



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 563-2010

GRANT PARK ATHLETIC FIELD REDEVELOPMENT

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 GRANT PARK ATHLETIC FIELD REDEVELOPMENT

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, August 13, 2010.

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.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

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 inconsistent 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.

B9.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

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 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada) VERSION 2 - Use this version with VERSION 2 of Form B: Prices for lump sum contracts.

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 Further to B10.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>)

B10.5 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.

B10.6 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 0 (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.
- B14.4.1 If there is a discrepancy between the Total Bid Price written in figures and 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.
- B14.4.2 Further to B14.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

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 Redevelopment of Grant Park Athletic Field.

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

- (a) The removal of all aggregates in the existing baseball diamond;
- (b) The rotovation of all existing surfaces within the Limit of Work;
- (c) All earthworks and grading of the sub-grade to elevations which are 150 mm. below the finished elevations shown on the Grading and Drainage Drawing (L3), including the scarification of the approved sub-grade to a depth of 100 mm.;
- (d) The supply and installation of one (1) standard concrete catch basin, five (5) Nyoplast Catch Pits, and all double-wall, smooth interior wall HDPE drainage pipe;
- (e) The supply and installation of a fully automatic sports field irrigation system, including the electrical connection to the power source at Charles Barbour Arena;
- (f) The finished grading of all of all compacted topsoil surfaces to the elevations shown on the Grading and Drainage Drawing (L3);
- (g) The supply and installation of sod; and
- (h) The maintenance of all sod within the Limit of Work until a dense uniform stand of turfgrass has been established.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "Meter Pit" means a Double Check Valve Assembly and Meter in C.S.P. Enclosure as per City of Winnipeg SD-241B
- (b) "Nyoplast" Catch Pit means an HDPE Catch Basin/Drain Inlet

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is Lombard North Group (1984) Ltd. represented by:

Chris Nelson
Landscape Architect
505-93 Lombard Avenue
Winnipeg, Manitoba, R3B 3B1
Telephone No. (204) 943-3896
Facsimile No. (204) 947-5696

D4.2 At the pre-construction meeting, the Contract Administrator will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. CONTRACTOR'S SUPERVISOR

- D5.1 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.

D6. NOTICES

- D6.1 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.
- D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.
- D6.3 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 facsimile number:
The City of Winnipeg
Chief Financial Officer
Facsimile No.: (204) 949-1174
- D6.4 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
Legal Services Department
Attn: City Solicitor
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

- D7.1 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.

D8. SAFE WORK PLAN

- D8.1 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.
- D8.2 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>

D9. INSURANCE

- D9.1 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 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;
- D9.2 Deductibles shall be borne by the Contractor.
- D9.3 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.
- D9.4 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.

D10. PERFORMANCE SECURITY

- D10.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), 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.
- D10.1.1 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.
- D10.2 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.

D11. SUBCONTRACTOR LIST

- D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D12. COMMENCEMENT

- D12.1 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.
- D12.2 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 D7;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D8;
 - (iv) evidence of the insurance specified in D9;
 - (v) the performance security specified in D10;
 - (vi) the Subcontractor list specified in D11; and
 - (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.
- D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D13. SUBSTANTIAL PERFORMANCE

- D13.1 The Contractor shall achieve Substantial Performance within twenty-five (25) consecutive Working Days of the commencement of the Work as specified in D12.
- D13.2 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.
- D13.3 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.

D14. TOTAL PERFORMANCE

- D14.1 The Contractor shall achieve Total Performance within thirty (30) consecutive Working Days of the commencement of the Work as specified in D12.
- D14.2 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.
- D14.3 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.

D15. LIQUIDATED DAMAGES

- D15.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City seven

hundred and fifty dollars (\$750) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D15.2 The amount specified for liquidated damages in D15.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D15.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D16. SCHEDULED MAINTENANCE

D16.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Thirty (30) days as specified in E12 and CW 3510-R9.;

D16.2 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

D17. JOB MEETINGS

D17.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D17.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D18. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D18.1 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

D19. INVOICES

D19.1 Further to C12, the Contractor shall submit monthly invoices for all work completed during the previous month to:

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-0864
Email: CityWpgAP@winnipeg.ca

D19.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of goods delivered;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D19.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D19.4 Bids Submissions must be submitted to the address in B7.5.

D20. PAYMENT

D20.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D21. WARRANTY

D21.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire twelve (12) months thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

FORM H1: PERFORMANCE BOND
(See D10)

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. 563-2010

GRANT PARK ATHLETIC FIELD REDEVELOPMENT

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)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D10)

(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 563-2010
GRANT PARK ATHLETIC FIELD REDEVELOPMENT

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

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.
- E1.3 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
CW 2030	Excavation, Bedding and Backfill
CW 3110-R9	Sub-Grade, Sub-Base and Base Course Construction
CW 3170-R3	Earthwork and Grading
CW 3510-R9	Sodding
CW 3540-R4	Topsoil and Finish Grading for Establishment of Turf Areas

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	Title Sheet
L1	Legal Plan
L2	Layout and Demolition
L3	Grading and Drainage
L4	Irrigation Plan
L5	Details
L6	Details

E2. SITE ACCESS

- E2.1 Access to the Site will be from the southeast corner of the Pan-Am Clinic Parking Lot onto the southwest corner of the Grant Park Athletic Field. The access area will be maintained and restored by the Contractor at his own expense and as approved by the Contract Administrator.
- E2.2 The Contractor shall be restricted to the site access location only so that there is a minimum of disturbance to the existing ground and all adjacent property. Damage to areas beyond the marked routes shall be repaired by, and at the expense of the Contractor.

E3. PERMITS, NOTICES, LICENSES, CERTIFICATES, LAWS AND RULES

- E3.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any

inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans

- E3.2 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate to the Work.
- E3.3 All notices, consents, approvals, statements, authorizations, documents or other communications to the City shall be submitted to the Contract Administrator.
- E3.4 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act
- E3.5 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Fall Protection guidelines.
- E3.6 The Contractor and Sub-contractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance with the Manitoba Department of Labour Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

E4. DAMAGE TO EXISTING STRUCTURES, PROPERTY, SERVICES AND UTILITIES

- E4.1 Further to C17, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing trees, shrubs, sod, pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Sites of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from and to the satisfaction of the Contract Administrator and the City thereof, either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the Contract Administrator and the City thereof. The cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City and the Contract Administrator from all claims made directly or indirectly against it in respect to any such damage.
- E4.2 The Contractor's operations shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his Work on private property. The Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to private properties while he is working near them. Any damage caused by the negligence of the Contractor or his sub-contractors to the adjacent Works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.
- E4.3 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

E5. TEMPORARY UTILITIES

- E5.1 The Contractor shall make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E5.2 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E6. LAYOUT

- E6.1 The Contractor is responsible for the layout of all Work. The Contractor is to coordinate the layout of the Limit of Work, all catch basins, the irrigation system and the boundaries and

control points for the proposed 105 meter by 68 meter wide soccer field. This shall include, but not be limited to the control, stakes and marks, and benchmarks as required.

E6.2 The Contract Administrator shall be advised of the staking of the layout at least twenty-four (24) hours in advance in order that the layout may be inspected and adjusted as required prior to construction. All work to be performed under this Contract is to be laid out by the Contractor. The Contractor shall be responsible for the preservation of benchmarks, reference points and stakes. The Contract Administrator will provide the basic lines and elevations of the proposed works as shown on the drawings. The Contractor shall be responsible for the true and proper layout of the works and for the correctness of the positions, levels, dimensions and alignment of all aspects of the works. He shall provide all required instruments and competent personnel for performing all layouts.

E6.3 Should any error appear or arise in position, levels, dimensions and/or alignments during the course of works, the Contractor shall rectify such errors to the satisfaction of the Contract Administrator and the City at the Contractor's own expense.

E7. MAINTENANCE KITS

E7.1 The irrigation system and its components shall include the supply of maintenance kits. Maintenance kits shall include maintenance manuals and a complete manufacturer's parts lists, and all special tools necessary for assembly and maintenance of the system.

E8. REMOVALS AND SITE PREPARATION

E8.1 General Description

(a) This specification shall cover the removal of all limestone aggregates forming the infield of the existing baseball diamond shown on the Layout and Demolition Drawing (L2).

E8.2 Removals

(b) This specification shall cover the removal of all limestone aggregates forming the infield of the existing baseball diamond shown on the Layout and Demolition Drawing (L2).

E9. CATCH BASIN, CATCH PITS, AND DRAINAGE WORKS

E9.1 Description

(a) This specification shall cover the work shown on the Grading and Drainage Drawing (L3) and as per CW 2030, CW 2130 and SD-025 for the installation of one (1) Standard Catch Basin.

(b) This specification shall cover all the installation of drainage pipe using 200mm. diameter smooth-walled interior Hancor Sure-Lok ST 06110020IBEA HDPE drainage pipe as shown on the Grading and Drainage Drawing (L3) and Detail 2/L5. All drainage pipe approved for use in sub-drains will be in accordance with Section 2.7 of the City of Winnipeg Specification 3120 and SD-245.

(c) This specification shall cover the supply and installation of five (5) Nyoplast Catch Pits as shown on the Grading and Drainage Drawing (L3) and Detail2/L5.

E9.2 Materials and Methods

(d) The catch basin is to be installed as per CW 2030 and CW 2130 and SD-025 in Drawing L3.

(e) The five (5) Nyoplast Catch Pits are to be supplied and installed as per Drawing L5, Detail 2/L5.

(f) The 200 mm. diameter smooth-walled interior Hancor Sure-Lok ST 06110020IBEA HDPE

E10. GRADING

E10.1 Description

- (a) The areas shall be levelled and graded in accordance with the elevation figures, drainage direction arrows or other descriptions shown on the drawings, by cutting and filling with suitable equipment. Positive surface drainage shall be provided on all areas by creating grades of not less than 2%, unless shown differently on the drawing(s). The finished sub-grade shall be 150 mm. below the final grade, to permit the installation of topsoil and sod to meet the final grades shown on the drawings and in these specifications.
- (b) Once the sub-grade has been established, and its elevations and slopes approved by the Contract Administrator, the sub-grade shall be scarified to a depth of 100 mm.

E11. TOPSOIL AND FINISH GRADING

E11.1 Description

- (a) This specification shall cover the supply and installation of topsoil to the Limits of Work as shown on the Drawings and as per CW 3540-R5, with the exception that the finished depth of topsoil shall be 150 mm.

E11.2 Materials and Methods

- (b) Topsoil shall be installed and compacted to a depth of 150 mm. as per CW 3540-R5.
- (c) A mechanical roller with a minimum weight of 220 kg. shall be used to compact the topsoil in order to eliminate depressions and create a smooth surface for the installation of sod.

E12. SOD

E12.1 Description

- (a) This specification shall cover the supply and installation of sod to the Limits of Work as shown on the Drawings and as per CW 3540-R5 and CW 3510-R9.

E12.2 Materials and Method:

- (b) Sod
 - (i) As per CW 3510-R9.
 - (ii) Further to CW 3510-R9, the sod type shall consist of the following blend of dwarf bluegrass varieties which are suitable for athletic fields:
20% Bedazzled, 20% Blackberry, 20% Bordeaux, 20% Midnight, and 20% Nu Destiny.
 - (iii) All sod shall be grown on a mineral base.
- (c) Areas to be renovated shall be excavated and surplus materials removed off-site and disposed of in a legal manner.
- (d) Edges are to be cut neatly in straight lines and new sod is to be installed to match the existing grades of the surrounding turf at the Limit of Work. All knives and tools used for the installation of sod shall be maintained with a sharp cutting edge.
- (e) Seams between new and old turf are to be top dressed and seeded with the blend of dwarf bluegrass varieties mentioned in E12.2 (b) (ii).

E12.3 Maintenance Period:

- (f) The Contractor shall maintain the sod for thirty (30) Calendar Days after the completion of the installation or until such a time as the turf is established in accordance with CW 3510-R9.

E12.4 Basis of Payment:

- (g) Payment for Work specified under this section shall be paid for at the Unit Price, measured on a square meter basis, for the Items of Work listed below, which price shall include all costs of material supply for sod, proper material installation, maintenance and all other

items incidental to the Work.

E13. SITE IRRIGATION

E13.1 Protection

- (a) Prevent damage to fencing, tree, landscaping, natural features, benchmarks, existing building, pavements, surfaces or underground utility lines which are to remain. Make good any damage.
- (b) Existing buried utilities and structures:
 - (i) Size depth and location of existing utilities and structures as indicated are for guidance only.
 - (ii) Prior to commencing any excavation work, notify Contract Administrator and utility company, establish location and state use of buried locations to prevent disturbance during the work.
 - (iii) Confirm locations of buried utilities by careful test excavations.
 - (iv) Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures as indicated on plans. Obtain direction from Contract Administrator before moving or otherwise disturbing utilities or structures.
 - (v) Advise Contract Administrator and utility company prior to excavation work and coordinate with other Contractors who may be working concurrently on site.
 - (vi) Promptly remove surplus material and debris from excavations and dispose of in a legal manner.

E13.2 Maintenance Data & Demonstration Procedures

- (c) Provide maintenance data for operation and maintenance of irrigation system and equipment to Owner. The maintenance manual shall include all original manufacturers' warranty certificates, controller operation and programming instructions, servicing and replacement procedures for all sprinklers and valves, and procedures for blowing out the system in the fall and charging the system in the spring. Demonstrate procedures for Owners as directed by the Contract Administrator.

E13.3 As-Built Drawings

- (d) Upon completion of the work, submit as-built plan showing exact location of all components of the system. Provide a control schedule which balances system hydraulics and watering requirements.

E13.4 Layout Work & Inspection

- (e) All work shall be laid out by the Contractor in conformance to the layout shown on Drawing L 4. The Contractor shall be fully responsible for the accuracy thereof. Stake the locations of head and valves and receive approval from the Consultant prior to excavation and installation. Install mainlines and laterals and receive approval from Consultant prior to backfilling. Upon completion of irrigation, the entire system shall be tested and balanced. The Contractor shall notify the Contract Administrator for a final test to allow the Contract Administrator to observe and approve. All components shall be checked for proper installation and operation; and the system shall not be accepted by the Consultant until all portions are operating as intended and until all deficiencies have been rectified. The Contractor shall provide all pumps, gauges and fittings as required for testing. The Contractor shall notify the Contract Administrator with a minimum of 24 hours prior to inspection. Do not proceed to subsequent work without approval of the Contract Administrator.

E13.5 Warranty

- (f) All irrigation system equipment and installation shall be guaranteed for twelve (12) months following the date of Total Performance. The Contractor shall provide manufacturers' warranty certificates for all products. End of warranty inspection will be conducted by the Contractor.

E13.6 System requirements

- (g) Performance criteria:
Design system to provide 25 mm. of actual precipitation per week within a 5 hour day watering window. Apply all of weekly water requirements to each zone on the same day. Provide head to head coverage to all areas. Limit over spray on hard surfaces, fences and buildings.
- (h) Distribution:
Use HDPE pipe for all mains and laterals, 50 mm. and larger. Use LDPE pipe for all smaller laterals. Provide sleeves under all roadways, driveways and walkways as required.
- (i) Loose equipment:
Provide three (3) quick coupling keys with swivel ells as loose equipment.

E13.7 Materials

- (j) HDPE pipe: Type 3, Series 100 or better, high density polyethylene to CGSB 41, Gp-25M. Join by thermal butt fusion in strict accordance with manufacturer's written instructions.
- (k) Fittings for HDPE Pipe: Approved saddle fittings at head connections Lasco 50 mm. IPS x 38 mm. Acme outlet – Part No.364-251. Fittings to be approved by pipe manufacturer for fusion with pipe.
- (l) LDPE Pipe: 75 PSI low density polyethylene to CSA B137.0 and B137.1
- (m) Fittings for LDPE Pipe: PVC insert fittings with double stainless steel clamp at pipe connection.
- (n) Swing Joints: Lasco prefab 38 mm. Acme x 25 mm. MPT x 300mm. – Part No. GIP2-212
- (o) Sleeves: Series 160 PVC pipe or sufficient diameter to allow clear passage of irrigation pipe and control wires.
- (p) Manual Isolation Valves: Min. 200 PSI rated, WOG, lever type gate valves of approved manufacturer's quality. Sizes as indicated or as required to suit application.
- (q) Automatic Zone Control Valves: 200 PSI (1100 KPa) rated normally closed, 24 VAC electric solenoid valve (P220-26-08) with manual operation capability and flow control adjustment. Glass reinforced nylon body and bonnet or other approved durable material. Valve shall be serviceable from top without removing it from the line. Match valves to selected controller and to zone flow requirements. Maximum pressure loss of 4 PSI design flow.
- (r) Valve Boxes: high density polyurethane or fibreglass reinforced prefabricated plastic boxes complete with locking cover and stainless steel bolt. Size to suit valve clusters as indicated.
- (s) Automatic Controllers: Wall mounted solid state I.C. Controller with fully independently programmable stations and total manual override. Single switch control to reduce or expand watering schedules from 0 - 200%.Controller size to suit number of zones – Toro TMC 212 non-volatile fail safe programming.
- (t) Quick Coupling Valves (QCV101): 25 mm. one piece brass valves of approved manufacturer's quality.
- (u) Quick Coupling Keys (QC101): To match valve.
- (v) Swivel Ells: To match key and with 25 mm. male hose thread.
- (w) Controller Case: Submit shop drawings for final approval of Controller case.

E13.8 Sprinklers

- (x) Gear Driven Rotary Pop-up Sprinklers: Toro 2001 stainless steel part circle or full circle as required. Nozzles sizes to suit. Submit flow calculation and nozzle sizes with Shop Drawings for approval by Contract Administrator. Contractor to provide valves to risers of all sprinklers not equipped with internal check valve.

E13.9 Installation of Pipes

- (y) Install pipes and fittings in accordance with manufacturer's instructions, from point of connection of supply. Stake out and obtain approval from Contract Administrator prior to installing pipes. Polyethylene pipe shall be installed by "pulling in" pipe. With the pull-in method, the pipe "plow" shall be a vibratory type. The "Mole" or "Bullet" which precedes the pipe is used to form the opening of the pipe, shall be no less 25 mm. larger in diameter than the outside diameter of the pipe. Make connections of the pipe for sprinkler with approved fittings. Install sleeves where pipe will run under walks, walls, driveways and other hard surfaces. Coordinate with other contractor.

E13.10 Valves

- (z) Install valves according to manufacturer's instructions, in valve box set plumb and flush with the finished grade. Provide 150 mm. depth of pea gravel below the valve. Each valve box is to contain its own manual isolation gate valve. All 50 mm. HDPE lateral lines shall be connected to the Toro P220 Electric "zone" valves using Leemco RF-11MA 50 mm. IPS GSK X MIPT restrained bell adaptor.

E13.11 Sprinklers and Quick Coupler Valves

- (aa) Install all sprinklers and Quick Coupler (Q.C.) valves on swing joints. Install HDPE sleeves around Q.C. valve as indicated.

E13.12 Installation

- (bb) Install all lines in a neat and orderly fashion. Bundle wires together and tape every 2 meters. Minimize splicing. Make splices where required in valve boxes. Make waterproof with use of approved waterproof kits. Install all wiring in accordance with existing codes. Control lines within building to be run in EMT conduit.

E13.13 Electrical

- (cc) 110V power for controller will be supplied by others. The irrigation Subcontractor is responsible for supplying and mounting a 508 mm. x 508 mm. x 300 mm. lockable metal case, weather proof cabinet to cover supplied exterior 110V electrical outlet. The case shall be mounted on the inside of the building. Contractor shall check with Contract Administrator for approved location and placement of the case.

E13.14 Automatic Controller

- (dd) Mount controller inside lockable metal case. All wiring shall be done in a neat workman like manner and in compliance with local codes. Run 24 Volt control lines to the outside in electrical conduit and seal to prevent leakage. Coordinate work with other contractors to ensure proper sequence of installation.

E13.15 Rain Sensor

- (ee) Toro TWRS wireless rain sensor to be mounted onto gutter of Charles Barbour Arena using quick-clip gutter bracket. Exact location of rain sensor to be verified on site by Contractor and Contract Administrator. Rain Sensor supply and installation includes receiver.

E13.16 Testing

- (ff) Upon completion, test irrigation system for proper operation. Leave all joints and fittings exposed and pressure test in presence of the Contract Administrator. Provide all pumps and gauges as required for testing as instructed by Contract Administrator.

E13.17 Balance and Adjustments

- (gg) Balance and adjust the various components of the sprinkler system so the overall operation is most efficient and coverage is uniform to the satisfaction of the Contract Administrator.

E13.18 Maintenance

- (hh) Blow-out all irrigation water lines prior to freeze-up and reconnect the irrigation system in the spring of the following year. Emergency repairs may be required to protect property or permit operation of the work. The Contract Administrator shall notify the Contractor immediately, who shall make all necessary repairs. The cost of such emergency repairs shall be paid by the Contractor. Maintenance not of an emergency nature shall be brought to the attention of the Contractor in writing and he shall take the necessary action to correct the faulty work. The Contractor shall provide on site orientation as directed by the Contract Administrator to familiarize the Owner / maintenance personnel with the proper operation of the irrigation system and locations of control equipment.

E13.19 Cleanup

- (ii) Promptly remove surplus material and debris from excavations and dispose of in a legal manner as designated by the Contract Administrator.