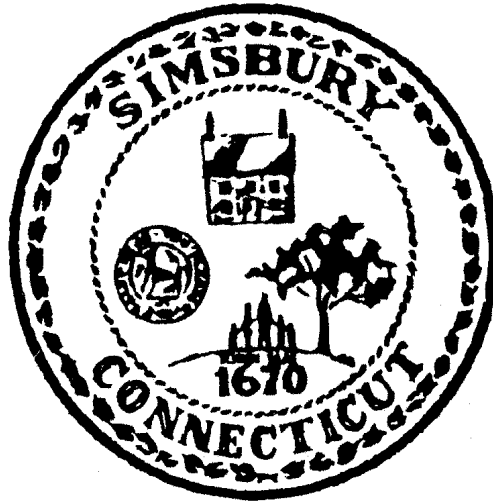


SIMSBURY



PROJECT MANUAL

Automatic Irrigation System
Simsbury Farms Golf Course
Simsbury, Connecticut
February 2023

**INVITATION TO BID
TOWN OF SIMSBURY
(EQUAL OPPORTUNITY EMPLOYER)**

**Automatic Irrigation System
Simsbury Farms Golf Course
Simsbury, Connecticut**

Sealed bids endorsed "Automatic Irrigation System Simsbury Farms Golf Course, Simsbury, Connecticut" will be received at the office of the Finance Department, 933 Hopmeadow St., Simsbury, Connecticut until Thursday, March 9, 2023, at 10:00AM (EST) at which time they will be opened in public by the Director of Finance. Bids received after the time set for the opening may be rejected.

This project includes the supplying and installing a new automatic irrigation system at Simsbury Farms Golf Course.

A non-mandatory Pre-Bid Site Visit will be held at the project site on February 27, 2023 at 10:00 a.m. local time. All attendees for the pre-bid meeting will meet in the parking lot of the Simsbury Parks and Recreation Maintenance Department which is located at 76-80 Hop Brook Road behind the red barn.

Specifications and bidding documents may be obtained electronically via the Town's web site at the following link: <http://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>.

The Town of Simsbury is an Affirmative Action/Equal Opportunity Employer. MBE's, WBE's and SBE's are encouraged to apply. This contract is subject to state contract compliance requirements, including non-discrimination statutes.

To be qualified to bid, any prospective bidder must meet the minimum qualifications as specified in Section 2 – Instructions To Bidders, Item 15. Submitted bids by any entity not so prequalified may be rejected.

The right is reserved to reject any or all bids or to waive defects in same if it be deemed in the best interest of the Town of Simsbury.

The Town of Simsbury is an Affirmative Action - Equal Opportunity Employer.

Amy Meriwether
Director of Finance/Treasurer
Town of Simsbury

TABLE OF CONTENTS

SECTION 1 - GENERAL INFORMATION

Title Page (Front Cover)

Invitation to Bid

Table of Contents

SECTION 2 - BIDDING REQUIREMENTS

Instruction to Bidders

Bid Proposal

1. Bid Bond
2. Bid Proposal Form
3. Legal Status
4. Non-Collusion Affidavit
5. Bidder Qualifications
6. Code of Ethics
7. Hold Harmless and Indemnification Agreement

SECTION 3 - WAGE AND PAYROLL REQUIREMENTS

State Wage Rate Requirements

SECTION 4 - CONTRACT FORMS

1. Agreement
2. Performance Bond
3. Labor and Materials Bond

SECTION 5 - GENERAL CONDITIONS / SUPPLEMENTAL GENERAL CONDITIONS

SECTION 6 - SPECIAL PROVISIONS

Introduction to Special Provisions

Schedule of Values

Alternate Bid Items

Unit Price Bid Items

Special Provisions Index

SECTION 7 – IRRIGATION SYSTEM

PART 1 - GENERAL

- 1.1 Related Documents
- 1.2 Description of Work
- 1.3 Definitions
- 1.4 Qualifications
- 1.5 Contractors Understanding

- 1.6 Conduct of the Work
- 1.7 Ordinances and Regulations
- 1.8 Subletting and Assignment
- 1.9 Submittals
- 1.10 Warranty
- 1.11 Use And Occupancy Prior To Completion
- 1.12 Drawings On Record
- 1.13 Instruction

PART 1 - PRODUCTS

- 2.1 Substitution of Materials
- 2.2 Control System
- 2.3 Valves
- 2.4 Valve Boxes
- 2.5 Sprinklers
- 2.6 Wire
- 2.7 Pipe
- 2.8 Fittings
- 2.9 Loose Equipment

PART 3 - EXECUTION

- 3.1 Intent of Specifications
- 3.2 Daily Log
- 3.3 Pipe Routing
- 3.4 General Requirements for Piping
- 3.5 Trenching, Pipe Laying and Backfilling
- 3.6 Manual Valves
- 3.7 Wiring
- 3.8 Quick Coupling Valve
- 3.9 Sprinkler Heads
- 3.10 Adjusting the System
- 3.11 Testing

SECTION 2

BIDDING REQUIREMENTS

**Automatic Irrigation System
Simsbury Farms Golf Course**

INSTRUCTIONS TO BIDDERS

INDEX TO INSTRUCTION TO BIDDERS

1. Introduction
2. Key Dates
3. Project Completion
4. Contingencies
5. Obtaining Bid Package
6. Bid Submission Instructions
7. Lump Sum Prices
8. Liquidated Damages
9. Questions
10. Addenda
11. Costs for Preparing Bid
12. Ownership of Bids
13. Freedom of Information Act
14. Required Disclosures
15. Bidders Qualifications
16. Conflict of Interest
17. Debarred Contractors
18. Legal Status
19. Bid Security
20. Presumption of Bidder's Full Knowledge
21. Tax Exemptions
22. Insurance
23. Award Criteria, Selection, Contract Execution
24. Collusion
25. Advertising
26. W-9 Form

27. Payments
28. Town Inspection of Work
29. Rejected Work or Materials
30. Maintenance and Availability of Records
31. Representation of Town
32. Subcontracting
33. Compliance with Law
34. Licenses and Permits
35. Security, Performance, and Payment
36. Non-Discrimination and Equal Employment Opportunity
37. Wage Rates
38. Protection To Trail Traffic

1. INTRODUCTION

The Town of Simsbury (the "Town") is soliciting bids for supplying and installing a new automatic irrigation system at Simsbury Farms Golf Course. This Invitation is not a contract offer.

The scope of this project is described more particularly in the Invitation for Bid that is a part of this bid package.

The location, general characteristics and principal details of the work are indicated on drawings in the plan set prepared by White Engineering, Inc., titled "Automatic Irrigation System – Simsbury Farms Golf Course", dated February 6, 2023.

The above drawings are the contract drawings, referred to herein as the "Drawings."

Interested parties should submit a bid response in accordance with the requirements and directions set forth in this bid package.

The Town will return unopened any bid received after the date and time of bid opening.

If there are any conflicts between the provisions of these Instructions to Bidders and any other document(s) comprising this bid package, these Instructions to Bidders shall prevail.

2. KEY DATES

Invitation to Bid issued:	February 15, 2023
Pre-Bid Conference:	Monday February 27, 2023 @ 10:00 a.m. on site
Bids Due:	March 9, 2023 at 10:30 a.m.

3. PROJECT COMPLETION

The contractor is advised that time is of the essence for this project due to seasonal restrictions. The Contractor shall provide a detailed work schedule for approval by the Town prior to execution of the Contract. The work schedule shall be updated weekly for the duration of the construction.

Project Completion

Work under this contract shall be substantially completed within twenty (20) weeks from receipt of the notice to proceed. Commencement of work may not begin prior to the date of the notice to proceed. The Contractor shall be subject to liquidated damages described in Section 8 in the event that work is not substantially complete by within this time.

4. CONTINGENCIES

The Town reserves the right to cancel this bid process and any resulting Contract at any time if the Town deems such action to be in its best interests, including but not only if either of the following conditions exists:

- The Town, through changes in its requirements or methods of operation, no longer has a need for the subject matter of this Invitation; or

- The Town is not satisfied with the work under the Contract, or the successful bidder fails to comply with any of the Contract's terms and conditions.

5. OBTAINING BID PACKAGE

Specifications and bidding documents may be obtained electronically via the Town's web site at the following link: <http://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>.

6. BID SUBMISSION INSTRUCTIONS

Bids must be in the Town office identified above prior to the date and time the first bid is scheduled to be opened publicly. Postmarks prior to the bid opening date and time do **NOT** satisfy this condition. The Town will **NOT** accept corrections and/or modifications received after the first bid is opened publicly. Bids may not be withdrawn after bid opening, and bids must remain in effect for sixty (60) calendar days after bid opening, even if the bidder discovers errors in the bid after opening.

One (1) original bid must be submitted on the accompanying Bid Form and in sealed, opaque envelopes clearly labeled with the bidder's name, the bidder's address, the words "BID DOCUMENTS," and the Bid Title and Bid Opening Date, to prevent opening prior to the bid opening date. The bidder should also complete the following forms and submit as part of the bid submission:

- Bid Security
- Non-Collusion Affidavit
- Legal Status Form
- Statement of Bidder's Qualifications
- Simsbury Hold Harmless and Indemnification Agreement

The Town will reject, and not accept, bids submitted in unmarked envelopes that the Town opens in its normal course of business. The Town may, but shall not be required to, return such bid and inform the bidder that the bid may be resubmitted in a sealed envelope properly marked as described above.

Bids must be submitted on the prescribed form and all blank spaces for bid prices must be completed and all prices shall be stated in both words and figures. Bid prices shall include all labor, materials, equipment, and transportation necessary to perform the work in accordance with the Contract. The person signing the bid must initial errors, alterations or corrections on both the original bid and all required copies. Ditto marks or words such as "SAME" shall not be used in the Bid Form.

Bids may be withdrawn personally or in writing provided that the Town receives the withdrawal prior to the time and date fixed for the bid opening. Bids are considered valid for sixty (60) calendar days after bid opening, to permit the Town to review the bids and to investigate the bidders' qualifications prior to awarding the bid. Bidders may not withdraw, cancel or modify their bid for a period of ninety (90) calendar days after the bid opening or the Bidder shall forfeit its Bid Security.

An authorized person representing the legal entity of the bidder must sign the bid.

7. LUMP SUM PRICES

Lump sum prices for each of the items in the bid shall include its prorated share of overhead, profit, and all costs associated with that item. The lump sum price represents the **entire compensation** that the Town shall pay for **all** of the work associated with the item.

8. LIQUIDATED DAMAGES

If the Contractor shall neglect, fail or refuse to complete the Work within the time herein specified, or any proper extension thereof granted by the terms of this Agreement then the Contractor does hereby agree, as part consideration for awarding of this Contract, to pay the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work the sum of One Thousand Dollars (\$1,000) per calendar day.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages of the Owner would in such event sustain, the said amount shall be retained from time to time by the Owner from current periodical estimates. It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever, and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract, provided that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due to acts of God and other similar circumstances beyond his control.

9. QUESTIONS

Questions concerning the bid are to be in writing preferably by email and directed **only to:**

Name: Brian Johnson
933 Hopmeadow Street
Simsbury, CT 06070

E-mail: bjohnson@simsbury-ct.gov

If a bidder finds any omission, discrepancy or error in, has questions concerning, or seeks an exception to anything in the documents constituting this Invitation, it should notify the Town as

soon as possible and in no event later than five (5) business days before the date of the bid opening. The bidder must direct that inquiry to: Brian Johnson, email address: bjohnson@simsbury-ct.gov. No oral statement of the Town shall be effective to modify any of the provisions of this Invitation.

However, the Town will not make any oral interpretations to any bidder as to the meaning of any bid documents or portions thereof, and no bidder shall rely on any alleged oral interpretation. A bidder shall request an interpretation in writing to Brian Johnson, email address: bjohnson@simsbury-ct.gov. The Town will not consider any such request made more than five (5) business days before the bid opening date.

10. ADDENDA

The Town will post an addendum or addenda, which shall be a part of this Invitation and the resulting Contract, containing all questions received as provided for above and decisions regarding same. At least three (3) calendar days prior to the receipt of bids, the Town will post a copy of the addendum on the Town's web site at the following link: <http://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>. Each bidder is responsible for checking the website to determine if the Town has issued an addendum and, if so, to complete its bid in accordance with the Invitation as modified by the addendum.

11. COSTS FOR PREPARING BID

This Invitation does not commit the Town to pay any costs incurred by bidders in preparing their responsive bids. Each bidder agrees that all costs it incurs in developing its bid are its sole responsibility.

12. OWNERSHIP OF BIDS

All bids submitted become property of the Town.

13. FREEDOM OF INFORMATION ACT

All information submitted in a bid or in response to a request for additional information is subject to disclosure under the Connecticut Freedom of Information Act as amended. A bidder's responses may contain financial or other data that it claims constitute proprietary or confidential information or a trade secret. To protect such data from disclosure, a bidder should identify specifically the pages that contain claimed confidential information by visibly marking all such pages of the bid.

14. REQUIRED DISCLOSURES

In its bid each bidder must:

- State its inability to meet any specified requirement of the Invitation;
- Make a complete disclosure of all resolved and pending mediation, arbitration and litigation matters in which the bidder or its principals (regardless of their place of employment) have been involved for the most recent five (5) years;

- Make a complete disclosure of each instance of its or its principals' (regardless of their place of employment) conviction, guilty plea, nolo contendere plea, finding of civil liability or criminal responsibility in any civil action or for any criminal offense, except motor vehicle infractions; and
- Make a complete disclosure of each instance of its or its principals' (regardless of their place of employment) finding of a violation of any state or local ethics standards or other offense arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

A bidder's acceptability based on these disclosures and any investigation the Town deems necessary to determine a bidder's ability to perform the work described in this Invitation shall lie solely with the Town.

15. BIDDERS QUALIFICATIONS

In order to be considered for the project, the successful bidder shall demonstrate that they or their Subcontractor meets the following requirements:

- Be engaged primarily in the business of irrigation systems construction with a minimum of five (5) years experience installing golf course irrigation systems
- Have successfully completed the installation of five (5) or more complete automatic golf course irrigation projects in the past five years using HDPE pipe for the main line and lateral piping.
- The Contractor shall supply with his bid, a list of all irrigation projects completed in the past five years.

The Owner may make such investigations as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

16. CONFLICT OF INTEREST

The Town shall review all bids under this provision and may reject any bid where, in the Town's opinion, the bidder could be in a conflict of interest or could be perceived to be in a possible conflict of interest position if the bidder were to become a party to the Contract.

17. DEBARRED CONTRACTORS

The Town will reject any bid from a bidder that is on a debarred Contractor list of the United States and/or the State of Connecticut.

18. LEGAL STATUS

Each bidder must complete the Bidder's Legal Status Disclosure form and must, if required, have a current license or registration to do business in the State of Connecticut that is on file with the Connecticut Secretary of the State's Office. The Town may, in its sole discretion, request acceptable evidence of any bidder's legal status.

19. BID SECURITY

Each bid must be accompanied by bid security in the amount equal to at least **TEN PERCENT (10%)** of the bid amount for the first year. The bid security shall be in the form either of the bidder's certified check or of a bid bond. The bid bond shall be prepared in the form of the Bid Bond made a part of this Invitation, duly executed by the bidder and the surety and shall be subject to the review and approval of the Town's legal counsel. The bidder's surety shall be licensed by the State of Connecticut and listed by the US Department of the Treasury in Circular No. 570. equal to at least **TEN PERCENT (10%)** of the bid amount.

In lieu of a surety bond, subject to review and approval of the Town's legal counsel, a certified check will be accepted. The bidder's bank shall be licensed and insured by the State of Connecticut and the Federal Deposit Insurance Corporation. The failure of the Town's legal counsel to approve the form of bid security shall be grounds for the Town to reject the bid.

The successful bidder, upon its refusal or failure to execute and deliver the Contract, certificates of insurance, bonds or other documents required by this Invitation within **TEN (10) business days** of written notification of award, unless the Town otherwise agrees in writing, shall forfeit to the Town the bid security.

If the successful bidder has previously failed to execute and deliver a contract on a prior bid awarded by the Town, such bidder shall have **TEN (10) business days** to post a cash bond in an amount deemed by the Town to adequately cover the difference between the successful bid and the next lowest, complete and responsive bid. Such cash bond shall be forfeited in its entirety in the event the successful bidder fails to execute and deliver the Contract, certificates of insurance, bonds or other documents required by this Invitation within **TEN (10) business days** of written notification of award, unless the Town otherwise agrees in writing.

The Town shall consider a bidder's failure to provide the required bid security as an incomplete and unresponsive bid.

Upon the successful bidder's execution of the Contract in the form enclosed with this Invitation and the provision of all other required documents, the Town shall release the bid security to all other bidders.

20. PRESUMPTION OF BIDDER'S FULL KNOWLEDGE

At the time the first bid is opened, the Town will presume that each bidder has read and understood each document comprising this Invitation and any addenda posted on the Town's website. A bidder's failure and/or omission to receive or examine any information concerning this Invitation shall in no way relieve it from any aspect of its bid or the obligations related to it.

At the time the first bid is opened, the Town will also presume that each bidder is familiar with and will comply with all federal, state and local laws, ordinances and regulations that in any manner relate to this Invitation and the performance of the work described in it.

By submitting a bid, each bidder represents that it has thoroughly examined and become familiar with the scope of work outlined in this Invitation and it is capable of performing the work to achieve the Town's objectives.

Each bidder shall visit and examine the location of and the routes to be used during the work described in this Invitation and thoroughly familiarize itself with all actual conditions of the property before preparing its bid. The submission of a bid shall be construed as an assurance that such examination has been made, and the Town will not recognize or award claims for compensation for additional labor, equipment or materials for difficulties encountered.

21. TAX EXEMPTIONS

The Town is exempt from the payment of federal excise taxes and Connecticut sales and use taxes. Exemption from State sales tax per Conn. Gen. Stat. Chapter 219, § 12-412(1). Bidders shall avail themselves of these exemptions.

22. INSURANCE

The successful bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the work and during the completed operations period that is the subject of this Invitation the insurance coverages set forth in the Agreement.

23. AWARD CRITERIA, SELECTION, CONTRACT EXECUTION

The Town reserves the right to accept the bid that, all things considered, is in the best interests of the Town. Although price will be an important factor, it will not be the only basis for award. Due consideration will also be given to a bidder's experience, references, service, ability to respond promptly to requests, past performance satisfactory to the Town, and other criteria relevant to the interests of the Town, including the bid documents' compliance with the procedural requirements stated in this Invitation.

The Town will not award the bid to any bidder who is in arrears or in default to the Town on any debt, contract, security or any other obligation.

The Town reserves the rights, in its sole discretion: to accept any, all, or any part of bids; to reject any, all, or any part of bids; to waive any non-material deficiencies or clerical errors in the bidding process or bid; and to award the bid that in its judgment will be in the Town's best interests. The Town also reserves the right to award the purchase of individual items under this Invitation to any combination of separate bids or bidders.

All bids will be publicly opened and read aloud as received on the date, at the time, and at the place identified in this Invitation. Bidders may be present at the opening.

The Town may correct, after bidder verification, any mistake in a bid that is obviously a clerical error, such as a price extension or decimal point error. If an error exists in an extension of prices, the unit price shall prevail. In the event of a discrepancy between the price quoted in words and in figures, the words shall control.

The Town will select the bid that it deems to be in the Town's best interest and issue a Notice of Conditional Award of Bid to the successful bidder. The conditional award shall be subject to further discussions with the bidder that are deemed necessary by the Town and to the successful bidder's provision of the documents required by this Invitation and the execution of a Contract in the form contained in this Invitation. The successful bidder's failure to provide each required form or execute the Contract within ten (10) business days of the date of the Notice of Conditional Award of Bid shall be grounds for the Town to declare the bid withdrawn, to call the bid security, and to enter into discussions with another bidder.

The Town will post the bid results and award recommendation on the Town's website, www.Simsbury-ct.gov, under "Public Bids / RFPs".

The Notice of Conditional Award and Contract Execution dates in Section 2 are anticipated, not certain, dates.

24. COLLUSION

Each bidder shall complete the Non Collusion Affidavit that is a part of this Invitation.

Any act(s) of misrepresentation or collusion in connection with a bid shall be a basis to disqualify a bid submitted by the bidder responsible for said misrepresentation or collusion. In the event that such conduct is discovered after the execution of the Contract, the Town may terminate the Contract without incurring any liability, penalty, damages or other loss.

25. ADVERTISING

The successful bidder may not name the Town in its advertising, news releases, and promotional efforts without the Town's prior written approval.

If it chooses, the successful bidder may list the Town in a statement of references or similar document required as part of a public bid. The Town's permission to the successful bidder to do so is **not** a statement about the quality of the successful bidder's work or the Town's endorsement of the successful bidder or its work.

26. W-9 FORM

The successful bidder must provide the Town with a completed W-9 form before commencing work.

27. PAYMENTS

Payments will be made within thirty (30) calendar days after the appropriate Town officer receives and approves the invoice, unless otherwise specified in the Technical Specifications.

28. TOWN INSPECTION OF WORK

The Town may inspect the successful bidder's work at all reasonable times. This right of inspection is solely for the Town's benefit and does not transfer to the Town the responsibility for discovering patent or latent defects. The successful bidder has the sole and exclusive responsibility for performing in accordance with the Contract.

29. REJECTED WORK OR MATERIALS

The successful bidder, at its sole cost and expense, shall remove from the Town's premises rejected items, commodities and/or work within 48 hours of the Town's notice of rejection. Immediate removal may be required when safety or health issues are present.

30. MAINTENANCE AND AVAILABILITY OF RECORDS

The successful bidder shall maintain all records related to the work described in the Invitation for a period of three (3) years after final payment under the Contract or until all pending Town, state and federal audits are completed, whichever is later. Such records shall be available for examination and audit by Town, state and federal representatives during that time.

31. REPRESENTATION OF TOWN

In performing the work described in the Invitation, the successful bidder, its agents and employees shall act in an independent capacity and shall not act as, and are not, officers, employees or agents of the Town.

32. SUBCONTRACTING

The successful bidder agrees not to enter into any subcontracting agreement for any or all of the work described in the Invitation without obtaining the Town's prior written consent. All subcontracting shall be subject to the same terms and conditions as are applicable to the successful bidder. The successful bidder shall be fully and solely responsible for the performance of and payments to any Subcontractors.

33. COMPLIANCE WITH LAW

The successful bidder shall comply with all applicable laws, regulations, ordinances, codes and orders of the United States, the State of Connecticut and the Town related to its bid and the performance of the work described in the Invitation. The successful bidder shall commit no trespass on private property in performing any of the work described in the Invitation.

By submitting a bid, the successful bidder covenants that it has complied, and during the term of the Contract will comply, with the obligations under the Immigration Reform and Control Act ("IRCA") and that all employees it assigns to the Contract are authorized for employment in the United States of America. The successful bidder further covenants that it has properly completed, and during the term of the Contract will properly complete, I-9s for all employees assigned to the Contract. The successful bidder agrees to defend, indemnify and hold the Town harmless in the event that any of the successful bidder's employees provided under the Contract is found not to be

authorized to work under the law or in the event that there is a determination that the successful bidder has failed to comply with IRCA's obligations, including but not limited to the failure to prepare correctly and maintain I-9s. The successful bidder further agrees to defend, indemnify and hold harmless the Town from and against any and all claims brought against the Town as a result of these obligations, including but not limited to settlement fees, judgments, attorneys fees and costs. These defense, hold harmless and indemnity obligations shall survive the Contract's termination or expiration.

34. LICENSES AND PERMITS

The successful bidder shall, for the term of the Contract, have and provide proof of all permits and licenses required by the Town and/or any other state or federal authority. The successful bidder shall immediately and in writing notify the Town of the loss or suspension of any such license or permit.

35. SECURITY, PERFORMANCE, AND PAYMENT

At the time of Contract execution, the successful bidder shall file with the Town security in an amount not less than one hundred percent (100%) of the total bid for, which security shall be for both the satisfactory performance of the work and for all labor and materials. Such security shall be in the form of either surety bond(s) or the successful bidder's certified check.

The surety bond(s) shall be prepared in the form of the Performance Bond, and the Labor and Material Payment Bond, made a part of this Invitation, duly executed by the bidder and the surety and shall be subject to the review and approval of the Town's legal counsel. The bidder's surety shall be licensed by the State of Connecticut and listed by the US Department of the Treasury in Circular No. 570. The Town may accept a certified check in lieu of a surety bond, subject to review and approval of the Town's legal counsel. The bidder's bank shall be licensed and insured by the State of Connecticut and the Federal Deposit Insurance Corporation. The failure of the Town's legal counsel to approve the form of such security shall be grounds for the Town to reject the bid.

The successful bidder shall provide the Town with such security prior to the start of each Contract year in an amount the Town estimates for the work anticipated for that Contract year. Failure to provide such security shall be grounds to terminate the Contract.

36. NON-DISCRIMINATION AND EQUAL EMPLOYMENT OPPORTUNITY

During the term of the Contract, the successful bidder agrees to be an equal employment opportunity employer and will not discriminate as to race, color, creed, sex, national origin, marital status, physical or mental disability or any other protected classification under state and federal law.

37. WAGE RATES

The project is subject to State of Connecticut Prevailing Wage Rates.

38. PROTECTION TO TRAIL TRAFFIC

The Simsbury Farms Family Fitness Trail is located adjacent to the project site. The pedestrian traffic along the trail shall be maintained and protected from construction activities at all times. Appropriate temporary signage should be posted at trail crossings warning the Trail users of Truck Exiting the project site. The Trail may not be closed and material may not be stockpiled on the trail under any circumstances.

END OF INSTRUCTIONS TO BIDDERS

BID PROPOSAL

To: Office of the Finance Director
Town of Simsbury
933 Hopmeadow Street
Simsbury, CT 06070

Proposal of:

Contractor Name: _____

Street Address: _____

City, State, Zip Code _____

The undersigned further declares that he has carefully examined the site of the work, the information for bidders, specifications, drawings and form of contract and will contract to provide all necessary tools, apparatus and implements, freight, cartage and expense, and to do all work and furnish all the materials necessary to construct the proposed work named on the title page in the manner and upon the conditions specified, and upon the terms which follow herein.

But it is understood and agreed that the prices bid for unit quantities of work in the following items shall control in any contract awarded hereon; that the quantities used are approximate only, being estimated solely for use in comparing bids; and that the following products obtained by multiplying the unit prices bid by the estimated quantities, and the total of those prices are inserted only for the purpose of checking this proposal and for the convenience of the bidder. In the case of error or discrepancies, unit prices govern and written words take precedence over figures.

No bids may be withdrawn for a period of 90 days after the opening of bids without the approval and written consent of the Finance Director. If no award has been made within 90 days after the opening of bids, the bid may be withdrawn upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bond.

And the undersigned agrees to furnish satisfactory performance and payment bonds with surety, and to execute and deliver, within five days after the notice of the award, a formal contract with the Town of Simsbury for the fulfillment of this proposal; and it is agreed, in case of failure or neglect on the part of the undersigned to do so, the Town may determine that the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void, and at the Town's option the amount of the bond or check accompanying the proposal shall be forfeited to the Town of Simsbury, or shall be returned to the bidder in whole or in part.

The undersigned further declares that the bidder is:

- a. A CORPORATION organized under the laws of the State of having its principal office at

The principal officers of said corporation with their respective titles and address are as follows:

- b. A LLC organized under the laws of the State of having its principal office at

The principal officers of said corporation with their respective titles and address are as follows:

- c. A PARTNERSHIP consisting of the following individuals (with their addresses).

- d. An INDIVIDUAL, by the name of _____ and doing business as

The bidder is required to state below what work of a similar character to that included in the proposed contract he has done and give reference that will enable the Town to judge his experience, skill and business standing.

The bidder is required to give a brief description of the plan and general methods proposed for carrying on the work indicating there in whether the plan and equipment are owned or to be hired by the bidder.

BID PRICES

INSTRUCTIONS: Bidder is to write his bid price in words in the blank spaces provided at the end of the description.

The Bidder is advised that the description is only a summary. The lump sum bid shall include all of the items as specified in detail in the contract document.

In case of discrepancies between amounts shown in words and amount shown in figures, BIDDER agrees that amounts shown in words will govern.

BID SCHEDULE

BIDDER'S NAME:

Automatic Irrigation System-Simsbury Farms Golf Course

Contractor is to list when they are available to start the installation of the irrigation system below. Materials for the project may be supplied by the contractor and paid for by the town upon signing of the contract. All prices submitted are to be for the date submitted by the contractor. Contractor's availability to do this work will be a determining factor in awarding the bid.

Start Date: _____

LUMP SUM BASE BID PRICE – SUPPLY AND INSTALL A COMPLETE AUTOMATIC IRRIGATION SYSTEM.

Pursuant to and in full compliance with the solicitation, the undersigned bidder, having visited the site or property if applicable, and having thoroughly examined each and every document comprising the solicitation, including any addenda, hereby offers and agrees as follows:

To provide the products and/or services specified in, and upon the terms and conditions of, the solicitation for the total sum of _____
_____/100 Dollars (write out in words) (\$_____).

Alternate No. 1

Removal of existing irrigation equipment as specified in Section 3.1.E of the Irrigation System Specifications the total sum of _____/100 Dollars (write out in words) (\$_____).

MANDATORY UNIT PRICES

Should the amount of improvements required be increased or decreased due to special considerations found at the site or because of a request of the Town of Simsbury, the undersigned agrees that the following supplemental UNIT PRICES will be the basic price in place for computing the EXTRA or CREDIT.

Each UNIT PRICE shall include all equipment, tools, labor, permits, fees, etc., incidental to the installation and completion of the work involved.

The amounts shown are net changes to the Contract for additional work and include the Contractor's and any Subcontractor's amounts for overhead and profit. For deleted work, the net credit to the Contract shall be 10% less.

All work is to be accomplished in accordance with applicable Sections of the Specifications and Site Details.

UNIT PRICES

The following unit bids will be used for addition to or deletion from the contract price due to changes in the amount of work shown on the plans and detailed in the Specifications. The unit prices shall include all materials, labor, taxes, etc., associated with each item.

<u>Item No.</u>	<u>Description</u>	<u>Units</u>	<u>Unit Price</u>
1	8" HDPE pipe including excavation, backfill, fittings, etc.	Linear foot	\$ _____
2	6" HDPE pipe including excavation, backfill, fittings, etc.	Linear foot	\$ _____
3	4" HDPE pipe including excavation, backfill, fittings, etc.	Linear foot	\$ _____
4	2" HDPE pipe including excavation, backfill, fittings, etc.	Linear foot	\$ _____
5	55'-70' radius full circle sprinkler including swing joint assembly, fittings, wire, wire connectors, etc.	Each	\$ _____
6	55'-70' radius part circle sprinkler including swing joint assembly, fittings, wire, wire connectors, etc.	Each	\$ _____
7	80' radius full circle sprinkler including swing joint assembly, fittings, wire, wire connectors, etc.	Each	\$ _____
8	80' radius part circle sprinkler including swing joint assembly, fittings, wire, wire connectors, etc.	Each	\$ _____
9	6" main line isolation gate valve including valve box, etc.	Each	\$ _____
10	4" main line isolation gate valve including valve box, etc.	Each	\$ _____

11	2" manual ball valve including 2" saddle, valve box, etc.	Each	\$_____
12	1" air release valve including brass fittings, gate valve, wye strainer, valve box, etc.,	Each	\$_____
13	Quick coupling valve including swing joint assembly, valve box and cover, etc.	Each	\$_____
14	Furnishing and installing additional grounding using ground plates and ground enhancement material as specified.	Each	\$_____
15	Furnishing and installing additional grounding using a ground rod only.	Each	\$_____
16	Rock/deleterious material removal and replacement, per cubic yard.	Cubic Yard	\$_____
17	Rock cutting for main line pipe with rock cutting trencher Including deleterious material and replacement, per lineal foot.	Lineal Foot	\$_____
18	Rock cutting for lateral pipe with rock cutting trencher Including deleterious material and replacement, per lineal foot.	Lineal Foot	\$_____
19	Rock hammering for main line pipe with rock hammer including deleterious material and replacement, per lineal foot.	Lineal Foot	\$_____
20	Rock hammering for lateral pipe with rock hammer including deleterious material and replacement, per lineal foot.	Lineal Foot	\$_____

The following addenda for this contract were received:

<u>Addendum Number</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____

Dated at _____, _____
(Town) (State)

This _____ day of _____, 2023

Signed

(Bidder)

By: _____

Business Address:

NOTE:

Bidder is reminded that in addition to completing and signing the above proposal and bid form, he/she shall also complete and return with the bid:

- Bid Security
- Non-Collusion Affidavit
- Legal Status Form
- Statement of Bidder's Qualifications
- Simsbury Hold Harmless and Indemnification Agreement
- Non-Discrimination Certificate/Affidavit

BID BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned

_____ as Principal; and

_____ as Surety, are hereby held and firmly bound unto the Town of Simsbury in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 2022.

The condition of the above obligation is such that where as the Principal has submitted to the Town of Simsbury a certain Bid, attached hereto, and hereby made a part hereof, to enter into a contract in writing, for the

Automatic Irrigation System – Simsbury Farms Golf Course
Simsbury, Connecticut

NOW, THEREFORE,

- (a) If said bid shall be rejected, or, on the other hand,
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of Contract attached thereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said Contract and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then, this obligation shall be void; otherwise the same shall remain in force and effect, it being expressly understood and agreed that the liability of the surety of any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of the said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Town may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the principal and the Surety have hereunto set their hands and seals and such of them 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

By _____
(Seal)

Signed in Presence of:

Signed in presence of:

Surety

By _____
(Seal)

TOWN OF SIMSBURY, CONNECTICUT

BIDDER'S LEGAL STATUS DISCLOSURE

Please fully complete the applicable section below, attaching a separate sheet if you need additional space.

For purposes of this disclosure, "permanent place of business" means an office continuously maintained, occupied and used by the bidder's regular employees regularly in attendance to carry on the bidder's business in the bidder's own name. An office maintained, occupied and used by a bidder only for the duration of a contract will not be considered a permanent place of business. An office maintained, occupied and used by a person affiliated with a bidder will not be considered a bidder's permanent place of business.

IF A SOLELY OWNED BUSINESS:

Bidder's Full Legal Name _____

Mailing Address _____

Owner's Full Legal Name _____

Does the bidder have a "permanent place of business" in Connecticut, as defined above?

_____ Yes _____ No

If yes, please state the full street address (not a post office box) of that "permanent place of business."

IF A CORPORATION:

Bidder's Full Legal Name _____

Mailing Address _____

State in which Legally Organized _____

State Business ID # _____

Current Officers

President

Secretary

Chief Financial Officer

Vice President

Treasurer

Does the bidder have a "permanent place of business" in Connecticut, as defined above?

_____ Yes _____ No

If yes, please state the full street address (not a post office box) of that "permanent place of business."

IF A LIMITED LIABILITY COMPANY:

Bidder's Full Legal Name _____

Mailing Address _____

State in which Legally Organized _____

State Business ID # _____

Current Manager(s) and Members

Name & Title (if any) Address

Name & Title (if any) Address

Name & Title (if any) Address

Name & Title (if any) Address

Name & Title (if any) Address

Does the bidder have a "permanent place of business" in Connecticut, as defined above?

_____ Yes _____ No

If yes, please state the full street address (not a post office box) of that "permanent place of business."

IF A PARTNERSHIP:

Bidder's Full Legal Name _____

Mailing Address _____

State in which Legally Organized _____

State Business ID # (if applicable) _____

Current Partners

Name & Title (if any) Address

Name & Title (if any) Address

Name & Title (if any) Address

Name & Title (if any) Address

Does the bidder have a "permanent place of business" in Connecticut, as defined above?

_____ Yes _____ No

If yes, please state the full street address (not a post office box) of that
"permanent place of business."

Bidder's Full Legal Name

(print)
Name and Title of Bidder's Authorized Representative

(signature)
Bidder's Representative, Duly Authorized

Date

END OF LEGAL STATUS DISCLOSURE FORM

TOWN OF SIMSBURY

BIDDER'S NON-COLLUSION AFFIDAVIT

Automatic Irrigation System – Simsbury Farms Golf Course

The undersigned bidder, having fully informed himself/itself regarding the accuracy of the statements made herein, certifies that:

- (1) the bid is genuine; it is not a collusive or sham bid;
- (2) the bidder developed the bid independently and submitted it without collusion with, and without any agreement, understanding, communication or planned common course of action with, any other person or entity designed to limit independent bidding or competition;
- (3) the bidder, its employees and agents have not communicated the contents of the bid to any person not an employee or agent of the bidder and will not communicate the bid to any such person prior to the official opening of the bid; and
- (4) no elected or appointed official or other officer or employee of the Town of Simsbury is directly or indirectly interested in the bidder's bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

The undersigned bidder further certifies that this statement is executed for the purpose of inducing the Town of Simsbury to consider its bid and make an award in accordance therewith.

Legal Name of Bidder

(signature)

Bidder's Representative, Duly Authorized

Name of Bidder's Authorized Representative

Title of Bidder's Authorized Representative

Date

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

Notary Public

My Commission Expires:

(Acknowledgement if a Corporation)

State of Connecticut)
) ss:
County of _____)

On this the _____ day of _____, 20__ before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say that he/she is the _____ of _____, the corporation described in and which executed the foregoing instrument; that he/she knows the seal of the corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by order of the directors of said corporation, and that s/he signed her/his name thereto by like order.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires:

(Acknowledgement of a Partnership)

State of Connecticut)
) ss:
County of Hartford)

On this the _____ day of _____, 20__ before me personally came and appeared _____ to me known, and known to me to be a partner of the partnership described in and which executed the foregoing instrument and he/she acknowledged to me that he/she executed the same as and for a free act of said partnership.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires:

(Acknowledgement of a Proprietorship)

State of Connecticut)
)
County of Hartford)

ss:

On this the _____ day of _____, 20____ before me personally came and appeared
_____ to me known, and known to me to be the person described in and who
executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act
and deed.

(Notary Seal)

Commissioner of the Superior Court
Notary Public
My commission expires:

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions shall be answered and information given shall be clear and comprehensive. This statement shall be notarized. If additional room is required to answer questions, please attach additional sheet(s) with the supplemental information. The bidder's name shall appear on the top of the supplemental sheets to avoid confusion. The bidder may submit additional information as it deems necessary to enable the Town to judge the bidder's ability to perform the proposed Contract.

Bidder's full legal name:

Permanent main office address:

Contact person for this Invitation:

Phone and fax numbers and e-mail address of the contact person during normal business hours:

Date of organization:

Date of incorporation, if applicable:

Number of years bidder has been engaged in business under present firm or trade name:

Contracts on hand (dollar value, anticipated completion date):

General character or type of work performed by the bidder:

Has the bidder ever failed to complete any work awarded to it? If so, please explain in detail the circumstances:

Has the bidder ever defaulted on a contract? If so, please explain in detail the circumstances:

List contracts of a similar nature (size, type, and complexity) completed successfully by the bidder within the last five (5) years. List the other contracting party, the value of the contract, and the year completed.

List the equipment that will be available for the work described in this Invitation.

How many years of experience does the bidder have in work of similar size, type, and complexity to the Work of this Invitation?

Describe the background and experience of each individual person listed in the Bidder's Legal Status Disclosure:

Provide the name of the bidder's bank or other financial institution, contact person, phone number, address, and state the bidder's available credit:

If necessary for the Town to determine an award of contract, will the bidder provide a detailed financial statement?

List all legal disputes (mediation, arbitration or litigation) that the bidder or any predecessor in interest has been involved with in the last five (5) years, the nature of the dispute, the adverse party and the result.

SECTION 3

WAGE AND PAYROLL

REQUIREMENTS

Wage Rates & Payroll Requirements to be provided via addendum

SECTION 4

CONTRACT FORMS

TOWN OF SIMSBURY
CONTRACT

Automatic Irrigation System – Simsbury Farms Golf Course

THIS AGREEMENT, made this _____ day of _____ by and between THE TOWN OF SIMSBURY, 933 Hopmeadow Street, Simsbury, Connecticut hereinafter referred to as the OWNER and _____ with an address at _____ hereinafter referred to as the CONTRACTOR

WITNESSETH:

That for and in consideration of the mutual covenants and promises between the parties hereto, it is hereby agreed that:

1. CONTRACTOR will furnish all of the materials and supplies, equipment, and labor and other services necessary in conformance with these contract documents for the construction and completion of the project described in general as follows: Automatic Irrigation System – Simsbury Farms Golf Course, Simsbury, Connecticut, as defined in the Standard Instruction for Bidders.
2. COMPLETION OF WORK. The Contractor shall commence the work covered by this contract within ten (10) calendar days after the date of receipt of the Notice to Begin Work and shall complete the same within the aforementioned dates unless the period for completion is extended as provided for in the General Conditions.
3. CONTRACT SUM. The Owner shall pay the Contractor for the performance of said work the sum of \$_____, subject to additions or deductions provided herein in conformity with the bid schedule of prices.
4. The Contract Documents include the following:
 - (a) Instructions to Bidders
 - (b) Bidder's Proposal
 - (c) Notice of Award
 - (d) Contract
 - (e) General Conditions
 - (f) Supplemental General Conditions

- (g) Plans
- (h) Special Provisions
- (i) All Addenda

5. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions and in such amounts as required by the Contract Documents.
6. This Contract shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Contract in duplicate, on the date first above written.

OWNER:

Signed, Sealed and Delivered
in the presence of:

Town of Simsbury
BY: Maria E. Capriola
Town Manager

CONTRACTOR:

COMPANY NAME: _____

BY: _____

CONTRACTOR'S EXEMPT PURCHASE CERTIFICATE

I hereby certify, under penalties of perjury, that I am engaged in the performance of a construction contract on a project for the following named exempt agency or organization:

Town of Simsbury

Full Name of Agency of Organization

**933 Hopmeadow Street
Simsbury, CT. 06070**

Address of Same

That such agency is, to the best of my knowledge and belief, exempt from the Sales and Use Tax because it is a

Town

(Town, School, Fire or Police Department, Library etc.,
or other branch of State or Federal Government)

in accordance with Regulation No. 16 of Sales and Use Tax.

That this certificate is issued to cover all purchases of materials and supplies, designated by me, for use of the project referred to above.

Permit No. (if any)

Contractor

Date:

Place:

Company Name

Address:

PERFORMANCE BOND

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, hereafter called Principal, and _____, as Surety, hereinafter called Surety are held and firmly bound unto the Town of Simsbury as Obligee, hereinafter called Owner, in the amount of _____ and /100 Dollars (\$_____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, by these presents.

WHEREAS, Principal has by written Agreement dated _____ entered into a Contract with the Owner for:

Automatic Irrigation System – Simsbury Farms Golf Course
Simsbury, Connecticut

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

The Surety hereby waives notice of any alterations or extensions of time made by the Owner.

WHEREAS, Principal shall be, and declared by the Owner to be in default under the Contract, the Owner having performed the Owner's obligations thereunder, the Surety shall promptly remedy the default, or shall promptly:

1. Complete the Contract in accordance with its terms and conditions; or,
2. Obtain a Bid or Bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by the Owner of the lowest qualified responsible Bidder, arrange for a Contract between the Bidder and the Owner, and make available as Work progresses sufficient funds to pay the cost of completion of the Contract.

Any suit brought under this Bond must be instituted before the expiration of three (3) years from the date on which final payment under this Contract is rendered.

This Bond is issued simultaneously with another Bond in favor of the Town of Simsbury conditioned for full payment of Labor and Materials.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Owner named herein or the executors, administrators, or successors of the Owner.

Signed and sealed this _____ day of _____, 20____.

(Seal of Principal)

(Principal)

In the Presence of:

(witness)

By: _____

(witness)

(Seal of Surety)

(Surety)

(witness)

By: _____

(witness)

(Power of Attorney for person signing for Surety Company must be attached to the Bond)

**LABOR AND MATERIAL
PAYMENT BOND**

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, hereafter called Principal, and _____, as Surety, hereinafter called Surety are held and firmly bound unto the Town of Simsbury as Obligee, hereinafter called Owner, in the amount of _____ and /100 Dollars (\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, by these presents.

WHEREAS, Principal has by written Agreement dated _____ entered into a Contract with the Owner for:

Automatic Irrigation System – Simsbury Farms Golf Course
Simsbury, Connecticut

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

This Bond is issued simultaneously with another Bond in favor of the Town of Simsbury conditioned for the full and faithful performance of the Contract.

The Surety hereby waives notice of any alterations or extensions of time made by the Owner.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall pay for all labor and materials furnished by himself or his subcontractors for use in the prosecution of the Work, and used therein, then, this obligation to be void; otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Sections 49-41, 49-42, and 49-43 of the Connecticut General Statutes, and the rights and liabilities hereunder shall be determined and limited by said Sections to the same extent as if they were copied at length herein.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Owner named herein or the executors, administrators, or successors of the Owner.

Signed and sealed this _____ day of _____, 20____.

(Seal of Principal)

(Principal)

In the Presence of:

(witness)

By: _____

(witness)

(Seal of Surety)

(Surety)

(witness)

By: _____

(witness)

(Power of Attorney for person signing for surety company must be attached to the Bond)

SECTION 5

GENERAL CONDITIONS

GENERAL CONDITIONS

1. DEFINITIONS

- 1.1 Wherever used in the CONTRACT DOCUMENTS, The following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.
- 1.2 ADDENDA - Written or Graphic Instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.
- 1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.
- 1.4 BIDDER -Any person, firm, or corporation submitting a BID for the WORK.
- 1.5 BONDS – Bid, Performance, and Payment Bonds and other instrument of security, furnished by the CONTRACTOR in accordance with the CONTRACT DOCUMENTS.
- 1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT TIME.
- 1.7 CONTRACT DOCUMENTS - The contract including Advertisement for Bids, information for Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, AND ADDENDA.
- 1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.
- 1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.
- 1.10 CONTRACTOR - The person, firm, or corporation with whom the OWNER has executed the Agreement.
- 1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

- 1.12 ENGINEER - The Town Engineer for the Town of Simsbury, Connecticut.
- 1.13 FIELD ORDER - A written order affecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.
- 1.14 INSPECTOR - The person appointed by the Town of Simsbury, Conn. to supervise the WORK and shall extend to and include any assistant whom he/she may designate to act in the premises.
- 1.15 NOTICE OF AWARD - The written notice of the acceptance of the Bid from the OWNER to the successful BIDDER.
- 1.16 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him/her to proceed with the WORK and establishing the date of commencement of the work.
- 1.17 OWNER - The Town of Simsbury, Connecticut (A Public Body) for whom the WORK is to be performed.
- 1.18 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.
- 1.19 SHOP DRAWINGS - All Drawings, Diagrams, Illustrations, Brochures, Schedules, and other data which are prepared by the CONTRACTOR, SUBCONTRACTOR, manufacturer SUPPLIER or Distributor which illustrate how specific portions of the WORK shall be fabricated or installed.
- 1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- 1.21 SUBCONTRACTOR - An individual firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the work at the site.
- 1.22 SUBSTANTIAL COMPLETION- That date as certified by the PUBLIC WORKS DIRECTOR when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

- 1.23 SUPPLEMENTAL GENERAL CONDITIONS - Special provisions required by the funding program or Agency (Federal, State, or Local) for participation in the PROJECT and included in the CONTRACT DOCUMENTS. Also such requirements that may be imposed by Applicable State Laws and special characteristics of the PROJECT.
- 1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.
- 1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, all construction tools, machinery, and equipment, and all materials and equipment incorporated or to be incorporated in the PROJECT.
- 1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by Mail to the said party at his/her last given address or delivered in person to said party or his/her authorized representative on the WORK.

2. PAYMENT

- 2.1 On the first of each month, the Contractor may submit an itemized estimate of work completed up to that time, including an estimate of the portion of lump sum items completed or quantities for unit priced items in the contract.
- 2.2 He/she must, if requested by the Engineer, submit satisfactory evidence that he/she has paid in full for all labor, materials and equipment included in the monthly estimate. The estimates shall be made on forms furnished by the Town and the Contractor shall certify that the estimate is correct and the work performed is in conformity with the plans and specifications. No later than 60 days after submission by the Contractor, and acceptance by the Town, of the estimate, the Town will pay the estimated cost, less five percent (5%) retained held by the Town.
- 2.3 After completion of the project and acceptance by the Town, the Contractor shall submit an itemized final estimate. No later than 60 days after acceptance of the final estimate by the Town, the Town shall pay ninety-five (95%) percent of the Contract price. No later than six months after acceptance of the final estimate the Town will pay the five (5%) retained, unless in that time the materials or workmanship in the project shall have been found to be defective.

3. PERMITS DURATION

- 3.1 The Contractor must obtain all necessary permits and pay the fee for them. (Town portion of permit fees are waived.)
- 3.2 Should the Town be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Town, the Contractor shall not be entitled to or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

4. SUPERVISION

- 4.1 The Town will be represented at all times by the TOWN ENGINEER or an employee authorized by the TOWN ENGINEER to represent him/her; and the TOWN ENGINEER or his/her authorized representative shall have sole authority in the interpretation and execution of the contract.
- 4.2 The Contractor must have a competent Field Supervisor on the job during all working hours and notify the Town of his/her name and address in writing, and where he/she may be reached normally after working hours. In the event of the absence of the Field Supervisor, the Contractor must appoint a second in command to take responsible charge of the job. The actual performance of work and superintendence shall be performed by the Contractor but the owner shall, at all times, have access to the premises for the purpose of observing or inspecting the work performed by the Contractor.

5. LAYOUT

- 5.1 The Contractor will provide line and grade by means of offset points. Any additional field work or layout required to reestablish these offset points to facilitate construction will be paid for by the Contractor.

6. SITE WORK

- 6.1 The Contractor will be responsible for maintenance of adequate barricades, signs, and warning systems to protect the job and the public.
- 6.2 The Contractor shall properly protect all underground and above ground utilities

from damage. No interruption shall be caused to any utility without the knowledge of the TOWN ENGINEER.

7. STANDARDS

7.1 Whenever a material, article, or piece of equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard and, any material, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed, is, in the opinion of the Town Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without written approval.

8. CHANGES IN WORK

8.1 The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly.

9. CORRECTION OF WORK AFTER FINAL PAYMENT

9.1 Neither the final Certificate nor payment nor any provision in the Contract Documents shall relieve the contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of substantial completion.

9.2 The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the TOWN ENGINEER subject to mediation.

10. INSURANCE REQUIREMENTS

The Contractor must carry insurance under which the Town and the State of Connecticut is named as an insured, as follows:

The "Hold Harmless" Indemnification endorsement of the insurance shall include the interest of the municipality and the State of Connecticut. The Contractor and Subcontractors and other interests shall be so named.

Such insurance must be by insurance companies licensed to write such insurance in

Connecticut against the following risks with the following minimum amounts and minimum durations.

- A. Workman's Compensation, as required by State Statute.
- B. Public Liability, Bodily Injury Liability and Property Damage Liability as follows:
- | | |
|--|-------------|
| Injury or death of one person: | \$2,000,000 |
| Injury to more than one person in a single accident: | \$1,000,000 |
| Property damage in one accident: | \$1,000,000 |
| Property damage in all accidents: | \$2,000,000 |
| Excess/Umbrella Liability: | \$1,000,000 |
- C. Automobile and Truck (Vehicular) Public Liability, Bodily Injury Liability, and Property Damage Liability as follows:
- | | |
|--|-------------|
| Injury or death of one person: | \$1,000,000 |
| Injury to more than one person in a single accident: | \$1,000,000 |
| Property damage in one accident: | \$1,000,000 |
| Property damage in all accidents: | \$1,000,000 |
- D. Builders Risk including Fire and Extended coverage:
In an amount equal to the value of construction completed plus materials delivered to the site.
- E.
- | | | |
|--------------------|-----------------|-------------|
| Umbrella | Each Occurrence | \$5,000,000 |
| (Excess Liability) | Aggregate | \$5,000,000 |
- F. Professional Liability for Each Claim or Occurrence \$1,000,000

Insurance under B, C, and D above must provide for a 30 day notice to the Town of cancellation/or restrictive amendment.

Insurance under B and C above must be for the whole duration of the contract and for twelve (12) months after acceptance of the project by the Town.

Insurance under D above must be carried for the whole duration of the project and until acceptance by the Town.

Subcontractors must carry A, B and C in the same amounts as above for the duration of the project and until acceptance by the Town.

Certificates of insurance must be submitted to the Town Engineer prior to the signing of the contract and within ten days of notification of award of contract. Should any insurance expire or be terminated during the period in which the same is required by this contract, the Town Engineer shall be notified and such expired or terminated insurance must be replaced with new insurance and a new certificate furnished to the Town Engineer.

Failure to provide the required insurance and certificates may, at the option of the Town, be held to be a willful and substantial breach of this contract.

NOTE: Coverage under "B" shall include XCU coverage as necessary, Collapse and Underground shall be provided for ALL Contracts. Explosion will be provided if specified, or prior to any blasting being performed under the Contract.

11. OWNER'S RIGHT TO DO WORK

If the Contractor fails to prosecute the work properly or fails to perform any provisions of this contract, the Owner, after three days written notice to the Contractor may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Provided, however, that the Town Engineer shall approve both such action and the amount charged to the Contractor.

12. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligation under the CONTRACT DOCUMENTS or the Performance BOND and Payment BONDS.

13. CONTRACT SECURITY

The Contractor shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a performance BOND and a payment BOND in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions, and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all

persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and shall be in a Form acceptable to the Town Director of Finance. When Surety Company Bonds are used, the corporate bonding company shall be licensed to transact such business in the State of Connecticut and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such bond is declared as bankrupt or loses its right to do business in the State in which the WORK is to be performed or is removed from the list of surety companies accepted on FEDERAL BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the CONTRACTOR shall have furnished an acceptable BOND to the OWNER.

14. ASSIGNMENT

Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign, or otherwise dispose of the CONTRACT or any portion thereof, or of his/her right title or interest therein, or his obligations there under, without written consent of the other party.

15. DRAWINGS AND SPECIFICATIONS

- 15.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner ready for use, occupancy, or operation by the OWNER.
- 15.2 In case of conflict between the DRAWINGS AND SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.
- 15.3 Any discrepancies found between the DRAWINGS AND SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his/her discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

- 15.4 The OWNER will furnish free of charge to the contractor up to three (3) copies of the DRAWINGS and SPECIFICATIONS as necessary for the proper execution of the WORK.

16. MATERIALS, WORKMANSHIP, SERVICES, AND FACILITIES

- 16.1 It is understood that except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, tools, equipment, sanitary conveniences, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.
- 16.2 All materials furnished shall be new and of the best quality customarily used in or furnished for work of the character of that herein proposed. Many features of the proposed work are described in detail herein, but the failure to so describe any part of the proposed work or any details or appurtenance thereof shall not be an exception to the above rule. The absence of requirements in drawings or specifications covering details usually included in first class installations of this kind shall not excuse the contractor for their omission in this work.
- 16.3 All workmanship shall be of the best quality for WORK of the character of that herein proposed. The CONTRACTOR shall employ only competent employees to do the WORK required.
- 16.4 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.
- 16.5 Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- 16.6 Drinking water furnished for the employees on the job shall comply with O.S.H.A. regulations.

17. PROTECTION OF WORK AND PROPERTY

- 17.1 The CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK--he/she will take all necessary precautions for the safety of, and will provide the necessary

protection to prevent damage, injury or loss to all employees on the site and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

- 17.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. He/she will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He/she will notify owners of adjacent utilities when prosecution of the work may affect them. The CONTRACTOR will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, and SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or the acts or omissions, of the OWNER or the TOWN ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.
- 17.3 The CONTRACTOR will notify the OWNER at least one week prior to the start of construction.
- 17.4 The CONTRACTOR shall be responsible for verifying the location of any existing utilities. The CONTRACTOR shall notify "Call Before You Dig" at 1-800-922-4455 such that any utility lines can be marked.
- 17.5 In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He/she will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

18. CHANGES IN CONTRACT PRICE

The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved

- (b) An agreed lump sum
- (c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK to cover the cost of general overhead and profit.

19. TIME FOR COMPLETION

- 19.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.
- 19.2 The CONTRACTOR will proceed with the work at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.
- 19.3 If the CONTRACTOR is delayed at any time in the progress of the WORK by changes ordered in the WORK, by labor disputes, fire, unusual delay in transportation, unavoidable casualties, causes beyond the CONTRACTOR'S control, or by any cause which the ENGINEER may determine justifies the delay, then the CONTRACT TIME shall be extended by CHANGE ORDER for such reasonable time as the ENGINEER may determine.

20. SUSPENSION OF WORK, TERMINATION AND DELAY

- 20.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days, or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which work shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.
- 20.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or if he/she makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he/she files a petition to take advantage of any debtor's act, or to reorganize under the

bankruptcy or applicable laws, or if he/she repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he/she repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials, or equipment or if he/she disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he/she disregards the authority of the TOWN ENGINEER, or if he/she otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his/her surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment, and machinery thereon owned by the CONTRACTOR and finish the WORK by whatever method he/she may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the TOWN ENGINEER and incorporated in a CHANGE ORDER.

- 20.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.
- 20.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.
- 20.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the

OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon Ten (10) Days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

- 20.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or TOWN ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

21. INDEMNIFICATION

- 21.1 The CONTRACTOR will indemnify and hold harmless the OWNER and their agents and employees from and against all Claims, Damage, Loss, or Expense including Attorney's fees arising out of or resulting from the performance of the WORK, provided that any such Claims, Damage, Loss or Expense is attributed to Bodily Injury, Sickness, Disease or Death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.
- 21.2 In any and all claims against the OWNER or any of their agents or employees, by any employee of the CONTRACTOR or SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the INDEMNIFICATION OBLIGATION shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under Workmen's Compensation Acts, Disability Benefit Acts or other Employee Benefits Acts.
- 21.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the OWNER or any of its agents or employees arising out of the preparation or approval of MAPS, DRAWINGS, Opinions, Reports, Surveys, CHANGE ORDERS, Designs, or SPECIFICATIONS.

22. SEPARATE CONTRACTS

- 22.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR's WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.
- 22.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other Contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are Parties to such CONTRACTS (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.
- 22.3 If the performance of Additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a Claim therefore as provided in Sections 22 and 23.

23. SUBCONTRACTING

- 23.1 The CONTRACTOR may utilize the services of Specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by Specialty CONTRACTORS.
- 23.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s) in excess of Fifty (50) Percent of the CONTRACT PRICE, without prior written approval of the OWNER.
- 23.3 The CONTRACTOR shall be fully responsible to the OWNER for the Acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by him.
- 23.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS, as applicable to

the WORK OF SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise of the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

- 23.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

24. GUARANTY

The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of acceptance by the Owner of the entire irrigation installation project. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of acceptance by the Owner of the PROJECT that the completed PROJECT is free from all defects due to faulty materials or WORKMANSHIP and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the PROJECT resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The PERFORMANCE BOND or a MAINTENANCE BOND shall remain in force at a value of 25% of the completed WORK through the GUARANTEE PERIOD.

25. DISPUTE RESOLUTION

- 25.1 All claims, disputes and other matters in questions arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of Final Payment as provided by Section 16, shall be decided by Arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing Connecticut Arbitration law.
- 25.2 Notice of the Demand for Arbitration shall be filed in writing with the Other Party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the Town Engineer. The Demand for Arbitration shall in no event be made on any claim, dispute, or other matter in question which would be barred by the applicable Statute of Limitations.
- 25.3 The CONTRACTOR will carry on the WORK and maintain the Progress Schedule during any Mediation proceedings, unless otherwise mutually agreed in writing.

26. TAXES

The CONTRACTOR will pay all consumer, use, and other similar taxes required by the Law of the Place where the WORK is performed. This WORK is being performed for a Municipal Government and is exempt from Sales Tax.

SUPPLEMENTAL GENERAL CONDITIONS

1. PA 86-87, AAC Workers' Compensation Insurance Requirements for Contractors on Public Works projects and State licenses, prohibits municipalities from entering into a public works contract with an employer without receiving sufficient evidence from the employer that he has workers' compensation insurance and a statement from the state treasurer that the employer does not owe the Second Injury and Compensation Assurance Fund any money.
2. The Town of Simsbury Engineering Department shall be notified at least five (5) days prior to beginning work.
3. Prior to beginning work, the "Call Before You Dig" service shall be notified by the Contractor by calling 811 or 1-800-922-4455, or, if the contractor is registered, by e-ticket entry, such that any underground utilities in the immediate vicinity of the work can be marked.
4. All staking and surveying will be the responsibility of the Contractor.
5. All road monuments and lot pins shall be PRESERVED. Cost of resetting will be back charged to the Contractor.
6. Sales and Use Tax Exempt Purchase Certificate/ The Contractor's attention is called to Regulation 18 as amended promulgated by the Sales and Use Tax Division of the State Tax Department, which provided for the Exemption of the sales and use tax on the purchase of such materials and supplies as are to be physically incorporated in and become a permanent part of the project being performed under this contract. The Contractor or Subcontractor shall furnish his suppliers with a completed certificate, in the prescribed form; a copy of which is attached to these specifications
7. Upon completion or termination of the work, the Contractor shall remove from the vicinity of the work all equipment and all temporary structures, waste materials and rubbish resulting from its operations, leaving the premises in a neat and acceptable condition. In the event of failure to do so, the same may be done by the Owner at the expense of the Contractor.

8. The Contractor shall pay for any broken utility lines, except where the utility company may be liable under the "Call Before You Dig" law. The Owner will only pay for relocations necessary to complete the work of this project.
9. In accordance with Executive Order 11246, the Contractor is obliged not to discriminate against any employee or applicant for employment because of race, color, creed, or national origin. This obligation not to discriminate in employment includes, but is not limited to, the following: hiring, placement, upgrading, transfer, demotion, recruitment, advertising, solicitation for employment training during employment, rates of pay or other forms of compensation, selection for training including apprenticeship, layoff, or termination.
10. For all new underground facilities installed after January 1, 1989 which is practicable and for all repairs, replacements or modifications involving an exposure of existing underground facilities at least 100 feet longitudinally after January 1, 1989, of which the utility has knowledge of such exposure, the utility shall install a warning tape located above the facility, and keep appropriate records thereof. The minimum separation between the facility and the warning tape shall be 12 inches unless the depth, other underground facilities or other engineering considerations make the minimum separation infeasible. The warning tape shall be durable, designed to withstand extended underground exposure, be of color assigned to the type of facility for surface markings in Section 16-345-5 (h) and durable imprinted with an appropriate warning or message.

SECTION 6

SPECIAL PROVISIONS

SPECIAL PROVISIONS

1. **Cleaning Up:** The Contractor shall at all times keep the site and work free from accumulations of waste material or rubbish caused by his employees or work, or the employees or work of any of his subcontractors.

On completion of the work, the Contractor except as otherwise expressly directed or permitted in writing, shall tear down and remove all temporary structures built by him; shall remove all rubbish and abandoned materials of all kinds from all Contract structures and from any grounds, and shall leave all the grounds which may have been affected by his/her operations in a neat and satisfactory condition. Except as noted, all materials salvaged shall be the property of the Contractor.

2. **Act, Or Failure To Act, On Part Of Town Engineer Does Not Reduce Liability Of Contractor:** Giving notice or failure to give notice; or acting as authorized in the preceding sections, or failure to so act, on the part of the Town Engineer; or any question as to the adequacy of the notice by the Town Engineer, or of his/her acts, as provided in those sections, shall not in any way relieve the Contractor from any part of his responsibility or liability for performing any and all of the acts and assuming any and all of the risks, duties and liabilities which the Contractor is obligated to perform or assume.

3. **Disposal of Surplus Materials:** The Contractor shall be responsible for the removal and satisfactory disposal of all surplus materials unless otherwise specified in the Detail Specifications. Town properties shall not be used for such disposal unless specifically authorized by the Town Engineer in writing. Property owners adjacent to the work may have indicated to the Town that their land might be available for disposal of surplus fill and this fact may be noted on the Contract Drawings. The Contractor shall, however, make his own arrangements for the use of such private lands and shall, if requested by the Town Engineer, evidence that such arrangements have been made before such use. Any required local permits shall be the responsibility of the Contractor.

4. **Utility Notification Prior to Excavation:** In accord with Public Act 77-350, the Contractor is required to notify any utility with facilities in the vicinity of the excavation at least two full days prior to excavation. Notification may be given by using the "Call Before You Dig" state wide, toll free telephone number, 811 or 1-800-922-4455., or if the contractor is registered, by e-ticket entry. Responsibility for proper notification of all utilities shall rest with the Contractor.

The Contractor shall contact the appropriate Town authorities concerning any public or semi-public events that may occur during the construction period and that may have an effect on his construction. The contractor alone shall be responsible for arranging his construction sequence to conform to any restrictions these events may impose on

his schedule.

No claims for extras will be allowed because of any delays, caused by the imposed restrictions; however, additional time may be granted for completion of the work to compensate for any delays caused by said restrictions.

5. **The State of Connecticut** may provide funding for various projects and shall have access and inspection rights to all parts of the work on this project.
6. **Quantities of unit price work** may be increased or decreased by up to 30% with payment to be based on actual quantities of work completed and the bid unit prices.

SECTION 7

IRRIGATION SYSTEM

SECTION 7 - IRRIGATION SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. All Contract Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Contract.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall install an underground irrigation system in accordance with the accompanying plans and Specifications. The work shall include all labor, construction equipment, and materials necessary to satisfactorily complete installation of the fully functional irrigation system. The Contractor shall comply with manufacturer's and irrigation engineer's recommendations for installing pipe, valves, sprinklers and all equipment of a permanently fixed nature so that installation completely conforms to requirements of sprinkler outlet spacing and locations as shown on the plan. Contractor is to locate all sprinkler outlets to within one (1) foot of the location staked by Engineer. If at any time it is found that the Contractor has failed to satisfy the plans and specifications, he shall be required to correct same at his own cost.
- B. The omission of any material from this Specification is not to be interpreted to the effect that omitted material will not be furnished by the Contractor. The Contractor under this contract, unless specifically indicated as being furnished by others, must furnish all materials and labor. Where there is a discrepancy between the specifications and the drawings, the specifications are to prevail.
- C. The Contract consists of furnishing and installing all materials required for the installation of the automatic irrigation system for the project as delineated on the plans. All materials for the irrigation system are to be

purchased from the distributor providing the irrigation components of the system.

- D. The Contractor shall furnish As-built Drawings showing sizes, locations and types of all the components of the irrigation system as constructed, along with all the appropriate operational manuals. The Record and As-built Drawings and O and M manuals shall be prepared and presented to the Director's Representative prior to final acceptance of the irrigation system.
- E. Upon completion of the work and prior to acceptance, the Contractor and Vendor shall be responsible for the training of golf course staff in the operation, maintenance and repair of the irrigation system. The Contractor shall furnish, in addition to the As-built Drawings, an Operation and Maintenance Manual that includes all available parts lists, trouble-shooting lists, specification sheets and catalog sheets to the golf course superintendent responsible for the operation and maintenance of the irrigation system.

1.3 DEFINITIONS

- A. The term "Irrigation Contractor" refers to the firm or individual assigned the overall responsibility of providing the finished working irrigation system by virtue of his success of bidding or negotiating this project, to be referred to hereinafter as the "Contractor".
- B. The term "Engineer" refers to the firm or individual contracted as project designer and/or irrigation designer, with or without project observation, as a scope of his work. This person or firm shall be referred to hereinafter as the "Engineer". The Engineer is CHA Consulting, Inc.
- C. The term "Vendor" refers to the irrigation equipment supplier. Also referred to as the Distributor and Local Area Manufacturer's Representative. He shall be a factory authorized agent completely familiar with the design and construction of automatic golf course irrigation systems.

1. The Vendor's responsibilities shall include the following:
 - a. The Vendor shall be available upon 12 hours notice to address special issues which may arise during construction.
 - b. The Vendor shall conduct the training sessions for the golf course personnel
 2. At a minimum the Vendor shall be on the project site for the following activities:
 - a. Pre-construction meeting
 - b. During the first instance of installation of each type of irrigation system component for each of the Contractor's crews.
 - c. During the installation of the central control system.
 - d. During installation of the weather station.
 - e. During training sessions.
 - f. During system start-up, testing and adjusting.
- E. The term "Manufacturer" refers to the company which manufactures the principle irrigation equipment and controls including software.
- F. The term Sub-Contractor refers to a person, firm or corporation supplying labor and materials, or only labor, for work required by the Contractor to whom the contract has been awarded.
- G. The term Main Line refers to any pipe under continuous pressure that transmits water from the source to a given area.
- H. The term Lateral Line refers to piping 3" in size or less, controlled by an automatic valve, or can be isolated from the main line piping by a manual valve that transmits water from the main to a given sprinkler or sprinklers.
- I. The term "Deleterious Material" refers to any ledge, rock, shale, stones, organic matter or trash not suitable for use as backfill. The Director's Representative shall make the final determination of what is or is not "deleterious material".

1.4 QUALIFICATIONS

- A. Any Contractor bidding this project must, in order to be considered, be engaged primarily in the business of irrigation systems construction with a minimum of five (5) years experience installing golf course irrigation systems and have successfully completed the installation of five (5) or more complete automatic golf course irrigation projects in the past five years using HDPE pipe for the main line and lateral piping. The Contractor shall supply with his bid, a list of all irrigation projects completed in the past five years.

1.5 CONTRACTOR'S UNDERSTANDING

- A. Contractor accepts the risk of any and all subsoil conditions that may affect the progress of the work.
- B. The Contractor is to investigate site to ascertain pertinent local conditions as to location, accessibility, general character of the site, labor conditions, the character and extent of existing work, within and adjacent thereto, and any other factors that will pertain to the performance of this agreement.
- C. Prior to commencing any excavations, the Contractor shall contact "Dig Safe" to obtain the exact location, size and depth of all existing utilities. Where existing utilities are on private property and Dig Safe and/or utility companies will not locate these utilities, Contractor is to hire a private utility company to locate these utilities at his expense.
- D. The Contractor shall at all times be responsible for protecting his work from water that may enter his trenches during the installation of piping, valves, fittings and sprinklers. At his sole cost, the Contractor shall furnish and operate all pumps, piping, generators and tools that may be needed for water control to protect his work.

1.6 CONDUCT OF THE WORK

- A. The Contractor shall maintain continuously at the work site, a superintendent experienced in golf course irrigation installation satisfactory to the Owner, during the progress of the installation with said superintendent having the authority to act for him in all matters pertaining to the work. The superintendent shall have demonstrated experience with installation of the selected equipment on an existing golf course. The superintendent shall represent the Contractor, and all directions given to him in writing shall be as binding as if given to the Contractor. Once the project has started, the same superintendent shall remain on the project until the project is completed.
- B. The Contractor shall efficiently supervise the work using his best skills and attention. He shall carefully review and compare all drawings, specifications and other instructions and shall at once report any error, discrepancy or omission that he may discover.
- C. As soon as the Contractor starts work on the job, the Contractor is to establish a daily log of activities in triplicate. The log is to be signed each day by the Contractor's superintendent and the Director's Representative. This log will be the basis of payment of work completed, including any authorized and completed amendments, modifications and changes. It is imperative that it be accurate and up to date. Any difference of opinion between the Contractor's superintendent and the Director's Representative should be recorded when signed. One copy will be for the Owner, one for the Engineer and one for the Contractor. The Contractor shall forward one copy of the daily reports to the Director's Representative at the end of each week. Failure to submit completed reports on time may cause delay in payment of invoices.
- D. The Contractor shall coordinate his work with other trades, and in particular the maintenance operation on existing landscape areas.
- E. The Contractor shall coordinate his proposed work program and activities with the golf course operations to the satisfaction of the Golf Course Superintendent.

- F. The Contractor shall confine his operations to the area of work and to the areas allotted him for material and equipment storage.
- G. During the work, the Contractor shall erect proper protective devices, temporary fencing and signs to warn and/or prevent the general public and maintenance personnel from the danger of construction activities. Particular attention is called to ongoing recreational activities. Trenches shall not be left open or unprotected overnight.
- H. The Contractor shall be responsible for any and all risk of loss for all supplies, materials and equipment delivered and stored on site which may or may not be incorporated into the work, until final acceptance of the completed project.

1.7 ORDINANCES AND REGULATIONS

- A. All local, municipal, state and federal laws, rules and regulations covering or relating to any portion of this work are hereby incorporated into and made a part of these contract documents, and their provisions shall be carried out by the Contractor. Anything contained in these Specifications shall not be construed to conflict with any of the above rules and regulations or requirements of same. However, when these Specifications and/or drawings call for or describe materials, workmanship or construction of a better quality, higher standard or larger sizes, Specifications and/or drawings shall take precedence over the requirement of said rules and regulations.

1.8 SUBLETTING AND ASSIGNMENT

- A. The Contractor shall not assign or sublet any portion of this work without written approval Director's Representative before the commencement of the work to be subcontracted. Acceptance of the subcontractor does not decrease or relieve the responsibility of the Contractor.

1.9 SUBMITTALS

- A. Prior to ordering materials, the Contractor shall submit to Director's Representative any and all manufacturer's product data and installation instructions for each of the system components including but not limited to sprinklers, electric valves, manual valves, quick coupling valves, valve boxes, controllers, pipe, fittings, wire connectors, swing joint assemblies, etc. Specifications must be complete and include performance data for sprinklers, flow rate, opening and closing speed, pressure regulating features and power requirements for automatic valves, maximum and minimum operating voltages and amperes for controllers as well as wiring diagrams and operating sequences. One electronic copy of the submittals shall be forwarded to the Director's Representative for review and approval.
- B. Submittals shall indicate specification Section for each product and shall indicate model numbers, nozzle sizes and operating pressures for sprinklers, valve sizes, etc., for each item being submitted. Submittals not containing all the required information shall be returned to the Contractor for resubmittal.

1.10 WARRANTY

- A. The Contractor shall extend any and all warranties that apply to equipment found to be defective in either materials or workmanship, as extended by the manufacturer and/or distributor to the Contractor. The limits of this equipment warranty shall be as expressly stated by the appropriate manufacturer/distributor in writing.
- B. For a period of twelve months from the date of acceptance by the Owner of the entire irrigation installation project, the Contractor shall be responsible for the repair and/or replacement of all defective work and materials, as stated in General Conditions. He shall not rely on the equipment manufacturers and/or suppliers to perform this work. All repair work shall be completed promptly, as specified below, at no additional cost to Owner. Contractor shall coordinate the timing of

repairs so as not to interfere with the business operation of the golf course.

- C. A major failure is one that incapacitates the whole system such as a broken main or a non-operative main pump. A minor failure is one that does not incapacitate the whole system such as an electric valve or sprinkler failure or lateral line break.

As concerns the warranty, "Promptly" is defined as follows:

1. Within 24 hours of notification of a major failure.
 2. Within 48 hours of notification of a minor failure.
- D. Should the Contractor not respond promptly as defined above, the Owner may take any action he deems necessary to repair the defect and prevent further damage to its property, including the hiring of another contractor, or the repairing of such a defect with material supplied by the Contractor. In this event, the Contractor shall be liable for expenses incurred and property damages suffered by the Owner. The Owner and the Contractor may jointly prepare a schedule of fees for reimbursement to the Owner if any such repairs are handled by the Owner's maintenance personnel, but the failure to do so shall not prevent Owner from obtaining damages from Contractor.
 - E. Contractor shall be responsible for winterizing the irrigation system in the Fall during construction and during the warranty period. Contractor shall be responsible for initial start-up of the system during the warranty period.

1.11 USE AND OCCUPANCY PRIOR TO COMPLETION

- A. At present, during the golf season, eighteen golf holes are currently open for play and may be normally maintained during the construction period. Accordingly, it may be necessary for the Owner to utilize portions of the system before the entire system has been approved and

accepted. Such use and occupancy shall not be construed as acceptance of the work, or any part thereof, and any claims the Owner may have against the Contractor shall not be deemed to be waived by such use and occupancy.

1.12 DRAWINGS ON RECORD

- A. The Contractor shall provide and keep up to date a complete Record and As-built Drawing set of prints that shall be corrected as the work progresses, and show every change from the original drawings and specifications and the actual dimensions and kinds of equipment. Contractor shall make prints of the plans for this purpose. These sets of drawings shall be kept on site and shall be used only as a record set. One set of drawings shall be kept neat and clean, to be submitted for the final Record and As-built Drawings.
- B. These drawings shall also serve as work progress sheets, and the Contractor shall make neat and legible annotations thereon as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for inspection and shall be kept in the Contractor's mobile office on location.
- C. Record drawings shall show the location of all piping, valve boxes, manual drains, wire trenches, pipe connections, wire splices, and all pertinent material buried and not visible to the eye. Record drawings shall indicate dimensions from two permanent points of easily identifiable nature, if possible, such as sprinkler heads, permanent markers, concrete pads, corners of buildings, etc. Drawing shall include existing system components that are incorporated into the new system, where applicable, based on the information supplied by the Owner.
- D. On or before the date of final acceptance, the Contractor shall deliver the corrected and complete Record Drawings to the Director's Representative. Delivery of the plans will not relieve the Contractor of the responsibility of furnishing required information that may be

omitted from the plans. Final payment will not be made until these plans are delivered to the Director's Representative.

1.13 INSTRUCTION

- A. Prior to final acceptance of the irrigation system, the Contractor shall submit to the Owner, three (3) copies of the Operations and Maintenance Manual. The manuals shall be submitted in three ring binders and searchable PDF electronic copy, and shall include an index sheet stating the Contractor's name, address, telephone number and person to contact, duration of warranty period and an equipment list providing the manufacturer's name, make and model number, the name and address of local manufacturer's representative, spare parts list in detail, and detailed operating and maintenance instructions for all equipment. The manual shall include all warranties and relevant product information. The manual also shall include a detailed description of the winter blowout and spring start-up procedures. Final payment shall not be made until these manuals are delivered to the Owner.

PART 2 – PRODUCTS

2.1 SUBSTITUTION OF MATERIALS

- A. The Contractor shall bid the project using materials conforming to the specifications. Contractor shall forward submittals to the Director's Representative for review as specified.
- B. The intent of these specifications is to standardize the irrigation materials around one manufacturer, unless specified otherwise. Therefore, the control system components, quick coupling valves, electric valves and sprinklers shall all be from one manufacturer, unless otherwise noted.
- C. In order to insure reliable service during and after the warranty period, all materials to be supplied on this project are to be supplied through distributor(s) authorized by the manufacturer(s) to sell their equipment

in the geographical area of this project. All materials for the project are to be purchased from the distributor supplying the irrigation products.

- D. In order to insure compliance with the above, Sections 2.1.A through 2.1.C, Contractor shall submit original invoices with certificates for payment for materials. If requested, Contractor shall also submit distributors' authorization from the manufacturer(s) to sell their equipment in the geographical area of the project. Where manufactured items do not display manufacturer's name, items shall be delivered in unopened cartons that show manufacturer's name and address.

2.2 CONTROL SYSTEM

- A. The control system for automatic control of the irrigation system shall be a central program two-wire electric system as herein specified and as shown on the plan drawings. All control components shall show the manufacturer's name, make and model number.
- B. The central controller shall utilize a personal-computer-based, Microsoft Windows 10 Enterprise platform, user-friendly irrigation management and control program. The central controller shall utilize a client/server architecture. Computer shall include 2 video outputs and allow map graphic to be floated onto secondary monitor.

The central controller shall utilize site graphics with 64-bit software, including site graphics at the station level. The software shall be presented in a "flat" display, where all of the information needed is available to the user for a given operation, without having to open and close additional windows.

The central controller shall have programs based on a hierarchy organized the same as the golf course. Course(s), Areas (greens, tees, fairways, etc.) followed by holes (1 through 18), followed by the individual sprinklers. The central controller shall have the ability to view the system at any of the four levels (course, area, hole, sprinkler) by Dynamic Drill down (simply clicking on a plus/minus box) to give the user intuitive control. A graphic red "Water Drop" will identify areas and holes that have stations turned off. A graphic green "Water Drop" will

identify areas, holes and stations set to run automatically. A graphic blue “Water Drop” will identify areas not scheduled to water.

The central controller shall allow the user to schedule areas to irrigate by either entering runtimes in minutes, or by entering amount of water to apply. If the amount is utilized, the corresponding minutes will automatically be calculated and displayed. If minutes are utilized, the corresponding amount of application shall be calculated and displayed. Runtimes shall be calculated and executed to the minute.

The central controller shall have a “Course Report” to allow the user to determine the status of each sprinkler station on the golf course. The Course Report shall auto generate after each night’s watering to allow confirmation of all sprinkler runtimes at a glance. The Course Report will display all Automatic and Manual Irrigation as well as stations that are currently running or on Hold. Stations that have not operated as scheduled shall be identified with a graphic red “Water Drop”. The Course Report / Alert Panel shall display feedback from the Smart Hub(s) to indicate station status. The Course Report will utilize the Area, Hole, Station layout with Dynamic Drill down to quickly navigate to exceptions.

The central controller shall support the creation of a customized site map displaying multiple layers. The central controller shall allow the user to quickly create a map from any digital image (jpeg, bmp or tif format). The control system will allow the user to edit the locations of sprinklers, Turf Guard Sensors, and switches on the map. The central controller shall provide system status at the station level and display changes in status. The central controller shall be capable of creating user-defined work orders. If a scaled CAD map is utilized, or if the user adjusts the display scale of the imported image, the central controller will display area and distance measurements.

The central controller shall be capable of graphically displaying projected flow on the map at the station level and displaying station activation utilizing a color-coding system that shows how stations will activate during the next 24 hours. The central controller shall be capable of creating irrigation programs through the map and making station level percentage adjustments. When programming or manually running

stations, the map shall be capable of automatically zooming into the stations, holes, and areas selected.

The central controller shall have the ability to communicate with and control 1 to 9 Smart Hubs, each with 2 Station Groups, each Station Group with up to 500 stations, for a total of up to 1,000 stations.

The central controller shall automatically calculate sunrise and sunset based on longitude, latitude and date, and provide this information for starting or stopping a program in relation to sunrise or sunset.

The central controller shall permit true random access of all stations in the system and allow Instant Programs to be constructed with any combination of stations regardless of wiring sequences or satellite designation. Standard Instant Programs will execute using a best fit logic of flow management. Sequential Instant Programs will allow the user to dictate the operation order of stations.

The central controller shall have the ability to manually adjust (percentage increase/decrease) by course, area, hole, station, and/or the entire system. System adjustment factors may be input via actual percentage or operational ET. The central controller shall have the ability to connect to a weather station. The weather station will measure and store temperature, relative humidity, dew point, wind speed and direction, and solar radiation for use in the calculation of evapo-transpiration. The central shall have the ability to automatically calculate and adjust watering times based on evapo-transpiration. The central controller shall also have the ability to reduce the automatically calculated runtime by the rainfall measured over the preceding 24 hours. Further, the central controller shall have the ability to adjust calculated runtimes after they have been scheduled utilizing a Rain Re-Flow alarm response.

The central controller shall include the Turf Guard Soil Sensor software. Individual sensor data can be assigned to specific sprinklers to allow the user to view current soil moisture on the Watering Plan, allowing the user to choose to skip watering if moisture levels are above user-defined thresholds, or to activate stations if moisture levels are below defined thresholds.

The central controller shall employ advanced hydraulic/electrical systems management, allowing the user to specify hydraulic system

design (sources and pipes representing mainlines, branches and flow groups) and the hydraulic limits of each entity. The central controller shall manage system flow by automatically generating the appropriate station start times based on the program priority and hydraulic limits set for each source and pipe, and for the simultaneous station limit set for each wire path. The central controller shall incorporate the ability to use Precipitation Management Groups to specific which stations are allowed to operate simultaneously when hydraulic capacity is available. The central controller shall show the actual location of sprinklers assigned to hydraulic links on the map allowing the user to confirm proper assignment.

The central controller shall display projected flow by source, course, area, program and hole using colors to differentiate. The graph will calculate and display the maximum instantaneous flow as well as the total volume. Maximum flow and volume will be displayed in user-selected units. When pump integration is configured, the actual flow reported by the pump station can be displayed simultaneously with the projected flow for up to the last 7 days.

The central controller shall have the ability to manually start programs for an entire area or for an individual hole/area. Manual programs may be started in normal program time or a manually selected time. The central controller shall have the ability to start a multi-manual cycle on a wire path, running up to 100 stations simultaneously with a run time of up to 99 minutes.

The central controller shall have the ability to independently suspend (hold) the automatic operation of an individual station, a course or the entire system. The station hold duration shall be programmable for the current irrigation day up to 30 days, or may be permanent.

The central controller shall have the ability to control non-irrigation devices through switch outputs. Each switch (up to 50) will have an independent seven-day calendar schedule and start times for up to 24 starts. Switch outputs may run from one minute to 23 hours and 59 minutes (programmable in one-minute increments), with individual start times for each station (switch output). Switches may also be scheduled to run with any program and include the ability to offset the start time prior to or after the start of the program.

The central controller shall allow a user-defined response to a weather station or pump station based alarm. The alarm response shall have up to 99 responses for local and globalized control.

The central controller shall provide system status information on communication with the Smart Hub(s) automatically and continuously without requiring alarm configuration.

The central controller shall provide reports detailing the following information: 1) projected schedule activity, 2) contents of the database constructed while programming the central controller, 3) overview of scheduled irrigation activity including start time, end time and area information, flow and program, 4) stations that are assigned to more than one program.

The central controller will be able to limit flow during specified times with the configuration of a pump profile with or without pump station integration. These features allow savings in markets where the utility companies have adopted tiered electricity rates for peak use periods.

The system shall come with a one-year dedicated support program provided by the manufacturer which includes extended warranties, 24-hour component replacement, toll-free help-line support and remote diagnostics by a licensed irrigator.

The system shall include NSN Connect for secure remote access to allow the user to operate the Lynx system from any computer connected to the internet. This will also allow NSN to do remote diagnostics and support of the central controller.

The system shall include one year of NSN Connect Plus, a service that will allow NSN to remotely monitor the computer 24/7/365 and will alert the user to internal computer hardware and software issues.

The system shall include one year of Lynx Mobile, a service which will allow the user to remotely control Lynx 24/7/365 from any web enabled mobile device. This service will provide for manual irrigation, communication diagnostics, viewing of course status and alerts.

The system shall include one year of usage of the Lynx Mobile application suite. Android and iOS versions of Lynx Map, Lynx Hand Held and Lynx Bar Code, (for use with 2-wire control systems.)

The central controller shall be developed, manufactured, qualified and released in the USA by an ISO 9001-certified facility. The central controller shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA, Model Number LX-01-1-28, or approved equal.

- C. Furnish and install at the central location a computer assembly consisting of the following minimum specifications:

The computer shall be IBM compatible with the following minimum requirements: 3.4-3.9 GHz 7th generation Intel Core i5 processor; 8 GB of Ram memory, 256 GB SSD hard drive; six (6) USB Ports, 4USB 3.0 on rear panel and 2 USB 2.0 in front (1- 8 GB USB 2.0 Mini Drive included); video/graphics – one VGA, one DVI-D and two HDMI; 24 inch Viewsonic LED wide screen flat panel monitor with speakers; 6 serial (COM) ports, wireless keyboard and optical mouse; Hewlett-Packard OfficeJet Pro Model 7740 color printer, Microsoft Windows 10 Enterprise 64 bit operating system; Emsisoft antimalware software, Eaton/Powerware 5S1000LCD UPS 1000 uninterruptible power supply and all other hardware and software required for a complete system. Contractor shall connect existing internet line to the computer. All components required for the complete installation and operation of the system, whether specifically specified or implied, shall be furnished and installed by the Contractor.

- D. Control system shall have a field interface unit for communication between the central computer and the communication interface. Field interface unit shall incorporate radio communication. Field interface unit shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA, Model Number FIU-2011-DR, or approved equal.
- E. The control system shall have a communication interface between the central computer and decoder modules. The communication interface can control up to 250 modules or 250 stations per wire path. Each interface will support up to 4 wire paths. Each wire path can support 50

stations (100 solenoids) operating simultaneously. The interface input voltage is 100-240 VAC, 50/60Hz, 1.6A/1.0A (115/230). The interface output voltage is 40 VAC, output power is 75VA max. Communication between the central computer and communication interface shall be via UHF radio.

The communication interface shall be developed, manufactured, qualified and released in the USA by an ISO 9001-certified facility. The communication interface shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA, Model Number DEC-RSP-1000-DR, or approved equal.

- F. Decoder modules will be epoxy potted for direct burial. The module address will be pre-programmed and permanently marked on the module case. The modules will operate 1 or 2 DC latching solenoids simultaneously per output. All stations on a module can operate simultaneously. The communication interface shall be developed, manufactured, qualified and released in the USA by an ISO 9001-certified facility. The decoder modules shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA, Model Number LSM-1, or approved equal.
- G. Supply and install surge arrestor on the communication cable as specified in Section 2.2.H.9. Connect the ground wire from the surge arrestor to a copper clad ground rod or plate as specified. Surge arrestor shall be as manufactured by Toro, Model No. DEC-SG-LINE or approved equal.
- H. The Owner has a maintenance radio system to provide remote control of all field controllers and stations from handheld radio through the central-radio computer interface. Contractor shall furnish and supply any additional equipment and licenses necessary to work with the new control system.
- I. The central controller and satellite controllers are to be grounded as follows:
 - 1. Install UL listed copper clad steel ground rod, a copper ground plate and earth contact material as defined below and as detailed on the

drawings. Ground wires, ground rods and ground plates to be installed in separate trenches, not in trenches with other wires.

2. Ground rods shall have a minimum diameter of 5/8" and a minimum length of 10'. These are to be driven into the ground in a vertical position or an oblique angle not to exceed 45 degrees, at a location 10 feet from the electronic equipment or the wires and cables connected to it. Ground rods are to be stamped as UL listed.
3. The copper grounding plate assemblies shall meet the minimum requirements of Section 250 of the National Electric Code. They shall be made of copper alloy intended for grounding applications and will have minimum dimensions of 4"x96"x0.0625". A 25 foot continuous length (no splices allowed) of #6 AWG solid copper wire is to be attached to the plate using an approved welding process. This wire is to be connected to and through the top of the ground rod using an approved welding kit, terminating at the electronic equipment ground lug. The ground plate is to be installed to a minimum depth of 30" at a location 10 feet from the ground rod, and 8 to 10 feet from electronic equipment, and wires and cables. Two 50-pound bags of PowerSet earth contact material shall be spread so that it surrounds the copper plate evenly along its length. The use of salts, fertilizers and other chemicals are not to be used to improve soil conductivity.
4. Install all grounding circuit components in straight lines. When necessary to make bends, do not make sharp turns. To prevent the electrode-discharge energy from re-entering the underground wires and cables, all electrodes shall be installed away from said wires and cables. The spacing between any two electrodes shall be 16 to 20 feet.
5. All ground circuit connections are to be made using an approved exothermic welding process. Solder shall not be allowed to make connections.

6. The Contractor and Vendor shall take grounding readings in the presence of the Director's Representative, during dry conditions, to determine the resistance to ground for each controller. The resistance to ground readings shall be incorporated in the maintenance manuals. "As Built" drawings shall indicate the ground wire paths, ground rods and ground plates, including measurements.
7. If the installation of the grounding equipment described above does not result in meeting the minimum resistance required, the Contractor shall install an additional ground rod and ground plate as specified in Section 2.2.J. The additional grounding equipment shall be installed at no additional cost to the Owner.
8. Controllers shall not be connected to any wiring until proper grounding has been installed and maximum allowable grounding readings have been verified. Contractor shall be responsible for any and all damage to controllers caused by electrical surges, lightning, etc., until proper grounding has been installed.
9. In addition to the grounding specified above, surge devices shall be installed along the two-wire paths where indicated on the drawings. Grounding at the surge devices shall consist of one (1) 4"x36" ground plate encapsulated by 50 pounds of ground enhancement material, and an eight foot (8') ground rod, all as detailed on the drawings and recommended by the manufacturer.
10. The installation of all the grounding equipment shall meet the approval of the Vendor and the Engineer.

2.3 VALVES

- A. Lateral Isolation Valves installed for each lateral serving Greens, Tees, and Fairways/Roughs shall be PE Ball Valves; shall be made in the USA and have SDR 9 bodies and SDR 11 ends machined to SDR 13.5 at the fusion joint. The valves shall be approved for water contact and NSF 61 listed. The valves shall be manufactured using Dow DGDA 2490 Black PE

4710 resin. The valves shall be full port and shall have a blue 2" operating nut. All seals shall be EPDM. Nitrile seals are not permitted. Stems shall be modified phenylene oxide. Acetyl stems are not permitted. Ball lubricant shall be optimized for water applications. Valves also used in gas applications are not permitted. Connection of nut to stem shall not require the use of steel pins. The valve shall be the Poly-Water Valve for potable water as manufactured by Polyvalve-Andronaco Industries and supplied by The Harrington Corporation or approved equal.

- B. All main line isolation gate valves shall be iron body type, resilient seat wedge, non-rising stem with 2" operating nut. Valves shall have bronze stem and nut, smooth full diameter waterway without recesses to trap debris, and shall be epoxy coated inside and out with an epoxy coating conforming to AWWA C550 Standard. Wedge shall be ductile iron encased in bonded-in-place elastomer covering. Valve stem shall be stainless steel, sealed by double o-rings that shall be removable while the valve is fully open and the line pressurized. Isolation gate valves shall have HDPE stub connections and conform to all requirements of AWWA C-906 and shall be manufactured by American AVK, Model 66 Series or approved equal.
- C. Air release valves shall be combination air release valves with cast iron body and cover, stainless steel float and Buna-N seat. Combination air release valve shall be as manufactured by Crispin, Model No. IC-10 or approved equal.
- D. Manual gate valve for air release valve isolation and drain valves shall be of bronze, non-rising stem, screw in bonnet, solid wedge, , rated for 200 psi WOG. Valves shall meet Federal Specification WW-V-54 Class A, Type 1 & MSS SP-80. Valves for electric valve isolation shall have bronze handwheel. Valves for air release valve isolation and drain valves shall have bronze cross handle. Valves shall be installed in valve boxes as detailed on the plans. Manual gate valves shall be manufactured by Nibco, Model No. T-113BW series or approved equal.

- E. The quick coupling valve shall be a one-piece type. The valve body shall be constructed of red brass. The cover shall be a durable, protective self-closing rubber cover. The valve shall be opened and closed by a brass key of the same manufacturer having a 1" (MNPT) outlet. The valve throat shall have an ACME thread key-way. Quick coupling valves shall be manufactured by Toro, Model No. 474-41 or approved equal.
- F. Quick coupling valves shall be connected to main line piping using prefabricated PVC swing joint assembly. Swing joint shall be as specified in Section 2.04.C below except it shall have 1" ACME threads on the bottom and 1" Brass MIPT top connection. Top elbow shall have brass nipple molded to elbow, with o-ring seal between brass and PVC.
- G. At each quick coupling valve, install quick coupler anchor. Anchor shall restrain rotational, vertical, and horizontal motions of the quick coupler valve and shall be cast in one piece of ductile iron and attach to the quick coupler valve by means of a hexagonal receptacle and a single Type 316 stainless steel bolt. Anchor shall have two tines aligned vertically and oriented 90 degrees to each other. Tines shall extend a minimum of 6" below the plane of the attachment. The anchor shall fit within valve boxes without cutting the box. Quick coupler anchors shall be as manufactured by Harco, Product No. 82201 or approved equal.
- H. Unless otherwise indicated, all fittings utilized in manual valve assemblies, electric valve assemblies and drain valve assemblies such as threaded nipples and threaded elbows shall be brass schedule 40 nipples and extra heavy brass fittings. All brass fittings and nipples shall be of domestic manufacture. No galvanized fittings shall be used.

2.4 VALVE BOXES

- A. Valve boxes shall be constructed of a rigid combination of polyolefin and fibrous inorganic components which are chemically inert and normally unaffected by moisture, corrosion and the effects of temperature changes. Valve boxes shall be manufactured by Toro or approved equal.

Valve box covers shall be non-hinged type. Valve boxes shall be set to grade.

- B. All isolation gate valves shall be enclosed in 6" PVC pipe with 10" diameter valve box and cover as detailed on the plans. Valve boxes shall be Model No. TVB-10RND-T tan in color or approved equal.
- C. Valve boxes for air release valves shall be 12" deep with 13" by 20" opening with 6" extension. Valve boxes shall be Model No. TVB-1521-12 with TVB-1521-EXT6BOX extension or approved equal.
- D. All manual valve assemblies shall be enclosed in 8" solid wall ADS pipe with 10" diameter valve box and cover as detailed on the plans. Valve boxes shall be Model No. TVB-10RND or approved equal.
- E. All drain valves shall be enclosed in 8" solid wall ADS pipe with 10" diameter valve box and cover as detailed on the plans. Valve boxes shall be Model No. TVB-10RND-BK or approved equal.
- F. All quick coupling valves to be enclosed in 6" valve box. Valve box shall be Model No. TVB-6RND or approved equal.

2.5 SPRINKLERS

- A. The spacing description for all sprinkler heads is as detailed on the plans. Valve-in-head sprinklers to have ACME thread inlet connections.
- B. The sprinklers shall be a pop-up design with an overall height of 10" (254mm), a compartment cover diameter of $7\frac{5}{8}$ " (194mm), a cap diameter of 3-3/8" (85mm) and a pop-up stroke of 4-3/16" (106mm). The sprinkler shall have a 1" (25mm) ACME female-threaded inlet.

The sprinkler cover shall be removable from the top to provide access to the compartment below and all components installed within. The cover graphically illustrates the operational positions of the pilot valve's ON-OFF-AUTO and warnings to ensure the safe operation of the product. The cover houses a removable marker that can be laser-etched or engraved and painted to identify customer-defined information. The

cover shall be attached to the compartment with three stainless-steel screws.

The sprinkler's compartment shall provide a protective enclosure to house the pilot valve, solenoid, check ball housing assembly, integrated decoder module, and wire splices, and provide space for future enhancements. All internal components shall be accessible from the top of the sprinkler without digging. The compartment shall provide a wire/cable entry through the bottom of the compartment, with a cable access plug to minimize the entry of debris. The compartment shall be attached to the body with two stainless-steel screws.

The sprinkler body assembly shall have a molded-in, indestructible stainless-steel valve seat capable of withstanding debris contamination with no permanent damage, and shall never require removal for servicing or replacement. The sprinkler body shall have a continuous molded-in stainless-steel tube connecting the control valve to the pilot valve with no internal or external plastic tubing or plastic tubing retainers. The sprinkler body shall have a spin-welded PVC, ACME-threaded inlet to ensure chemical compatibility with the o-rings used for sealing purposes. The sprinkler body shall house the control valve and riser assembly, using a single snap-ring to retain each, and a removable rock screen.

The check ball housing assembly shall provide the ability to remove the pilot valve assembly without turning the water off. The check ball assembly contains a natural rubber check ball that is biased to the check position with a stainless-steel spring. With the pilot valve removed, the check ball prevents the metered water from the control valve from escaping and keeps the control valve "OFF". It shall be installed into the compartment connected to the metered water from the control valve and provides a receptacle that accepts the connector from the pilot valve.

The pilot valve assembly shall be hand-removable and insert-able from the top of the sprinkler with water pressure "ON". It shall incorporate a variety of activation types to control the ON-OFF operation of the sprinkler. It shall provide four pressure-point selections (50, 65, 80 and 100 psi), with a vandal-resistant locking feature that ensures the desired setting is maintained. The pressure points shall be graphically illustrated in PSI and kg/cm². The pilot valve assembly shall include a pressure-regulation feature that continuously monitors the operating pressure

inside the sprinkler body while in operation, making the necessary adjustments to ensure the desired and set regulation pressure is maintained. The pilot valve assembly shall incorporate a manual control feature that is accessible from the top and allows the sprinkler to be manually selected "ON", "OFF" or placed in the "AUTO" position awaiting commands from the control device. The manual selector shall be red in color for enhanced visibility. The pilot valve assembly shall be stamped with the manufactured date code and shall be retained in the compartment with a single stainless-steel screw.

Water distribution shall be via three nozzles mounted in a 2¼" (57mm)-diameter plastic nozzle turret. All of the sprinkler nozzles shall be of a thread-in type accessible from the front, with no other disassembly required. All nozzles are color-coded for easy identification of radius and gallonage performance capabilities and are designed to allow any particle capable of passing through the riser screen to pass through the nozzle.

The main nozzle shall incorporate a selectable adjustment that provides main nozzle discharge angle adjustment at 15° and 25°. Close-in watering distribution shall be achieved by a patented helical restrictor inserted into the inner nozzle and capable of adjusting the distribution profile to optimize uniformity. An optional radius reduction screw can be installed to break up the main nozzle stream. The cap shall identify the installed main nozzle size and the date of manufacture.

The sprinkler shall be a gear-driven rotary type. Rotation shall be accomplished by a water-lubricated planetary gear drive. The drive assembly shall be driven by a spring-loaded, poppet-type, variable stator, sized to provide 3-minute, full-circle rotation speeds throughout the pressure range. The drive and stator assemblies shall be constructed of corrosion-proof plastic and stainless-steel components.

The internal valve assembly shall be a piston-type that vents to the atmosphere, providing valve friction loss of less than 5 psi (0,34 Bar). The sprinkler shall be designed to provide smooth valve closure in excess of two seconds to minimize damage resulting from surges and water hammer. All valve seals shall be constructed of natural rubber. The valve seat seal shall be constructed of fabric-reinforced natural rubber. The electric valve assembly shall incorporate a 100-mesh stainless-steel screen for the control water, preventing entry of foreign materials into the pilot valve assembly.

The sprinkler body, compartment, cover and cap shall be injection-molded from ABS – a corrosion-proof, impact-resistant, UV-resistant, heavy-duty, engineering-grade plastic material. The cap and nozzle base shall incorporate a pull-up feature that provides improved serviceability of nozzles and riser. The sprinkler shall have two plastic filter screens – a top-serviceable coarse rock screen in the body inlet sized to prevent entry of larger foreign material from entering the body, and a finer screen threaded into the riser, sized to prevent foreign material from clogging the nozzle.

The sprinkler shall have a riser/body seal assembly that regulates flushing during pop-up and retraction to clear any debris from around the riser, and a heavy-duty, stainless-steel spring to ensure positive retraction. The riser is sealed by a durable, over-molded urethane ring on the seal retainer. Sprinkler flush rate shall not exceed 5 GPM (18,9 LPM).

The sprinkler shall be capable of identifying the use of effluent water via a lavender-colored marking. The sprinkler cap shall indicate model designation, nozzle number and manufacturing date code.

The sprinkler shall be electric valve-in-head activation type with integrated LSM Module The Integrated LSM Module activation type incorporates the LSM module inside the compartment of the sprinkler and includes a DC latching solenoid for activation of the control valve. The DC latching solenoid shall be activated by the Integrated LSM module with a momentary low voltage pulse that moves the plunger from the “OFF” position to the “ON” position where it is maintained by a permanent magnet in the solenoid. To deactivate, a second momentary low-volt pulse is applied to move the plunger from the “ON” position to the “OFF” position.

Valve-in-head sprinklers shall be manufactured by The Toro Company, Irrigation Division, Riverside, California, USA, Model Number INFXX-XX-8-6, or approved equal.

- C. All rotary sprinkler heads shall be connected to lateral line piping by installing three-way swing joint riser assembly. Swing joint riser assembly shall have a working pressure rating of 315 PSI at 73 degrees F, O-Ring(s) at each swivel joint, buttress threads at each swivel joint and inlet and outlet sockets conforming to ASTM Standards D 2467 and D 2464 respectively. Body wall thickness of all components shall conform

to ASTM D 2464. Assemblies shall be of molded rigid polyvinyl chloride (PVC) Type 1, Cell Classification 12454-B per ASTM Standard D 1784, and shall be manufactured in such a way that both the male and female O-Ring sealing areas are free from mold parting lines. Swing joint riser assemblies shall have 1-1/2" ACME thread connection to the lateral piping and ACME thread into the sprinkler with unitized riser, and shall have a minimum diameter of the size of the sprinkler inlet. Swing joint riser for valve-in-head sprinklers with 1-inch ACME inlet shall be 1-1/4" with 1-1/4"x1" reducing ACME top elbow. Swing joint riser assemblies shall have a five (5) year warranty. Swing joint assemblies shall be of the same manufacturer as the sprinklers..

2.6 WIRE

- A. All electrical wiring to be installed as per Section 3.5.D and Sections 3.7.A through 3.7.D.
- B. All power wire shall be Tray Cable, UL listed for direct burial, and rated for 600 volts. The cable shall include three conductors, which are to be colored per wire industry standard or numbered as 1, 2 and 3. The sizes of the conductors are to be as shown on the drawings. The inner copper conductors shall be covered with high dielectric PVC or Nylon. The outer jacket shall be black PVC and is to be sunlight resistant.
- C. Communication cable from communication interface to the decoder modules shall be two-conductor direct burial cable utilizing type UF or PE conductors with an HDPE outer jacket. Conductors will be solid annealed bare copper conforming to ASTM B-8. Conductor insulation to be PVC or PE conforming to UL Type UF or Type PE, 60°C, 600 Volts. The two conductors will be color coded, one WHITE and the other BLACK. Outer jacket will be HDPE and conform to UL specifications for direct burial and sunlight resistance. Use Paige Model No. P7072D-Rev 15 or approved equal.
- D. Each leg from the central interface/Lynx Smart Hub to the lateral isolation valves shall be a different color. The wiring from the lateral

isolation valves to the sprinklers/electric valves shall all be the same but be a different color than any of the other legs.

- E. Wherever splices are made in the communication wiring, install with sufficient extra wire to raise a minimum of 24" above finish grade.
- F. Wire connectors for all communication wire splices to utilize direct bury, water proof wire connectors. Wire connectors shall incorporate one electrical spring connector and epoxy resin sealing pack. Each sealing pack shall contain a specific amount of epoxy resin and shall accommodate one electrical spring connector. The resin material must be supplied in a two-part polyethylene bag with a barrier separating a prepolymer and a polyol. The barrier must be capable of being broken to permit mixing the two parts without opening the bag. A separate epoxy resin splice kit shall be used for each wire. Epoxy resin splice kit shall be as manufactured by 3M, Model No. 3570G-N with wire nut, or approved equal. Wire connectors for all power wire splices shall be UL 486D listed for Submersion In Water direct bury, water proof, rated for 600 volts and as manufactured by 3M, Model No. 82-A1 or approved equal. If wire connectors are removed after assembly, a new connector shall be used. Removed connector shall not be reused.
- G. All wiring at all road, stream and bridge crossings shall be installed in conduit. Electrical conduit shall be PVC.

2.7 PIPE

- A. All main line pipe shall be high-density polyethylene (HDPE) pipe, PE 4710, manufactured in accordance with ASTM F714. Pipe shall be SDR 13.5, rated for 160 psi.
- B. All pipe for lateral piping (2"-3" in size downstream of manual shutoff valve) shall be high-density polyethylene (HDPE) pipe, PE 4710, manufactured in accordance with ASTM F714. Pipe shall be SDR 13.5, rated for 160 psi.

2.8 PIPE FITTINGS

- A. Connection to pumping system discharge pipe shall be as detailed on the drawing. All other connections shall be fused. All fittings for HDPE pipe 12" in size and smaller shall be **molded** fittings. Socket fusion fittings are not permitted. All HDPE fittings to be rated for 160 psi. The injection point on the fitting (otherwise known as the gate or sprue) shall be oriented to inject perpendicular to the plane of the fitting and positioned at the center of the fitting so its knit line (weld line) is not located in or near the "crotch" of the fitting. Fittings shall be IPS diameter, SDR 11, with ends machined to 13.5. Connection of manual gate valves for lateral isolation, air release valves and drain assemblies to main line pipe shall be made using HDPE Electrofusion x Female Swivel Saddles with a pressure rating of 160 psi. HDPE Electrofusion Service Saddles shall be Harco part number series 70-540XXX saddles or approved equal. Connection of manual gate valves for lateral isolation shall be made using HDPE Electrofusion Branch Saddles with a pressure rating of 160 psi, Harco part number series 560XXX saddles or approved equal.
- B. All pipe connections on lateral piping shall be fused. All fittings for HDPE pipe shall be **molded** fittings. All HDPE fittings to be rated for 160 psi. Fittings shall be IPS diameter, SDR 11, with ends machined to 13.5.
- C. Connection of sprinklers, electric valves and quick coupling valves to HDPE lateral pipe, except at the ends of the pipe, shall be made using stainless steel saddles with ACME threads. Saddles shall be as manufactured by Leemco, Model No. RSST-215A or approved equal. Connection of sprinklers, electric valves and quick coupling valves to the ends of HDPE lateral pipe shall be made with HDPE butt fusion x 1.5" ACME stainless steel threaded outlet 90° elbow, as manufactured by Harco Model No. 66-32240206 or approved equal.

2.9 LOOSE EQUIPMENT

- A. Above and beyond the installation requirement, the Contractor shall deliver to the superintendent, and receive written acceptance, the

following new loose equipment. The equipment shall comply with the Contract Drawings or as indicated in the Specification.

- (10) 55'-70' radius full circle valve-in-head sprinklers
- (10) 55'-70' radius part circle valve-in-head sprinklers
- (2) 80' radius part circle valve-in-head sprinklers
- (5) Solenoids
- (5) Decoders
- (10) Communication Wire splice kits
- (5) 10" Valve box with cover
- (2) Jumbo valve box with cover
- (2) Jumbo valve box covers
- (10) Quick coupler keys
- (10) Hose swivels - 1"x1"
- (2) 5' gate key for main line isolation gate valves
- (5) 30" gate key for manual ball valves
- (3) Complete sets of tools for maintenance and repair of all sprinklers
- (1) 20' length of each size pipe – 2"-8"
- (10) 2" Philmac repair couplings for HDPE pipe
- (10) Sprinkler valve selector keys

PART 3 – EXECUTION

3.1 INTENT OF SPECIFICATIONS

- A. It is the intention of these Specifications to define the work of installing an irrigation system, which upon completion, will operate in an efficient and satisfactory manner according to the workmanship standards established for sprinkler operation. It shall be the responsibility of the Contractor to install this system in the manner as set forth in the specifications so that the system shall be installed correctly and according to manufacturer's instructions.
- B. During the installation of the irrigation system, the existing irrigation system is to remain operational until the Owner indicates that the existing system is no longer needed. The Contractor shall repair any damage to the existing system caused by his operations until the existing

system is no longer needed. Contractor shall repair any damage to the existing system caused by his operations.

- C. All equipment not removed but intended to be incorporated into the irrigation system is to be protected by this Contractor. Any equipment designated to be incorporated into the new system which is damaged shall be replaced by the Contractor at his expense.
- D. Contractor, Engineer, vendor's representative and Owner's representative are to stake out the location of all sprinkler heads, valve locations and main line paths prior to the commencement of work in any area of installation. Contractor is to provide 20 gauge stiff steel wire stakes with plastic flag attached for this purpose. Once the Engineer finalizes the locations, it is the Contractor's responsibility to maintain the locations. If it is necessary to re-stake locations, Contractor shall be responsible for paying for the Engineer's time and expenses. In the event of a discrepancy in specified dimensions between drawings and actual stakeout, Contractor will verify dimensions with the Owner/Engineer or Owner's authorized representative before commencement of work. Provisions of Sections 1.8.A are to apply.
- E. Contractor is to include in the bid under Alternate No. 1, the removal of the existing sprinklers, electric valve assemblies and valve boxes, quick coupling valves, satellite controllers and controller pads, etc. When removing sprinklers, quick coupling valves and electric valve assemblies, remove all fittings down to the existing pipe and install PVC plug in threaded outlet. Contractor shall stockpile removed equipment on site where directed by the Owner. Contractor shall also remove existing controllers and controller pads. Owner is responsible for disposing of all removed equipment.

3.2 DAILY LOG

- A. The Contractor, upon commencement of work, will keep a daily log in triplicate in which the amount of work performed that day is to be recorded. Any deviations from plans or specifications and/or extra work

ordered by the Owner/Engineer are also to be recorded in log. The log is to be signed by the Contractor's superintendent and the Owner's Resident Engineer. On the daily logs, the Contractor shall indicate the amounts of deleterious material removed and replaced. The provisions of Sections 1.6.C apply.

3.3 PIPE ROUTING

- A. Routing of the pipe shall be in general accord with the irrigation plan; however, the Owner/Engineer reserves the right to change the routing and/or depth of pipe from that shown on the plan in cases where rock or other obstacles may obstruct the intended pipe path or depth. In no event shall field changes of this nature affect the cost of the work except where those changes may alter the quantity of material and/or labor required to be provided according to the contract, or where excess depth of trench and backfill is required. In cases where the overall cost is affected by changes above, the extra work provision shall apply.
- B. The Contractor, subject to the prior approval of the Owner/Engineer or Owner's authorized representative, also may adjust the location of any pipe line and/or depth to avoid large rock, stumps or other obstacles provided that such adjustment does not increase the quantity of pipe and/or labor required and is not in conflict with the intent of the drawings. Provisions of Section 1.8 shall apply.
- C. Piping around all tees and greens shall be as shown on the plans and/or as indicated in the typical drawings (not to scale) whenever possible. It is the intent of these drawings that the distribution lines, remote control valves, manual valves, quick coupling valve and valve boxes be kept to the outside of the collar areas of the greens with the sprinkler heads being located a minimum of five (5) feet from the putting surface of the green, if possible. The Contractor shall strictly avoid running pipe through bunkers.

3.4 GENERAL REQUIREMENT FOR PIPING

- A. Pipelines shall be installed of the size shown on the drawings and/or specifications and of the materials and workmanship herein specified.
- B. All main line piping and lateral piping to be installed in trenches as per the provisions of Sections 3.5.A through 3.5.R. Minimum depth of cover over pipe shall be as follows: lateral piping (downstream of control valve) up through 3" shall be a minimum of 24"; main line piping up through 6" shall be a minimum of 30"; 8" through 10" shall be a minimum of 36".
- C. Contractor shall be responsible for the control of all surface and subsurface water encountered during the installation of the irrigation system, and shall be included in all bid items.

3.5 TRENCHING, PIPE LAYING AND BACKFILLING

- A. The Contractor is to do all the trenching, excavating and backfilling required for the proper installation of the work with pipe installed at depths as specified in Section 3.4.B. Soil excavated shall be protected with appropriate erosion controls, where applicable.
- B. Pipe shall be installed strictly in accordance with the printed recommendations of the manufacturer, including bedding of pipe in the bottom of trench. For all trenches, sod shall be removed by the Contractor, trenches excavated, piping and appurtenances installed and backfilled as specified in Sections 3.5.H and 3.5.I, and sod re-laid by the Contractor. Sod shall be cut to a thickness of 1.5". Contractor shall water all re-laid sod for a period of one week.
- C. Mechanical trench diggers used on the site shall be of an approved type providing trenches with straight sides. Trenches shall be sufficiently wide to permit tamping tools for backfilling alongside both sides of the pipe.

- D. Wire shall be installed in the same trench as the pipe wherever possible. All wire shall be installed at National Electric Code depth with a minimum of 18" of cover. Wire shall be installed with at least 1% slack and have expansion loops at the end of 500 foot runs. Where wire is installed in main line trench, wire shall be installed as detailed on the drawings, always on the same side of the trench, as seen from tee to green.
- E. Backfill material shall be free from rock, large stones or other unsuitable substances to prevent damage to pipe during and after completion of backfilling operations. Sandy on-site material may be used for backfilling providing it is first screened by the Contractor to eliminate all material greater than 3/8" and be free of clay and organic matter.
- F. Deleterious material shall be dug and hauled to accessible dumping areas on site as designated by the Director's Representative or golf course superintendent. The cost of deleterious material removal and replacement shall be paid at the unit price for deleterious material removal and replacement included in the Bid. If the amount of deleterious material encountered is less than the amount allocated in the bid, the final contract price will be reduced by the amount not encountered. Any quantities above the designated amount will result in a change order based on the unit price bid for that item.
- G. All replacement backfill material necessary because of the removal of deleterious material and/or shortage of backfill material to be supplied by the Contractor at the Contractor's expense as specified and in quantities required. Any excess backfill material of a deleterious nature will be removed as per Section 3.5.F. Excess backfill material of a non-deleterious nature shall be removed to a readily accessible location on site as designated by Owner at the Contractor's expense.
- H. Pipe shall be laid in accordance with manufacturer's requirements on stable soil with trench bottom evenly graded. Ledge rock, boulders and large stones shall be removed to provide no contact with pipe. Backfilling will be done by hand placing sand under, around and above the pipe so that it is hand tamped to a point 6" above pipe. The

remainder of the trench shall be backfilled in 12" lifts, compacting each lift to suitable density by machine tamping and approved rolling to prevent settlement in the trench. Trenches shall be filled with appropriate soil to a point 4" below finish grade, having no stones larger than 2" in any dimension.

- I. Compacted trench lines shall be left 4" below finish grade and be free of rocks, stones and other debris. Contractor shall remove all excess material, rocks and other debris from sides of trenches. Prior to placing the remaining topsoil, the Contractor shall notify the Director's Representative who will inspect all areas to receive topsoil. Once the trenches are acceptable to the Owner, the Contractor shall then fill the remainder of the trenches with topsoil. Once the trenches have been backfilled, contractor shall replace sod. Any other areas disturbed by the Contractor shall be properly prepared, leveled and loamed subject to the acceptance of the Owner. Owner will inspect the disturbed areas prior to acceptance. Contractor shall then seed all disturbed areas. The Contractor shall supply loam and seed. It shall be the Contractor's responsibility to water and maintain sodded or seeded areas.
- J. If within one (1) year from the date of completion, settlement occurs and an adjustment in pipes, valves and sprinkler heads, sod or paving is necessary to bring the system, sodding or paving to the proper level of the permanent grades, the Contractor, as part of the work under this contract, shall make said adjustments without extra cost to the Owner unless specific agreement to the contrary has been approved by the Owner in writing.
- K. Throughout the entire work period, it shall be the responsibility of the Contractor to refill and compact any trenches that have settled. It shall not be the responsibility of the Contractor to refill and re-compact trenches that have been eroded by natural rainfall or runoff. If trenches erode below the surface due to runoff, i.e. tunneling under trench surface, the compaction of the trenches will be considered inadequate and the Contractor will be responsible for refilling and re-compacting these trenches.

- L. All pipe and wiring shall be installed in PVC sleeves where noted on the plans. A separate sleeve is required for each pipe and for the wires. At ditch or channel crossings, wire shall be installed in conduit.
- M. The Contractor shall be responsible for repairing all cart paths, storage areas and road crossings to original condition. Where pavement is to be crossed, sides of pavement shall be cut before final paving. Contractor shall backfill and compact trenches with approved granular material. Paving shall be placed with the same thickness as previously existed. Paved crossings shall be avoided where possible and shall only be made where approved by the Owner. At the Contractor's expense, road crossings shall be tested by and independent testing agency to 95% of maximum dry unit weight. One passing test per road crossing is required.
- N. The Contractor shall continuously clean and restore trenches as the work progresses. At no time shall more than 500 linear feet of trench be unfinished as far as completely backfilling and cleaning of trenches and removal of excess materials from the site. Erosion controls shall be maintained when appropriate.
- O. Contractor shall continuously repair all damage caused by the installation of lateral piping including turf repair, compaction, removal of any excess materials, etc. At no time shall more than 500 linear feet of the lateral piping installation remain unfinished at any one time. Contractor shall compact lateral lines to original grade. Method of compaction shall be approved in advance by the Owner/Engineer.
- P. Prior to beginning work in any areas, the Contractor shall contact Dig-Safe to arrange for their site inspection to locate and flag underground utilities. He shall also notify the Owner so that the Owner can locate and mark the existing drain lines and irrigation pipes. When the Contractor encounters these lines during the installation of the main line and lateral line piping and wiring, he shall take special care not to damage them. Around the existing drain lines, special care shall be taken to replace

existing material to its original condition, and not to mix the soil and stones. Backfilling of drainage lines shall be done in the presence of the Resident Engineer. Any drainage lines backfilled without the presence of the Resident Engineer shall be re-excavated and re-backfilled in his presence, unless other-wise allowed by the Resident Engineer.

- Q. If the Contractor damages the existing drain lines and irrigation pipes and other underground items that have been located and marked by Dig-Safe, the Owner or themselves, they shall be repaired at no additional cost to the Owner. If the Contractor damages existing drain lines and irrigation pipes that have not been located and marked by Dig-Safe, the Owner or themselves, either the Owner will repair these lines or the Contractor will make the repairs and shall be compensated for the work.
- R. The contractor shall restore all other areas disturbed by the installation process. Prepare all areas for loaming and seeding. Contractor shall do the final loaming and seeding.

3.6 MANUAL VALVES

- A. A manual valve shall be installed on inlet side of every electric valve in the system to isolate any electric valve requiring service and/or repair work. The manual valve is to be located in a plastic valve box as detailed on the drawings.

3.7 WIRING

- A. All wires shall be spliced to requirements of local minimum regulations, or to the following specification. All splices shall be made by baring a minimum of 3/4" of copper conductor twisted together, connected and sealed with an approved splice kit. Procedures recommended by manufacturer shall be strictly followed. At splice location, slack shall allow the splice to be raised a minimum of 24" above splice for inspection. Any underground splices not located at control valve sites

shall be housed in a separate valve box for isolation. Valve boxes for main line isolation gate valves shall not be used for housing wire splices.

- B. Wire shall be installed in trench line as per Section 3.5.D and shall not be yanked, stretched or excessively pulled during installation. Wire shall be laid on a firm, even bed in the trench that shall support the entire length. The Contractor shall take strict precautions to insure that wires are not cut, scraped or nicked during installation. Wire shall be laid above and to one side of the main line pipe trench - never directly over the pipe. Whenever possible, wire shall be laid on the same side of the trench throughout the entire job. Where power wire and communication wire are installed in the same trench, power wire shall be installed on opposite side of trench from the communication wire with a minimum of 12" from communication wiring.
- C. Install all exposed wire in conduit including at bridge crossings, inside buildings, outside buildings, etc.

3.8 QUICK COUPLING VALVE

- A. Quick coupling valves shall be installed where shown on the plans. Valves located at manual valve locations shall be connected to and be an integral part of the manual gate valve assembly as per plan and detailed drawing.
- B. Install quick coupling valve on a swing joint assembly. Install valve box and cover over quick coupling valve as detailed on the drawings.

3.9 SPRINKLER HEADS

- A. Rotary sprinkler head assembly shall be connected to the lateral line by installing a swing joint. Nipple length to be as detailed on the drawings. Sprinkler shall be installed perpendicular to the slope of the ground. Top of sprinkler shall be installed 1/8" below finish grade. When installing sprinklers, sod shall be removed and replaced. The saddles for

sprinklers, quick coupling valves, etc., in greens and tees shall be installed so that the outlet is directed away from the greens and tees.

3.10 ADJUSTING THE SYSTEM

- A. Adjustment of the sprinkler heads, remote control valves and automatic equipment shall be done by the Contractor prior to completion of the installation to provide optimum performance and balance throughout the irrigation system. Minor adjustments (cleaning sprinkler heads, valve boxes, etc., including protection from vandalism) will be made by the Owner after acceptance of the system and during the warranty period.
- B. The Contractor shall adjust all pressure regulating valves in the system to the pressures provided by the Engineer.

3.11 TESTING

- A. The Contractor shall be responsible for all hydraulic pressure testing of main lines and lateral lines. The testing shall be on a continuous basis commencing when the first section of the installation is complete and available for testing. Final testing of the whole system under full operating conditions to be done following complete installation of all main and lateral piping, valves and sprinkler heads.
- B. Testing for the piping shall consist of a continuous application of water at system operating pressure to the piping for a two-hour period without visual evidence of leaks. If a leak is discovered within this period, the Contractor shall immediately repair the break and the system then retested for the period described above in this section. In addition, the pressure maintenance pump of the pumping system shall not cycle for a minimum period of 30 minutes. If the pump cycles more frequently than this, Contractor shall isolate and locate leak(s) and make repair(s).
- C. Operational Test: After completion of the system, test operation of the entire system and adjust sprinklers as directed by the Director's

Representative and superintendent. Demonstrate to the Director's Representative and superintendent that control system equipment is operating as required.

--End of Section--