid for a corporation or partnership must produce evidence satisfactory to the Owner of the person's authority to bind the corporation or partnership. If the Bidder is a corporation, and if the Bid is executed by someone other than the president or vice president of the corporation, attach to the Bid a certified copy of corporate resolutions of the board of directors of the corporation authorizing the person to execute the Bid on behalf of the corporation.
- 11.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 11.5 All names and titles must be typed or printed in black ink below the signature.
- 11.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

- 11.7 The address in which communications regarding the Bid are to be directed must be shown.
- 11.8 Submit the names of the Subcontractors and Suppliers to be used on this project for the items listed on the Bid Form.

12. SUBMISSION OF BIDS

- 12.1 Bids shall be submitted before the time and at the place indicated in the Advertisement for Bids, and shall be submitted in an opaque sealed envelope. The envelope shall bear the name and address of the Bidder, and Florida contractor's license number and shall include the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "**SEALED BID ENVELOPE ENCLOSED**" on the face thereof. The Owner will in no way be responsible for delays caused by the United States Postal Service or for delays caused by any other occurrence.
- 12.2 Each Bid must contain one (1) copy the following documents in completed form and one electronic format PDF copy:
 1. Bid Forms (Bidding Documents, entire Section 00300).
 2. Questionnaire (Section 00301).
 3. Subcontractor Listing (Section 00301-A).
 4. Bid Security (surety bond or cashier's check) and corporate authority to execute Bid (for any corporate employee other than president or vice-president). (Section 00410).
 5. Power of Attorney (for surety bond only).
 6. Public Entity Crimes Form (Section 00470).
 7. Noncollusion Affidavit (Section 00480).
 8. Trench Safety Affidavit (Section 00490).
 9. Evidence of Bidder's certification and license to perform work.
 10. Experience and financial statement demonstrating the Bidder's ability to successfully complete the work.
 11. Similar Projects (Section 00303).

12. Drug Free Workplace (Section 00310).

13. References (Section 00302).

12.3 More than one (1) Bid received for the same work from an individual, firm or partnership, a Corporation or Association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one (1) Bid for the same work will cause the rejection of all such Bids in which the Bidder is interested. If there are reasonable grounds for believing that collusion exists among the Bidders, the Bids of participants in such collusion will not be considered.

13. MODIFICATIONS AND WITHDRAWAL OF BIDS

13.1 Bids must be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the deadline for submitting Bids. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to do so; and, in case signed by a deputy or subordinate, the principals proper written authority to such deputy or subordinate must accompany the request for withdrawal or modifications. Withdrawal of a Bid will not prejudice the rights of a Bidder to submit a new Bid prior to the Bid Date and Time. After expiration of the period for receiving Bids, no Bid may be withdrawn, modified, or explained.

13.2 If within twenty-four (24) hours after Bids are opened, any Bidder files a duly signed written notice with Owner and within forty-eight (48) hours thereafter demonstrates to the reasonable satisfaction of the Owner that: a) there has been a material and substantial mistake in the preparation of the Bid; b) the mistake is of such great consequence that to enforce the Contract would be unconscionable; and c) the mistake occurred notwithstanding the exercise of reasonable care in the preparation of the Bid; the Bidder may withdraw its Bid, and the Bid Security will be returned provided that the Owner is not seriously prejudiced, except for the loss of its bargain.

14. OPENING OF BIDS

14.1 At the specified time and place as indicated in the "Advertisement for Bids", Bids will be opened publicly and read aloud.

14.2 An abstract of the amounts of the Total Bids and suppliers of major equipment or alternates, (if any), will be prepared and made available within a reasonable time after the opening of Bids.

15. BIDS TO REMAIN OPEN

- 15.1 All Bids shall remain open for delivery by the Owner of the Notice of Award for ninety (90) calendar days after the day of the Bid opening, but Owner may, at his sole discretion, release any Bid and return the Bid Security prior to that date.
- 15.2 Extensions of time when Bids shall remain open beyond the ninety (90) day period may be made only by mutual agreement between Owner, the Successful Bidder, and the surety, if any, for the Successful Bidder.

16. AWARD OF CONTRACT

- 16.1 If the Contract is to be awarded, it will be awarded on the basis of the most responsive, responsible, lowest "Total Base Bid" from a responsible and qualified Contractor licensed to perform such work in the State of Florida.
- 16.2 To the extent permitted by applicable State and Federal laws and regulations, Owner reserves the right to reject any and all Bids, to waive any and all informalities and reserve the right to disregard all non-conforming, non-responsive or conditional Bids. Bids may be considered irregular and subject to rejection if they show serious omission, unauthorized alternations of form, unauthorized alternate Bids, incomplete or unbalanced unit prices, or irregularities of any kind. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Errors in the multiplication of unit prices by the number of units will be resolved in favor of the correct product.
- 16.3 If the Contract is to be awarded it will be awarded by the Owner pursuant to applicable law. The Owner in its sole discretion, reserves the right to reject any and all bids and to waive any informality concerning Bids whenever such rejection or waiver is in the best interest of the Owner. The ability of a Bidder to obtain a performance and payment bond shall not be regarded as the sole test of such Bidder's competency or responsibility. Nothing contained herein shall place a duty upon the Owner to reject Bids or award the contract based upon anything other than its sole discretion as described herein.
- 16.4 Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of materials or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in Article 20 of these Instructions to Bidders.
- 16.5 Owner may conduct such investigations as he deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and other persons and

organizations to do the Work in accordance with the Contract Documents to the Owner's satisfaction within the prescribed time. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

- 16.6 The Apparent Low Bidder shall submit, upon request of the Owner, documentation evidencing its capability to perform classes of work contemplated, and the necessary plant and sufficient capital to execute the work properly within the time specified. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may be considered by the Owner.
- 16.7 One (1) Contract for the Work will be awarded, if award is made, to the lowest responsible, responsive Bidder. The Successful Bidder who is awarded the Contract will be required to perform the Work as a Prime Contractor. No assignment of the Contract will be allowed without written permission of the Owner.
- 16.8 If the Contract is to be awarded, the Owner will issue a Notice of Award within ninety (90) days after the date of the bid opening subject to the conditions in Article 15 of these Instruction to Bidders.
- 16.9 Tie Bids: If two or more bids are received that are equal in price and there is no evidence of price-fixing or collusion between or among such bidders, first choice may be awarded in the following order:
 - (1) Quality of service(s) and/or product(s) offered.
 - (2) Drug-free workplace [Section 287.087, Florida Statutes].
 - (3) Bidder's proximity to the City (see §§ 287.084 and §§ 287.092, Fla. Stat.).
 - (4) Bidder's ability to deliver services in a timely manner.

17. TAXES

The Contractor shall pay all applicable sales, consumer, use and other similar taxes required by law. The Contractor is responsible for reviewing the pertinent State statutes involving the sales tax and complying with all requirements.

18. REQUIRED DISCLOSURE

- 18.1 With its Bid submission, Bidder shall disclose all material facts pertaining to any felony conviction or any pending felony charges in the last three (3) years in this State or any other state of the United States against (i) Bidder, (ii) any business entity related to or affiliated with Bidder, or (iii) any present or former executive employee, officer, director, stockholder, partner or owner of Bidder or of any such related or affiliated entity. This disclosure shall not apply to any person or entity which is only a stockholder, which person or entity owns 20 percent (20%) or less of the outstanding share of a Bidder whose stock is publicly owned and traded.
- 18.2 At its sole discretion, the Owner, may reject any Bidder the Owner finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the Owner to lack honesty, integrity, or moral responsibility. The discretion of the Owner may be exercised based on the disclosure required herein, the Owner's own investigation, public records, or any other reliable sources of information. The Owner may also reject any Bidder failing to make the disclosure required herein. By submitting a Bid, Bidder recognizes and accepts that the Owner may reject the Bid based upon the exercise of its sole discretion and Bidder waives any claim it might have for damages or other relief resulting from the rejection of its Bid based on these grounds.

19. PERFORMANCE AND OTHER BONDS

Article 5 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to other Bonds and Insurance, including the Bid Bond. When the Successful Bidder delivers the executed Agreement to the Owner, it shall be accompanied by the required Bonds, Insurance Certificates, and Endorsements.

Payment and Performance Bond shall be secured from or countersigned by an agency or surety company recognized in good standing and authorized to do business in the State of Florida.

20. QUALIFICATIONS SUBMITTALS

- 20.1 It is the intention of the Owner to award this contract to a Bidder competent to perform and complete the Work in a satisfactory manner. Accordingly, Owner will require the Successful Bidder to submit, within seven (7) days of written request by the Owner and prior to award of Contract, 1) Preliminary Progress Schedule, and 2) Preliminary Schedule of Values all as set forth below, to allow Owner to conduct qualifications investigations.
- 20.2 The experience and financial statement shall provide data additional to that information provided in the Bid Form pertaining to Contractor's financial resources, adequacy of plant and equipment, organization, and prior experience. Said information shall be certified by a Certified Public Accountant, and shall be

submitted on the "Standard Questionnaires and Financial Statement for Bidders," available from AGC, 1975 "E" Street, NW Washington, DC 20006.

- 20.3 The Preliminary Progress Schedule shall consist of three (3) copies of a diagram and a narrative in accordance with appropriate formats set forth in Section 01310, incorporated by reference herein. Activities in the diagram shall show the order in which the Successful Bidder proposes to perform the Work within the constraints and sequencing conditions set forth in the Specifications and shall indicate starting and completion dates for key milestones and work pertaining to each Division of the Specifications within each major structure or geographical area of work. Activities shall further identify significant submittals/approvals, major equipment deliveries, equipment testing, Owner's responsibilities, and those of affected utilities and the similarity involved third parties.
- 20.4 The Preliminary Schedule of Values shall consist of an itemization of the Bid by major structures or areas of work on the forms located in Section 00845.
- 20.5 The Successful Bidder and his surety, if any, hereby agree that any delays within Bidder's control in the delivery of these qualifications submittals will constitute a request by Bidder for an extension of the time during which the Bid shall remain open for the Owner's acceptance. Should Owner agree to such extension, Bidder will be required to comply with this submittal requirement within five (5) additional days. At the Owner's option, failure by the Successful Bidder to deliver these qualifications submittals within the extended period will void evaluation of the Bid and will constitute proof that the Successful Bidder has abandoned his Bid; his Bid Security may be declared forfeited to the Owner as liquidated damages, and the Work may be awarded to another Bidder.
- 20.6 If upon receipt and evaluation of the submittals the Successful Bidder does not pass the evaluations to Owner's satisfaction, Owner reserves the right to reject the Bid.

21. INTERPRETATION OF QUANTITIES

In the case of unit price items, the quantities of work to be done and materials to be furnished under this Contract, as given in the Bid, are to be considered as approximate only and are to be used solely for the comparison of Bids received. The Owner and/or his Engineer do not expressly or by implication represent that the actual quantities involved will correspond exactly therewith; nor shall the Bidder plead misunderstanding or deception because of such estimate or quantities or of the character, location or other conditions pertaining to the Work. Payment to the Contractor will be made only for the actual quantities of work performed or material furnished in accordance with the Drawings and other Contract Documents, and it is understood that the quantities may be increased or diminished as provided in the General Conditions without in any way invalidating any of the unit or lump sum prices bid.

22. COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)

In instances where such is applicable due to the nature of the Work matter with which this Bid is concerned; all materials, equipment, etc., as proposed and offered by Bidders must meet and conform to all O.S.H.A. requirements. The Bidder's signature upon the Bid Form (Section 00300) is considered certification of conformance to such requirements.

23. SPECIAL WARRANTY, PERFORMANCE BOND, INSURANCE AND CORRECTION PERIOD REQUIREMENTS

23.1 There are special requirements pertaining to the Warranty, Performance Bond, Insurance, and the Correction Period which are described in the Bidding Documents. The Bidder must include in his Bid the consideration to be paid by the Owner for the Special Warranty, Performance Bond, Insurance and Correction Period requirements as set forth in the Bidding Documents.

23.2 Insurance: The successful Bidder shall obtain a certificate of insurance for Comprehensive General Liability (including Products/Completed Operations Insurance, Contractual Liability Insurance covering the hold harmless agreement between the named insured and the City of Crestview, Florida, and Broad Form Property Damage Liability Insurance), Comprehensive Automobile Liability, Workers Compensation Employer's Liability. The Contractor shall name the City of Crestview and Tetra Tech as "An Additional Named Insured" on the Certificate of Insurance.

23.3 Warranty: The CONTRACTOR shall furnish to the OWNER a guaranty, to remain in full force and effect for a period of one year from the date of acceptance of the project by the OWNER, which shall provide that the CONTRACTOR shall repair or replace all work performed and materials and equipment furnished that were not performed or furnished in accordance with the approved plans and specifications or that become defective before the expiration of said period of one year. Such guaranty shall be covered by a surety bond, underwritten by a surety licensed to do business in the State of Florida. Notice to the CONTRACTOR that any part of the project needs to be repaired, replaced or made good during the guaranty period shall be given in writing by the OWNER. If the CONTRACTOR refuses or neglects to do such work within 7 calendar days from the date of service of such notice, or in the event such work requires longer than 7 calendar days for completion and the CONTRACTOR has not provided satisfactory evidence of his intention to perform such work within the time limit established by the OWNER, the OWNER shall have the work done by others and the cost thereof shall be paid by the CONTRACTOR or his surety. The surety bond shall not be released until the foregoing obligations have been fully discharged.

24. SIGNING OF AGREEMENT

- 24.1 When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three (3) unsigned counterparts of the Agreement. Within the (10) days of receipt thereafter, Successful Bidder shall sign and deliver at least three (3) counterparts of the Agreement to the Owner together with the required Bonds, insurance certificates and endorsements. Within ten (10) days of receipt of the properly executed and completed submittals, Owner will deliver a fully signed counterpart to Successful Bidder.
- 24.2 Failure by a Successful Bidder, to whom the contract is awarded, to execute the Agreement or to furnish the required Bonds or insurance certificates and endorsements shall be just cause for the annulment of the award and the forfeiture of the Bid Security.
- 24.3 A Successful Bidder who is awarded the Contract and fails to execute the Agreement or furnish the required Bonds or insurance certificates and endorsements within the period specified in Article 24.1 above, shall be liable to the Owner for all damages resulting therefrom including reasonable engineer's and attorney's fees and costs, and engineer's and attorney's fees and costs on appeal. The Bid Security forfeited shall not be a limitation thereon.

25. PROTESTS

The Owner is responsible for the resolution of protest by Bidders for contract award, claims, disputes, alleged patent infringements, alleged license fee(s) and other related procurement matters. The following procedures shall be used for all such protests.

- 25.1 Any party with a direct financial interest adversely affected by Owner's procurement decision shall file a protest under Article 29, or be barred further relief.

26. DISQUALIFICATION OF BIDDERS

27.1 No Bidder shall submit more than one Proposal, and reasonable grounds for believing that a Bidder is interested in more than one Proposal for the same work shall cause rejection of all Proposals in which such Bidder, or Bidders, are believed to be interested. Any or all Proposals shall be rejected if there is reason to believe that collusion exists among the Bidders, and no participants in such collusion shall be considered in future Proposals for the same work.

27. REJECTION OF BID/PROPOSAL SUBMITTALS

28.1 The Owner reserves the right to reject any and all bids/proposals upon determination of non-responsibility or non-responsiveness of a Bidder or any other circumstances deemed in the best interest of the Owner, including, but not limited to poor previous project performance, previous failure to perform properly or complete on time a contract of similar nature or neglect of payment of obligations to subcontracts, suppliers, or employees.

28. BID PROTEST PROCEDURES

29.1 Any actual or prospective bidder or proposer who is adversely affected by the City's decision or intended decision in connection with a competitive selection process shall first file with the Finance Director a notice of protest in writing within 72 hours after the posting of the notice of decision or intended decision. With respect to a protest of the terms, conditions, and specifications contained in a solicitation, including any provisions governing the methods for ranking bids, proposals, or replies, awarding contracts, reserving rights of further negotiation, or modifying or amending any contract, the notice of protest shall be filed in writing within 72 hours after the posting of the solicitation. The formal written protest and bid protest bond shall be filed within 3 days after the date the notice of protest is filed.

A notice of protest shall not be filed before the 72-hour period begins. The 72-hour period begins upon electronic posting of a decision or intended decision. The notice of protest must be received by the agency before the 72-hour period expires. The notice of protest must be filed with the Finance Director. The 72-hour period is not extended by service of the notice of protest by mail.

The "formal written protest" required by this policy is a petition that states with particularity the facts and law upon which the protest is based. The formal written protest shall contain the following information:

- a. The identification of the petitioner, including the petitioner's e-mail address, if any, for the transmittal of subsequent documents by electronic means.
- b. A statement of when and how the petitioner received notice of the City's action or proposed action.
- c. An explanation of how the petitioner's substantial interests are or will be affected by the action or proposed action.
- d. A statement of all material facts disputed by the petitioner or a statement that there are no disputed facts.
- e. A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the City's proposed action.
- f. A statement of the specific rules, ordinances or statutes that the petitioner contends require reversal or modification of the City's proposed action, including an explanation of how the alleged facts relate to the specific rules, ordinances or statutes.
- g. A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the City to take with respect to the proposed action.
- h. The name, address, e-mail address, and telephone number of the party making the request and the name, address, and telephone number of the party's counsel or qualified representative upon whom service of decisions and other papers shall be made.

Bid protest bonds are required for all protests of intended City action to award contracts and to any protest of the terms, conditions, and specifications contained in a solicitation, including any provisions governing the methods for ranking bids, proposals, or replies, awarding contracts, reserving rights of further negotiation, or modifying or amending any contract. The bid protest bond amount shall be the greater of \$25,000.00 or the amount of the bid indicated by the City as the recipient of an intended contract award. Bonds are not to be filed with the notice of protest, but must be filed with the formal written protest or within the 3-day period allowed for filing the formal written protest. A bond can be in substantially the following form:

CITY OF CRESTVIEW PROCUREMENT PROTEST BOND

Bond Number: _____

Contract Number: _____

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____ a (mark one) corporation, partnership, proprietorship, organized and existing under the laws of the State of _____, and having its principal place of business at _____, as PRINCIPAL; and _____, a surety company, organized under the laws of the State of _____, and duly authorized to do business in the State of Florida, whose

principal place of business is _____, as SURETY, are held and firmly bound unto the CITY OF CRESTVIEW as OBLIGEE, in the amount of \$_____ for the payment of which sum we, as Principal and Surety, bind ourselves, our heirs, personal representatives, successors and assigns, jointly and severally.

The above-named Principal has initiated a protest regarding the Obligee's decision or intended decision pertaining to Bid Number _____. Said protest is conditioned upon the posting of a bond at the time of filing the formal written protest.

NOW, THEREFORE, the condition of this Bond is that if the Principal, after the administrative hearing process and/or any court proceedings regarding the protest, shall satisfy all costs and charges allowed by final order and/or judgment, and interest thereon, in the event the Obligee prevails, then the obligation shall be null and void; otherwise it shall remain in full force and effect.

The Obligee may bring an action in a court of competent jurisdiction on this bond for the amount of such liability, including all costs and attorneys' fees.

PRINCIPAL: _____

BY: _____

Title: _____ (CORPORATE SEAL)

ATTEST: _____

SURETY: _____

BY: _____

Title: _____ (CORPORATE SEAL)

Florida Resident Agent: _____

(Note: Power of Attorney showing authority of Surety's agent or Attorney in Fact must be attached).

Bonds must be countersigned by an agent licensed in Florida. A cashier's check or money order in lieu of a bond is acceptable.

Failure to file a notice of protest or failure to file a formal written protest with a bond in the form set forth below shall constitute an absolute waiver of proceedings under this policy and a waiver of any protests or challenges by any person. The formal written protest shall state with particularity the facts and law upon which the protest is based. Saturdays, Sundays, and state holidays shall be excluded in the computation of the time periods provided by this paragraph.

1. Decision - The Finance Director shall promptly investigate the basis of the protest and, after consultation with the originating department, the City Attorney and any other person or entity deemed necessary by the Finance Director, shall issue a decision in writing. The burden of proof shall rest with the party protesting the proposed action to be taken by the City. The standard of proof for protest proceedings shall be whether the proposed City action was clearly erroneous, contrary to competition, arbitrary, or capricious. In any bid-protest proceeding contesting an intended City action to reject all bids, proposals, or replies, the standard of review shall be whether the City's intended action is illegal, arbitrary, dishonest, or fraudulent.

A copy of the decision shall be furnished immediately to the protestor and any other party determined by the Finance Director to be directly affected by the decision. The decision shall:

A. State the decision and the basis for the decision, and

B. Set forth the protestor's right to administrative review.

2. Administrative Review – If the protestor disagrees with the decision of the Finance Director, the protestor may appeal the decision to City Manager, followed by the City Council, provided written notice of such appeal shall be submitted by the protestor to the Finance Director within three (3) calendar days of service of the Finance Director's decision to the protestor at the electronic mail address specified by the petitioner in the formal written protest.

3. Stay of Procurement – In the event of a timely and properly filed protest, the City shall not proceed further with the solicitation or award process until all administrative remedies have been exhausted, or until the City Manager or City Council, as appropriate, sets forth in writing particular facts and circumstances which require the continuance of the solicitation or contract award process without delay in order to protect substantial interests of the City.

Revised February 17, 2021

END OF SECTION



**FOXWOOD GOLF COURSE
CITY OF CRESTVIEW, FL
IRRIGATION**

**IRRIGATION SYSTEM IMPROVEMENTS
PROJECT MANUAL**

MAY 14, 2021

Irrigation System Improvements

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IRRIGATION UNIT PRICES

Should the Contractor be required to perform work other than that shown on the Bid Schedule, or be relieved from performing work on the same, he will be paid an additional sum or shall credit the Owner, as the case may be, on the basis of the Unit Prices quoted below. Such prices shall be the sum total compensation payable for all work included.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNITS</u>	<u>PRICE PER UNIT</u>
1)	Existing Valve-In-Head Sprinkler and Swing-Joint Removed.	Each	\$ _____
2)	Rain Bird 950 V.I.H Rotor with Swing Joint, All Wire and 2" SCH. 40 PVC Lateral Piping. Installed	Each	\$ _____
3)	Rain Bird 752 V.I.H Rotor with Swing Joint, All Wire and 2" SCH. 40 PVC Lateral Piping. Installed	Each	\$ _____
4)	Rain Bird 752 V.I.H Rotor with Swing Joint, All Wire and 2" SCH. 40 PVC Lateral Piping. Installed	Each	\$ _____
5)	Rain Bird #5NP 1" Quick Coupling Valve, Swing Joint Assembly, and Valve Box. Installed.	Each	\$ _____
6)	Rain Bird 100-PESB-PRSD 1" Plastic Electric Control Valve Assembly and Valve Box. Installed.	Each	\$ _____
7)	Wilkins #500XL-HLR-G 1-1/2" Pressure Regulating Valve Assembly and Valve Box. Installed.	Each	\$ _____
8)	4" Blow-Off Assembly and Valve Boxes Installed.	Each	\$ _____
9)	Lateral Pipe – 2" SCH. 40 PVC Piping and Fittings. Installed	Each	\$ _____
10)	Lateral Pipe – 1" SCH. 40 PVC Piping (Purple) and Fittings. Installed	Linear Ft	\$ _____
11)	#14-1 UF UL Control Wire. Installed	Linear Ft	\$ _____
12)	#12-1 UF UL Common Wire. Installed	Linear Ft	\$ _____
		Linear Ft	\$ _____

Irrigation System Improvements

SPECIAL PROVISIONS

The following supplements will modify, delete from, and/or add to the Contract which will be developed between the Owner and Contractor. All articles, or portions thereof, which are not specifically modified, deleted, or superseded hereby, will remain in full effect.

SECTION	TITLE	PAGE
1	Project Requirements	SP-1
2	Submittals	SP-4
3	Materials and Equipment	SP-5
4	Coordination	SP-7
5	Contract Close-Out Procedures	SP-8
6	Continuous and Final Cleaning	SP-10

SECTION 1

PROJECT REQUIREMENTS

1.01 Special Requirements

- A. The project includes the installation of a new irrigation at an existing facility, including all components as illustrated in the construction drawings, details, and technical specifications.
- B. Contractor will be provided with a location to store project materials and equipment. Contractor to erect security fencing around perimeter of storage yard with lockable gate. All non-pipe materials to be stored inside a lockable trailer within the fence perimeter. All stored pipe materials must remain covered at all times. All stored pipe material left uncovered longer than seven 14 days must be removed from site and replaced with new by Contractor.
- C. Prior to excavating at a staked head location, paint a straight line (min. 48" long) centered over cup and perpendicular to pipe routing, to mark specific location of head and insure final installation is +/- 6".
- D. Contractor will be responsible for making temporary connections to existing system if required throughout installation process. Owner or Consultant can direct locations for connections.
- E. Back Fill Material
 - a) Contractor is responsible for producing screened excavated material from excavation for backfill. Should pipe backfill material requirements exceed that available from screened excavated material, contractor to supply additional backfill material approved by Owner and Consultant.
- F. The Contractor will utilize an approved Project Superintendent for this project. This Superintendent shall remain the key on-site representative of the Contractor throughout the duration of the project. If this Superintendent leaves the employment of the Contractor, the Owner shall approve his replacement.

SECTION 2

SUBMITTALS

2.01 Submittal Requirements

- A. General - Make submittals from Contractor to the Consultant after Contractor has reviewed each submittal and indicated his action thereon except for samples and selection submittals
- B. Scheduling
 - 1. Prepare a separate listing and schedule organized by related specification number sequence, showing the principal work-related submittals and their initial submittal dates as required for coordination of the work. Coordinate the preparation and processing of submittals with the performance of the work so that work will not be delayed by submittals. No extension of time will be allowed because of failure to properly coordinate and sequence submittals.
- C. Preparation of Submittals
 - 1. Submittal to be received in Excel Spreadsheet, and a listing (in order) of each submittal item by manufacturer, model number, description, as well as an indication which item is: "per specifications" or an accepted equivalent submission. Submittals that are received directly from sources other than through the Contractor's office will be returned "without action".
 - 2. For revised submittals, identify changes from previous submittal(s).
- D. Product Data
 - 1. Submit Product Data to Consultant as required by the Specification sections.
- E. Action
 - 1. Where action and return is required or requested, the Consultant will review each submittal, mark it with his "action", and return it within 5 days of receipt; except where it must be held for coordination, and the Contractor is advised. Proceed in accordance with "action" indicated on the submittal.
 - 2. Consultant's review for conformance to the general design concept only and does not relieve the Contractor from full compliance with the Contract Documents.

SECTION 3

MATERIALS AND EQUIPMENT

3.01 Transportation and Handling

- A. Deliver, unload, store, and handle materials, packaging, bundling, and products, in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, intrusion, ignition, and vandalism.
- B. Deliver in original unopened packaging containers prominently displaying manufacturer name, volume, quantity, contents, instructions, and conformance to local, state, and federal law.
- C. Remove and replace cracked, broken, or contaminated items or elements prematurely exposed to moisture, inclement weather, snow, ice, temperature, and fire or job site damage.

3.02 Storage and Protection

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.
- C. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.
- D. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

3.03 Product Selection

- A. When ASTM or other reference standards specify products, furnish products conforming to such reference standards.
- B. When products are specified by trade name or manufacturer's name and model number, whether or not reference standards are also specified, furnish those specific proprietary products. Where more than one manufacturer is specified, the Contractor has the option as to which manufacturer's products are to be used.
- C. When terms "or equal", "equal to", "or approved equal", "or accepted equivalent" and other similar terms are used, provide only the specific product or products specified, or approved by written Addendum.
- D. Approved substitutions may, because of different size, weight, configuration or other characteristics, require modifications to other elements of the Work. If such substitutions are used, all such modifications to other elements of the work must be shown by shop

drawings or other submittals as appropriate, and approved by the Consultant and Owner. Any costs associated with such modifications will be at the Contractor's expense.

3.04 General Product Requirements

- A. Provide products, materials and equipment which comply with the requirements, and which are undamaged and unused at the time of installation, and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect. It is the responsibility of the Contractor and his installers, as experts, to notify the Consultant of any specified project that to his knowledge will not meet the requirements or is unsuited to the application indicated or specified.

SECTION 4

COORDINATION

4.01 Description of Requirements

- A. General - Each entity involved in the performance of work for the entire project shall cooperate in the overall coordination of the work; and promptly, when requested, to furnish information concerning his portion of the work; and to respond promptly and reasonably to the decisions and requests of persons designated with coordination, supervisory, administrative, or similar authority.

4.02 Complete Systems

- A. It is the intent of the Contract Documents that all systems, including mechanical and electrical, be complete and functional to provide the intended or specified performance. The Contractor shall provide all incidental items and parts necessary to achieve this requirement.
- B. Provide Owner, utilities, piping, drains, services and their connections to equipment and systems requiring them.

4.03 General Coordination

- A. **Damage to Other Improvements**
Contractor shall replace or repair damage to existing grades, planting areas, existing trees, structures, greens, tees, bunkers, and other golf course elements during work associated with construction at no additional cost to Owner.
- B. **Layout**
It is recognized that the Contract Documents are diagrammatic in showing certain physical relationships of the various elements and systems and their interfacing with other elements and systems. Establishment and coordination of these relationships is the exclusive responsibility of the Contractor as directed by Consultant.
- C. **Large and Heavy Equipment**
Wherever possible, prearrange for the movement and positioning of large equipment on the site. Coordinate the movement of heavy items with shoring and bracing, so the structures will not be overloaded during the movement and installation.

SECTION 5

CONTRACT CLOSE-OUT PROCEDURES

5.01 Description of Requirements

- A. Close-out is hereby defined to include general requirements near the end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work.
- B. It is the Contractor's responsibility to complete the project in accordance with the Contract Documents and to enforce their requirements on his employees, suppliers and Subcontractors.

5.02 Substantial Completion

- A. Provide turn over items to Owner, and advise Owner's personnel of change-over in security provisions.
- B. Schedule and participate with Consultant in substantial completion punch list walk through, demonstrating completion of all construction items and proper operation of all elements.
- C. Complete start-up testing of systems, and instruction of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities.
- D. Complete final cleaning up requirements.
- E. Touch up and otherwise repair and restore marred exposed finishes.

5.03 Final Acceptance

- A. Prior to requesting Owner's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exception (if any) in request:
 - 1. Schedule and participate with Consultant in final completion walk through demonstrating all items, identified as deficient in meeting the requirements of the construction documents as determined by the Consultant, have been corrected to the satisfaction of the Consultant.
 - 2. Submit updated final statement, accounting for additional (final) changes to the Contract Sum.
 - 3. Submit consent of surety.

5.04 Close-out Documents

In order to complete the Project, provide all required project documents including all operating and maintenance manuals, printed warranties and instruction, extra parts and maintenance as specified in the appropriate sections.

5.05 Start Up and Instructions

- A. Test and start up all systems as specified in the appropriate sections. Where so specified provide instructions to the Owner for his employees in the operations of such systems as specified. Notify the Consultant and the Owner, at least seven days in advance of such start-ups, tests, and demonstrations.
- B. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds, and similar continuing commitment.

SECTION 6

CONTINUOUS AND FINAL CLEANING

6.01 Description of Requirements

- A. Provide all facilities and equipment as necessary to keep the work and site clean and safe as specified herein.
- B. Each Subcontractor is responsible for specific cleaning operations of his work to the extent specified in the appropriate specification section.
- C. Pollution Control: Conduct clean-up and disposal operations to comply with applicable anti-pollution laws and local ordinances.
 - 1. Burning or burying of waste materials on the project site is not permitted.
 - 2. Disposal of volatile fluids and waste in storm or sanitary sewers, or into streams or waterways is not permitted.

6.02 Cleaning Materials: Use only cleaning materials recommended by manufacturer on surface to be cleaned.

6.03 Waste Disposal

- A. Establish and enforce a daily system for collection and disposing of waste materials from construction areas and elsewhere at the project site. Provide central collection point on the site.
- B. Each Contractor and Subcontractor is responsible for cleaning and removal of his trash and debris to this collection point.
- C. Do not hold collected materials at the site for periods of more than seven days. Handle hazardous, dangerous, unsanitary, contaminating, polluting, and similar harmful wastes separately from inert materials, by containerizing in an appropriate manner. Dispose of each category of waste material in a manner. Do not bury or burn waste materials on the Owner's property.
 - 1. Enforce strict prohibition against the washing of waste materials down sewers or into waterways.
- D. Waste concrete and masonry shall be removed from the site and legally disposed of by masonry and concrete installers.

6.04 Cleaning and Protection of Work

- A. At the time each unit of work or element of the construction is completed (substantially) in each area of the Project, clean the unit or element to a condition. Replace units and elements that are damaged beyond successful restoration acceptable by Consultant or Owner.
- B. Clean and restore adjoining surfaces and other work that was soiled or damages (superficially) during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage

to the complete unit or element, provide protective covering or other provisions to minimize possible damage.

- C. Repeat cleaning and protection operations during remainder of construction period, wherever sustained soiling or exposure might otherwise damage work.
- D. Oversee cleaning and ensure that grounds and public properties are maintained free from accumulation of waste materials and rubbish.
- E. Clean adjacent and nearby streets of dirt occasioned by construction operations frequency and methods as required by governing authority.

Contaminated Earth

- F. Remove contaminated earth and dispose of offsite. Replace with clean soils, as approved, in accordance with Section 02815 using materials appropriate to the location on the site and methods specified for fills and back fills.
 - 1. Contaminated earth includes, but is not limited to, waste concrete, mortar and plaster; trash, debris and waste materials; areas used for cleaning tools, washing mixers and concrete trucks and areas containing oils, solvents, paints and similar liquids or their residues.
- G. Final Cleaning
 - 1. Use experienced workmen, or professional cleaners for final cleaning.
 - 2. At completion of construction and just prior to acceptance conduct a final inspection of the site.
 - 3. Remove labels that are not required as permanent labels.
 - 4. Broom clean paved surfaces; rake clean other surfaces of grounds.

SECTION 02815

IRRIGATION SYSTEM

PART I - GENERAL

1.01 **WORK INCLUDED** - Work of this Section generally includes provision of an underground irrigation system including the following:

- A. Trenching, stockpiling excavation materials, and refilling trenches.
- B. Complete system including but not limited to piping, valves, fittings, heads, control system, wiring and final adjustments to insure efficient and uniform coverage as determined by Consultant.
- C. Water Connections.
- D. Replacement of unsatisfactory materials.
- E. Clean-up, inspection, and approval.
- F. Tests.

1.02 REFERENCES

- A. Perform Work in accordance with requirements of Conditions of the Contract and General Requirements as well as provisions of all applicable laws, codes, ordinances, rules, and regulations.
- B. Conform to the latest requirements of reference information listed below except where more stringent requirements are shown or specified in Contract Documents.
 - 1. American Society for Testing and Materials (ASTM)-Specifications and Test Methods specifically referenced in this Specification Section.
 - 2. Underwriters Laboratories (UL) - UL Wires and Cables.
 - 3. American Water Works Association (AWWA)-Specifications specifically referenced in this Specification Section.
 - 4. National Sanitation Foundation (NSF)-Specifications specifically referenced in this Specification Section.
 - 5. Arizona Administrative Code, Title 18. - Environmental Quality, Chapter 4. - Department of Environmental Quality (ADEQ) Safe Drinking Water, Article 1 – General Requirements, R18-4-115 – Backflow Prevention.
 - 6. Arizona Administrative Code, Title 18. - Environmental Quality, Chapter 4. - Department of Environmental Quality (ADEQ) Safe Drinking Water, Article 5 – Minimum Design Criteria.
 - 7. Arizona Administrative Code, Title 18. - Environmental Quality, Chapter 9. - Department of Environmental Quality (ADEQ), Article 6 – Reclaimed Water Conveyances.
 - 8. Arizona Administrative Code, Title 18. - Environmental Quality, Chapter 9. - Department of Environmental Quality (ADEQ), Article 7 – Regulations for the Direct Reuse of Reclaimed Water.
 - 9. Comply with all requirements of the Uniform Plumbing Code.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications - Installer shall have had considerable experience and have demonstrated ability in the installation of a new PVC/HDPE irrigation system in a neat, orderly, and responsible manner in accordance with recognized standards of workmanship.
 - 1. Statement of qualifications indicating experience of project superintendent, including minimum requirement of 7 years of experience in irrigation system installation, and 2 years employment with project contractor. Project superintendent must remain on-site representative of Contractor throughout length of project.
- B. Special Requirements:
 - 1. Tolerances - Specified depths of pressure supply lines and laterals and pitch of pipes are minimums. Settlement of trenches is cause for removal of finish grade treatment, refilling, re-compaction, and repair of finish grade treatment to satisfaction on owner.
 - 2. Electrical Power – Work involving connection to 120 volt or greater electrical service shall be executed by a licensed and bonded electrician and performed in accordance with prevailing codes and regulations.

1.04 SUBMITTALS - Prepare and make submittals in accordance with conditions of the Contract.

- A. Shop Drawings - Submit Shop Drawings if noted on construction drawings. Include a complete materials list indicating manufacturer, model number, and description of all materials and equipment to be used. Show appropriate dimensions and adequate detail to accurately portray intent of construction.
- B. Submittal to be received in Excel Spreadsheet, and a listing (in order) of each submittal item by manufacturer, model number, description, as well as an indication which item is: "per specifications" or an accepted equivalent submission. Submittals that are received directly from sources other than through the Contractor's office will be returned "without action".
- C. For revised submittals, identify changes from previous submittal(s).
- D. Record Drawings (As-Builts):
 - 1. During surveying of irrigation rotor heads and field satellite units, Contractor will be provided with "As-Surveyed" drawings by Consultant reflecting modifications to any head locations or stationing. Contractor to maintain a record copy of as-surveyed plans, and redline changes in all piping, valves, satellite locations, spice boxes and station changes.
 - 2. Contractor to bring record drawings up-to-date on a daily basis and make available to Consultant if requested.
 - 3. Contractor As-Builts drawings shall include redline changes in all piping, valves, satellite locations, spice boxes, station changes, communication cable, and power wire.

1.05 DELIVERY, STORAGE, and HANDLING - Deliver, unload, store, and handle materials, packaging, bundling, and products, in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, intrusion, ignition, and vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer name, volume, quantity, contents, instructions, and conformance to local, state, and federal law. Remove and replace cracked, broken, or contaminated items or elements prematurely exposed to moisture, inclement weather, snow, ice, temperature extremes, fire, or job site damage.

- A. Handling of PVC/HDPE Pipe - Exercise care in handling, loading and storing of PVC/HDPE pipe. All PVC/HDPE pipe shall be transported in a vehicle that allows length of pipe to lie flat so as not to subject it to undue bending or concentrated external loads. No transporting of pipe will be allowed using a forklift or forks attached to a loader bucket. Pipe that is being loaded and unloaded with a forklift shall have carpet wrapped around forks. All sections of pipe that have been dented or damaged shall be discarded, and if installed, shall be removed and replaced with new piping.

1.06 JOBSITE CONDITIONS - Construction drawing pipe routing is schematic and does not indicate all fittings, joints, and angles necessary to properly install piping in and around trees, shrubs and structures.

A. Protection of Property:

1. Preserve and protect all trees, shrubs, structures, and paved areas from damage due to Work of this Section. In the event damage does occur, all damage to inanimate items shall be completely repaired or replaced to satisfaction of Owner. Owner shall repair all injury to living plants, and all costs of such repairs shall be charged to and paid by Contractor.
2. Protect buildings, walks, walls, and other property from damage. Flare and barricade open ditches. Damage caused to asphalt, concrete, or other building material surfaces shall be repaired or replaced at no cost to Owner. Restore disturbed areas to original condition.

B. Protection and Repair of Underground Lines

1. Request proper utility company to stake exact location (including depth) of all underground electric, gas, or telephone lines. Take whatever precautions are necessary to protect these underground lines from damage. In the event damage does occur, Contractor shall repair all damage. Contractor shall pay all costs of such repairs unless other arrangements have been made.

C. Existing Trees:

1. All trenching or other Work under limb spread of any and all evergreens or low branching deciduous material shall be done by hand or by other methods so as to prevent damage to limbs or branches. No excavation shall occur closer than 36" from any tree trunk. All excavation within canopy of any tree requires trench excavation at 90 degree angle to tree trunk.
2. Where it is necessary to excavate adjacent to existing trees, use all possible care to avoid injury to trees and tree roots. Excavation, in areas where 2 inch and larger roots occur, shall be done by hand. Roots 2 inches or larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a mechanical trencher is operated close to trees having roots smaller than 2 inches in diameter, wall of trench adjacent to tree shall be hand trimmed, making clean cuts through roots. Roots 1 inch and larger in diameter shall be painted with two coats of "Tree Seal". Trenches adjacent to trees shall be closed within 24 hours, and when this is not possible, side of trench adjacent to tree shall be kept shaded with moistened burlap or canvas.

D. Protection and Repair of Underground Lines

1. Request proper utility company to stake exact location (including depth) of all underground electric, gas, or telephone lines. Take whatever precautions are necessary to protect these underground lines from damage. In the event damage does occur, Contractor shall repair all damage, and Contractor shall pay all costs of such repairs unless other arrangements have been made.

E. Replacement of Paving and Curbs - Where trenches and lines cross existing roadways, curbing, etc., damage to these shall be kept to a minimum and shall be restored to original condition.

1.07 WARRANTY/GUARANTY - Contractor shall warrant materials against defects for a period of one year from date of Substantial Completion. Contractor shall guarantee workmanship for same period. Contractor shall be responsible for coordinating material warranty items with manufacturer/distributor.

- A. Contractor shall repair settling of backfilled trenches that may occur during guaranty period within 48 hours of verbal contact by Owner at no expense to Owner, including complete restoration of damaged property.
- B. Expenses due to vandalism before substantial completion shall be borne by Contractor.

1.08 MAINTENANCE

A. N.A.

1.09 EXTRA STOCK - N.A.

PART II - MATERIAL

2.01 MATERIALS:

- A. General Piping:
 - 1. Lateral Lines SCH. 40 PVC (purple)
- A. Plastic Pipe and Fittings:
 - 1. Identification Markings:
 - a) All pipe to be identified with following indelible markings:
 - (1) Manufacturer's name.
 - (2) Nominal pipe size.
 - (3) Schedule of class.
 - (4) Pressure rating.
 - (5) NSF (National Sanitation Foundation) seal of approval.
 - (6) Date of extrusion.
 - 2. Solvent Weld Pipe - Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM D1784; cell classification 12454-B, Type 1, Grade 1.
 - a) Fittings - Surge Guard, injection molded PVC; Type 1, complying with ASTM D1784, cell classification 12454-B.
 - (1) Threads - Injection molded type (where required).
 - (2) Tees and ells - Side gated.
 - b) Threaded Nipples - ASTM D2464, Schedule 80 with molded threads.
 - c) Joint Cement and Primer – Heavy Bodied Type as recommended by manufacturer of pipe and fittings.
 - 3. Gasketed End Pipe - Manufactured from virgin polyvinyl chloride compound in accordance with ASTM D2241 and ASTM D1784 Type 2; cell classification 1254-B, Type 1, Grade 1.
 - a) Fittings - HARCO or accepted equivalent ductile iron with push-on joints or mechanical joint.
 - b) Gaskets - Factory installed in pipe and fittings, having a metal or plastic support within gasket or a plastic retainer ring for gasket.
 - c) Lubricant - As recommended by manufacturer of pipe fittings.
 - d) Saddles – Harco Swivel Female Saddle or accepted equivalent.
- B. Brass Pipe and Fittings:
 - 1. Brass Pipe - 85% red brass, AMSI Schedule 40 screwed pipe.
 - 2. Fittings - Medium brass, screwed 125 pound class.
- C. Gate Valves:
 - 1. Ball Valves– Brass Nibco T-585 W/SS Handle or accepted equivalent.
- D. Quick Coupling Valves - Brass one-piece body designed for working pressure of 150 PSI; operable with quick coupler key.

- E. Valve Boxes:
 - 1. Quick Couplers-NDS 6" 107PBCR Overlapping cover - Purple.
 - 2. Lateral Isolation and Gate Valves-NDS 10" 211PBCR Overlapping cover – Purple.
 - 3. Control Wiring Splices- NDS 10" 212BCB ELEC Overlapping cover - gray.
 - 4. Electric Control Valves- NDS 14" x 19" 213PBCR Overlapping cover – Purple.
- F. Electrical Control Wiring:
 - 1. Communication Wire – As approved by manufacturer.
 - 2. Locating Tape - Magnetic backed, 6" wide, manufactured by Markline or accepted equivalent.
- G. Sprinkler Heads - As indicated on drawings. Fabricate riser units in accordance with details on Drawings.
- H. Pipe bedding material – 1/4" minus screened excavated material or construction grade sand material.

PART III - EXECUTION

3.01 PREPARATION

- A. Staking shall occur as follows:
 - 1. Consultant will coordinate with Contractor to survey irrigation equipment prior to installation. Contractor to also make available two individuals to assist in surveying operation, if requested by Consultant. Following each day surveying, Consultant will provide Contractor within 48 hours an "As-Surveyed" drawing reflecting any field changes to original design and layout.
- B. Trenching - Trench excavation shall follow, as much as possible, layout shown on Drawing. Dig trenches straight and support pipe continuously on bottom of trench. Trench bottom shall be clean and smooth with all rock and organic debris removed. All lateral piping to be installed with rock wheel.
 - 1. Pipe and Wire Depth:
 - a) Distribution Piping – 26" from top of pipe. (See detail)
 - b) Distribution Piping Bedding - 4" above and 4" below piping and to width of trench.
 - c) Lateral Piping – 18" from top of pipe.
 - d) Drip Lateral Piping – 12" from top of pipe.

3.02 INSTALLATION - Locate equipment as near as possible to locations designated on construction drawings. Consultant shall approve deviations prior to installation.

- A. Piping
 - 1. Snake lateral pipe in trench as much as possible to allow for expansion and contraction.
 - 2. When pipe laying is not in progress, or at end of each day, close pipe ends with tight plug or cap. Perform work in accordance with good practices prevailing in piping trades.
 - 3. Coordinate distribution piping installation with required bedding operations.
 - 4. Lay pipe and make all plastic-to-plastic joints in accordance with manufacturer's recommendations.
- B. Control Wiring
 - 1. Communication Cable: Installed as per control system manufacturer's specifications.
 - a) Install communication cable as shown on construction details.
- C. Quick Coupling Valves - Install quick couplers on double swing-joint assemblies. Angled nipple relative to pressure supply line shall be no more than 45 degrees and no less than 10 degrees. Install quick coupling valves as detailed.
- F. Valve Boxes:
 - 1. Install one valve box for each type of valve installed as detailed flush with grade.
 - 2. Valve box to rest on gravel sump. Place final portion of gravel inside valve box after valve box is backfilled and compacted.
- G. Gate Valves - Install where shown on Drawings or where surveyed as detailed.
- H. Sprinkler Heads
 - 1. Install sprinkler heads where surveyed by Consultant as detailed.
 - 2. Set plumb to finish grade as detailed. Install heads on double swing-joint risers as detailed.
 - 3. Adjust part circle heads for proper coverage. Consultant may request nozzle changes or adjustments without additional cost to the Owner.

4. Part circle sprinklers along edge lines are to be no further than 4" away from the surface edge. If the sprinklers are installed farther than 4" from this edge, the contractor shall be responsible for the relocation of the sprinkler head at no additional cost to the owner.
- I. Backfilling - All excavations are to be backfilled and compacted on same day. In areas of fitting installation on distribution piping, excavation may be left open for maximum seven (7) calendar days provided it is properly barricaded and marked in accordance with OSHA standards. Under no circumstances can excavations inside fairway limit or around greens, tees, or bunkers be left open for more than 8 hours.
 1. Materials - Excavated material is generally considered satisfactory for backfill purposes after completing bedding requirements. Backfill material shall be free of rubbish, vegetable matter, frozen materials, and stones larger than 6 inches in maximum dimension. Do not mix subsoil with topsoil. Material not suitable for backfill shall be hauled away. Contractor shall be responsible for providing and installing suitable backfill if excavated material is unacceptable or not sufficient to meet backfill, compaction, and final grade requirements.
 2. Compact backfill to 90% maximum density in 6" lifts, determined in accordance with ASTM D155-7 utilizing the following methods:
 - a) Mechanical tamping.
 - b) Puddling or ponding. Puddling or ponding and/or jetting are prohibited within 10'- 0" of building or foundation walls.
 - J. Piping Under Paving:
 1. Provide for a minimum cover of 36 inches between the top of the pipe and the bottom of the aggregate base for all distribution piping installed under asphaltic concrete or concrete paving, and 18 inches for lateral piping.
 2. Piping shall be bedded with construction grade sand or squeegee - 6 inches below pipe to 6 inches above pipe and width of excavation.
 3. Compact backfill material in 6 inch lifts at 95% maximum density determined in accordance with ASTM D155-7 using manual or mechanical tamping devices.

3.03 FIELD QUALITY CONTROL

- A. Flushing - After piping, risers, and lateral isolation, air relief, and blow-off valves are in place and connected, but prior to installation of sprinkler heads and quick coupling valves, thoroughly flush piping system under full head of water pressure from dead end fittings. Maintain flushing for 5 minutes through furthest valves. Close lateral isolation valves after flushing.
- B. Testing - Conduct tests in presence of Consultant. Arrange for presence of Consultant a minimum of 48 hours in advance of testing. Supply force pump and all other test equipment.
 1. After backfilling, fill pressure supply line with water, and pressurize to 40 PSI over the designated static pressure for a period of 2 hours. Testing may be accomplished by isolating and testing individual sections of the piping network. Each section must pass testing prior to proceeding to next section testing.
 2. Leakage, Pressure Loss - Test is acceptable if no leakage or loss of pressure is evident during test period.
 3. Leaks - Detect and repair leaks.
 4. Retest system until test pressure can be maintained for duration of test.
 5. Before final acceptance, pressure supply line shall remain under pressure for a period of 48 hours.

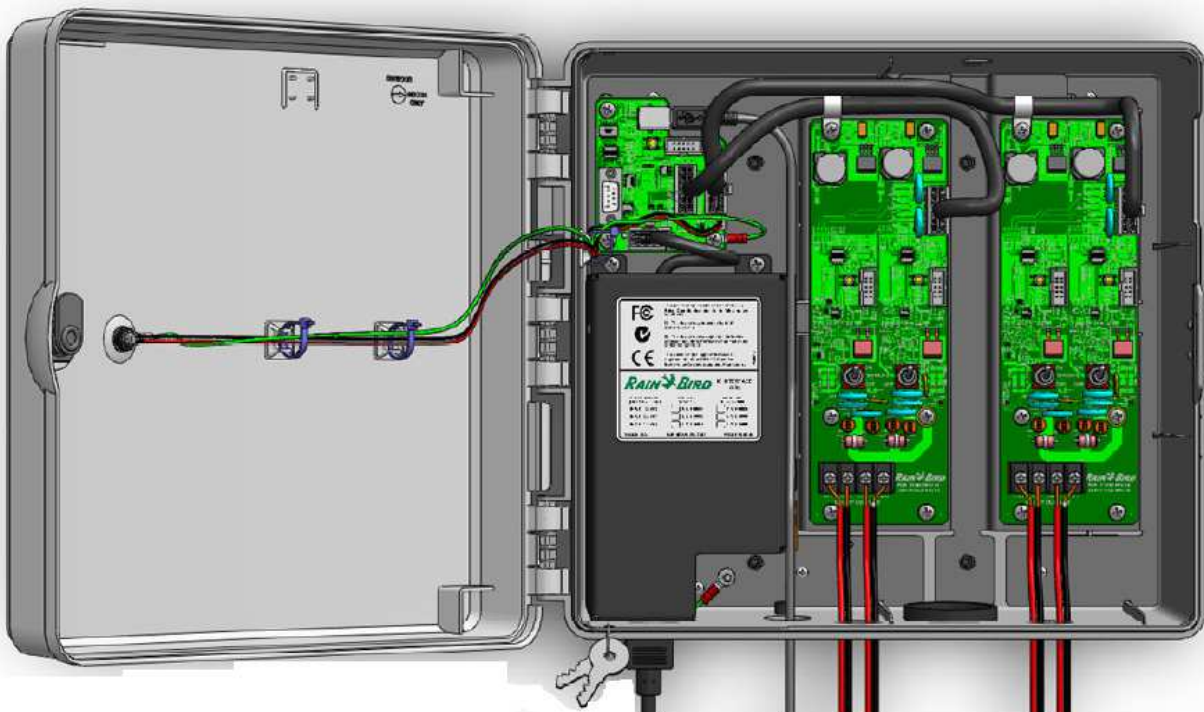
- C. Walk Through for Substantial Completion:
 - 1. Arrange for Consultant's presence a minimum of 7 days in advance of walkthrough.
 - 2. Entire system shall be completely installed and operational prior to scheduling of walk-through.
 - 3. Operate each station automatically for Consultant at time of walk through and open all valve boxes.
 - 4. Consultant shall generate a list of items to be corrected prior to Final Completion.
 - 5. Furnish all materials and perform all Work required to correct all inadequacies due to deviations from Contract Documents, and as directed by Consultant.
 - 6. Provide all required as-built redlines with field measurements as required (Section 1.04).
- D. Walk-Through for Final Completion:
 - 1. Arrange for Consultant's presence a minimum of 7 days in advance of walk through.
 - 2. Show evidence to Consultant that Owner has received all accessories, charts, and equipment as required before Final Completion walk-through is scheduled.
 - 3. Operate each station, or show equipment assembly identified as deficient at substantial completion walk through for Consultant at time of final completion walk through to insure correction of all incomplete items.
 - 4. Items deemed not acceptable by Consultant shall be reworked to complete satisfaction of Consultant.
 - 5. If after request to Consultant for walk-through for Final Completion of irrigation system, Consultant finds items during walk through which have not been properly adjusted, reworked, or replaced as indicated on list of incomplete items from substantial completion walk-through, Contractor shall be charged for all subsequent walkthroughs. Funds will be withheld from final payment and/or retainage to Contractor, in amount equal to additional time and expenses required by Consultant to conduct and document further walk-throughs as deemed necessary to insure compliance with Contract Documents.

3.04 ADJUSTING - Upon substantial completion of installation, "fine-tune" entire system by setting regulating valves, adjusting patterns, changing nozzles and setting pressure reducing valves controls at proper pressure to provide optimum and efficient coverage. Flush and adjust all heads for optimum performance and to prevent over spray onto roadways, and buildings as much as possible.

- A. If it is determined that irrigation adjustments will provide proper and more adequate coverage, make such adjustments prior to Final Acceptance, as directed, at no additional cost to Owner. Adjustments may also include changes in nozzle sizes, and degrees of arc.
- B. All sprinkler heads shall be set perpendicular to finish grade unless otherwise designated.
- C. Areas that do not conform to designated operation requirements due to unauthorized changes or poor installation practices shall be immediately corrected at no additional cost to the Owner.



IC System™ Design Guide v 2.3



Updated August 2016



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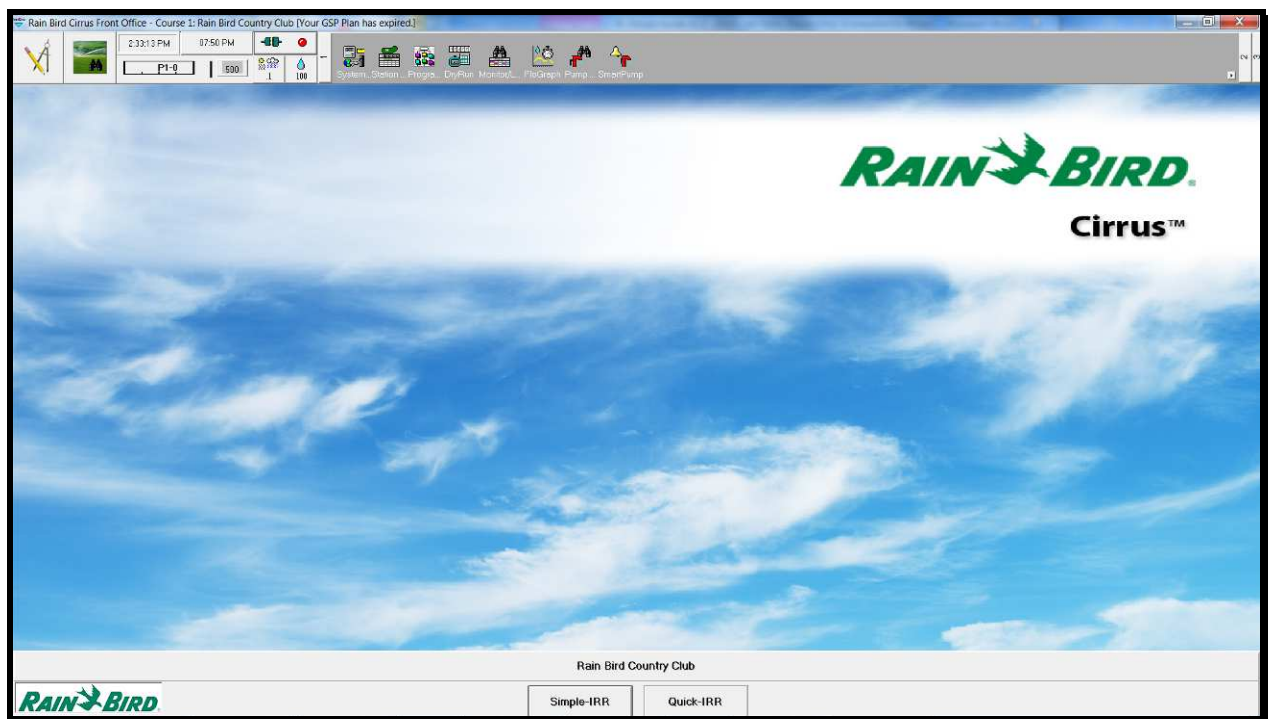
Introduction

This Design Guide is presented to help clarify standard design questions for the IC System™. If there are any questions or specific examples that may not be adequately addressed within this guide, please contact your Rain Bird sales or service manager for additional clarification to aid in the proper design for the specific application.

IC System– Product Definitions

Central Control Software

Cirrus™, Nimbus II™, Stratus II™ and Stratus LT™ are the Central Control applications that are available to operate with the IC System. The software is used to establish the irrigation system parameters, operate the system and perform troubleshooting tasks. There are many troubleshooting diagnostic features within the software that enable the user to quickly diagnose and identify the location of field related issues on the course.



ICI

The Integrated Control Interface (ICI) is the electronic hardware and firmware that accepts commands from the Central Control Software and directs them to the field. The ICI also communicates intelligently with the field in order to update the status back to the Central Control Software.



ICM

The Integrated Control Module (ICM) is mounted on Rain Bird manufactured valve-in-head golf rotors or electric in-line valves. The ICM communicates directly to the Rain Bird central control software via Rain Bird MAXI™ cable two-wire path and the ICI interface. The central control software automatically operates the rotors and valves throughout the golf course by activating each individual ICM as needed.

If the ICM is installed on Rain Bird electric in-line valves, an ICM valve adapter (ICMA) is required.



ICSD

The Integrated Control Surge Device (ICSD) provides surge protection for the system in case of lightning strikes.



Components of the Integrated Control Interface (ICI)

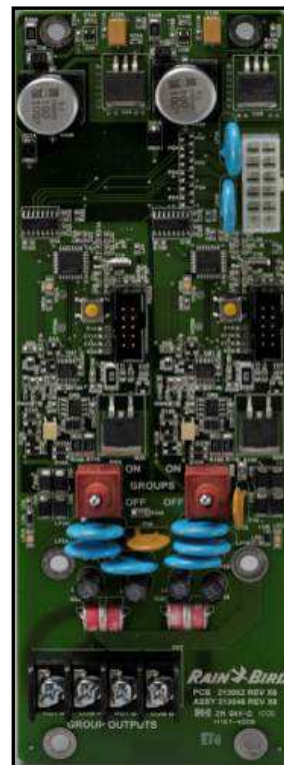
CPU Board

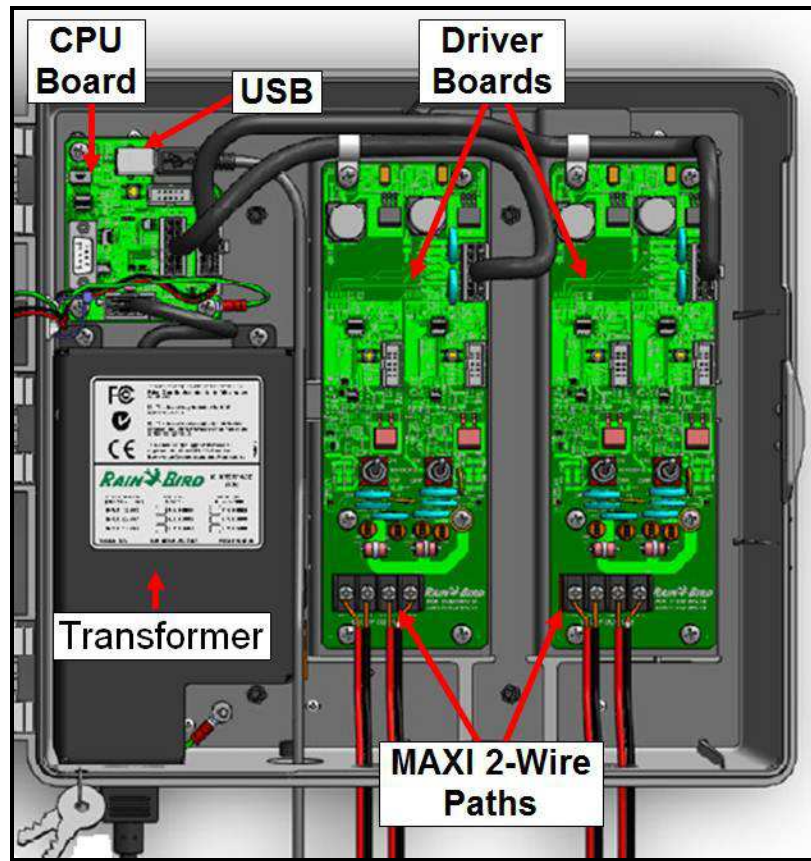
The CPU Board provides communication between the Central Control Computer and each of the wire paths.



Driver Board

The Driver Board provides communication between the CPU board and the ICMs in the field. Depending upon the model, there may be one or two Driver Boards in the ICI.





Uninterruptable Power Supply (UPS)

Rain Bird recommends the use of a UPS to provide battery backup in cases of fluctuating or loss of power to the Integrated Control Interface (ICI). When operated by battery the IC System™ requires a “pure sine wave” signal and not a modified, square or PWM wave.

The computer running the Central Control software and ICI should be powered through a UPS. Rain Bird has verified **APC model Smart-UPS 1500** for the IC System. Different countries may have differing requirements and APC typically makes a Smart-UPS for each country according to the needs of that country. If sourcing a Smart-UPS for a different country, please source the UPS in the country in which the system will be operated. For example, do not purchase a Smart-UPS in the United States and ship it to Asia. The local Rain Bird distributor can source the appropriate UPS in-country.

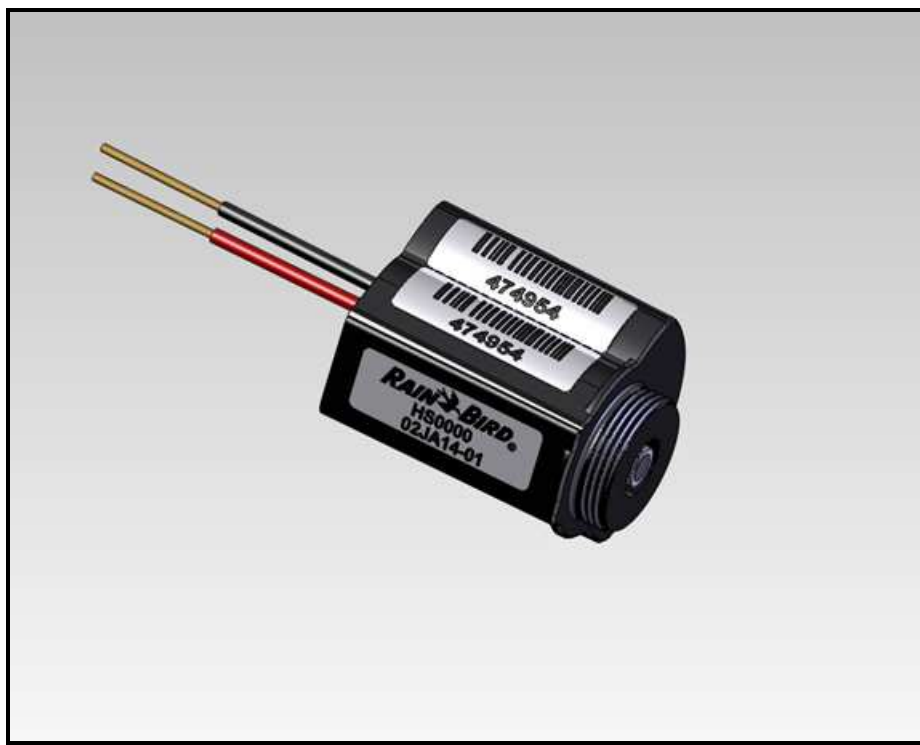
Less expensive UPS models are available in a variety of stores but it has been proven that these do not produce the “pure sine wave” signal required by the IC System. Please purchase the APC Smart-UPS 1500 model for an IC System.

How the system works

The IC System™ uses a data transfer method that sends packets of information across a two-wire path. Each ICM has a unique address that allows the central control software to communicate with each ICM individually.

The ICM has a unique “Long Address” pre-assigned from the factory that identifies it in the central control software. The Long Address is like having a phone number for each ICM. Each ICM has a label on the outside of the housing with a barcode and the printed Long Address. The user must enter the Long Address into the central control software at initial start-up.

The central control software communicates with the ICMs in the field through a high-speed method of communication that requires that each ICM is assigned a Fast Connect Address. The Fast Connect Address is assigned automatically by the central control software based on its location in the Central Control Database.



The Fast Connect Address is a method by which the Central Control Software can quickly communicate with more than one ICM at a time. This is like having a speed dial for a phone number. The Central Control Software can manage up to 750 ICMs on a single wire path by utilizing this communication scheme.



Basic Design Data

1. The IC System™ can operate up to 750 individually controlled ICMs per wire path.
2. The central control software communicates via the Integrated Control Interface (ICI) to the ICMs on the course. The ICI is mounted indoors and located near the central control computer. It is possible to remotely locate an ICI by radio, cellular or Ethernet communication. See page 18 for additional details. System capacity is determined by the level of central control software as well **as the hardware within the ICI.**
3. Each ICI contains a maximum of two (2) Driver Boards. Each Driver Board has a maximum capacity of two (2) wire path inputs.
4. A single Driver Board has a maximum capacity of 1,500 stations when both wire paths are used.
5. The ICI has a maximum capacity of 3,000 stations when all four (4) wire paths are used on the two (2) Driver Boards.
6. The IC System can be expanded above 3,000 stations with the optional hybrid capability of the central control software. Using the optional hybrid feature, multiple ICIs can be integrated into the system, each with a capacity of 3,000 stations. Consult the Rain Bird central control brochure for additional information regarding the optional hybrid feature.
7. An ICI-1500 has the capacity of 1,500 stations using two (2) wire path outputs on a single driver board.
8. An ICI-3000 has the capacity of 3,000 stations using four (4) wire path outputs on two (2) driver boards.



System Capacity

The System Capacities are as follows:

Wire Path	Maximum of 750 ICMs per wire path		
Driver Board	Two (2) separate wire paths. Maximum 1,500 ICMs per driver board		
ICI	Two (2) driver boards. Maximum 3,000 ICMs per interface		
Central Control Software	Software	Standard Configuration*	Maximum Number of Stations**
	Stratus LT	1 ICI and 1 wire path (750 ICMs)	750 ICMs
	Stratus II	1 ICI and 1 wire path (750 ICMs)	6,000 ICMs (with Wire Path Keycode and 2 ICIs)
	Nimbus II	1 ICI and 4 wire paths (3,000 ICMs)	24,000 ICMs (with 8 ICIs)
	Cirrus	12 ICIs and 48 wire paths (36,000 ICMs)	36,000 ICMs (with 12 ICIs)

* Standard configuration is number of stations and ICIs available in the software without purchasing a Hybrid Software Module. ICIs are purchased separately as needed and are not included with the central control software.

** Maximum stations available for each level of software when additional ICIs and Hybrid Software Module are purchased.

Flexible Design

The IC System™ was designed to be as flexible as possible to accommodate the future needs of the golf course.

While each wire path can accommodate 750 ICMs, if the wire path is expected to be at maximum capacity, installing an additional wire path will create extra capacity for future expansion. When designing with multiple wire paths, try to balance the load between the wire paths in order to ensure there is room for future expansion on the wire path.



Example – Total golf course need is 1,100 ICMs. We would suggest you plan on implementing two primary wire paths with approximately 550 on each path. The purpose for this is to leave room for expansion in the future.

Wire Path

The IC System™ has been designed to provide great flexibility on each wire path. The low power requirements of each ICM ensure that it is easy to design wire paths. There are three considerations when sizing the wire path for an IC System.

- Number of ICMs on the wire path.
- Total length of wire path from the interface to the farthest ICM.
- The initial length of wire path between the ICI and the first ICM on the wire path.

Take the time to carefully plan out the wire path and utilize the following documentation to aide in planning. A properly designed and installed wire path will help to eliminate unnecessary problems after installation.

Wire Sizing Charts

The following wire sizing charts provide the proper guidelines for wire sizing on the wire path. The most important calculation is that of the primary **Trunk wire length** on each wire path. The Trunk wire length is considered to be the “longest single run of wire” that will be needed for accommodating the design quantity of ICMs on the wire path. The Trunk wire length does not consider any branches from the main wire run in the calculation of wire length. Branches are wire runs that branch out from the Trunk wire in the field, and they should be sized accordingly.

If an individual branch wire is less than 25% of the entire Trunk wire length, it can be one size smaller than the gauge of the Trunk wire. A minimum of 14 AWG (2.5 mm²) wire size is required.

When the following chart indicates that the Trunk wire length requires 14 AWG (2.5 mm²) wire, the branches can still utilize 14 AWG (2.5 mm²) wire minimum.

When the following chart indicates that the Trunk wire length requires 12 AWG (4 mm²) wire, the branches can still utilize 14 AWG (2.5 mm²) wire.

When the following chart indicates that the Trunk wire length requires 10 AWG (6 mm²) wire, the branches can still utilize 12 AWG (4 mm²) wire.



If an individual branch exceeds 25% of the total Trunk wire length, that branch shall be designed with the same gauge wire as the Trunk wire. Other branches less than 25% can be designed with a wire size no more than 1 size smaller than the Trunk wire size.

Wire Sizing Charts – (last updated April 2013)

Number of Units	Wire distance in feet														
	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000
50	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
100	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
150	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
200	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
250	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG
300	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG
350	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG
400	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG
450	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG
500	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG
550	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG
600	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG	10 AWG
650	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG	-	-
700	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG	-	-	-
750	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG	10 AWG	-	-	-

April 2013

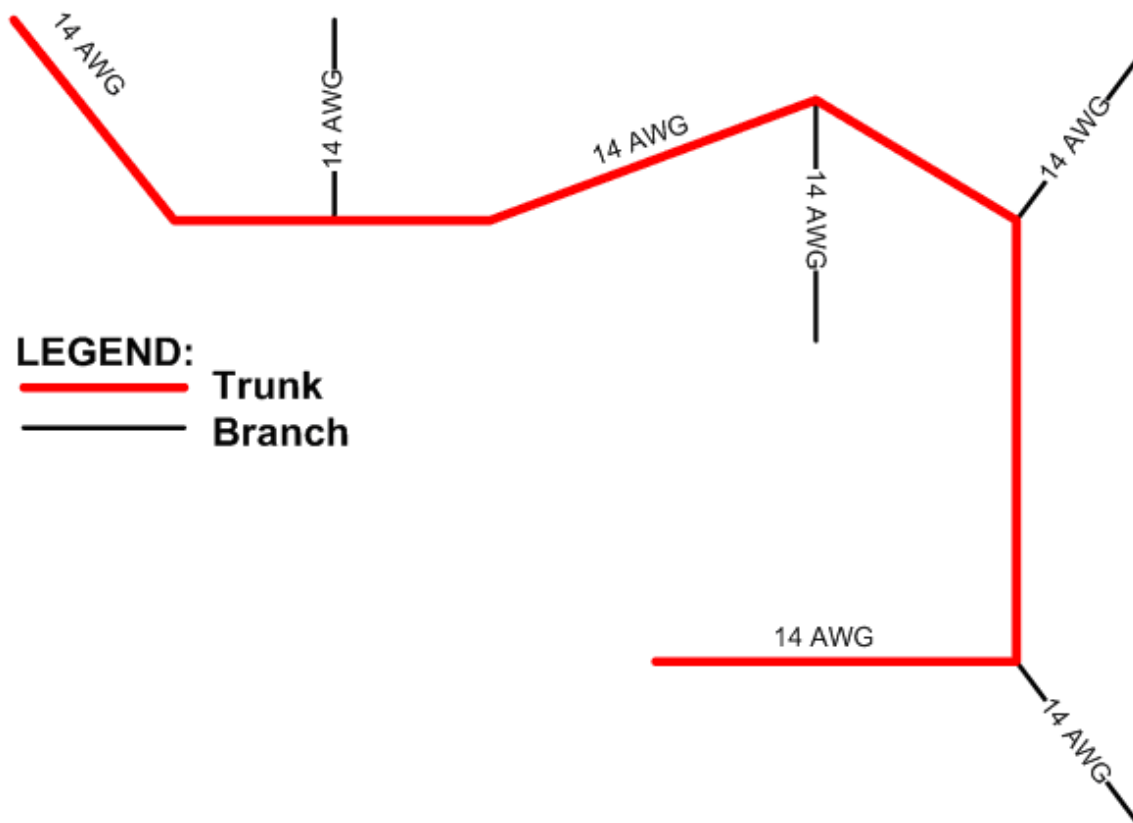
Number of Units	Wire distance in meters														
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500
50	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
100	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
150	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
200	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
250	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²
300	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²
350	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²
400	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²
450	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²
500	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²
550	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	6.0mm ²
600	2.5mm ²	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	6.0mm ²	6.0mm ²
650	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²
700	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	-	-
750	2.5mm ²	2.5mm ²	2.5mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	4.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²	-	-

April 2013

Initial Length of Run from Interface to First ICM

In addition to the above wire sizing chart, if the chart recommends 14 AWG (2.5 mm²) wire path and the initial run of wire between the Interface and the first ICM on the wire path is greater than 2,500 feet (750m) then the initial length of wire (from interface to the first ICM) should be upsized by one additional wire size to 12 AWG (4.0mm²). This is only necessary when 14 AWG (2.5 mm²) is the recommended wire size. If the chart recommends 12 AWG (4.0 mm²) based on number of units and total length of run of the wire path, then additional upsizing in a long initial run of wire is not necessary.

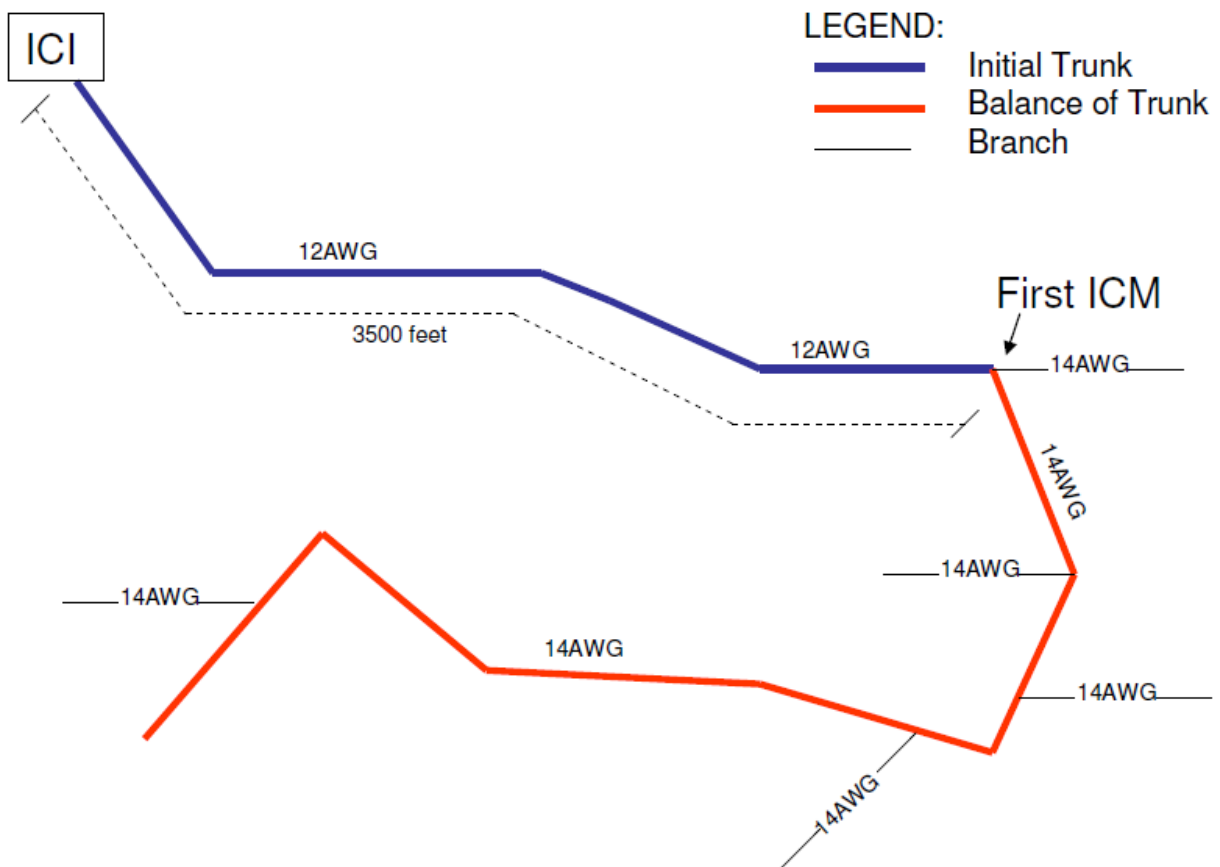
Example 1 – An installation requires 300 ICMs on a single wire path and the Trunk wire length will be up to 10,000 feet (3,000 meters). Utilizing the sizing chart the Trunk wire should use 14 AWG (2.5 mm²) MAXI™ wire for the installation. Although there are multiple branches off of the main Trunk wire, these are not part of the calculation when determining the size of the Trunk wire. Each branch will also be 14 AWG (2.5 mm²) wire.





Example 3 – An installation requires 400 ICMs on a wire path and the trunk wire length will be up to 8,000 feet (2,439 meters). The length of run from the ICI to the first ICM on the wire path is 3,500 feet (1,067 meters). Utilizing the sizing chart the Trunk wire should use 14 AWG (2.5 mm²) MAXI™ wire for the installation. As the initial 3,500 feet (1,067 meters) is greater than 2,500 feet it requires an increase in wire size to 12 AWG (4.0mm²). The initial 3,500 feet (1,067 meters) of Trunk wire should be sized at 12 AWG (4.0mm²) from the ICI to the first ICM. After the first ICM, the Trunk wire can continue at 14 AWG (2.5mm²).

Although there are multiple branches off of the main Trunk wire, these are not part of the calculation when determining the size of the Trunk wire. Each branch will also be 14 AWG (2.5 mm²).





Grounding

Proper grounding is very important for the IC system™. The system grounding is accomplished through the ICSD surge devices that are installed on the wire path. Rain Bird MSP surge devices are installed on each wire path prior to entering the Integrated Control Interface (ICI) at the central.

Important!

An Integrated Control Surge Device “ICSD” should be located every 15 ICMs or every 500 feet (150 meters), whichever condition is reached first. This is a guideline for design purposes and designers should try to stay as close to these guidelines as possible. However in the example of a herringbone system with 4 stations per pipe lateral, an ICSD could be installed every fourth lateral (therefore every 16th station) as a normal design practice.

The purpose of field surge devices is to offer “containment” of surge during an event so that damage caused by the event will be limited by an ICSD located on either side of the event. The key for successful containment is proper installation of ground rods or plates so that the desired Ohms resistance level is achieved.

During long runs of wire where there are no ICMs, an ICSD is not required every 500 feet (150 meters). For example, if there is a wire length run of 2,000 feet (609 meters) between ICMs, an ICSD should be installed immediately after the last ICM and just prior to the next ICM. ICSDs are not required at 500 foot (150 meter) intervals on the 2,000 foot (609 meter) run of wire.

At the ICI, for a long run (greater than 500 feet or 150 meters) at the beginning of the wire path, the MSP should be installed at the interface and an ICSD installed just prior to the first ICM on the wire path.

Grounding Requirements - Field

The IC System must have grounding throughout the wire path to allow any transient surges the opportunity to leave the wire path. The following requirements must be followed to properly ground the IC System:

1. Each ICSD must have an earth ground resistance of less than 50 ohms and be no more than 500 feet (150 meters) from the next ICSD.
2. Each ICSD can be located either next to a valve-in-head rotor or in-line valve. The ICSD should be accessible in case of maintenance. Either a ground rod or plate can be utilized to obtain an earth ground reading of 50 ohms or less.
3. The grounding requirement at the central control is to have less than 10 ohms of earth ground resistance. 5 ohms or less of ground resistance is preferable. The central control shall utilize



MAXI™ Surge Protectors (MSP-1) on each wire path with MAXI Ground Plates (MGP-1) as required in the system

4. Although not required, an optional shielding wire can also be utilized to improve the grounding of the system. If used, the shielding wire should be a 10 AWG (6 mm²) bare copper wire that connects to each of the grounding rods or plates in the system. The purpose of the shielding wire is to provide shielding for the MAXI wire path by attracting surges to the shielding wire. It also can reduce the overall earth ground resistance of the system by connecting the ground rods together. Rain Bird believes the decision to use a shielding wire on a project should be based on the localized conditions at the project and is not specific to a control system type or manufacturer type. A course would have a shielding wire regardless of control system, or it does not. It should be the decision of the irrigation designer.
5. If a shielding wire is used, the ground rods or plates should be tested independently, prior to connecting the shielding wire to the rods or plates. This will ensure that the rods or plates provide a good earth ground at the ICSD. A measurement with the shield connected does not give a true reading of the individual ground location at the ICSD and will give a reading that is considerably lower than the actual grounding at that location.
6. The primary objective of grounding is to achieve the desired earth ground reading for the rods or plates regardless of which method is used. Rain Bird has had good success with ground rods when soil conditions allow them to be driven completely into the soil profile. An 8 foot (2.4 m) rod will help distribute a surge into lower layers of the soil profile, away from the soil surface and equipment.
7. ICSDs should be located at dead ends on long wire runs, approaching 500 feet (150m.) Short wire runs do not require ICSDs at the dead ends. In particular, herringbone pipe layouts do not require ICSDs at the end of each herringbone lateral.

Types of Pipe Networks

The IC System™ works equally well with “herringbone” or “sub-loop lateral” pipe network designs. Rain Bird looks to the irrigation designer to select the best pipe network layout for the irrigation system design and then apply the IC System wire path on that layout. Each type of pipe network design offers different advantages depending upon the location and size of the irrigation system. There is no preference for the IC System wire path.



Wire Path “Field Fuses” (aka “Switches”)

Third-party, fused wire path “field fuse” devices are available on the market that provide the ability to isolate one leg of a wire path for troubleshooting purposes. These switch devices have proven effective on DECODER type control systems to facilitate easy troubleshooting when a wire path has gone down due to a failed decoder. However it is extremely rare for an IC System™ to experience this type of failure because the ICM is specifically designed to fail offline by itself and not bring down the wire path when damaged. For this reason, Rain Bird strongly discourages the use of third-party switches on the IC System. Third-party switches are an unnecessary, extra device on the wire path with the potential to act as an additional failure point to be investigated. Third-party switches may prevent the Rain Bird central control software system diagnostics from properly identifying a failed ICM.

Looping Communication Wire

The IC System communication wire should NOT be looped. Dead ends are highly preferred and recommended. While the system will work with looped communication wire, troubleshooting will be more difficult so looping is not recommended.

Combining Wire Paths at the Interface

While a single IC wire path can easily handle 750 ICMs when sized according to the design guide table, there are times when it may make sense to bring separate wire paths (with fewer ICMs) directly back to the interface. When combining two or more distinct wire paths into a single output terminal at the ICI, it is not necessary to calculate the total length of all of the wire paths combined when calculating Trunk wire size. Each distinct path is viewed separately as a Trunk and not a Branch. Therefore, size each of the Trunk wires paths separately, considering the number of ICMs and length of that path to calculate the wire size. NOTE: The combined number of ICMs on a single terminal output still cannot exceed 750 ICMs.

Remotely Locating Integrated Control Interfaces (ICI)

Rain Bird has had great success with remotely located interfaces for many years. Designers may wish to consider remotely locating the Integrated Control Interface (ICI) in the field to reduce long wire runs or address localized conditions. For example, the central control computer can be located at the maintenance building and the ICI can be remotely located in a pump station, clubhouse or other secure, weatherproof location that is more conveniently located to the golf course irrigation system.



Radio, cellular and Ethernet connections exist to connect the irrigation computer to a remotely located interface.

All Rain Bird interfaces, including remotely located interfaces are always online and maintain continuous real-time two-way communication between the central and each interface. The central does not download programs to remote interfaces. This ensures that all of the Rain Bird central control software advanced technologies remain active and operational with all devices attached to the control system. For example, dynamic flow management is always active on all stations regardless of whether the interface is local or remotely located. Water-saving products like RainWatch™ devices are always online and active. When activated on a central, MI Series Mobile Controller™ is online with all stations regardless of whether the interface is local or remote. There are no limitations with the remotely located interfaces compared to systems where the interface is located at the irrigation computer.

900MHz Spread Spectrum Radios:

An MRLK 900 Remote Location Kit should be used to provide wireless 900MHz radio communication between the central control computer and the remotely located ICI. The MRLK900 Kit includes two radios that operate in the 902-928MHz range and automatically hop between frequencies to avoid interference.

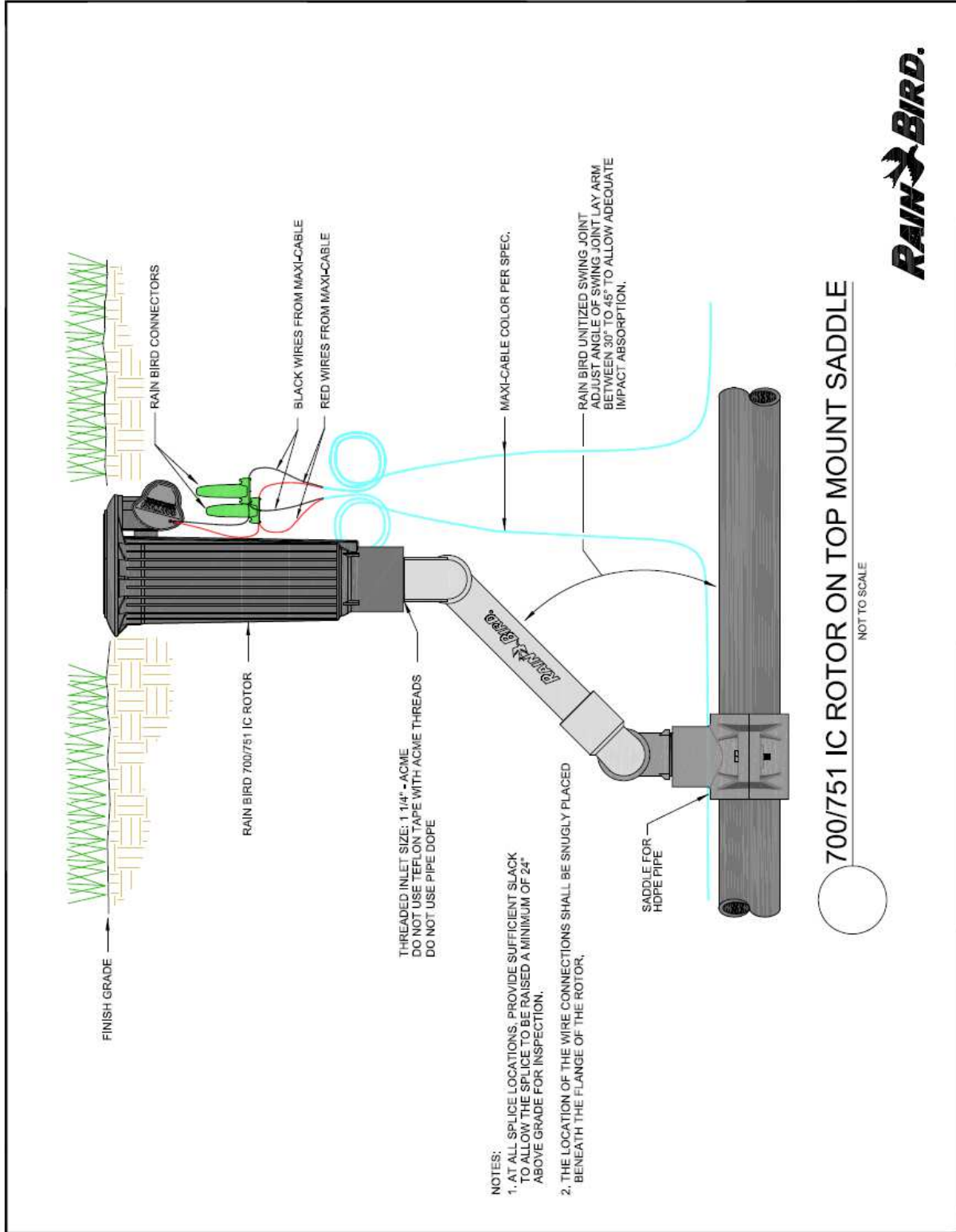
Please note the following:

- An MRLK900 Kit is required for each remotely located ICI.
- A site survey should be completed by the authorized Rain Bird golf distributor or manufacturer to ensure that the system will communicate between the desired points. A repeater may be required to ensure good quality communication.
- 900MHz radios are NOT approved for use in some countries. This should be verified prior to completing the irrigation design.
- Remotely located interfaces require a UPS device, just as if they were located with the central control computer. The APC model Smart-UPS 1500 is the approved device.

Please contact your distributor or Rain Bird representative to verify the above information and obtain more details regarding the use of MRLK900 kits to remotely locate an ICI on your project.

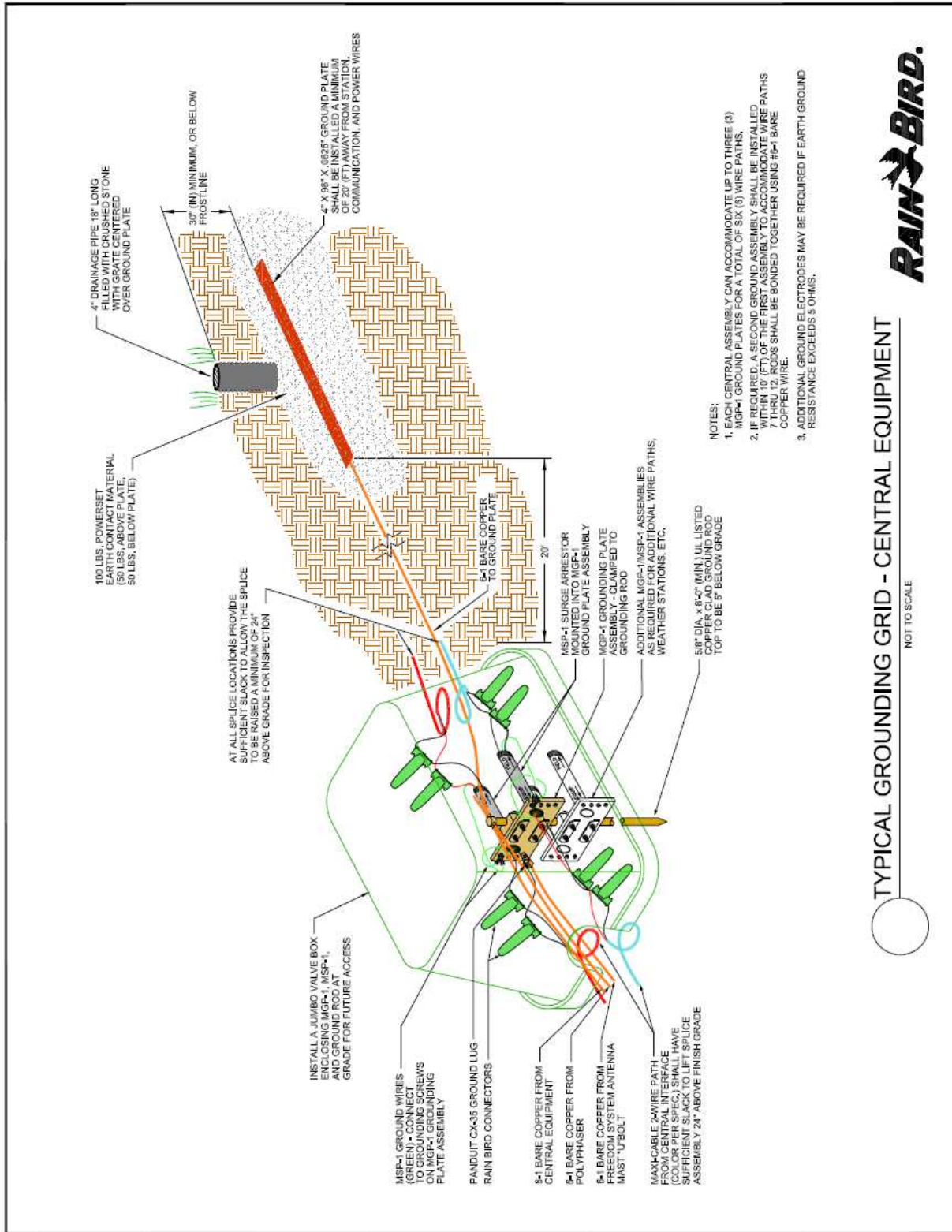
Ethernet or Cellular Connection:

It is possible to remotely configure an IC interface to communicate via Ethernet or cellular with the irrigation central. This has been done successfully on Rain Bird control systems in a number of locations. Please contact your Rain Bird Golf Distributor or Rain Bird sales manager for additional information.



NOTES:

1. AT ALL SPLICE LOCATIONS, PROVIDE SUFFICIENT SLACK TO ALLOW THE SPLICE TO BE RAISED A MINIMUM OF 24" ABOVE GRADE FOR INSPECTION.
2. THE LOCATION OF THE WIRE CONNECTIONS SHALL BE SNUGLY PLACED BENEATH THE FLANGE OF THE ROTOR.



TYPICAL GROUNDING GRID - CENTRAL EQUIPMENT

NOT TO SCALE



Integrated Control System™ Rotors and Valves

Now, Integrated Control Technology™ built into the rotor and valve for easy streamlined control. The new Rain Bird IC™ System connects central control directly to the rotor or valve. No field controllers, decoders, secondary wiring or unnecessary splices. Reducing many of the areas that can breakdown, wear out or malfunction.

Features and Benefits

- Simple to Install – Requires up to 90% less wire than traditional satellite control systems and 50% fewer splices than a traditional decoder system.
- Cost Savings – Fewer splices and less wire requires less time and effort to install the system.
- System Database Management – The Integrated Control Module (ICM) offers tear off bar codes and an easy to use scanner to simplify the creation of the central control system database for quick operation. As soon as the wire path is connected to the computer, you can turn on the sprinklers and valves.
- Reliable Control – The IC System is a simple yet sophisticated controller/rotor/valve system built around a new generation of Rain Bird's proven solenoid and satellite technology. Simplicity results in reliability.
- Easier to Design – The IC System is easier to design—only simple calculations are required. It eliminates an array of troublesome considerations—there are no satellite controllers to design around or conceal.
- Easier Maintenance – The IC System is capable of intelligent two-way communication with each and every ICM on the golf course. Almost all troubleshooting can be managed through intuitive diagnostics built into the central control software. The learning curve for maintenance is minimal. Course

Now, control technology is integrated right into the rotor or valve.

technicians can easily accomplish most maintenance tasks. The ICM is easily removed and can be replaced if necessary.

- Dependable – The IC System is designed to always turn off if problems occur. When the wire path is damaged or cut, or if central control communication is lost, the ICM is designed to turn off automatically.
- True "Below 30 Volt Control System" – As the IC System wire path output is 26.5 Volt, the IC System is a "true less than 30 Volt control system." A lower than 30 Volt system is considered a low voltage system and is typically not subjected to code requirements regarding deep burial of the wire path.
- Below Ground Control – Since the ICM is built right into the rotor or valve, the entire control system is below ground. Unlike field controller systems, the below ground system offers protection against damage from vandalism, flooding, and insects.
- Golf Course Aesthetics – Since the IC System control is designed to be entirely below ground, the golf course vistas are clear of irrigation components as envisioned by the golf course designer.
- The IC System allows the full benefits of Rain Bird central control systems including: ET-based scheduling, customized course graphics, multiple mapping options, and the ability to "see" the placement and operation of individual rotors.
- Central Control "Smart Features" – With the IC Series System, you have the ability to utilize all of Rain Bird's central control "Smart Features" including: Rain Watch, Minimum ET, Smart Weather, SmartPump™, and Superior Monitoring of system operation.



Specifications

- System Capacity*: 750 ICMs per Output Wire Path, 1500 ICMs per Output Driver Board, 3000 ICMs Per IC Interface (ICI)
* Specific System Capacity is dependent on the Central Control System
- ICI Electrical Input: 100 VAC Nominal 91-110 VAC @ 60 HZ +/- 2 HZ, 115 VAC Nominal 98-132 VAC, 220-240 VAC Nominal 208-255 VAC
- Electrical Output: 26.5 VAC, 1.25 AMP Per Wire Path
- Active Stations: No electrical limit - only limited by hydraulics of pipe network and size of pump station
- ICM Current Requirements: Varies based on wire path length - Nominal Current Draw is .33 mA on 5000' (1500 meters) of wire
- Grounding Requirements: ICSD to be grounded at less than 45 Ohms every 500 feet (150 meters) or 15 ICMs whichever is less. The Central Control is to be grounded with less than 5 Ohms of resistance
- Compliance: CE, FCC
- Environment: Working Range - 32 degrees F to 122 degrees F (0-50 C), Storage Temperature - -40 degrees F to 150 degrees F (-40 - 65 C), Operating and Storage Humidity - 100%
- Dimensions: ICM - 2.23 inches X 1.70 inches (57 mm X 43 mm), ICSD - 2.00 inches X 1.41 inches (51 mm X 43 mm)
- Compatibility: Rain Bird EAGLE™ 500, 700 and 900 Series Rotors** and Rain Bird PES-B, PEB, PGA, EFB, and BPE Electric Valves with ICM Adapter
** Note EAGLE Rotors sold before 6/2009 will have a random orientation of the ICM relative to the Selector Housing
- Maximum Wire Paths: 2 Outputs per IC Driver Board and Up to 4 total per ICI and Multiple Branches Per Wirepath

How to Specify/Order ICM Rotors*

XXX	-	ICM	-	XX	-	XX	-	XXX(X)
Model		Body		Nozzle		Pressure Regulator		Thread Type
500		ICM		Please		60 (4,1)		(ACME only)
550				see nozzle		70 (4,8)		
700				charts for		80 (5,5)		
750				each rotor				
900								
950								

How to Specify/Order Valves*

XXX	-	XXX(X)(X)	-	ICM
Size		Model		Optional Feature
100		PESB		ICM
125		PESB-R		
150		EFB-CP		
200		BPE		
300		BPES		

* For exact combinations of Rotors (Nozzles & Pressure Regulator) and Valves (Size), Please refer to the Catalog for the Model

Rain Bird Europe SNC
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Tel: (33) 4 42 24 44 61
Fax: (33) 4 42 24 24 72
rbe@rainbird.eu - www.rainbird.eu

Rain Bird France SNC
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Tel: (33) 4 42 24 44 61
Fax: (33) 4 42 24 24 72
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FOXWOOD

2021 Renovation



INDEX OF SHEETS

1	Irrigation Layout Holes 1,2,7,8,9,PA
2	Irrigation Layout Holes 1,2,7,8,9,PA
3	Irrigation Layout Holes 3-6
4	Irrigation Layout Holes 10-18
5	Communication Layout Holes 1,2,7,8,9,PA
6	Communication Layout Holes 3-6
7	Communication Layout Holes 10-18
8	Details
9	Details

Revisions

TITLE SHEET

FOXWOOD
CRESTVIEW, FLORIDA

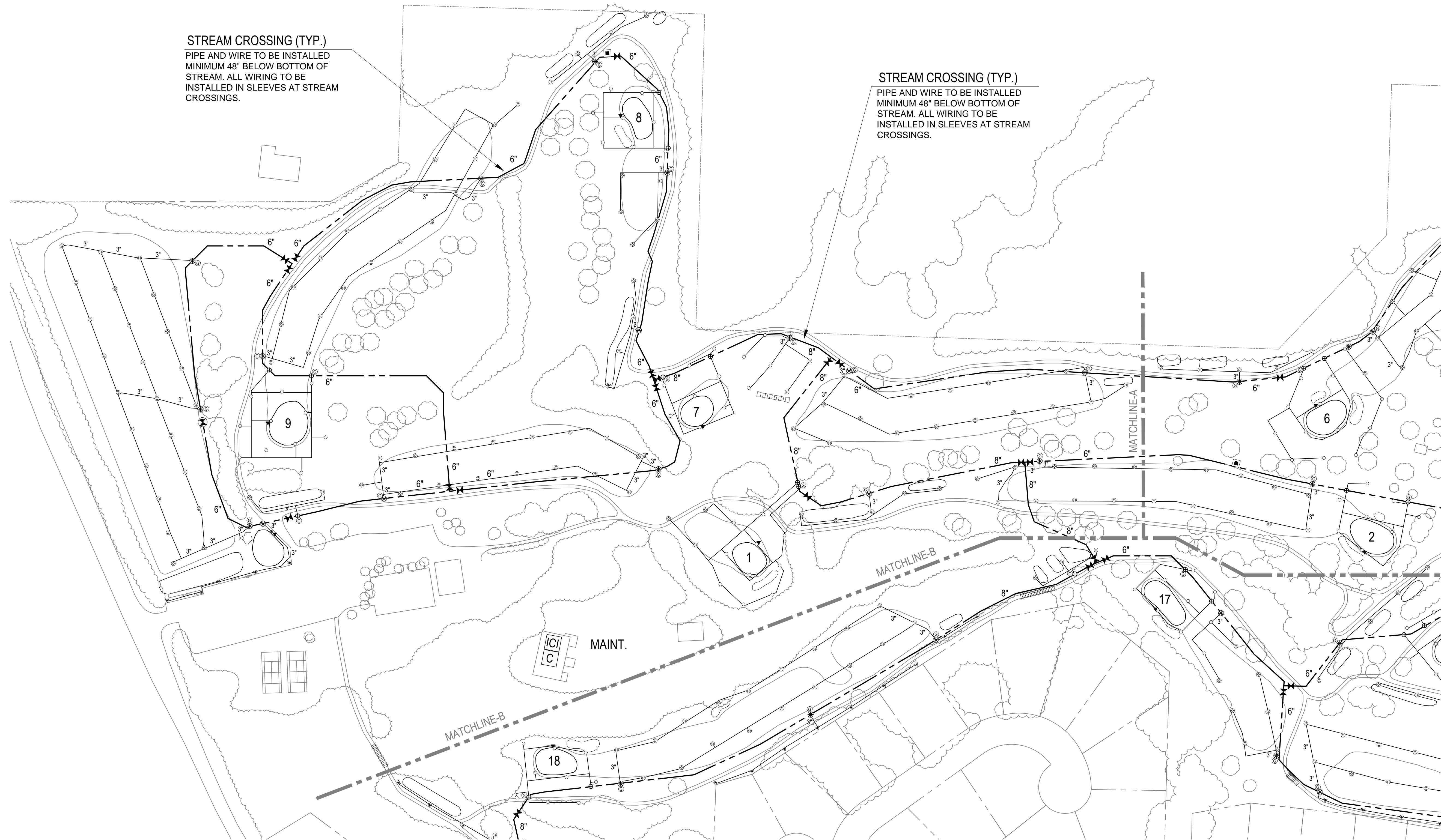
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SHEET

1

Revisions



STREAM CROSSING (TYP.)
 PIPE AND WIRE TO BE INSTALLED
 MINIMUM 48" BELOW BOTTOM OF
 STREAM. ALL WIRING TO BE
 INSTALLED IN SLEEVES AT STREAM
 CROSSINGS.

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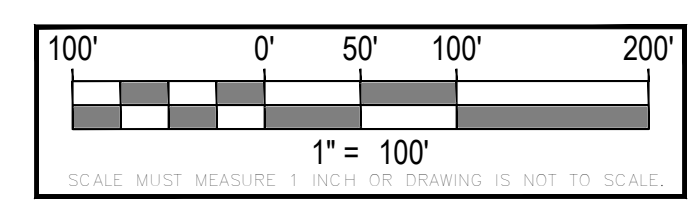
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FOXWOOD
 CRESTVIEW, FLORIDA

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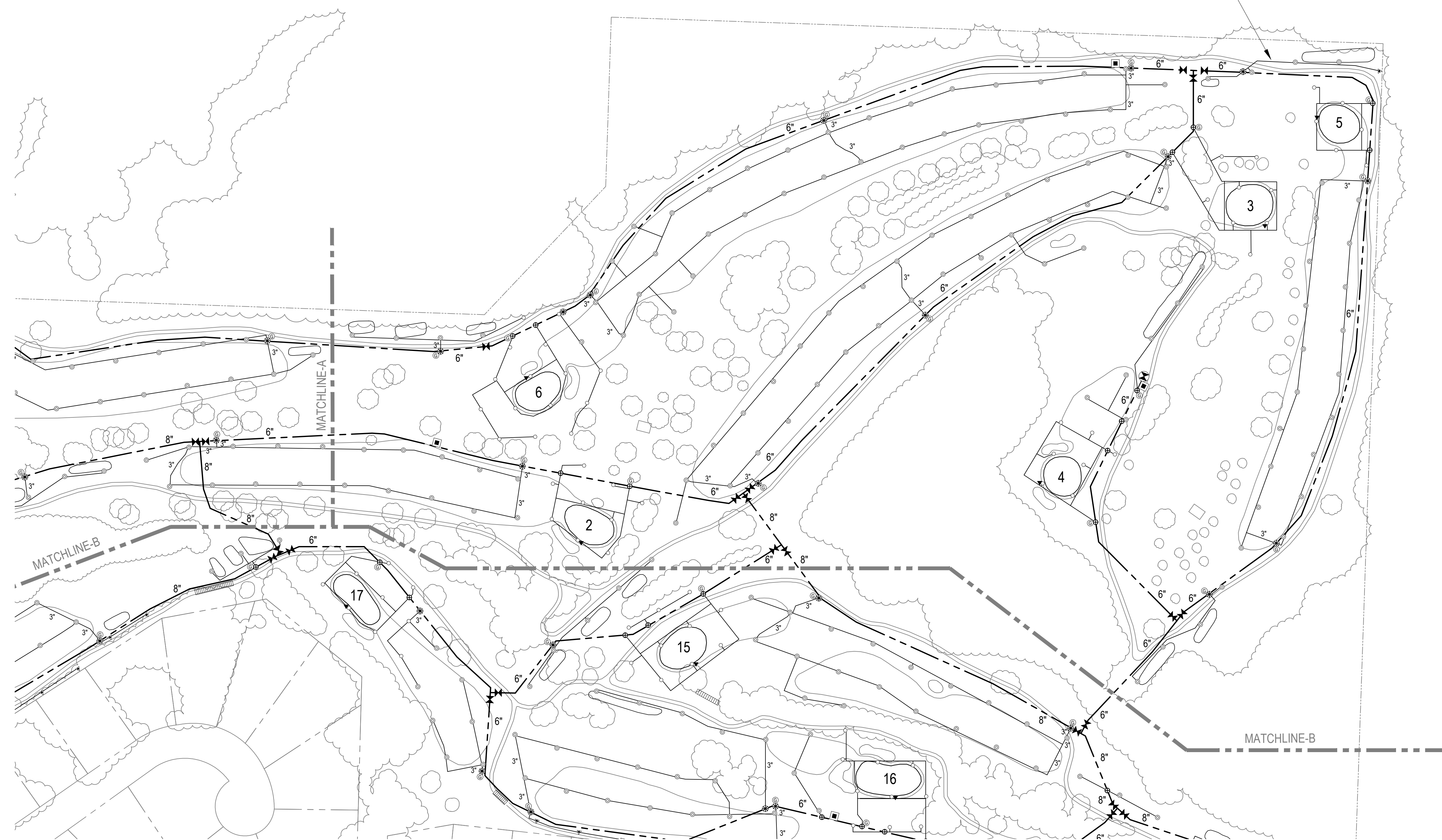
SHEET
 2



NOTE: ALL LATERAL PIPE NOT SIZED ON PLAN TO BE INSTALLED AS 2" PIPE.

Revisions

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 PIPE AND WIRE TO BE INSTALLED
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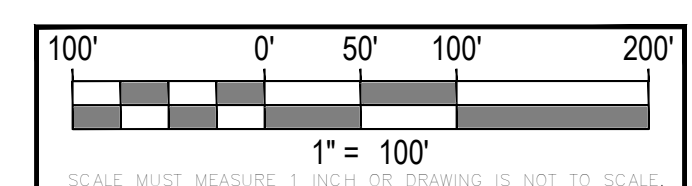
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FOXWOOD
 CRESTVIEW, FLORIDA

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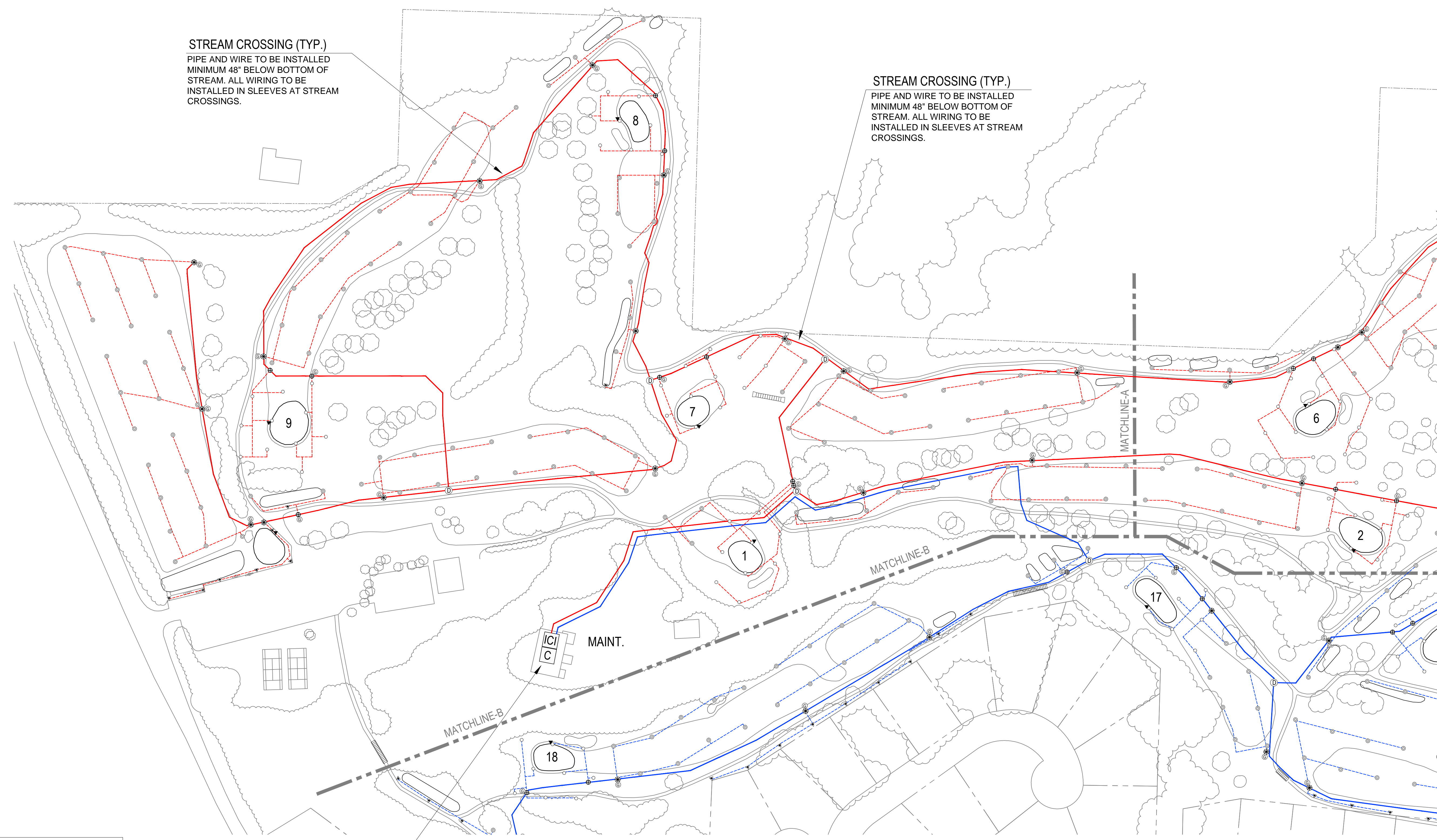


SHEET
3



NOTE: ALL LATERAL PIPE NOT SIZED ON PLAN TO BE INSTALLED AS 2" PIPE.

Revisions



STREAM CROSSING (TYP.)
 PIPE AND WIRE TO BE INSTALLED
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CENTRAL CONTROL COMPUTER
 INSTALL CENTRAL CONTROL COMPUTER AND ALL
 REQUIRED COMPONENTS AT MAINTENANCE FACILITY.

MAXI WIRE SCHEDULE	
BOX-1	HOLES
GROUP #1 (RED)	FRONT NINE & PA
GROUP #2 (BLUE)	BACK NINE

NOTE:
 1.) ALL 2-WIRE SPLICES ON TRUNK LINES
 TO BE PLACED IN ELECTRICAL VALVE BOX
 OR AT LATERAL VALVES.
 2.) ALL 2-WIRE SPLICES ON BRANCHES TO
 BE MADE AT LATERAL VALVES OR
 SPRINKLER HEADS.

NOTE: MAXI 2 WIRE: 14-2 ON ALL TRUNKS (MAINLINE), 14-2 ON ALL BRANCHES (LATERALS)

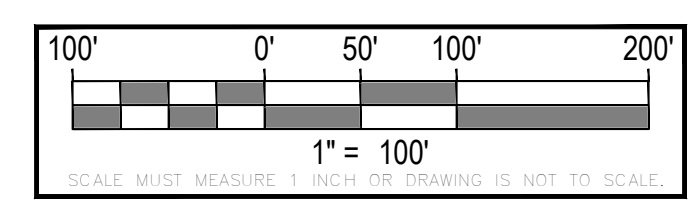
COMMUNICATION WIRING LAYOUT

FOXWOOD
 CRESTVIEW, FLORIDA

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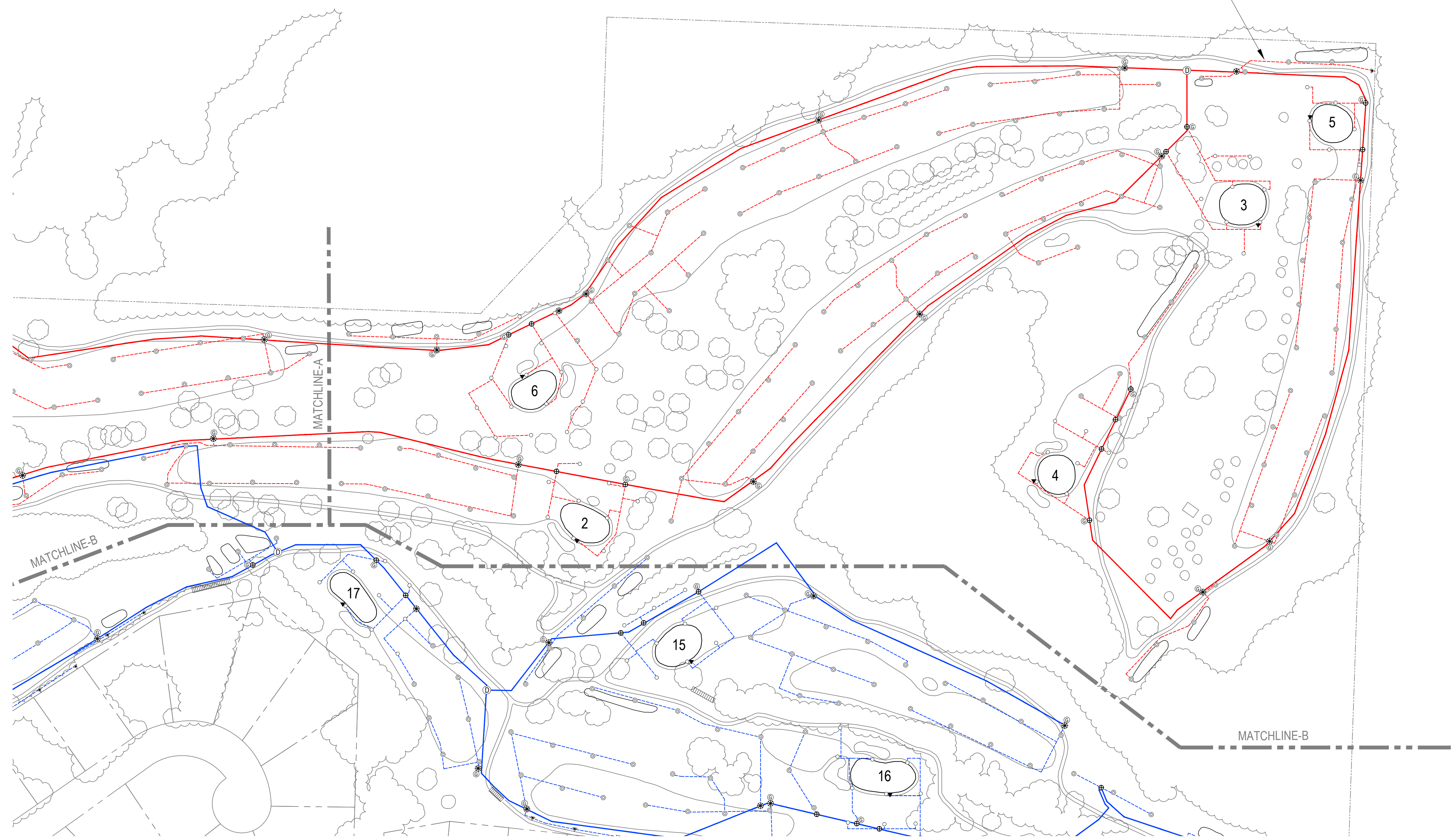


SHEET
5



Revisions

STREAM CROSSING (TYP.)
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COMMUNICATION WIRING LAYOUT

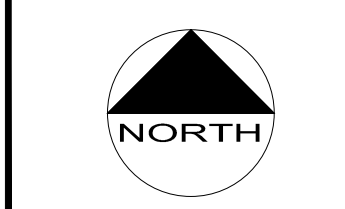
FOXWOOD
 CRESTVIEW, FLORIDA

MAXI WIRE SCHEDULE	
BOX-1	HOLES
GROUP #1 (RED)	FRONT NINE & PA
GROUP #2 (BLUE)	BACK NINE

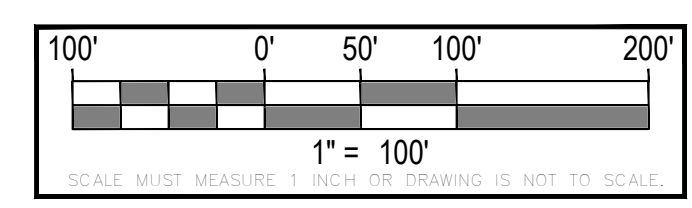
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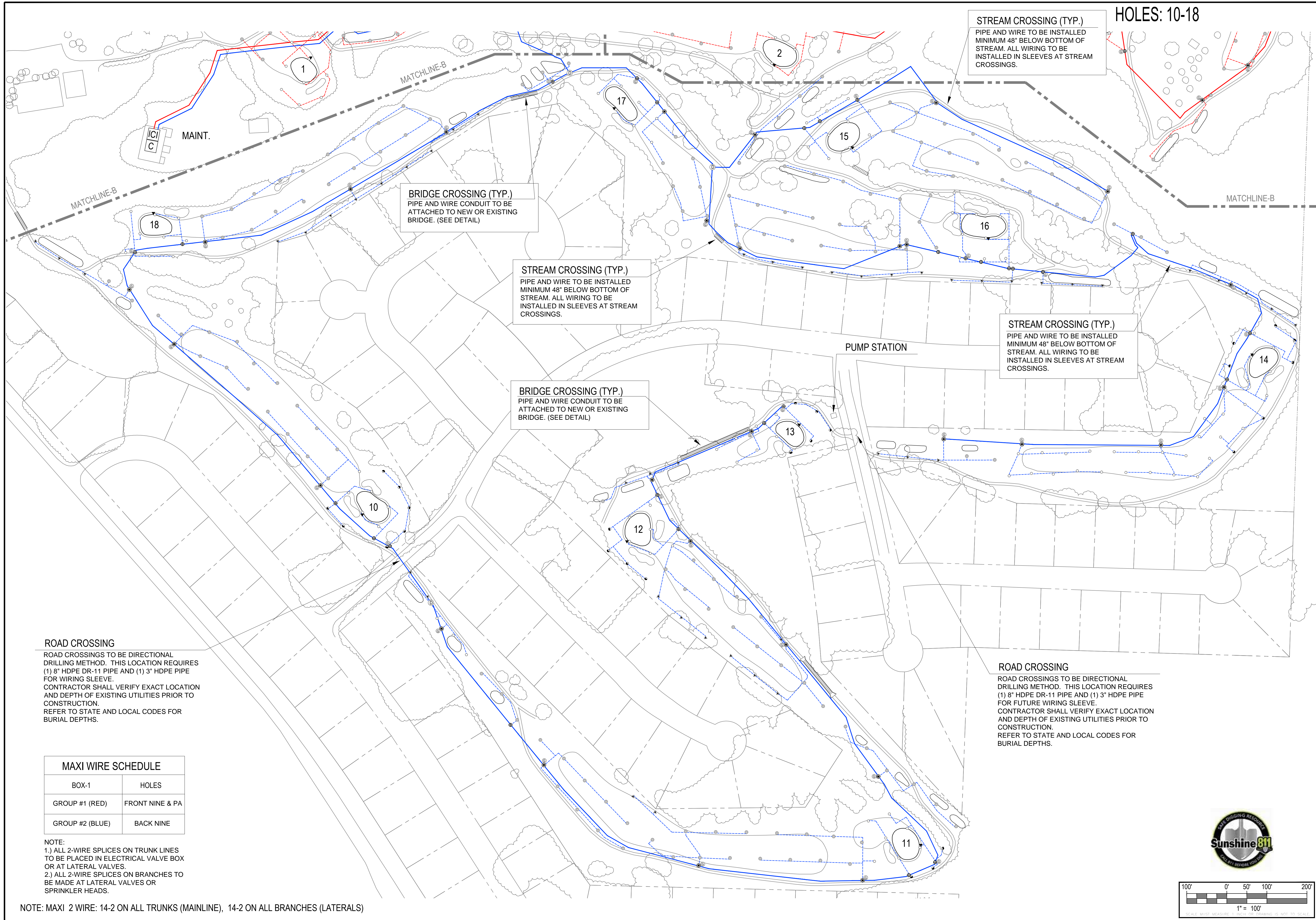
NOTE: MAXI 2 WIRE: 14-2 ON ALL TRUNKS (MAINLINE), 14-2 ON ALL BRANCHES (LATERALS)

Date : 3/26/21
 Scale : 1"=100'



SHEET
6





STREAM CROSSING (TYP.)
 PIPE AND WIRE TO BE INSTALLED MINIMUM 48" BELOW BOTTOM OF STREAM. ALL WIRING TO BE INSTALLED IN SLEEVES AT STREAM CROSSINGS.

HOLES: 10-18

BRIDGE CROSSING (TYP.)
 PIPE AND WIRE CONDUIT TO BE ATTACHED TO NEW OR EXISTING BRIDGE. (SEE DETAIL)

STREAM CROSSING (TYP.)
 PIPE AND WIRE TO BE INSTALLED MINIMUM 48" BELOW BOTTOM OF STREAM. ALL WIRING TO BE INSTALLED IN SLEEVES AT STREAM CROSSINGS.

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 PIPE AND WIRE TO BE INSTALLED MINIMUM 48" BELOW BOTTOM OF STREAM. ALL WIRING TO BE INSTALLED IN SLEEVES AT STREAM CROSSINGS.

BRIDGE CROSSING (TYP.)
 PIPE AND WIRE CONDUIT TO BE ATTACHED TO NEW OR EXISTING BRIDGE. (SEE DETAIL)


ROAD CROSSING
 ROAD CROSSINGS TO BE DIRECTIONAL DRILLING METHOD. THIS LOCATION REQUIRES (1) 8" HDPE DR-11 PIPE AND (1) 3" HDPE PIPE FOR WIRING SLEEVE. CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. REFER TO STATE AND LOCAL CODES FOR BURIAL DEPTHS.


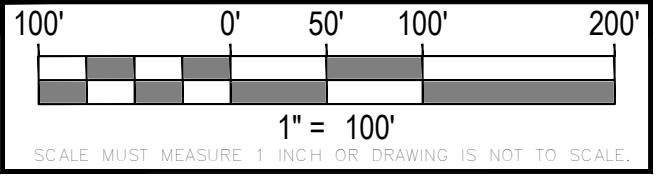
ROAD CROSSING
 ROAD CROSSINGS TO BE DIRECTIONAL DRILLING METHOD. THIS LOCATION REQUIRES (1) 8" HDPE DR-11 PIPE AND (1) 3" HDPE PIPE FOR FUTURE WIRING SLEEVE. CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. REFER TO STATE AND LOCAL CODES FOR BURIAL DEPTHS.

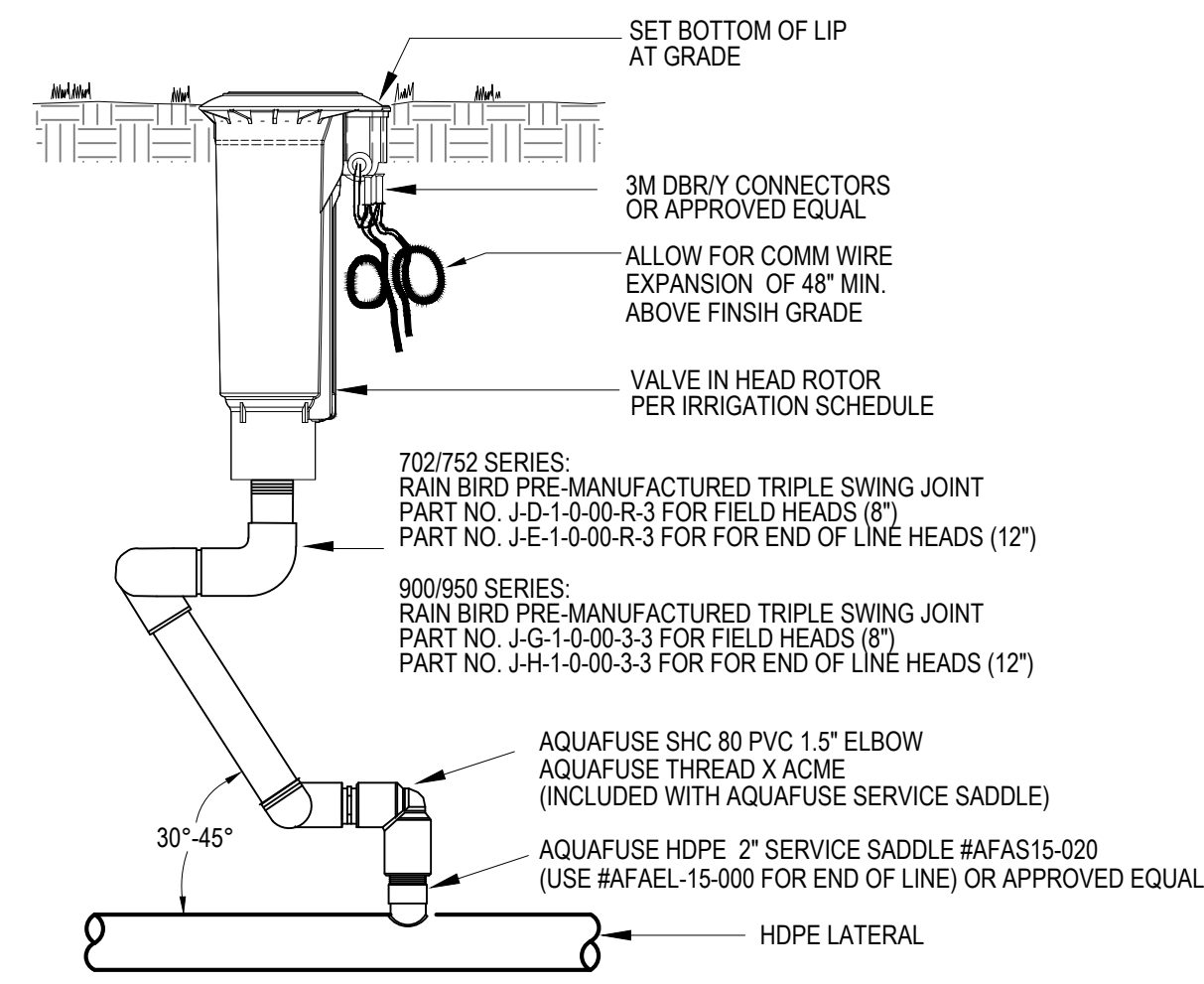
MAXI WIRE SCHEDULE	
BOX-1	HOLES
GROUP #1 (RED)	FRONT NINE & PA
GROUP #2 (BLUE)	BACK NINE

NOTE:
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NOTE: MAXI 2 WIRE: 14-2 ON ALL TRUNKS (MAINLINE), 14-2 ON ALL BRANCHES (LATERALS)

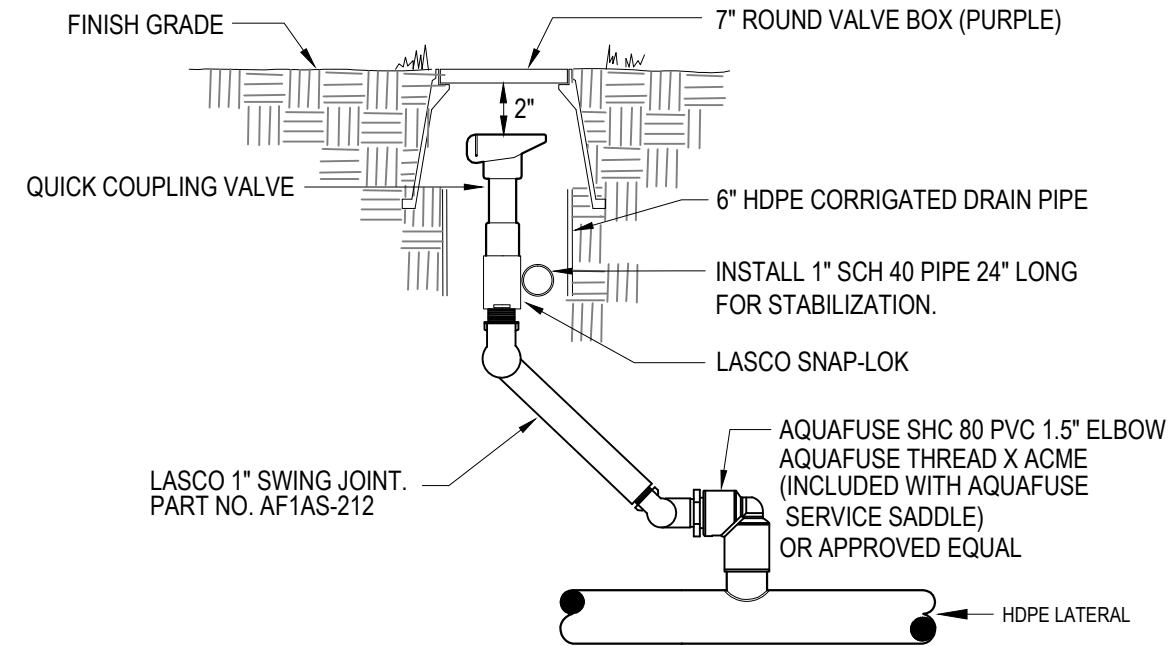
Revisions	
COMMUNICATION WIRING LAYOUT	
FOXWOOD	CRESTVIEW, FLORIDA
Date : 3/26/21	Scale : 1"=100'
	
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7	



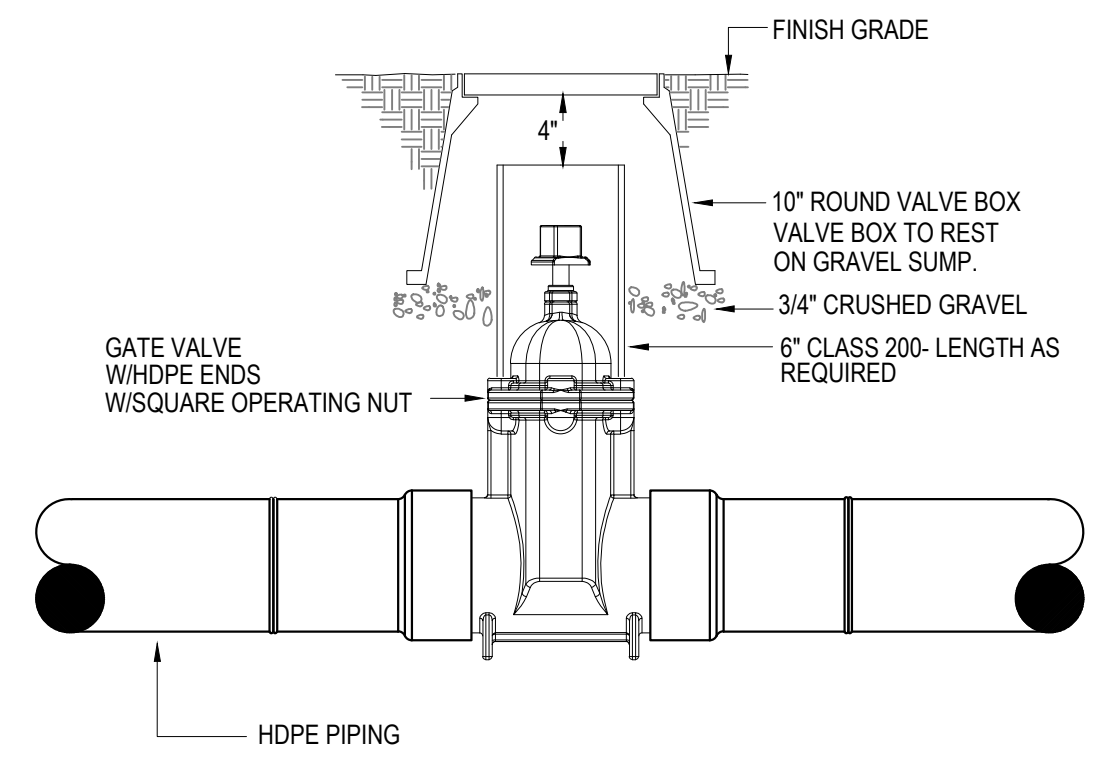
VALVE IN HEAD ROTOR (HDPE)

NTS



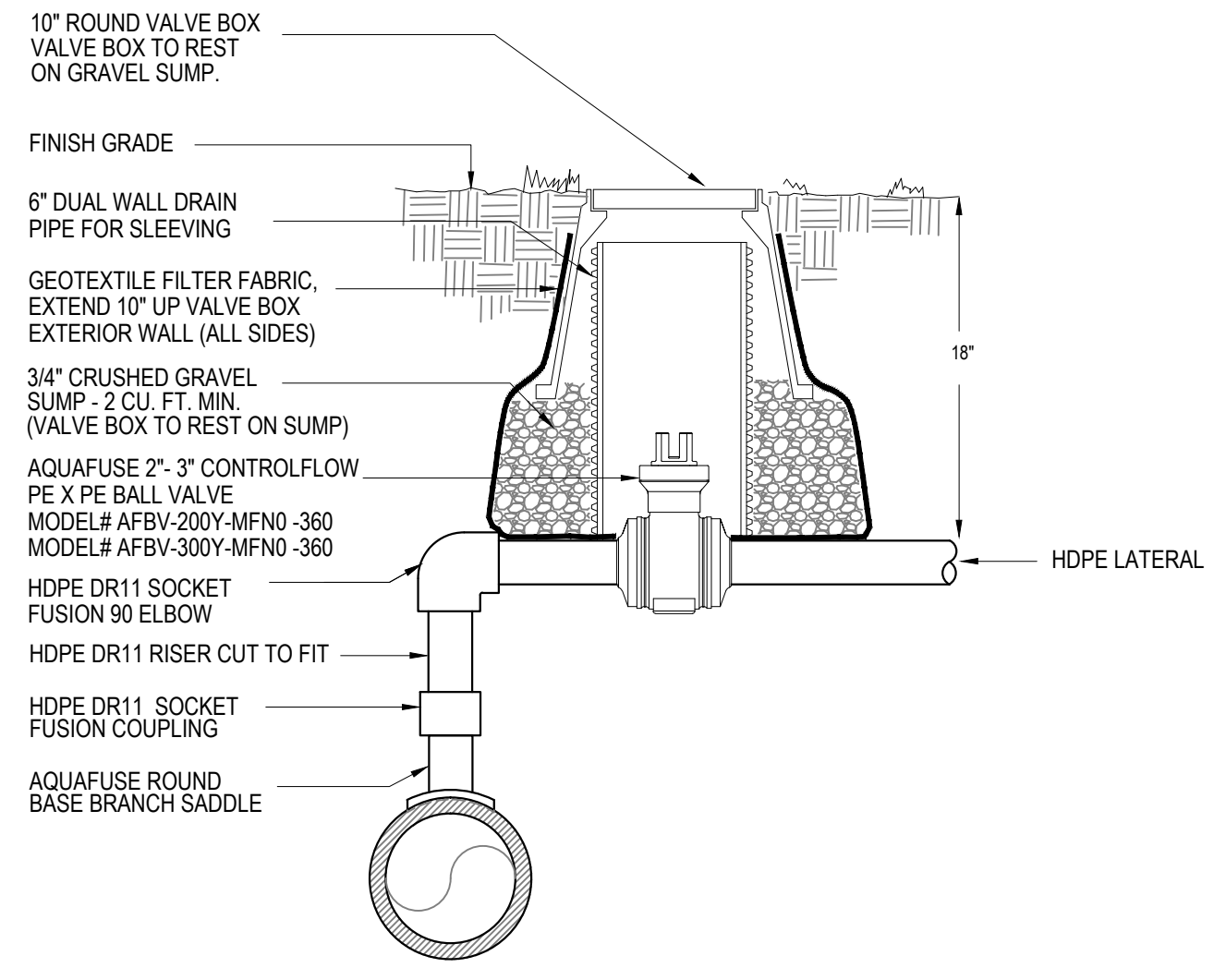
QUICK COUPLING VALVE (HDPE)

NTS



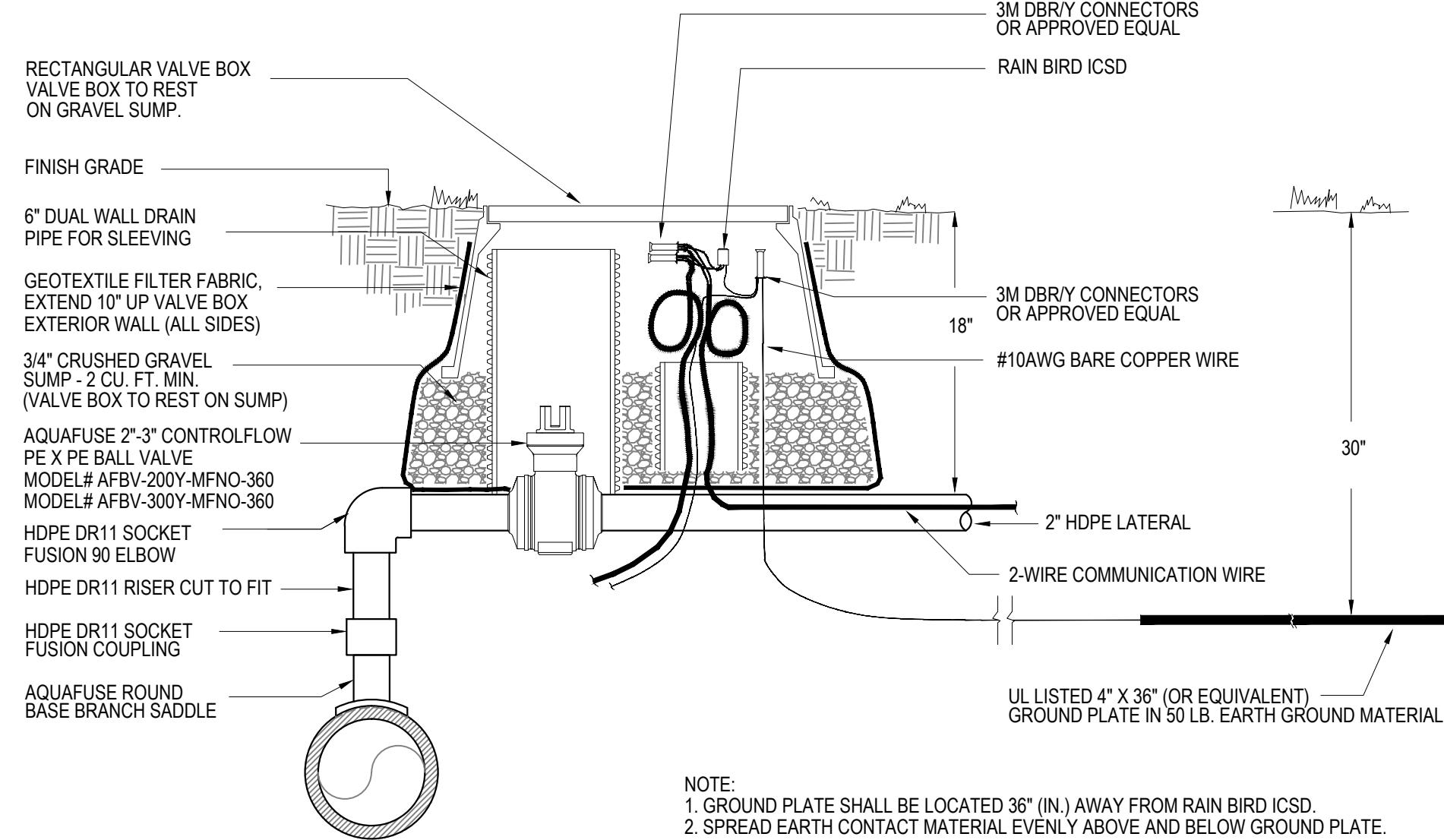
GATE VALVE (HDPE)

NTS



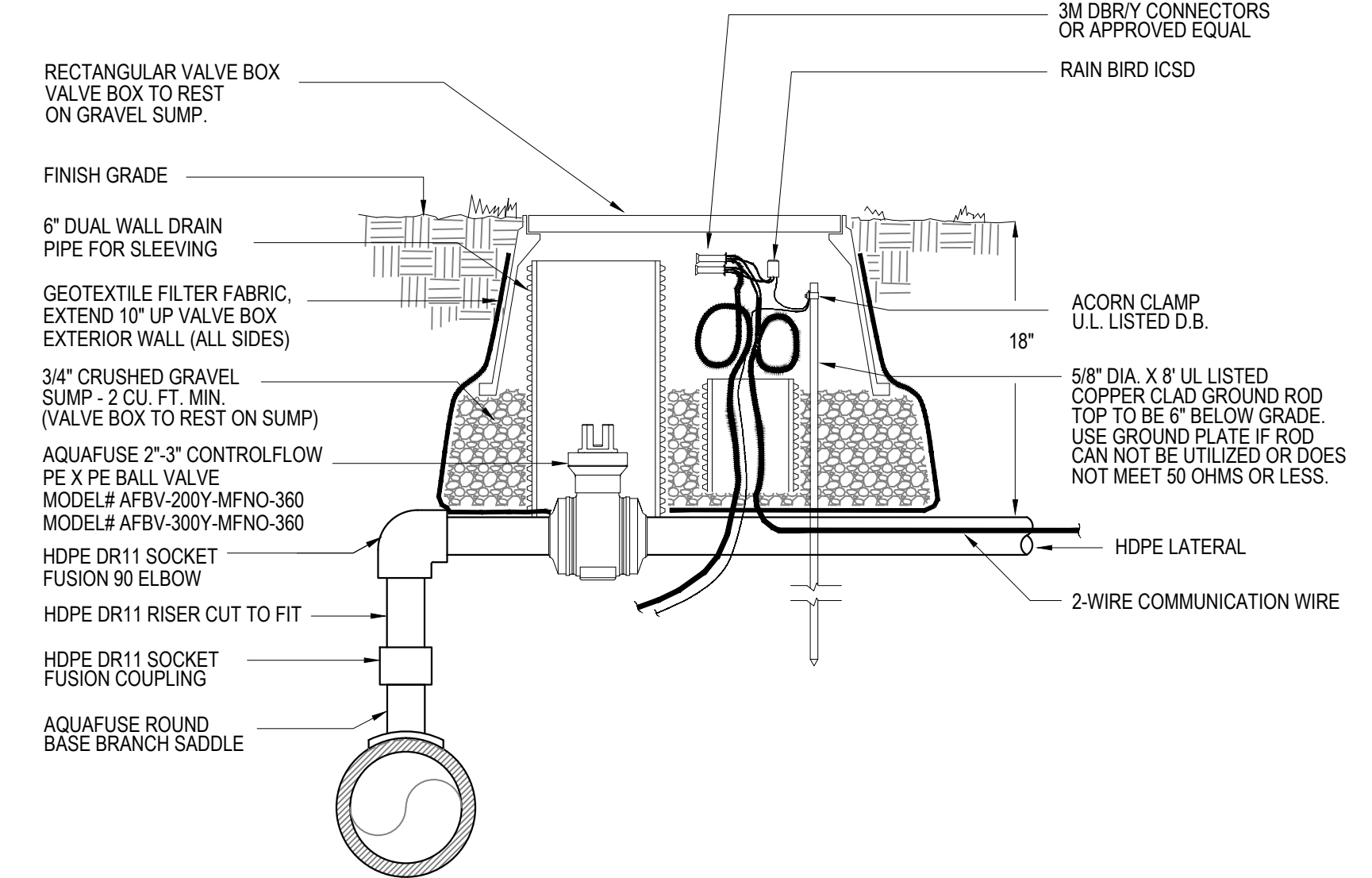
LATERAL ISOLATION VALVE (HDPE)

NTS



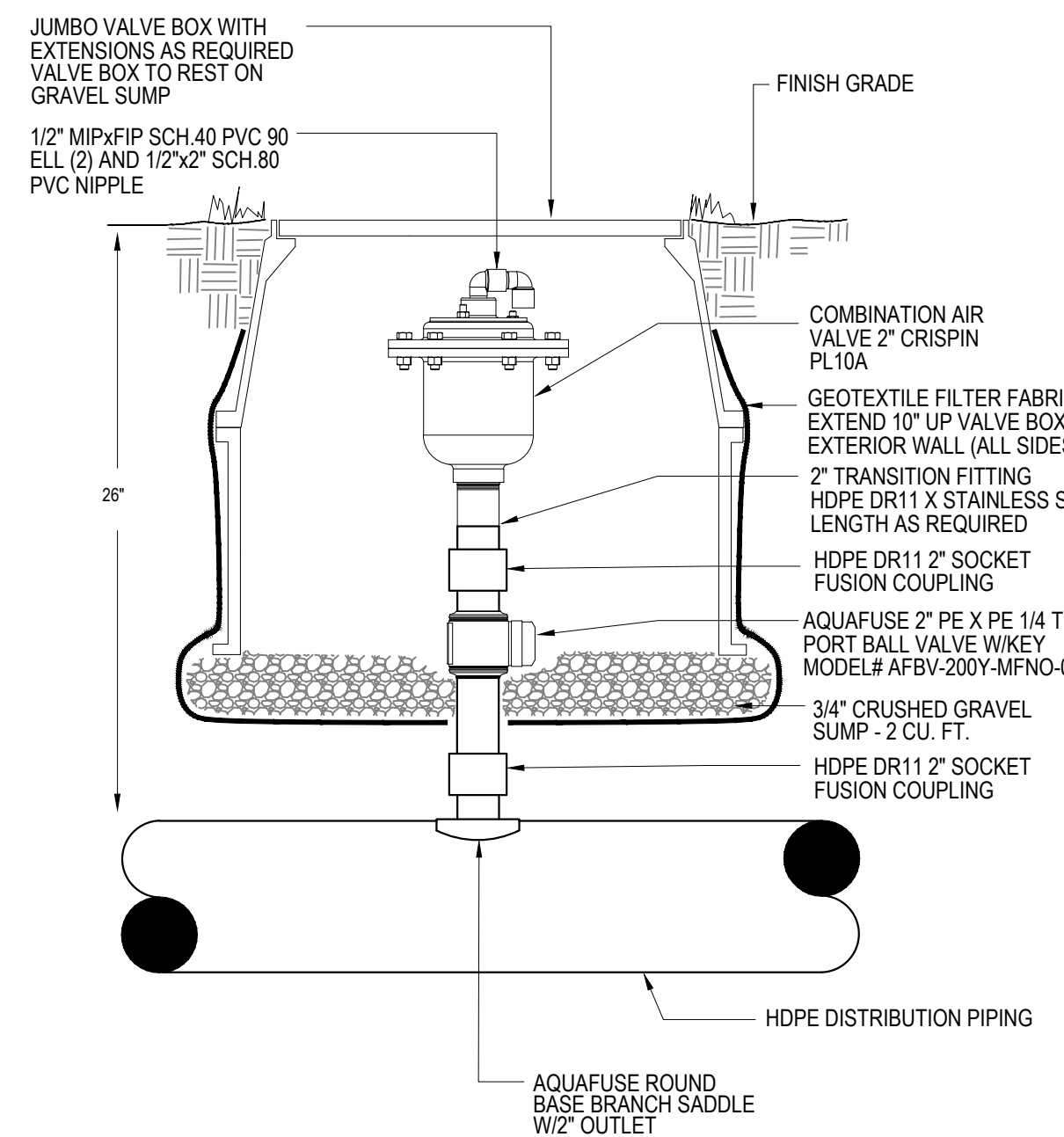
LATERAL ISOLATION VALVE W/GROUNDING PLATE RAIN BIRD TYPICAL ICM AND ICSD WIRING FOR IC SYSTEM (HDPE)

NTS



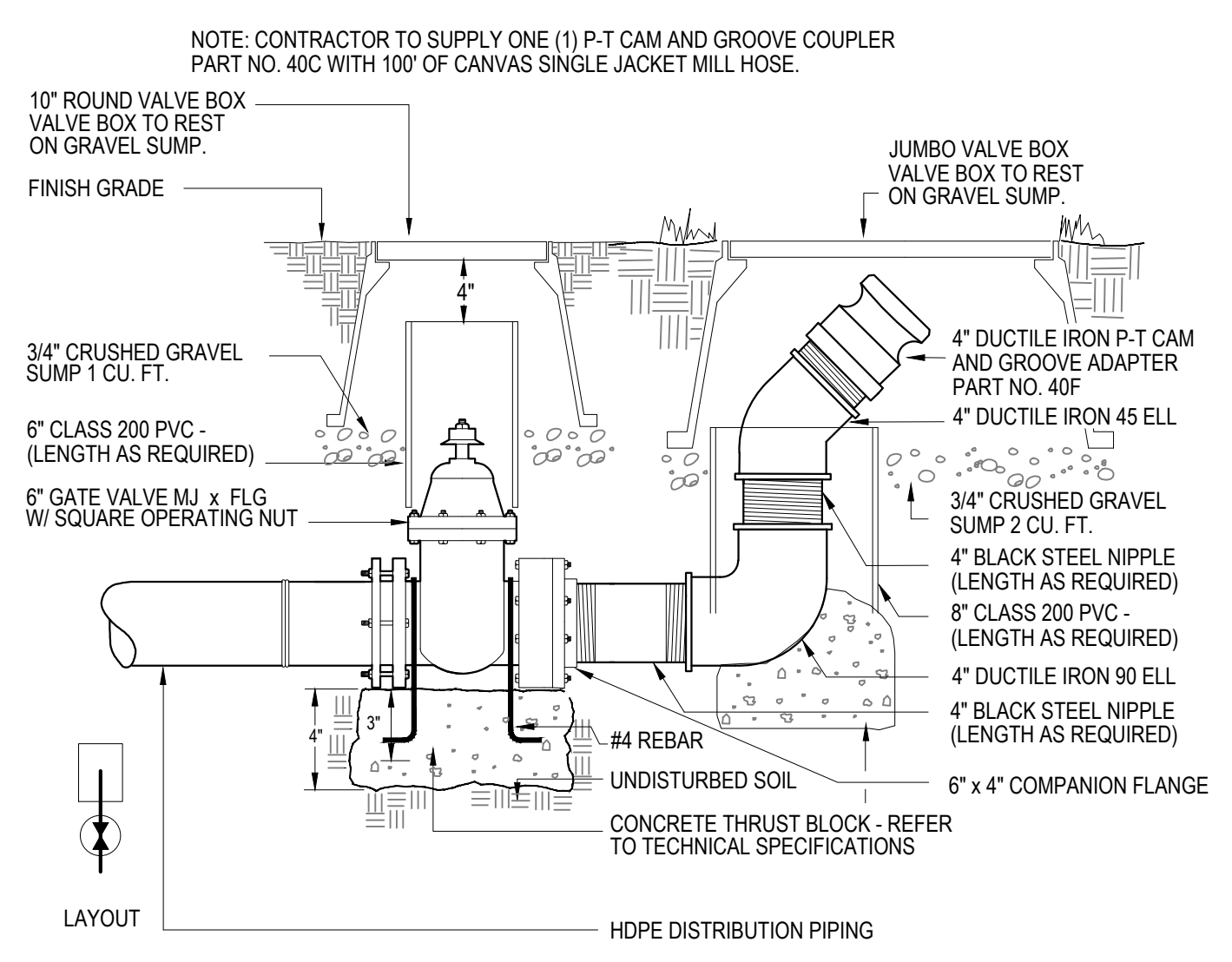
LATERAL ISOLATION VALVE W/GROUNDING RAIN BIRD TYPICAL ICM AND ICSD WIRING FOR IC SYSTEM (HDPE)

NTS



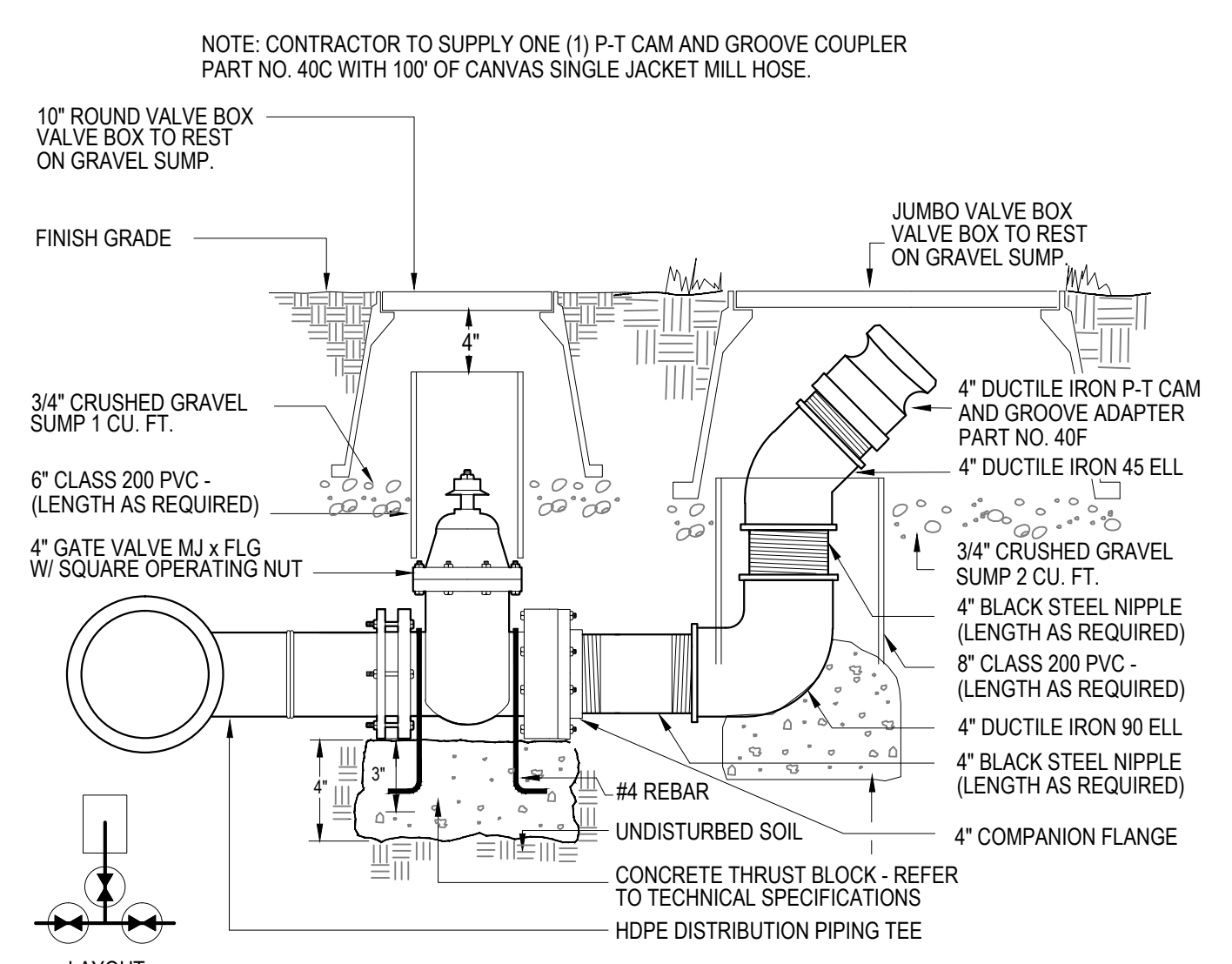
AIR RELEASE VALVE (HDPE)

NTS



BLOW-OFF VALVE - DEAD END (HDPE)

NTS



BLOW-OFF VALVE IN-LINE (HDPE)

NTS

Revisions

DETAILS

FOXWOOD
CRESTVIEW, FLORIDA

Date : 3/26/21
Scale : N.T.S.

SHEET
8



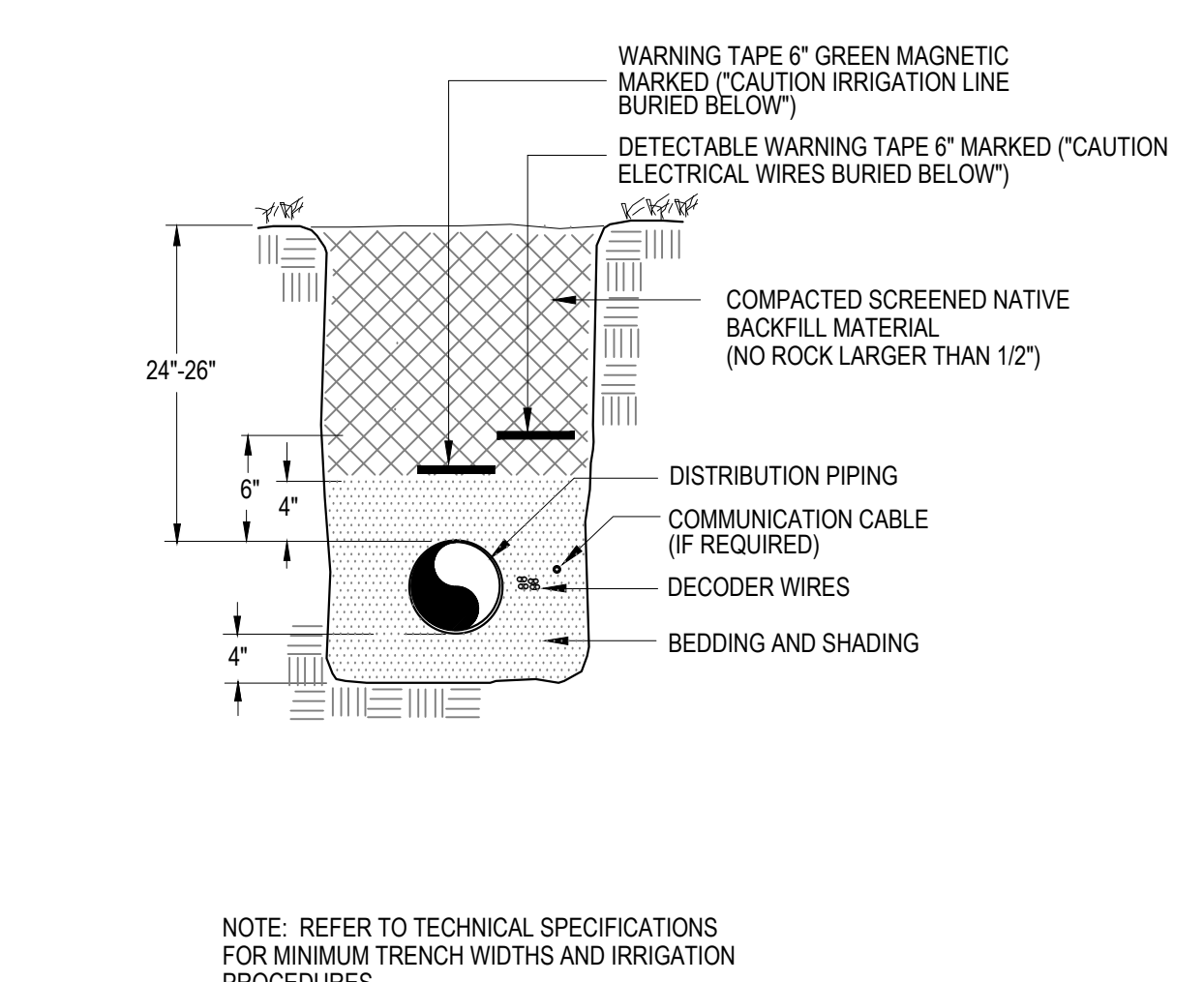
Revisions

DETAILS

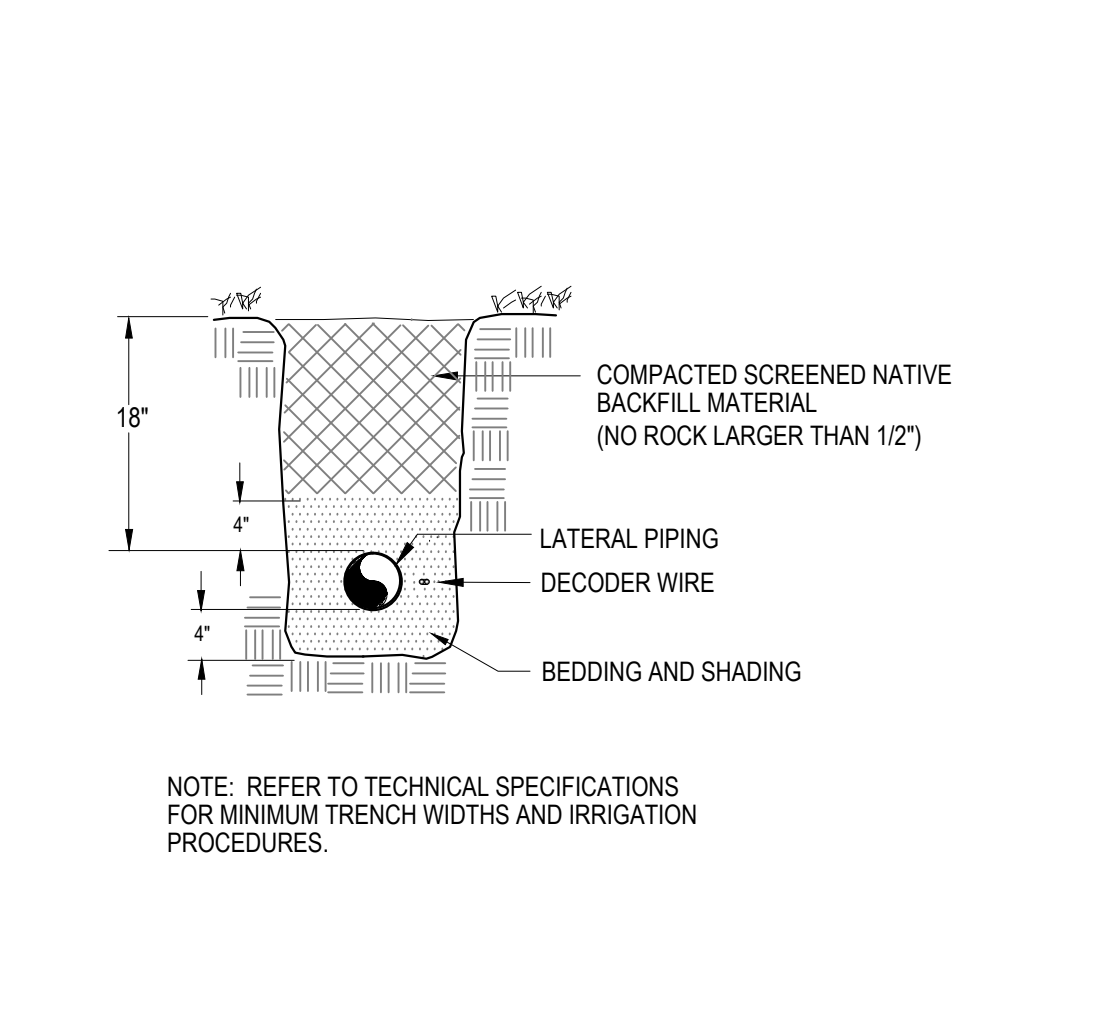
FOXWOOD
CRESTVIEW, FLORIDA

Date : 3/26/21
Scale : N.T.S.

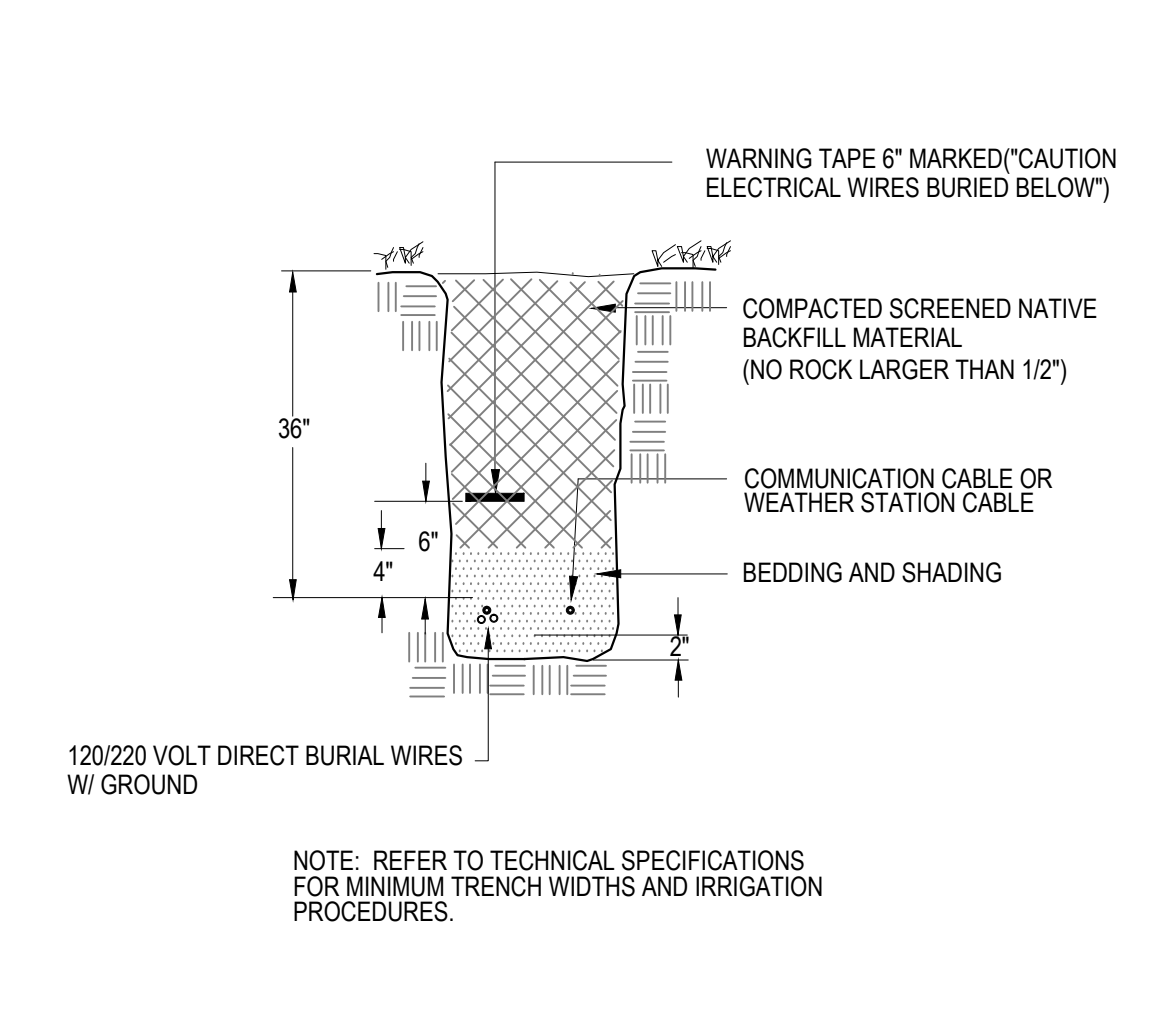
SHEET
9



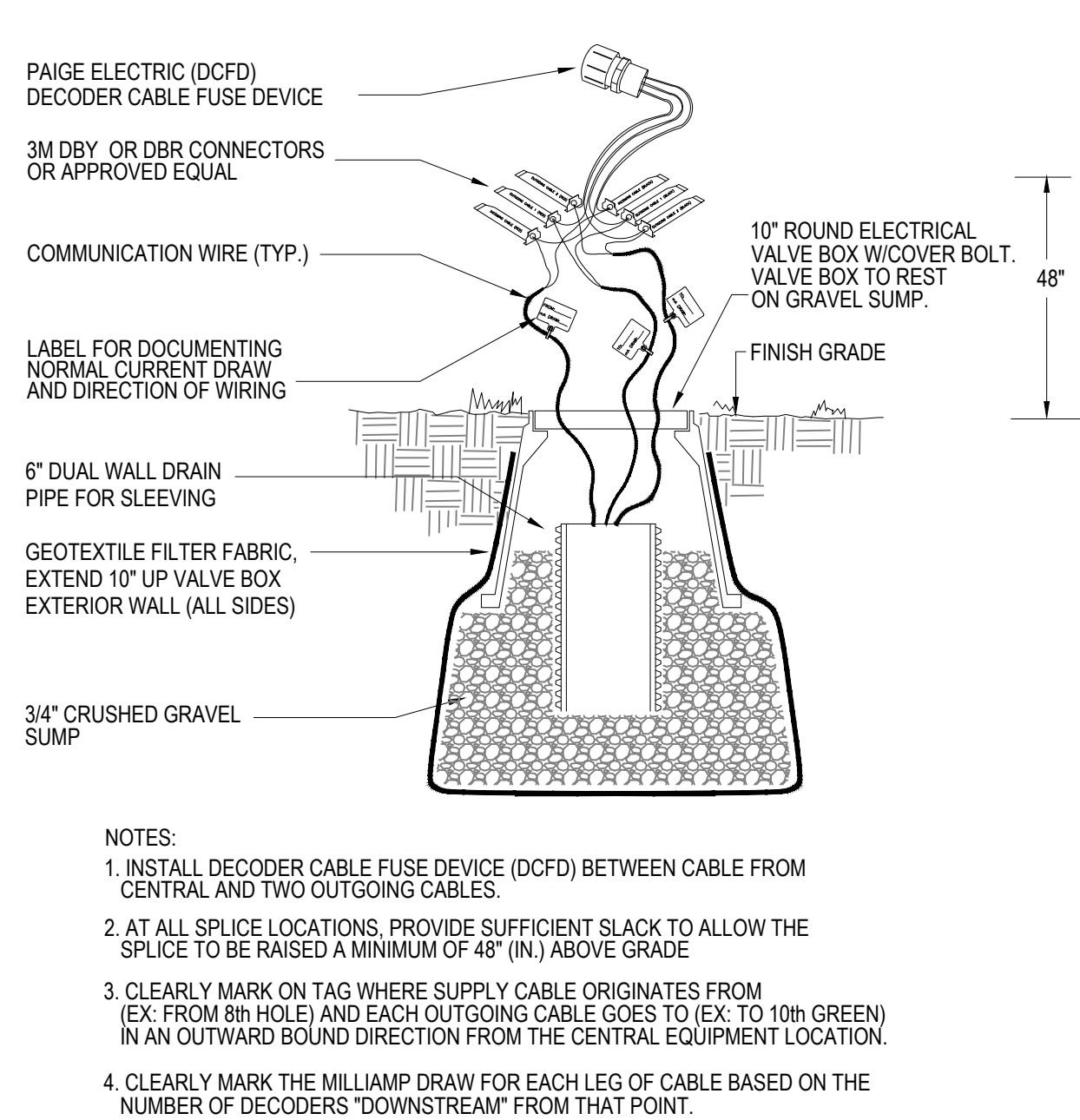
DISTRIBUTION PIPING TRENCH
NTS



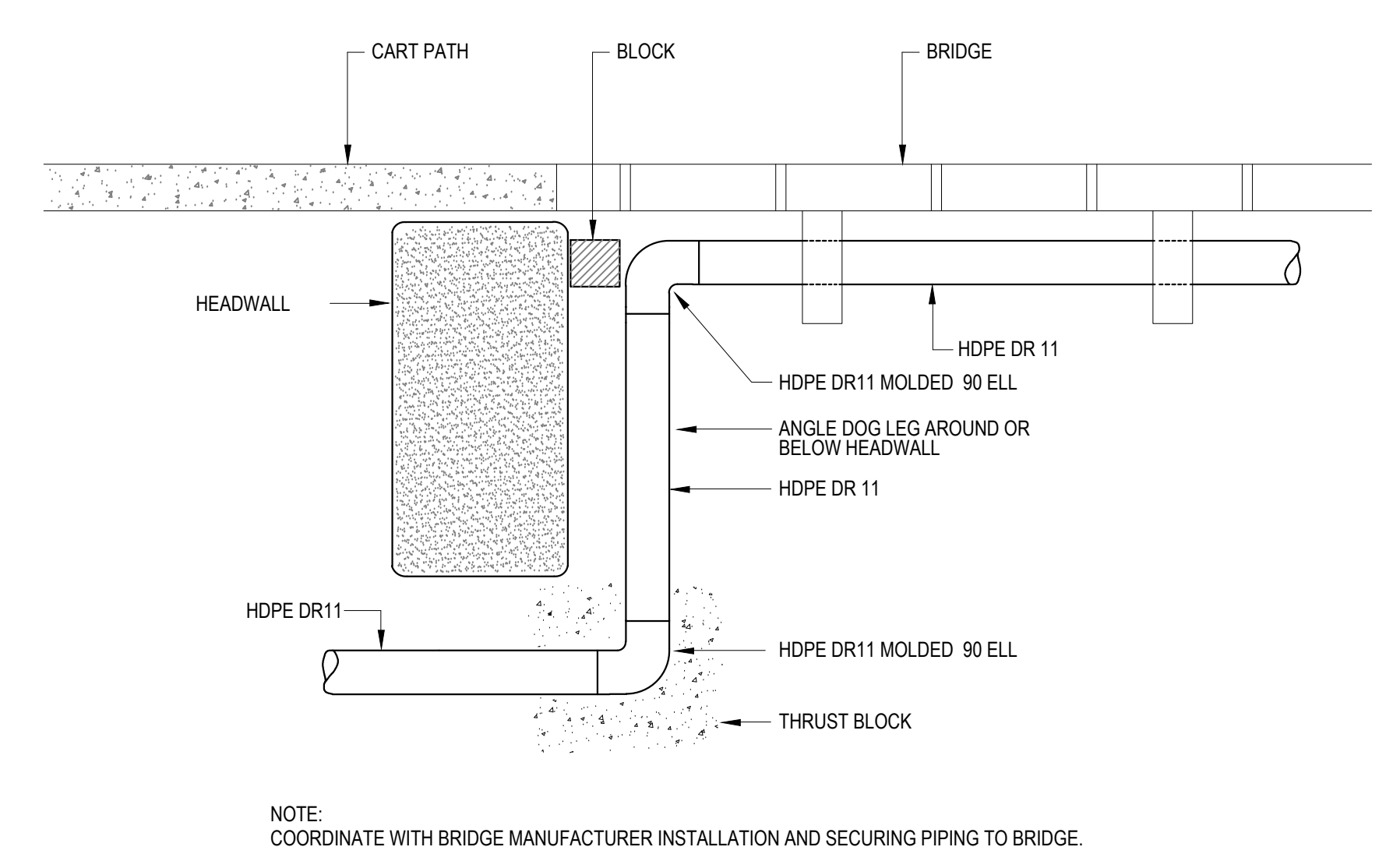
LATERAL PIPING TRENCH
NTS



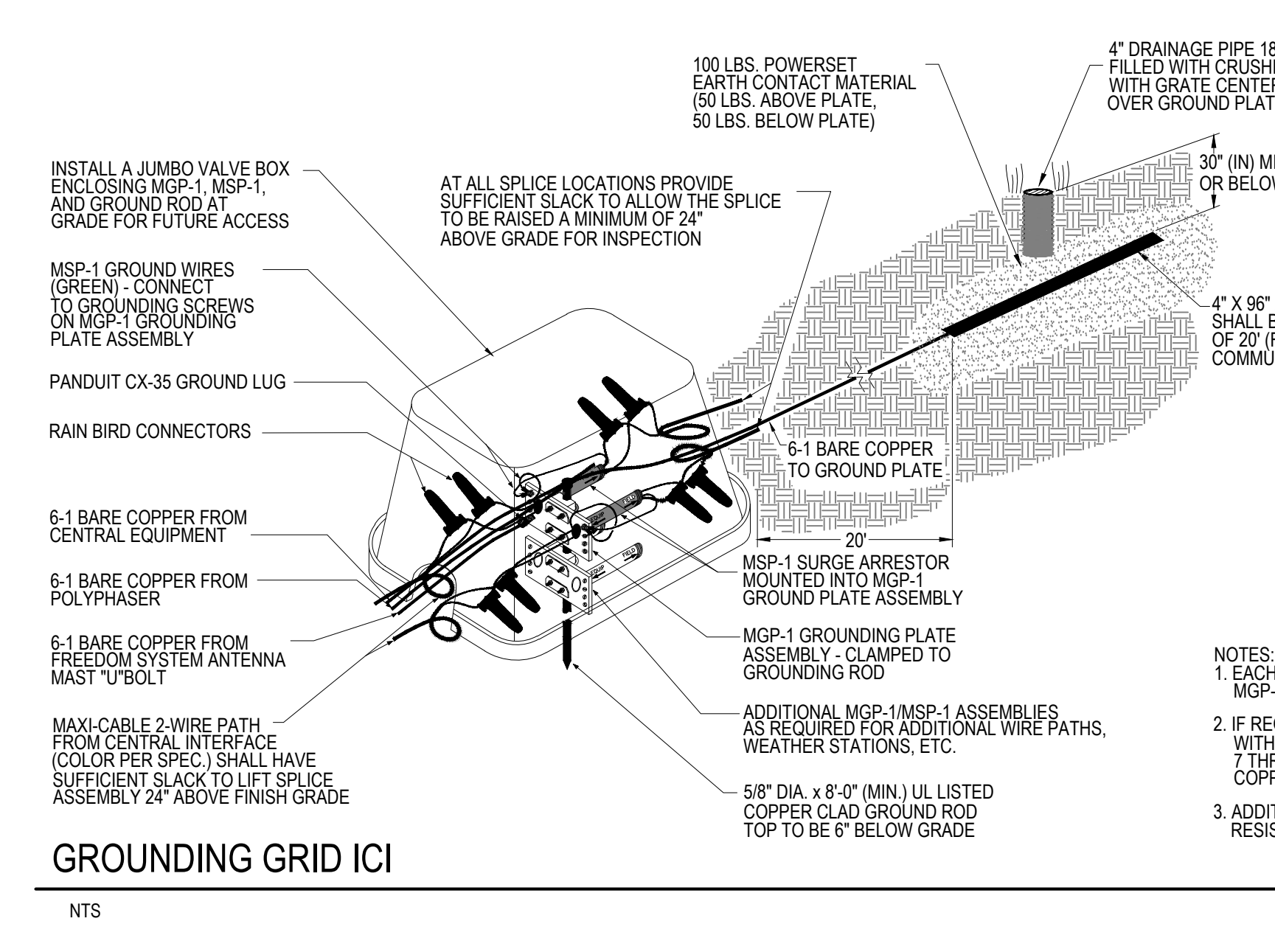
POWER WIRE, COMMUNICATION AND WEATHER STATION CABLE
NTS



DECODER CABLE FUSE DEVICE (DCFD)
NTS



BRIDGE AND WETLAND CROSSING



GROUNDING GRID ICI
NTS

LEGEND

SYMBOL	MANUFACTURER	MODEL NUMBER	DESCRIPTION
○	RAIN BIRD	A-752-IC-70-36	V.I.H. GEAR DRIVEN ROTOR FULL CIRCLE W/#36 NOZZLE @70PSI
◐	RAIN BIRD	A-752-IC-70-36	V.I.H. GEAR DRIVEN ROTOR PART CIRCLE W/#36 NOZZLE @ 70PSI
⊙	RAIN BIRD	A-900-IC-80-52	V.I.H. GEAR DRIVEN ROTOR FULL CIRCLE W/#52 NOZZLE @ 80PSI
◑	RAIN BIRD	A-950-IC-80-22	V.I.H. GEAR DRIVEN ROTOR PART CIRCLE W/#22 NOZZLE @ 80PSI
▼	RAIN BIRD	#5RC	1" QUICK COUPLING VALVE
⊕	AQUAFUSE (OR APPROVED EQUAL)	#AFBV-200Y-MFNO-360	2" LATERAL ISOLATION VALVE PE
⊗	AQUAFUSE (OR APPROVED EQUAL)	#AFBV-300Y-MFNO-360	3" LATERAL ISOLATION VALVE PE
⊙	RAIN BIRD		INTEGRATED CONTROL SURGE DEVICE LOCATED AT LATERAL ISOLATION VALVE
⊕	CLOW (OR APPROVED EQUAL)	C509/C515	GATE VALVE (LINE SIZE) DUCTILE IRON W/HDPE ENDS DR11
⊞	CRISPIN	PL10A	AIR RELEASE VALVE - 2"
⊕	CLOW (OR APPROVED EQUAL)	C509/C515	4" BLOW-OFF VALVE ASSEMBLY DUCTILE IRON W/HDPE ENDS DR11
C	RAIN BIRD	CIRRUS	CENTRAL CONTROL COMPUTER WITH CURRENT SOFTWARE AND HARDWARE INCLUDING FREEDOM SYSTEM, THREE (3) HAND HELD RADIOS & UPS (APC-1500)
ICI	RAIN BIRD	ICI-3000	INTEGRATED CONTROL INTERFACE
D	PAIGE	270DCFD	DECODER CABLE FUSE DEVICE
---	APPROVED	DR11	PVC DISTRIBUTION PIPING SIZE PER PLAN
---	APPROVED	DR11	2"-3" HDPE LATERAL PIPING SIZE PER PLAN
---	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG	MAXI COMMUNICATION WIRE 14-2 ON ALL TRUNKS (MAINLINE)
---	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG	MAXI COMMUNICATION WIRE 14-2 ON ALL BRANCHES (LATERAL)

- GENERAL NOTES**
- ALL BASE INFORMATION SUPPLIED BY GOLF COURSE ARCHITECT.
 - ALL VALVE-IN-HEAD SPRINKLERS TO BE FACTORY SET PER PRESSURE SPECIFIED ON THE IRRIGATION LEGEND.
 - QUICK COUPLERS TO BE INSTALLED WITH A MAXIMUM DISTANCE OF 18" FROM VALVE-IN-HEAD SPRINKLER OR REMOTE CONTROL VALVE.
 - POWER WIRE AND COMMUNICATION CABLE TO BE INSTALLED IN CONDUIT ACROSS ALL BRIDGES, ROADWAYS AND PARKING LOTS.
 - ALL ELECTRICAL VALVE BOXES TO BE SET ON 3/4" GRAVEL SUMP WITH GEOTEXTILE FILTER FABRIC EXTENDED 10" UP VALVE BOX EXTERIOR WALL (ALL SIDES).
 - LEAVE MAXI WIRE AT ALL QUICK COUPLER LOCATIONS.
 - CONTRACTOR REQUIRED TO HAVE RAIN BIRD GIVE AN IC SEMINAR TO ALL EMPLOYEES BEFORE ANY CONSTRUCTION IS TO BEGIN.
 - CONTRACTOR REQUIRED TO HAVE RAIN BIRD DISTRIBUTOR TECHNICAL SERVICES PERFORM GROUNDING TEST. TEST RESULTS TO BE ISSUED TO OWNER. EACH ICSD MUST HAVE AN EARTH GROUND RESISTANCE OF LESS THAN 50 OHMS.
 - CONTRACTOR REQUIRED TO INSTALL CENTRAL COMPUTER GROUNDING AS PER MANUFACTURERS RECOMMENDATIONS.
 - CONTRACTOR REQUIRED TO HAVE HDPE FUSION CLASS. ALL FUSION TECHNICIANS MUST BE QUALIFIED TO MAKE EACH TYPE OF FUSION JOINT.



FOXWOOD LEGEND

QUANTITY	SYMBOL	MANUFACTURER	MODEL NUMBER	DESCRIPTION
187	○	RAIN BIRD	A-752-IC-70-36	V.I.H. GEAR DRIVEN ROTOR FULL CIRCLE W/#36 NOZZLE @70PSI
26	◐	RAIN BIRD	A-752-IC-70-36	V.I.H. GEAR DRIVEN ROTOR PART CIRCLE W/#36 NOZZLE @ 70PSI
365	⊙	RAIN BIRD	A-900-IC-80-52	V.I.H. GEAR DRIVEN ROTOR FULL CIRCLE W/#52 NOZZLE @ 80PSI
56	▽	RAIN BIRD	A-950-IC-80-22	V.I.H. GEAR DRIVEN ROTOR PART CIRCLE W/#22 NOZZLE @ 80PSI
19	▼	RAIN BIRD	#5RC	1" QUICK COUPLING VALVE
48	⊕	AQUAFUSE (OR APPROVED EQUAL)	#AFBV-200Y-MFNO-360	2" LATERAL ISOLATION VALVE PE
57	⊗	AQUAFUSE (OR APPROVED EQUAL)	#AFBV-300Y-MFNO-360	3" LATERAL ISOLATION VALVE PE
71	Ⓞ	RAIN BIRD		INTEGRATED CONTROL SURGE DEVICE LOCATED AT LATERAL ISOLATION VALVE
25	⌘	CLOW (OR APPROVED EQUAL)	C509/C515	GATE VALVE (6") DUCTILE IRON W/HDPE ENDS DR11
19	⌘	CLOW (OR APPROVED EQUAL)	C509/C515	GATE VALVE (8") DUCTILE IRON W/HDPE ENDS DR11
7	◻	CRISPIN	PL10A	AIR RELEASE VALVE - 2"
1	⊗	CLOW (OR APPROVED EQUAL)	C509/C515	4" BLOW-OFF VALVE ASSEMBLY DUCTILE IRON W/HDPE ENDS DR11 DEAD-END ON 6" MAINLINE
1	⊗	CLOW (OR APPROVED EQUAL)	C509/C515	4" BLOW-OFF VALVE ASSEMBLY DUCTILE IRON W/HDPE ENDS DR11 IN-LINE ON 6" MAINLINE
1	C	RAIN BIRD	CIRRUS	CENTRAL CONTROL COMPUTER WITH CURRENT SOFTWARE AND HARDWARE. INCLUDING FREEDOM SYSTEM, THREE (3) HAND HELD RADIOS & UPS (APC-1500)
1	ICI	RAIN BIRD	ICI-3000	INTEGRATED CONTROL INTERFACE
8	D	PAIGE	270DCFD	DECODER CABLE FUSE DEVISE
12,750FT	— — — — —	APPROVED	DR11	PVC DISTRIBUTION PIPING (6")
9,550FT	— — — — —	APPROVED	DR11	PVC DISTRIBUTION PIPING (8")
40FT	— — — — —	APPROVED	DR11	PVC DISTRIBUTION PIPING (10")
41,550FT	—————	APPROVED	DR11	HDPE LATERAL PIPING (2")
4,600FT	—————	APPROVED	DR11	HDPE LATERAL PIPING (3")
11,560FT	—————	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG (RED)	MAXI COMMUNICATION WIRE 14-2 ON ALL TRUNKS (MAINLINE)
11,220FT	—————	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG (BLUE)	MAXI COMMUNICATION WIRE 14-2 ON ALL TRUNKS (MAINLINE)
20,840FT	- - - - -	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG (RED)	MAXI COMMUNICATION WIRE 14-2 ON ALL BRANCHES (LATERAL)
19,940FT	- - - - -	APPROVED	REGENCY MAXI WIRE 2 CONDUCTORS 14AWG (BLUE)	MAXI COMMUNICATION WIRE 14-2 ON ALL BRANCHES (LATERAL)

* QUANTITIES ARE JUST WHAT IS SHOWN ON DRAWINGS. NO EXTRA WAS ADDED.

SECTION 00301
QUESTIONNAIRE

DATE: _____

PROJECT IDENTIFICATION: **CITY OF CRESTVIEW, FLORIDA
FOXWOOD GOLF COURSE IRRIGATION**

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

_____ Phone No. _____

CONTRACTOR'S FLORIDA LICENSE NO. _____

The undersigned warrants the truth and accuracy of all statements and answers herein contained. Include additional sheets if necessary.

1. How many years has your organization been in business as a Florida Licensed Contractor?

2. Describe and give the date and owner of the last project that you have completed similar in type, size, and nature as the one proposed?

Refer to Section 00303 (Similar Projects) _____

3. Have you ever failed to complete work awarded to you? If so, where and why?

4. Name three (3) municipalities for which you have performed work and to which you refer:

Refer to Section 00302 (References)

5. Have you personally inspected the sites of the proposed work? Describe any anticipated problems with the site and your proposed solutions?

6. Will you subcontract any part of this work? If so, describe which portions:

7. What equipment do you own that is available for the work?

8. What equipment will you purchase for the work?

9. What equipment will you rent for the work?

END OF SECTION

SECTION 00301-A
SUBCONTRACTOR LISTING

List all proposed subcontractors to be used for this project regardless of racial or gender grouping.

****THE BIDDER SHALL SELF-PERFORM AT LEAST 50% OF THE PROJECT****

<u>Firm Name, Address and Telephone Number</u>	<u>Trade</u>	<u>Estimated Dollar Amount</u>
* _____ _____ _____	_____	\$ _____
* _____ _____ _____	_____	\$ _____
* _____ _____ _____	_____	\$ _____
* _____ _____ _____	_____	\$ _____
* _____ _____ _____	_____	\$ _____
* _____ _____ _____	_____	\$ _____

Use additional sheets if necessary.

END OF SECTION

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SECTION 00303

SIMILAR PROJECTS

Project Name: FOXWOOD GOLF COURSE IRRIGATION

List at least five (5) similar projects completed in the last three years that indicate the experience and qualifications of the Bidder (relative to this project). Information should include Owner's name with contact person; description of work including Bidder's responsibilities; original contract price; final contract price; original contract time; actual time to complete the project; and any relevant circumstances or conditions about the project.

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT: _____ PHONE: _____

PROJECT DESCRIPTION: _____

ORIGINAL CONTRACT AMOUNT: \$ _____

FINAL CONTRACT AMOUNT: \$ _____

NUMBER AND DOLLAR AMOUNT OF CHANGE ORDERS: _____

ORIGINAL CONTRACT TIME (Substantial Completion): _____

ACTUAL TIME TO COMPLETE (Substantial Completion): _____

OTHER RELEVANT INFORMATION: _____

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Section 00310

DRUG-FREE WORK PLACE

The undersigned vendor, in accordance with Florida Statute 287.087, hereby certifies that

_____ does:
(Name of Business)

1. Publish a statement notifying employee that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are proposed a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign this statement, I certify that this firm complies fully with the above requirements.

X

Proposer's Signature

Date

(THIS FORM MUST BE COMPLETED IF APPLICABLE AND RETURNED WITH YOUR PROPOSAL)

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SECTION 00410

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto the City of Crestview, Florida as Owner in the penal sum of, (five percent (5%) of the Contract Bid) _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns to pay Owner upon default of Bidder the penal sum set forth on the face of this Bond. Signed, this ____ day of _____, 20__.

The condition of the above obligation is such that whereas the Principal has submitted to City of Crestview, Florida, a certain Bid, attached hereto and hereby made a part hereof, to enter into a contract in writing, for the FOXWOOD GOLF COURSE IRRIGATION installation.

NOW THEREFORE,

1. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.
2. This obligation shall be null and void if:
 - 2.1 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 and Contract Documents, or
 - 2.2 All bids are rejected by Owner, or
 - 2.3 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).
3. Payment under this Bond will be due and payable upon default of Bidder and within thirty (30) calendar days after receipt of 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.

4. 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 time for issuing notice of award including extensions shall not in the aggregate exceed ninety (90) days from Bid Due without Surety's written consent.
5. No suit or action shall be commenced under this Bond prior to thirty (30) calendar days after the notice of default required in paragraph 3 above is received by Bidder and Surety, and in no case later than one year after Bid Due Date.
6. 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.
7. Notice 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 part concerned.
8. 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.
9. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of the Bond that is not in conflict therewith shall continue in full force and effect.
10. The term "bid" as used herein includes a bid, offer or proposal as applicable.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (Print Full Name):

Surety (Print Full Name):

_____(Seal)
Surety's Name and Corporate Seal

By: _____(L.S.)

By: _____
Signature (attach power of attorney)

Title: _____

Title: _____

Attest: _____
Signature and Title

Attest: _____
Signature and Title

IMPORTANT - Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida. See Article 5 of the General Conditions as amended by Supplementary Conditions.

END OF SECTION

SECTION 00470

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a),
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
(print name of the public entity)
- by _____
(print individual's name and title)
- for _____
(print name of entity submitting sworn statement)

whose business address is

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____.)

2. I understand that a “public entity crime” as defined in Paragraph 287.133(1)(g), **Florida Statutes**, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
3. I understand that “convicted” or “conviction” as defined in Paragraph 287.133(1)(b), **Florida Statutes** means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that an “affiliate” as defined in Paragraph 287.133(1)(a), **Florida Statutes**, means:

1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.
5. I understand that a "person" as defined in Paragraph 287.133(1)(e), **Florida Statutes**, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (indicate which statement applies.)

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the final order.)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO

UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, **FLORIDA STATUTES** FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

(signature)

Sworn to and subscribed before me this _____ day of _____, 20____.

Personally known _____

OR Produced identification _____ Notary Public - State of Florida

(type of identification) My commission expires _____

(printed, typed or stamped commissioned name of notary public.)

END OF SECTION

SECTION 00480
NONCOLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

_____, being first duly sworn deposes and says that:

1. He (it) is the _____, of _____, the Bidder that has submitted the attached Bid;
2. He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affidavit, have in any way, colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit, or cost elements of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Contract;
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

By _____

Sworn and subscribed to before me this ____ day of _____, 20____, in the State of _____, County of _____.

_____ Notary Public

My Commission Expires: _____

END OF SECTION

SECTION 00490

TRENCH SAFETY AFFIDAVIT

Trench excavations on this Project are expected to be in excess of 5 feet deep. The Occupational Safety and Health Administration excavation safety standards, 29 CFR 1926.650 Subpart P trench safety standards will be in effect during the period of construction of the Project.

Bidder acknowledges that included in the Bid Price are costs for complying with the Florida Trench Safety Act (90-096, Laws of FL) effective October 1, 1990, and hereby gives assurance that, if awarded the Contract, the Contractor or Subcontractor performing trench excavation work on the Project will comply with the applicable trench safety standards. The Bidder further identifies the costs as follows:

Trench Safety Item (Description) Cost

FOXWOOD GOLF COURSE IRRIGATION

A. _____

(Cost in Words)

TOTAL \$ _____

FAILURE TO COMPLETE THE ABOVE SHALL RESULT IN THE BID BEING DECLARED NON-RESPONSIVE

COMPANY NAME: _____

DATE: _____

BY: _____

END OF SECTION

SECTION 00500

AGREEMENT

THIS AGREEMENT made and entered into this _____ day of _____ 2012, by and between the CITY OF CRESTVIEW, FLORIDA, a municipality organized and existing under the laws of the State of Florida, hereinafter called the OWNER, and _____ hereinafter called CONTRACTOR;

WITNESSETH:

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I - SCOPE OF WORK

CONTRACTOR shall complete all work as specified or indicated in the Contract Documents. The Work is generally described as follows:

FOXWOOD GOLF COURSE IRRIGATION

BID # _____

All work for the Project shall be constructed in accordance with the Drawings and Specifications prepared by Mike Gogel Golf Design and the proposed improvements will be awarded and constructed, if award is made, under one Contract. Bids shall be submitted for furnishing, labor, equipment and incidentals for the Work described.

The intent of the project is for the City of Crestview to install a new irrigation system at Foxwood Golf Course. The project generally includes furnishing all labor, equipment, installation and incidentals for construction of a new irrigation system with materials provided by the City of Crestview.

ARTICLE II - ENGINEER

The ENGINEER, Marc Bonifay, whose email address is www.marcbonifay@cityofcrestview.org, hereinafter referred to as ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to the ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME

3.1 The Work will be substantially completed within 120 days after the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 150 days after the date when the Contract Time commences to run.

3.2 Damages for Delay. OWNER and CONTRACTOR recognize that **TIME IS OF THE ESSENCE** in this Agreement and that the OWNER will suffer financial loss if the Work is not completed within the time specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions.

3.2.1 Uniqueness of the Work. The OWNER and the CONTRACTOR expressly acknowledge the unique characteristics of the Work, which cause time to be of the essence in this contract.

3.2.2 Liquidated Damages. OWNER and CONTRACTOR recognize that **TIME IS OF THE ESSENCE** in this Agreement and that Owner will suffer financial loss if the work is not substantially complete in the time specified in Paragraph 3.1 above. The parties also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by the OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER \$1,000.00 (One Thousand Dollars) for each day that expires after the time specified in Paragraph 3.1 for Substantial Completion until the Work is substantially complete, and that the liquidated damages set forth herein bear a reasonable relationship to the estimated actual damages that the OWNER would suffer.

ARTICLE IV - CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in current funds at the lump sum or unit prices as presented in the Bid Form, which is incorporated herein and made a part hereof by this reference.

4.2 OWNER shall pay CONTRACTOR for completion of the work in accordance with the Contract Documents an amount in correct funds equal to the amount below:

Bid Total: _____
(use words)

Bid Total: \$ _____
(use figures)

4.3 The parties expressly agree that the Contract Price is a stipulated sum, except with regard to those items in the Bid which are subject to unit prices.

ARTICLE V - PAYMENT PROCEDURES

5.1 CONTRACTOR shall submit Applications for Payment in accordance with the Contract Documents. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.2 OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S monthly Applications for Payment, as approved by the ENGINEER, which shall be submitted by the CONTRACTOR on or before the 10th day after the end of each calendar month for which payment is requested.

5.3 Progress payments prior to Substantial Completion will be made in the following manner:

5.3.1 Prior to Substantial Completion and prior to fifty percent (50%) of the Work being completed, progress payments shall be ninety percent (90%) of the value of Work complete and ninety percent (90%) of the value of materials and equipment not

incorporated into the Work, but delivered and suitably stored, less in each case the aggregate of payments previously made.

5.3.2 After fifty percent (50%) of the Work has been completed as determined by the ENGINEER, and if the character and progress has been satisfactory to the OWNER and ENGINEER, OWNER, on the recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no retainage on account of subsequent Work and materials and equipment not incorporated into the Work, but delivered and suitably stored, which results in the Owner withholding a retainage equal to five percent (5%) of the Contract Price until Substantial Completion. However, OWNER shall reserve the right to reinstate withholding a retainage of ten percent (10%) if OWNER, on the recommendation of ENGINEER, determines that the progress or character of the Work is not satisfactory.

5.3.3 Upon Substantial Completion of the Work, OWNER shall pay an amount sufficient to increase total payments to the CONTRACTOR to ninety-five percent (95%) of the Contract Price, less such amounts as ENGINEER shall determine in accordance with Article 14 of the General Conditions.”

5.4 Final Payment. Upon final completion of the Work in accordance with the Contract Documents, OWNER shall pay CONTRACTOR an amount sufficient to increase total payments to ninety-eight percent (98%) of the Contract Price. However, not less than two percent (2%) of the Contract Price shall be retained until Record Drawings, specifications, addenda, modifications and shop drawings, including all manufacturers instructional and parts manuals are delivered to and accepted by the ENGINEER.

ARTICLE VI - CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

6.1 CONTRACTOR has visited the work site and familiarized himself with the nature and extent of the Contract Documents, Work, locality, and all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by the ENGINEER in the preparation of the Drawings and Specifications, and which have been identified in the General and Supplementary Conditions of the Contract Documents.

6.3 CONTRACTOR has made or caused to be made examinations, investigations, tests and studies of such reports and related data in addition to those referred to in Paragraph 6.2 above as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are, or will be, required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

6.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to the CONTRACTOR.

ARTICLE VII - CONTRACT DOCUMENTS

The Contract Documents which comprise the entire Agreement between the OWNER and CONTRACTOR are attached to this Agreement, are made a part hereof and consist of the following:

- 7.1 This Agreement (Section 00500) (pages 00500-1 to 00500-6, inclusive).
- 7.2 Exhibits to this Agreement (sheets __ to __, inclusive). N/A
- 7.3 Performance Bond, Payment Bond and Certificates of Insurance.
- 7.4 Notice of Award and Notice to Proceed.
- 7.5 General Conditions (Section 00700) as amended by the Supplementary Conditions.
- 7.6 Supplementary Conditions (Section 00800).
- 7.7 Florida Department of Environmental Protection Bureau of Water Facilities Funding Supplementary Conditions for Formally Advertised Construction Procurement.
- 7.8 Project Manual bearing the general title: "FOXWOOD GOLF COURSE IRRIGATION" and consisting of Divisions 0 through 16 as listed in the table of contents.
- 7.9 Drawings bearing the following general title: "FOXWOOD GOLF COURSE IRRIGATION" and consisting of the sheets as listed in the Drawings Index.
- 7.10 Addenda Numbers __ through __, inclusive.
- 7.11 Bid Form (Section 00300) (Pages 1 to 11, inclusive).
- 7.12 All applicable provisions of State and Federal Law and any modification, including Change Orders or written amendments duly delivered after execution of Agreement.
- 7.13 Advertisement for Bids, Instructions to Bidders, Bid Bond, Noncollusion Affidavit, General Requirements, Field Orders and State of Florida Contract Provisions.

There are no Contract Documents other than those listed above in this Article VII. The Contract Documents may only be altered, amended, or repealed in accordance with Article 3 of the General Conditions as modified in the Supplementary Conditions.

ARTICLE VIII - MISCELLANEOUS

8.1 No assignment by the parties hereto of any rights under, or interest in, the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in

any written consent of an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.2 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns or legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

8.3 Terms used in this Agreement, which are defined in Article 1 of the General Conditions, shall have the meanings indicated in the General Conditions, as modified in the Supplementary Conditions.

ARTICLE IX - GOVERNING LAW

This Agreement shall be governed by the laws of the State of Florida. Both parties agree that the courts of the State of Florida shall have jurisdiction of any claim arising in connection with this Agreement. In the event of litigation arising out of this Agreement, the prevailing party shall be entitled to the award of attorney's fees and costs at both the trial and appellate level. Venue for any litigation arising out of this agreement shall be in Orange County, Florida.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One (1) counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 2021.

OWNER: CITY OF CRESTVIEW, FLORIDA

By: _____

ATTEST: _____

CITY CLERK

APPROVED AS TO FORM AND CORRECTNESS: _____

CITY ATTORNEY

CONTRACTOR:

By: _____

Title: _____

(CORPORATE SEAL)

ATTEST: _____

SECRETARY

END OF SECTION

Performance Bond

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

EJCDC No. 1910-28-A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:

3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER's right, if any, subsequently to declare a CONTRACTOR Default; and

3.2. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1; and

3.3. The OWNER has agreed to pay the Balance of the Contract Price to:

3.3.1. The Surety in accordance with the terms of the Contract;

3.3.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

4. When the OWNER has satisfied the conditions of paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances;

4.4.1 After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, tender payment therefor to the OWNER; or

4.4.2 Deny liability in whole or in part and notify the OWNER citing reasons therefor.

5. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in paragraph 4.4, and the OWNER refuses the payment tendered or the Surety has denied

liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

6. After the OWNER has terminated the CONTRACTOR's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional and delay costs resulting from the CONTRACTOR's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made, including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract.

12.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

12.3. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)
AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

Payment Bond

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

SURETY

Company: _____ (Corp. Seal)

Signature: _____

Name and Title:

EJCDC No. 1910-28-B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to the OWNER, this obligation shall be null and void if the CONTRACTOR:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies and holds harmless the OWNER from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety, and provided there is no OWNER Default.

3. With respect to Claimants, this obligation shall be null and void if the CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with the CONTRACTOR:

1. Have furnished written notice to the CONTRACTOR and sent a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from the CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.

5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the Surety under this Bond, subject to the OWNER's priority to use the funds for the completion of the Work.

9. The Surety shall not be liable to the OWNER, Claimants or others for obligations of the CONTRACTOR that are unrelated to the Contract. The OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4.1 or paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the OWNER or the CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

15.3. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)

AGENCY or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

SECTION 00650

CERTIFICATE OF INSURANCE

CERTIFICATE OF INSURANCE

A. INSURANCE REQUIREMENTS

1. Contractor shall purchase and maintain such comprehensive general liability and other insurance as required by this document. Should any of the required insurance policies be canceled before the expiration date thereof, the insuring company shall provide written notice to each insured 30 days prior to cancellation.

B. CERTIFICATE OF INSURANCE FORM

1. The Certificate of Insurance submitted to the Owner and Engineer shall be on the Insurance Company's form with a format similar to the popular ACORD Corporation form.
2. The Owner's project name and project number shall be shown on the Certificate.
3. Three (3) Certificates shall be submitted along with the executed Contract Agreement.

A. Minimum Scope of Insurance:

Coverage shall be at least as broad as:

1. Insurance Services Office Form No. CG 0001 (11/85) or CG 0002 (2/86) Commercial General Liability; and Insurance Services Office Form No. GL 0404 (5181) Broad Form Comprehensive General Liability; endorsement, and
2. Insurance Services Office form No. CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 "any auto", and CA 0002 (1/87), and
3. Workers' Compensation as required by the State of Florida and Employers' Liability insurance:

B. Minimum Limits of Insurance:

Contractor shall maintain coverage's and limits as follows:

1. General Liability:

Aggregate Limit: \$1,000,000.

Products and completed operation aggregate limit: \$500,000.

Personal and advertising injury limit: N/A.
Each occurrence limit: \$500,000.
Fire damage limit: \$50,000 any one fire.
Medical expense limit: \$5,000 per person.
Blanket: no.

(1) Designated contractors (specify): City of Crestview

2. Automobile Liability:

- (a) Business auto with symbol(s): one (1)
- (b) Limit per accident: \$1,000,000.

3. Workers' Compensation as required by Florida laws, and Employer's Liability with the following minimum limits:

- (a) Each accident: \$100,000.
- (b) Per employee disease: \$100,000.
- (c) All claims disease: \$500,000.

C. Deductibles and Self-Insured Retentions:

Any deductible or self-insured retention must be declared to and approved by the City. At the option of the City, either the insurer shall reduce or eliminate such deductibles or self insured retentions as respects the City, its officials and employees, or the contractor shall procure a bond guaranteeing payment of losses and related investigation, claim administration and defense expenses.

D. Acceptability of Insurers: Insurance should be placed with insurers having a Bests' rating of A-Excellent and Xiii Financial Size.

E. Verification of Coverage: Successful Contractor shall furnish the City with certificates of insurance and with original endorsements affecting coverage's required by this appendix. The certificates and endorsement for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificate and endorsement are to be on forms provided or approved by the City and are to be received and approved in final form by the City before work commences.

F. Subcontractors: Contractor shall include all subcontractors as insured's under its policies or shall furnish separate certivicates and endorsements for each subcontractor. All coverage's for subcontractors shall be subject to all of the requirements stated herein.

END OF SECTION