



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 107-2009

**SUPPLY AND INSTALLATION OF A NEW IRRIGATION SYSTEM, AT THE JOHN
BLUMBERG RECREATIONAL COMPLEX**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 SUPPLY AND INSTALLATION OF A NEW IRRIGATION SYSTEM, AT THE JOHN BLUMBERG RECREATIONAL COMPLEX

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, March 3, 2009.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B3.2 The Bidder is advised that the Site where the Work will be undertaken is surface covered with grass and the Contractor will be responsible for full restoration of all sod damage, to prior Site condition.

B3.3 The entire Site is presently covered with snow. Drawing L2 shows an air photo of the Site and outlines the main Work areas. This air photo was taken approx. in 2002 and fields 5, 6, and 7 have since been reconstructed with new grading and sodding.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

- B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed Work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed Work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B14.

- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.7, deviations in consistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B7. BID COMPONENTS

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B7.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B7.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1
- B7.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B7.6 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).
- B7.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178.
- B7.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B7.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;

- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B8.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
- (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B8.4.2 All signatures shall be original.

B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B9. PRICES

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B9.4 Prices from Non-Resident Bidders are subject to a Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

B10.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B10.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>

B10.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out Work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

B10.4 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B10.5 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bids will not be opened publicly.

B11.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B11.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B11.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B12. IRREVOCABLE BID

B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B12.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B13. WITHDRAWAL OF BIDS

B13.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B13.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.

B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B14. EVALUATION OF BIDS

B14.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.

B14.4 Further to B14.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices adjusted, if necessary, as follows:

- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision for the Work, no adjustment will be made to the Total Bid Price; or
- (b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by progressively deducting item(s) 13, 12, 11, 10, and 9 in the order listed, until a Total Bid Price within the budgetary provision is achieved.

B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

B15. AWARD OF CONTRACT

B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B15.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B15.2.1 Without limiting the generality of B15.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar Work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B15.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B14.
- B15.3.1 Following the award of Contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.
- B15.4 Notwithstanding C4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B15.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the supply and installation of a fully automatic irrigation system.

D2.2 The major components of the Work are as follows:

- (a) Trenching, supply and installation of main irrigation lines
- (b) Plowing, supply and installation of soccer field irrigation lines.
- (c) Plowing, supply and installation of controller wires and supply and installation of solenoid valves
- (d) Supply and installation of sprinkler heads
- (e) Supply and installation of water intake lines.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is Ken Rech Landscape Architects Inc., represented by:

Ken Rech
Landscape Architect
1480 Wellington Crescent, Winnipeg, Manitoba, R3N 0B3
Telephone No. (204) 489-6616
Facsimile No. (204) 489-6852

D3.2 At the pre-construction meeting, Ken Rech will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4. CONTRACTOR'S SUPERVISOR

D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5. NOTICES

D5.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:

The City of Winnipeg

Chief Financial Officer
Administration Building, 3rd Floor
510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-1174

- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg
Internal Services Department
Legal Services Division
Attn: City Solicitor
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

Facsimile No.: (204) 947-9155

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

- D6.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D7. SAFE WORK PLAN

- D7.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D7.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D8. INSURANCE

- D8.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg and Ken Rech Landscape Architects Inc. added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement

of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D9. PERFORMANCE SECURITY

D9.1 If the Contract Price exceeds one hundred thousand dollars (\$100,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D9.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D9.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

SCHEDULE OF WORK

D10. COMMENCEMENT

D10.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D10.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D6;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D7;
 - (iv) evidence of the insurance specified in D8;
 - (v) the performance security specified in D9;
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D10.3 The Contractor shall not commence the Work on the Site before May 1, 2009.

D10.4 The City intends to award this Contract by March 27, 2009

D10.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D11. CRITICAL STAGES

- D11.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Connection to the river float pump and the existing pumphouse building to permit the existing baseball field irrigation system to operate is to be complete by May 15, 2009
 - (b) All main water supply irrigation pipes including installation of all solenoid valves and connection to both pump-houses and river float pump, including pressuring of the system and seeding repairs to areas trenched are to be completed by June 19, 2009.
 - (c) Supply and installation of all soccer field sprinkler heads and lines, including all sodding repairs is to be completed by July 24, 2009. This Work can not commence until July 2, 2009.

D12. SUBSTANTIAL PERFORMANCE

- D12.1 The Contractor shall achieve Substantial Performance by July 20, 2009.
- D12.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D12.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D13. TOTAL PERFORMANCE

- D13.1 The Contractor shall achieve Total Performance by July 24, 2009.
- D13.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D13.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D14. LIQUIDATED DAMAGES

- D14.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Connection to the river float pump and the existing pumphouse building to permit the existing baseball field irrigation system to operate – two hundred dollars (\$200.00);
 - (b) All main water supply irrigation pipes including installation of all solenoid valves and connection to both pump-houses and river float pump, including pressuring of the system and seeding repairs to areas trenched – three hundred dollars (\$300.00);
 - (c) Supply and installation of all soccer field sprinkler heads and lines, including all sodding repairs – five hundred dollars (\$500.00);

D14.2 The amounts specified for liquidated damages in D14.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D14.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D15. SCHEDULED MAINTENANCE

D15.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Establishing all seeding and sodding repairs as specified in E10;

D15.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D16. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D16.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

MEASUREMENT AND PAYMENT

D17. PAYMENT

D17.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D18. WARRANTY

D18.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D9)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$ _____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written Contract with the Obligee for

BID OPPORTUNITY NO. 107-2009

SUPPLY AND INSTALLATION OF A NEW IRRIGATION SYSTEM, AT THE JOHN BLUMBERG
RECREATIONAL COMPLEX

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

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
L1	Irrigation Site Plan and Details
L2	Air Photo Site Plan

E2. WORK BY OTHERS

- E2.1 The Contractor is made aware the City of Winnipeg is presently issuing two other contracts and the Contractor will have to co-ordinate their Work with the City's contractors. The other contracts are:
- Construction of a granular roadway ramp down to the Assiniboine River. The irrigation Contractor will have to install their water intake lines over top of this road when it is completed. The Roadway contract is expected to be complete by the time the Irrigation Contractor commence their Work.
 - Construction of the new irrigation pumphouse building. The pumphouse building and interior electrical and mechanical Work will have to be completed before the irrigation Contractor can connect their intake and discharge lines to the new pumphouse. The Pumphouse contract is expected to be complete by mid to late June 2009.
 - The City of Winnipeg Naturalist Service Branch will also be undertaking some vegetation repairs around the new gravel roadway and pump house building, however this is not expected to impact on the irrigation Contractor's Work.

E3. SOCCER PLAY SEASON

- E3.1 The Contractor is made aware the soccer fields will be utilized for play during part of the Construction schedule and the Contractor will have to ensure their Work does not impact on the games being played, nor create any safety issues.
- E3.2 The following dates outlines the major soccer use of the facility:
- All fields will be extensively used in May and June of 2009 for regular season play, day and evening.
 - There are two (2) major tournaments which are held on this Site and due to the extensive use of the entire Site by games and spectators the Contractor will not be able to Work during these periods, including a day before and after each tournament to allow for setup and take-down:
 - June 1st to June 7th Annual Children's Hospital Tournament

(ii) October 1st to October 4th, City Playoffs

E4. LAYOUT OF WORK

- E4.1 The Contractor is responsible to set control lines and bench marks by means of stakes, buoys or marks and the Contractor shall make the completed Works conform to the lines and patterns shown on the drawings. The Contractor is responsible for protecting and replacing any stakes that have been removed as a result of construction or vandalism.
- E4.2 All layout Work shall be inspected and approved by the Contract Administrator prior to construction.
- E4.3 Before commencing Work the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City of Winnipeg on account of any alleged inaccuracies. If any error is suspected in the plans, specifications or the directions of the Contract Administrator, Work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.
- E4.4 The Contractor shall locate all underground utilities prior to Construction and shall protect the same. Repair all damage to existing utilities as a result of the Contractor's Work at no cost to the City.

E5. SITE RESTORATION

- E5.1 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all plant, tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified, the Contractor shall restore all areas of the Site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator. The Contractor shall pay all costs associated with this Work.
- E5.2 Excavated fill removed from the trenches and sprinkler locations may be stockpiled in the location shown on drawing detail 1-L1. The Contractor may at their discretion, remove the excavated soil from Site and legally dispose of the fill off Site, in lieu of stockpiling it on Site. The Contractor will be responsible for any damage to the turf and walkway areas, as a result of hauling the fill to the on Site or off Site locations.

E6. SITE SAFETY

- E6.1 The Work area is a highly used Public park and athletic space and due to the inherent nature of the Site being utilized extensively by soccer players, baseball players, and recreational users, the Contractor will have to ensure all their Work and operations of equipment protects the Public and the City from harm.
- E6.2 All Work and scheduling of Work, shall be undertaken to provide the least Site disturbance or impact, so as not to conflict with when the soccer fields and surrounding areas are being utilized the most. The Contractor will not be allowed to Work on the Site during the major events as listed in E3.2(b)(ii).
- E6.3 Areas where open trenching is required shall be undertaken during time periods when least likely to disrupt use of the Site by the public and players.
- E6.4 The Contractor shall only excavate those lengths of trench which can be completely backfilled before the end of the Work day, and modify the lengths to shorter distances, when players are using the fields. All areas where trenching is undertaken shall be safely delineated with warning flags and barriers/fencing as necessary to warn the public of the hazard and keep the public away from the Work area.
- E6.5 When operating equipment while the public is present the Contractor must place a Safety flagman between the equipment and the public to keep the public away from the Work area.

- E6.6 Any excavation pits must not be left open for any length of time while the public is on Site, or while unattended, and must be clearly marked with protective flagging or barriers. The Contract Administrator shall have the authority to shut down the Work if the Contract Administrator feels the Work areas are not properly protected, and the public may be harmed.
- E6.7 The Contractor must provide suitable traffic barriers to City of Winnipeg Standards when working on or near the vehicle roads.
- E6.8 There will be no Separate Payment for providing Safety markers and workers.

E7. PROPOSED WORK SCHEDULE

- E7.1 In order to minimize disruption to the use of this facility the City is proposing this Work be undertaken during three distinct time periods.
- (a) The First Phase of Work will involve the supply and installation of the water intake line from the floating river pump system to the existing pumphouse building. This will allow the existing pumphouse to supply water to the existing baseball field complex. This Work is to be completed by the date identified in D11.1(a).
 - (b) The Second Phase of Work will involve the installation of all the main water line services, including all zone valve boxes and decoder wires. This Work is to be undertaken in May or June but must be completed by the date identified in D11.1(b). The Contractor shall compress this Work to occur in one continuous operation if possible to minimize conflicts with the use of the soccer facility. As previously identified in E3.2(b)(i) there will be a major soccer tournament which occurs during this time period, during which time no Work can be undertaken on Site. During the soccer tournament there must not be any safety hazards present on Site.
 - (c) The Third Phase of Work involves the installation of water lines and sprinkler heads within the play fields. This Work is to be completed by the date identified in D11.1(c).
- E7.2 With respect to the installation of the water lines and the sprinkler heads in each play field, it is requested the Contractor restore the sod damage by each sprinkler head each day, so the sod is allowed to re-root and establish while the Contractor continues on new areas. The Contractor will not be allowed to do all the sodding repairs at the end of the Contract. Sodding repairs must be made daily as the sprinkler heads are installed. Maintenance of the sod repairs shall occur daily once the sodding repairs have been made.
- E7.3 The Contractor must co-ordinate and schedule the installation of the water lines under the two main road approaches leading to the baseball diamond parking lot, with the baseball superintendent to ensure there all no conflicts with access to their facility. Only one road approach may be taken out of commission at one time, and access must be maintained to the baseball complex for emergency vehicles at all times.
- E7.4 The Contractor is made aware any delays by the Pumphouse Contractor may also delay the completion of the irrigation system and any time adjustments will be reflected by the Contract Administrator, with respect to Critical Stages as identified in D11.

E8. EXISTING IRRIGATION SYSTEM AND WATER SUPPLY TERMINATION

- E8.1 The existing soccer fields have an existing quick coupler valve irrigation system which water lines run between every alternate field, as shown on the drawings. This water line is 75 mm polyethylene and is buried approx. 500 - 600 mm below the sod grade. The water lines between the soccer fields connect to the main water line loop running around the baseball field, which services the baseball diamond fields also. The main waterline loop is 100 mm dia. polyethylene pipe. This irrigation system is serviced by the existing irrigation pumphouse building as shown in detail 4-L1.
- E8.2 The existing soccer field system is to be disconnected from the baseball field system, and is to be supplied water from the new irrigation pumphouse. The location of the existing 100 mm dia.

main line water service, running around the baseball diamond is unknown, as there are no as-built drawings. There are some isolation and quick coupler valves which appear to delineate the location of part of this line/system.

- E8.3 The water service connection point to fields 1-2, 3-4, 8, and 10 are unknown. The location of the existing water service to fields 5, 6, and 7 is near the existing isolation valve. It is not known where the water service to field 10 is from. In order to locate the existing 100 mm dia. main water lines, the Contractor is to use a deep plow slice, while the lines are pressurized to find the lines. Plowing is the preferred method to avoid damaging excessive areas of existing sod.
- E8.4 The Contractor shall disconnect/terminate all water services to the existing soccer field from the baseball system. The City does not want any interconnection between the two systems i.e. existing baseball service and new soccer field service. The Contractor shall locate the existing five service points and sever the pipe and cap both ends. The Contractor shall install a salvaged quick coupler valve and valve box, on the pipe ends of all terminated lines to allow for wintering of the system. Salvage the quick coupler valves and valve boxes from west of field 9-10, as shown on drawing detail 1-L1. Where quick coupler valves are removed from the baseball field system, cap off all saddle or nipple connections. Repair all damage to the sodded areas, where the valves were salvaged, with 150 mm depth of topsoil and seed.
- E8.5 Termination of the existing water service, capping the lines, and installing salvaged quick coupler valves will be paid on a Lump Sum basis and is to be included in Unit Cost Item No. 1 "Termination of Baseball Field Water Supply". The cost for this Work shall include all costs for finding the existing lines, terminating and capping all lines, installing salvaged quick coupler valves and valve boxes, and all seeding repairs required as a result of this operation.

E9. TRENCHING, PLOWING AND PROTECTION OF EXISTING FACILITIES

- E9.1 This specification shall cover the trenching and plowing requirements and protection of existing underground and surface materials.
- E9.2 The Contractor shall locate and protect all underground utilities prior to commencing construction, and repair any damage to the utilities as a result of their operations to prior construction condition at no cost to the City.
- E9.3 Trenching will only be allowed for the new main 150 and 100 mm dia. polyethylene water system loop which runs around the complete baseball diamond and connects to the new irrigation pumphouse building. There is one area of new 75 mm dia. polyethylene water line located south of field no. 7 which may also be trenched. All other installation of water lines is to be plowed to avoid damage to the existing play fields. The Contractor may utilize a backhoe type of device for excavation however the maximum width of the bucket shall not exceed 300 mm width.
- E9.4 The new main line water service will have to cross through the existing granular french drains at five locations. This granular drain must not be damaged. The granular drain will generally be approx. 500 mm deep, 400 mm wide and the trench is completely wrapped with a filter fabric on all four (4) sides. The drains have a 100 mm dia. pvc drainage pipe on the bottom and are backfilled with clean stone. The top surface of all drains is covered with approx. 25 mm depth of 6 mm dia. crushed limestone down.
- E9.5 Where the new water lines must be installed through the granular trench the soil shall be removed on both sides of the trench by the crossing point, to the depth of the new trench, the filter fabric cut in a vertical fashion. The new water service pipe is then to be placed through the trench, ensuring the 100 mm dia. pvc pipe in the bottom of the trench is not damaged. After installing the pipe through the trench the Contractor shall ensure all loose dirt around the gravel is removed, and top up the existing gravel with 19 mm crushed clean limestone. Prior to topping up the existing gravel install a layer of filter fabric around all outside walls of the soil excavation to prevent the soil from entering the gravel. After installing the new gravel, wrap the new geotextile fabric over top of the gravel, 25 mm below the surface of surrounding grade, and cover with a 75 mm width of 6 mm dia. crushed limestone down. Top of gravel surface

shall be smooth, level and align with existing granular drain. Filter fabric shall be Armtex 200 non-woven geotextile.

- E9.6 Where the new water line will cross under granular roadways and walkway locations, trench the lines to 900 mm below the existing surface, and cover the bottom of the trench/pipe with 200 mm depth of sand and backfill the balance of the trench with 19 mm dia. compacted crushed limestone down, 150 mm lifts, compacted to 95% modified Proctor density. All excavated material is to be removed and not placed back in the trench. No separate payment will be made for restoring the granular paving.
- E9.7 Where the new water line crosses under the two granular road approaches to the existing baseball diamond parking lot, trench the lines to a 600 mm depth below the existing surface, and after installing the water line and decoder lines, backfill the trench with a 150 mm depth of sand. Rake the sand level and install a 300 mm width half culvert over top of the sand/pipes to the lengths identified on drawing 1-L1. Backfill the remainder of the trench with 19 mm dia. compacted crushed limestone down, 150 mm lifts, compacted to 95% modified Proctor density. All excavated material is to be removed and not placed back in the trench. Only one road approach may be worked on at one time. No Work shall commence on the second road approach until the first road approach is restore to working order.
- E9.8 Half culvert may be sewer 300 mm dia. PVC sewer pipe, 3.96 metre lengths, or CSP culverts. Both products must meet CW of Winnipeg Standard Specification requirements for Approved Products for Underground Use Within the City of Winnipeg.
- E9.9 All trenches located in grass areas shall be restored with a 100 mm depth of topsoil and seed as per CW 3520-R7. No separate payment will be made for restoring the surface grass.
- E9.10 All 50 mm diameter water lines in the play field shall be installed a minimum of 300 mm but not greater than 400 mm to the top of the pipe, below the finish grade elevation of the playfield sod. The pipe shall be installed by pulling in a full length lateral line with a vibratory plow. No mechanical joints or connections in the pipe are allowed within the play field. Connection of the new sprinkler heads is shown in drawing detail 6-L1 and further discussed in sections E10 and E11.
- E9.11 Supply and Installation of the main 150 mm, 100 mm and 75 mm dia. water lines will be paid on a per lineal metre basis and is to be included in Unit Cost Item No. 3 "150 mm Diameter Main Water Line", or Unit Cost Item No. 4a "100 mm Diameter New Main Water Line", or Unit Cost Item No. 5 "75 mm Diameter Water Line". The cost for this Work shall include all costs for excavation, remove of the excavated materials, supply and installation of the water line, backfilling and topsoil and seeding repairs, and granular paving repairs to paved surfaces.
- E9.12 Supply and Installation of the protective culvert cover and repairs to the two main road approaches to the baseball parking lot will be paid on a per lineal metre basis and is to be included in Unit Cost Item No. 4c "Supply and Installation of Two Protective Culverts". The cost for this Work shall include all costs for excavation, remove of the excavated materials, supply and installation of the culverts sand bedding, and granular paving backfill and paved surface restoration.
- E9.13 Repairs to the existing granular French drains as a result of installing the new main lines through the drains will be paid on a per unit basis and is to be included in Unit Cost Item No. 4b "Repair 5 granular French drain crossings". The cost for this Work shall include all costs for excavation, remove of the excavated materials, supply and installation of additional gravel backfill, filter cloth and granular surfacing restoration.
- E9.14 Supply and Installation of the lateral 50 mm dia. water lines in each play field will be paid on a per lump sum basis and is to be included in related Play Field Lump Sum Unit Cost Items No. 9 - 13 "Play Field 6, 7, 8, 9 and 10".

E10. SODDING

- E10.1 This specification shall amend C.W. 3510-R9.
- E10.2 The Contractor is responsible to repair any damage to the existing sod, on each play field as well as the one new 75 mm dia. water line service located south of field no. 7. The Contractor must topsoil and seed areas of Site disturbance off the play fields and on all newly trenched areas in accordance with CW 3521-R7.
- E10.3 Further to CW 3510-R9, Item 9.6 Watering and Rolling, the Contractor is informed they may use the irrigation system for establishing the sod/seed; however, depending on the river water levels, the City cannot guarantee when the system will be operable. The City will not be held responsible for any equipment failures with regards to operation of the irrigation pumps and equipment. The Contractor shall co-ordinate the installation of the new irrigation system to allow it to be utilized by play field area, to restore the sod and repair all seam damage.
- E10.4 The Contractor is responsible for supplying all hoses, sprinklers, and fittings necessary, to connect to the existing irrigation quick couplers, should they wish to use the quick couplers for sodding and seeding repairs.
- E10.5 The preferred method of repairing the sod by each sprinkler head is to salvaged and careful remove the existing sod with a soil plug of approx. 100 to 150 mm thickness. The soil plugs should be as large as possible with fairly vertical sides and replaced in their original orientation and position. Prior to installing the salvaged plugs install a minimum 50 mm depth of compacted topsoil under each plug over the sand backfill.
- E10.6 Should the Contractor not want to salvage the existing grass for sodding repairs by the new sprinkler locations, all areas of new sod shall have a 150 mm depth of screened topsoil installed below the sod and not 75 mm as identified in CW 3540-R4. Specified depth shall be measured after the topsoil has been rolled with a 50kg roller, minimum 900 mm wide. See detail 6-L1 for the sprinkler backfill and restoration requirements.
- E10.7 No separate payment will made for sodding seeding or sodding restoration. Include any costs in the related play field lump sum cost or unit price cost for irrigation line installation.

E11. IRRIGATION SYSTEM

- E11.1 This specification shall amend C.W. 3530-R3.
- E11.2 Sprinkler heads shall be Buckner model # CB1003RC, 25 mm brass cam drive, full circle, opposing nozzles, rubber cover, standard nozzle (51.7 l/min @ 3.5 bars).
- E11.3 Provide PVC Sch 80 nipples (length to suit) and PVC Sch 40 fittings for extensions, to obtain correct head elevation while maintaining positive swing joint drainage back to the lateral line. Wrap Teflon tape on all the PVC tapered pipe thread connections.
- E11.4 Swing joints riser assemblies shall be a Spears model # 5807-01008, 25 mm pre-fabricated (mipt x mipt). Provide positive drainage back into the HDPE lateral lines.
- E11.5 Sprinkler take off saddles shall be Clamp-It model # 422010, 50 mm x 25 mm (fpt), for attaching swing joints to lateral irrigation pipe.
- E11.6 The pressure regulated solenoid valves shall be a Hunter model # PGV-201-AS (set point 3.5 bars), 50mm angle style configuration. Pre install Flo-Loc model # 135-20-41FL transition fittings into the valve outlet.
- E11.7 Provide PVC Sch 80 nipples (length to suit) and PVC Sch 40 fittings for extensions, to obtain correct valve elevation, see drawing detail 7-L1.

- E11.8 Solenoid valve take off saddles shall be a Clamp-It model # 444020 or 443020; respective sizes are 100 mm x 50 mm (fpt) or 75 mm x 50 mm (fpt), for attaching solenoid valves to mainline irrigation pipe.
- E11.9 Provided a Hunter ICD-100 single station decoder with surge suppression and ground wire at every solenoid valve. Connect wires and ground according to the manufacturer's specifications. Record all locations with decoder serial numbers and program into the system controller (provide in the new pump house).
- E11.10 Decoder wiring connections to be made with 3M DBR-6 or DBY-6 wire splice kits. All wire splices are to be made in valve boxes. Provide as-built drawing of the wire splice locations (not including solenoid valves locations).
- E11.11 Provide Carson Model # 1419-12 valve boxes with bolt down Loc-Kit to cover the solenoid valves along each play field. Centre the solenoid valve in the valve box. See drawing detail 7-L1.
- E11.12 Provide Hunter IDWIRE1 #14 gauge colour coded decoder wire. Starting from the system controller (in the new pump house) install two (2) legs of the twisted pair wire along side of the 150 mm mainline, at the 100mm pipe junction run one leg west and the other leg east, leave two (2) meters of slack at each isolation and solenoid valve then terminate as per the drawing. Also provide two (2) meters of slack at field wiring junction points. From the field junction points use a vibratory plow with a wire chute on the blade to feed the decoder wire 400mm into the ground. Leave two (2) meters of slack at all the solenoid valves.
- E11.13 Provide a 100 mm wide x 900 mm long x 1.6 mm thick Paige part # 182201 copper ground plate with three (3) meters of #10 bare copper wire at designated locations, see drawing detail 1L1. Install as per manufacture recommendations. Bury the grounding plate 600 mm deep along side of the lateral line, three (3) metres from and perpendicular to the decoder wire path. Splice the #10 bare copper wire to the decoder ground wire with a King yellow nut connector. The maximum radius of bend of the #10 ground wire is 200 mm through a 90 degree turn. Megger test and record the earth to ground resistance of each grounding circuit (include the date tested/ohms on the as-built drawing)
- E11.14 Provide PE3408 HDPE SDR 17 mainline irrigation pipe, sizes to include 150 mm, 100 mm and 75 mm (see drawing L1 for schematic). Butt-fusion or electro-fusion are both approved joining methods. Mainline pipe to be installed using a chain trencher or back hoe (max bucket width of 300 mm). Trench to a depth of 500 mm, 900 mm below granular paved roads and walks, and if rocks are exposed cover with 40 mm of sand. Snake wire in trench, then snake pipe in trench over wire. Back fill and tamp in 100 mm lifts, first lift to be pushed under the pipe. Remove all rocks from back fill. Only trench that portion of the line that can be backfilled by the end of the day for safety reasons. Open trenches near the play fields, while the Contractor is not on Site is not permitted.
- E11.15 Provide PE3408 HDPE SDR17 50 mm lateral line irrigation pipe through playing fields, (see drawing1-L1 for schematic). Pull a full length lateral line with a vibratory plow (no mechanical connections in fields). Install the pipe in the playing field to a depth of minimum 300 mm, but not greater than 400 mm, to the top of the pipe. Connect to the solenoid valve using a Flo-Lock transition adapter. Seal the end of the lateral line with a butt-fusion or socket fusion cap.
- E11.16 Flush mainline irrigation pipes in sections that are isolated by butterfly valves. Start-up and test all pressurized mainlines. Protect all installed equipment by completing installation and back filling before the end of a work day.
- E11.17 Provide Keystone figure #222/786 100 mm lug style butterfly isolation valves, with lever handle operator. Connect to the HDPE mainline by using butt fusion stub ends with epoxy coated back-up rings and stainless steel bolts. Use a Caron #1320B-12 valve box with bolt down Loc-Kit to cover the isolation valve's lever handle. Offset the lever handle within the valve box so that it turns freely though its 90 degrees of travel.

- E11.18 Provide PE3406 HDPE SDR 17 booster pumps intake pipes as per drawing detail 4, 5 – L1. The 150 mm by six (6) meter long pipe is to be connected to the floating pumping unit using butt fusion stub ends with epoxy coated back-up rings and stainless steel bolts. The supply and installation of the floating pumping unit will be done by City personnel. Provide a spare PE3406 HDPE SDR 17 150 mm by four and a half (4.5) meter long booster pumps intake pipe, including butt fusion stub ends with epoxy coated back-up rings and stainless steel bolts. Provide a flanged fabricated HDPE tee 100 mm x 100 mm x 150 mm with two (2) Keystone figure #222/786 100 mm lug style butterfly isolation valves, see drawing detail 5-L1. Connect the two (2) 100 mm x length to suit PE3406 HDPE SDR 17 booster pump intake pipes to the new (soccer system) and old (baseball system) booster pumps. Use butt fusion stub ends with epoxy coated back-up rings and stainless steel bolts to make connections. Use Grov-Loc fittings to make necessary pump connections. Fill the booster pumps intake system by manually operating the 5 HP floating pump and check for leaks.
- E11.19 Provide 39 mm x 30 meter long rubber hose with heavy wire helix to connect between the self-cleaning screen (located on the floating pumping unit) and SCS solenoid valve (locate in the new pump house). Use aluminum Cam-Loc fittings to make the necessary connections.
- E11.20 Provide two (2) Gruvlok #7051 100 mm 45 degree elbows and a 100 mm x (length to suit) galvanized grooved pipe as well as three (3) Gruvlok #7001 couplers to be used to make a z-drop into the ground. Join with the 150 mm HDPE pipe by using a Gruvlok #7072 150 mm x 100 mm reducer and a Gruvlok #7307 150 mm transition fitting. See drawing detail 3-L1.

End of Section