



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 398-2006**

**LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER**

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## **PART B - BIDDING PROCEDURES**

### **B1. PROJECT TITLE**

B1.1 LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 7, 2006.

B2.2 Bid Submissions 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 GC:3.1, the Contract Administrator or an authorized representative will be available at the Site from 10:00 a.m. to 12:00 noon on June 29, 2006 to provide Bidders access to the Site.

B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

### **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 Branch internet site 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 Branch internet site for addenda shortly before submitting his Bid.
- B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 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 shall 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 B15.
- 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.

## **B7. BID SUBMISSION**

- B7.1 The Bid Submission consists of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
  - (c) Form G1: Bid Bond and Agreement to Bond, or  
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or  
a certified cheque or draft.
- B7.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.
- B7.3 The Bid Submission shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B7.3.1 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.
- B7.4 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.5 Bid Submissions shall be submitted to:
- The City of Winnipeg  
Corporate Finance Department  
Materials Management Branch  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

## **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 12 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 and the corporate seal, if the corporation has one, should be affixed;
  - (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 shall be printed below such signatures.
- B8.4.2 All signatures shall be original and shall be witnessed except where a corporate seal has been affixed.
- 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 Submission and the Contract, when awarded, shall be both joint and several.

## **B9. PRICES**

- B9.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

## **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;
  - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
  - (c) be financially capable of carrying out the terms of the Contract;
  - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
  - (e) have successfully carried out work, similar in nature, scope and value to the Work;
  - (f) employ only Subcontractors who:
    - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and
    - (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract;

- (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba).

B10.2 Further to B10.1(g), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder 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 - Option 1 administered by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association; or
- (c) 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 Branch internet site at <http://www.winnipeg.ca/matmgt.>)

B10.3 The Bidder shall be prepared to 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.

B10.4 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. BID SECURITY**

B11.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking 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 included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B11.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B11.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B11.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

## **B12. OPENING OF BIDS AND RELEASE OF INFORMATION**

B12.1 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.

B12.1.1 Bidders or their representatives may attend.

B12.1.2 Bid Submissions determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.

B12.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

B12.3 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

B12.4 The Bidder is advised that any information contained in any Bid Submission 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.

## **B13. IRREVOCABLE BID**

B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

B13.2 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 until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

## **B14. WITHDRAWAL OF BIDS**

B14.1 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.

B14.1.1 Notwithstanding GC:23.3, 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.

B14.1.2 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 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:

- (a) retain the Bid Submission until after the Submission Deadline has elapsed;

- (b) open the Bid Submission to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.

B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 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, including the right to retain the Bidder's bid security.

## **B15. EVALUATION OF BIDS**

B15.1 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 (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.

B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission 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 if the interests of the City so require.

B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.

B15.4 Further to B15.1(c), the Total Bid Price shall be the lump sum price shown on Form B: Prices.

B15.4.1 If there is any discrepancy between the lump sum price written in figures and the lump sum price written in words, the price written in words shall take precedence.

## **B16. AWARD OF CONTRACT**

B16.1 The City will give notice of the award of the Contract by way of a letter of intent, or will give notice that no award will be made.

B16.2 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.

B16.2.1 Without limiting the generality of B16.2, 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.

**B16.3** 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.

## **PART C - GENERAL CONDITIONS**

### **C1. GENERAL CONDITIONS**

C1.1 The *General Conditions for Construction Contracts* (Revision 2000 11 09) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for Construction Contracts* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

- D1.1 In addition to the *General Conditions for Construction Contracts*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.4 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

#### **D2. SCOPE OF WORK**

- D2.1 The Work to be done under the Contract shall consist of renovations to Lions Outdoor Pool – 969 Dowker

#### **D3. CONTRACT ADMINISTRATOR**

- D3.1 The Contract Administrator is:  
Stan Russell  
Supervisor of Project Services  
Public Works Department  
100 Main Street  
Winnipeg, MB R3C 1A4  
Telephone No. (204) 986-4368  
Facsimile No. (204) 986-7311
- D3.2 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.

#### **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 GC:23.2.2, 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 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 Administrative Officer Secretariat  
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  
Corporate Services Department  
Legal Services Division  
185 King Street, 3rd Floor  
Winnipeg MB R3B 1J1  
Facsimile No.: (204) 947-9155

## **D6. FURNISHING OF DOCUMENTS**

D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

## **SUBMISSIONS**

### **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 GC:4.1 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

### **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) all inclusive, with The City of Winnipeg being added as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a products and completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;

- (b) automobile liability insurance for owned and non-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 City Solicitor with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

## **D9. PERFORMANCE SECURITY**

D9.1 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 If the bid security provided in his Bid Submission was not a certified cheque or draft pursuant to B11.1(c), 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 letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

## **D10. SUBCONTRACTOR LIST**

D10.1 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 the date specified in GC:4.1 for the return of the executed Contract.

## **D11. EQUIPMENT LIST**

D11.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

## **D12. DETAILED WORK SCHEDULE**

D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: Detailed Work Schedule) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

## **D13. SECURITY CLEARANCE**

D13.1 Each individual proposed to perform Work under the Contract shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.

D13.1.1 The Criminal Records Search shall include a Vulnerable Sector Search.

D13.2 Prior to the commencement of any Work, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform Work within City facilities or on private property.

D13.3 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person, will not be permitted to perform any Work within City facilities or on private property.

D13.4 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.

D13.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform Work under the Contract within City facilities or on private property.

## **SCHEDULE OF WORK**

### **D14. COMMENCEMENT**

D14.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D14.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence that the Contractor is 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;
  - (ii) evidence of the workers compensation coverage specified in GC:6.14;
  - (iii) the Safe Work Plan specified in D7;
  - (iv) evidence of the insurance specified in D8;
  - (v) the performance security specified in D9;
  - (vi) the Subcontractor list specified in D10;
  - (vii) the equipment list specified in D11;

- (viii) the detailed work schedule specified in D12; and
  - (ix) the security clearances specified in D13.
- (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.

D14.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

#### **D15. WORKING DAYS**

D15.1 Further to GC:1.1(gg), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.

D15.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.

D15.3 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.

D15.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

#### **D16. CRITICAL STAGES**

D16.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Completion of all electrical, mechanical, and concrete Work by October 31, 2006;
- (b) Completion of pool liner and accessories by May 31, 2007.

#### **D17. TOTAL PERFORMANCE**

D17.1 The Contractor shall achieve Total Performance by May 31, 2007.

D17.2 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 reinspected.

D17.3 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.

## **D18. LIQUIDATED DAMAGES**

- D18.1 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 Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) October 31, 2006 – one hundred dollars/day (\$100);
  - (b) May 31, 2007 – one hundred dollars/day (\$100);
- D18.2 The amounts specified for liquidated damages in D18.1 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.
- D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **CONTROL OF WORK**

### **D19. JOB MEETINGS**

- D19.1 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.
- D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

### **D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D20.1 Further to GC:6.26, 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).

## **WARRANTY**

### **D21. WARRANTY**

- D21.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for thereunder.
- D21.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.
- D21.2 Notwithstanding GC:13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D21.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in GC:13.2 for the warranty period to begin.

**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 dated the

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for:

BID OPPORTUNITY NO. 398-2006

LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER

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)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D9)

\_\_\_\_\_  
(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 398-2006  
  
LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER

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)



**FORM K: EQUIPMENT**  
(See D11)

LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM K: EQUIPMENT**  
(See D11)

LIONS OUTDOOR POOL RENOVATIONS – 969 DOWKER

<p>4. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>





## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
A-1	Pool & Crawl Space
A-2	Sections Crawl Space
A-3	Section Details
A-4	Pool Markings & Slopes
E-1	Lighting in the Crawl Space
M-1	New Piping & Mechanical Upgrade

### CONCRETE –

#### E2. GENERAL

- E2.1 RELATED WORK
- (a) Section 03350 – Concrete finishes
  - (b) Section 04000 – Masonry
- E2.2 REFERENCES
- (a) CAN/CAN/CSA-A23.1-94/A23.2-94 – “Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete”
  - (b) ACI 315 – American Concrete Institute – “Manual of Standard Practice”
  - (c) CSA-A5-03 – “Portland Cement”
  - (d) CAN/CSA-A23.5-03 – “Supplementary Cementing Materials”
  - (e) CAN/CSA-A23.3-05 – “Design of Concrete Structures”
  - (f) CAN/CSA-G30.18-M92 (R2002) – “Billet-Steel Bars for Concrete Reinforcement”
  - (g) CAN/CSA-S269.3-M92 (R2003) – “Concrete Formwork”
- E2.3 QUALITY ASSURANCE
- (a) Perform all concrete Work in accordance with CAN/CSA-A23.1.
  - (b) The concrete suppliers plant, equipment and materials shall be in accordance with the requirements of CAN/CSA-A23.2.

- (c) Upon request, provide Contract Administrator with certified copy of mill test report of reinforcing steel supplied, showing physical and chemical analysis.
- (d) Construct and erect concrete formwork in accordance with CAN/CSA-A23.1 and CAN/CSA-S269.3, regulations for the place of Work.

### **E3. PRODUCTS**

#### **E3.1 FORMWORK MATERIALS**

- (a) Lumber: Spruce, shiplap species, #3 Grade, with grade stamp clearly visible.
- (b) Nails, spikes, lag bolts, through bolts, anchorages: sized as required, of sufficient strength and character to maintain formwork in place while pouring concrete.
- (c) Tubular column type: round, spirally wound, laminated fibre material, internally treated with release agent, of sizes required.
- (d) Form release agent: colourless mineral oil, which will not stain concrete or impair natural bonding or colour characteristics of coating intended for use on concrete.
- (e) Fillets for chamfered corners: type 25mm x 25mm (1" x 1") size of maximum possible lengths.
- (f) Polyethylene: shall be 0.10mm (4 mil) thickness minimum, to CAN/CGSB-51.34-M86.
- (g) Joint Filler:
- (h) Exposed locations: closed cell, low density polyethylene foam with strip off top, Poly Strip expansion joint forming system, as distributed by G.D. Johnson Ltd.
- (i) Concealed locations: pre-molded, bituminous impregnated fibreboard to ASTM D1751-04, "Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)".

### **E4. REINFORCING MATERIALS**

- (a) Fabricate reinforcing as indicated on Contract Documents, in conformance with CAN/CSA-A23.1 and ACI 315. Locate splices at points of minimum stress.
- (b) Reinforcing bars shall be high strength deformed bars with a minimum specified yield strength of 400MPa, except stirrups and ties, which shall be intermediate grade deformed bars with minimum specified yield strength of 300Mpa, in accordance with CAN/CSA-G30.18.
- (c) Welded steel fabric: plain type, sizes as indicated on drawings, flat sheets.
- (d) Tie wire: minimum 16 gauge, annealed type, or patented system as approved by Contract Administrator.
- (e) Chairs, bolsters, bar supports, spacers: adequately sized and shaped for strength and support of reinforcing during construction conditions.
- (f) Refer to Division 4 for masonry reinforcing, to be supplied by this Section.

### **E5. CONCRETE MATERIALS**

E5.1 Cement: normal Portland cement type 10, and sulphate resistant, type 50, conforming to CAN/CSA-A5.

E5.2 Fine and coarse aggregates shall conform to Part 5 of CAN/CSA-A23.1, and as follows:

- (a) Aggregate Material (fine and coarse) to be free of alkali-aggregate reactive material (such as shales) in accordance with CAN/CSA-A23.1.5. All coarse aggregate shall be crushed limestone. At the Contract Administrators request, submit test results from a CSA certified

testing laboratory verifying that the aggregate material is free of all alkali-aggregate reactive material. Laboratory results shall provide aggregate hardness, fracture content, alkali-aggregate reaction and petrographic examination. Cost for testing shall be paid by the Contractor. Changes in the aggregate source are not permitted without the Contract Administrator's written consent. Any re-testing of the aggregate (as a result of a source change) will be at the Contractor's expense.]

- (b) Maximum aggregate sizes:
  - (i) All concrete: 10mm
  - (ii) Water: clean and free from injurious amounts of oil, alkali, organic matter of other deleterious material.
  - (iii) Mix concrete in accordance with requirements of CAN/CSA-A23.1, to provide strengths shown on structural drawings. Submit concrete mix design for Contract Administrators review prior to start of construction.
  - (iv) Maximum slump shall be 90mm  $\pm$  20 mm (3-1/2"  $\pm$  3/4").
  - (v) Use admixtures in accordance with CSA-A23.5.
  - (vi) Non-shrink grout: premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents, capable of developing minimum compressive strength of 16MPa in two (2) days and 48MPa in twenty-eight (28) days. Acceptable products: "Embeco", "Inpakt", "Steels C.I. Grout", "M-Bed", and CPD Non shrink Construction Grout.
  - (vii) Use of calcium chloride is not permitted.

## **E6. CONCRETE PATCHING COMPOUND**

E6.1 Sternson Talypatch epoxy floor patching compound, as distributed by Steel's Industrial Products.

## **E7. EXECUTION**

### **E7.1 FORMING ERECTION**

- (a) Verify lines, levels and centres before proceeding with formwork.
- (b) Construct formwork accurately to meet design and code requirements, so the resultant concrete conforms to shapes indicated on drawings.
- (c) Arrange and assemble formwork to allow easy stripping without damaging concrete.
- (d) Apply form release agent in accordance with manufacturer's recommendations, prior to placing reinforcing.
- (e) Provide openings for items to pass through concrete sections.
  - (i) Set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere. Sleeves and openings greater than 100mm x 100mm (4" x 4") not indicated on structural drawings must be approved by Contract Administrator.
  - (ii) No sleeves, ducts, pipes or other openings shall pass through joists, beams, column capitals, columns or slabs, except where expressly detailed on structural drawings or approved by Contract Administrator.
- (f) Clean forms as erection proceeds.
- (g) Provide chamfer strips on external corners, where exposed.
- (h) Camber slabs and beams 6mm per 3m (1/4" per 10ft) of span unless otherwise indicated on drawings.
- (i) Construction joints shall be of the type and at a location acceptable to the Contract Administrator.

## E7.2 REINFORCING STORAGE AND PROTECTION

- (a) Reinforcing steel shall be delivered and stored on Site, above grade, on a raised platform, in such manner as to avoid deformation or damage. Steel shall be kept dry, free from rust, mud, clay, or other foreign materials. Storage shall be executed so that no injury or damage can occur to persons, property, other material, or to the structure.

## E7.3 PLACING REINFORCEMENT

- (a) Place reinforcement as indicated on drawings, adequately supported and secured against displacement. Ensure reinforcement is clean, free from loose scale or other coatings, which could affect bonding.
- (b) No field cutting or welding permitted unless authorized by the Contract Administrator.
- (c) Provide concrete cover to reinforcing as indicated on drawings.
- (d) Reinforcement shall be rigidly wired together at all intersections and carefully maintained in exact positions and clearance, both horizontally and vertically.
- (e) Supply masonry reinforcing for placement by Division 4, in time for incorporation into the Work.

## E7.4 CONCRETE PLACEMENT

- (a) Place concrete in accordance with lines and levels indicated on drawings and in accordance with CAN/CSA-A23.1.
- (b) Notify the Contract Administrator minimum 48 hrs prior to commencement of concreting operations to allow for inspection.
- (c) Notify all trades sufficiently in advance to ensure provision is made for openings, inserts and fasteners.
- (d) Ensure reinforcement, inserts, and embedded parts are not disturbed during concrete placement.
- (e) Ensure all anchors, seats, plates and all other items to be cast into concrete are placed, held securely, and will not cause undue hard-ship in placing concrete. Rectify same and proceed with Work.
- (f) No water may be added after the initial introduction of mixing water for the batch.
- (g) Maintain concrete cover around reinforcing as indicated on the drawings.
- (h) Conveying equipment shall not impart harmful shock or vibration to fresh concrete, or cause misalignment of forms. All conveying and placing equipment shall be kept clean of hardened concrete and foreign materials at all times. Carts, wheelbarrows, etc., shall not be run directly over reinforcing.
- (i) Concrete shall be placed in its final position as soon as possible after mixing and must be in place within 1.5 hrs after the water has been added to the dry materials. Any concrete sitting more than 1.5 hrs since mixing cement and water, or having a partial set before placing, shall not be used.
- (j) Any concrete that splashes or otherwise coats reinforcing, which is not to be cast within 2 hrs shall be cleaned off.
- (k) Pour concrete continuously between predetermined construction and control joints. Do not "break" or interrupt successive pours such that "cold" joints occur.
- (l) The vertical height of free fall of concrete shall not exceed 1500mm (5ft). For greater falls, concrete shall be deposited by chute or spout to prevent segregation of material.
- (m) The use of high-frequency internal vibrators is mandatory for all concrete Work on this job and the use of such shall strictly conform to CAN/CSA-A23.1, Section 19.

- (n) Provide concrete for placement by Division 4 in masonry lintels, bond beams, columns, and at steel beam bearings. Refer to drawings.
- (o) Conform to the requirements of CAN/CSA-A23.1 when concreting during cold or hot weather.
- (p) A competent mechanic shall correct and replace reinforcement and other embedded members, which may become displaced before and during pouring.
- (q) Remove and replace defective concrete, including excessive honeycombing or embedded debris, as directed by the Contract Administrator.

**E7.5 CONCRETE CURING**

- (a) After concrete has sufficiently set, its exposed surfaces shall be kept continuously moist for a period of at least seven (7) days after placing by the application of a 4-mil polyethylene membrane (or approved sprayed membrane) over the concrete. Forms on vertical surfaces shall remain in position for at least four (4) days, unless otherwise protected from harmful effects of mechanical shock or injurious substances.

**E7.6 FORM REMOVAL**

- (a) Notify Contract Administrator prior to removing formwork.
- (b) Do not remove forms and bracing until concrete has gained sufficient strength to carry its own weight, construction loads, and design loads which are liable to be imposed upon it.
- (c) Loosen forms carefully. Do not wedge pry bars, hammers or tools against concrete surfaces.
- (d) Re-shore structural members where required due to design requirements or construction conditions and as required to permit progressive construction.
- (e) Remove forms not directly supporting weight of concrete as soon as stripping operations will not damage concrete.
- (f) Remove forms in accordance with table below.

	Concrete Curing Temperatures (°C)		
	21 – 35	16 – 21	10 – 16
Walls, columns, and beam sides	2 days	3 days	4 days
Beam soffits, slabs, and other structural members	14 days	17 days	21 days

**E7.7 DEFECTIVE CONCRETE**

- (a) Modify or replace concrete not conforming to lines, details, and elevations indicated on drawings, to the satisfaction of the Contract Administrator.
- (b) Repair or replace concrete not properly placed, resulting in excessive honeycombing and other defects in critical areas of stress to the satisfaction of the Contract Administrator. Do not patch, fill, touch-up, repair or replace exposed architectural concrete except upon express direction of the Contract Administrator for each individual area.
- (c) Upon directive from Contract Administrator, remove defects and patch with concrete patching compound.

**E7.8 PLAIN FLOOR FINISH**

- (a) Spread and vibrate concrete to force coarse aggregate into concrete mix and then screed.
- (b) Float surface with wood or metal floats, or with power finishing machine, and bring surface to true grade.

- (c) Steel trowel, in accordance with CAN/CSA-A23.1. Trowel to level, even surface, to within 6mm (1/4") tolerance when measured in any direction using a 3m (10ft) straight edge.
- (d) Continue steel trowelling to produce smooth burnished surface.
- (e) Sprinkling of dry cement, or dry cement and sand mixture over concrete surfaces is not acceptable.
- (f) Saw cut crack-control joints to CAN/CSA-A23.1.
- (g) Wet curing: wet cure exposed concrete floors using polyethylene sheeting over entire floor area, weighted down and taped on all edges for total sealing of wetted down concrete, and keep in place a minimum of seven (7) days.

## **CONCRETE FINISHING –**

### **E8. GENERAL**

#### **E8.1 RELATED WORK**

- (a) Section 03300 – Cast-in-place concrete

#### **E8.2 REFERENCE STANDARDS**

- (a) Do concrete floor finishing to CAN/CSA-A23.1-04, except where specified otherwise.
- (b) Concrete curing shall comply with CAN/CSA-A23.1-04, except where specified otherwise.
- (c) Curing compounds shall conform to ASTM C309-03 – “Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete”.

#### **E8.3 MOCK-UPS**

- (a) Concrete floor finishes, which shall vary from smooth burnished in some areas, to level, non-slip, in other areas, will be approved based on sample areas done as part of the construction. Refer to schedule.

### **E9. PRODUCTS**

#### **E9.1 MATERIALS**

- (a) Curing: use clean, potable water, which shall not contain impurities, which would cause staining.
- (b) Curing compounds: AR-30 by Meadows, Ritecure by Sternson, CPD Clear Cure, and Elsro #705 Clear Curing Compound.
- (c) Cure and seal: SealTight CS-309 by Meadows, Florseal by Sternson, CPD Acrylic Cure and Seal, Elsro #702 Clear Acrylic Sealer.
- (d) Non-metallic hardener – plain: MasterCron by Master Builders, Diamag 7 by Sternson, Elsro #785 Genflor (natural), CPD Standard Floor Hardener.
- (e) Non-metallic hardener – coloured: ColorCron by Master Builders, Colorplete by Sternson, Elsro #785 Genflor (coloured), and CPD Coloured Floor Hardener.
- (f) Liquid colour sealer: compatible with colour hardener.
- (g) Bonding agent: Daraweld “C” by Grace, or SCP AcriStix latex bonding agent.

### **E10. EXECUTION**

#### **E10.1 WORKMANSHIP**

- (a) Concrete slabs, which are to receive bonded toppings, shall be cleaned free of dirt, oil, loose material and laitance.
- (b) Concrete slabs to receive toppings, quarry tile, or ceramic tile, to be screeded off to true lines and levels shown and left ready to receive finish. Depress slabs to accommodate finish.
- (c) Steel trowel all concrete slabs to be left exposed, or receiving carpeting, resilient flooring and applied floor finishes.

#### E10.2 FLOOR DRAINS

- (a) In area where floor drains are installed, grade the entire floor surface (or as indicated on plans) towards the drain.
- (b) Floors to be level around walls and have a minimum 5mm/m uniform pitch to drains, unless indicated otherwise.
- (c) The slope shall be such that water on all areas of the floor surface will drain by gravity, without leaving pools or puddles on the floor surface.

#### E10.3 PLAIN FLOOR FINISH

- (a) Spread and vibrate concrete to force coarse aggregate into concrete mix, and then screed.
- (b) Float surface with wood or metal floats, or with power finishing machine, and bring surface to true grade.
- (c) Steel trowel in accordance with CAN/CSA-A23.1. Trowel to level, even surface, to within 6mm (1/4") tolerance when measured in any direction using a 3m (10ft) straight edge.
- (d) Continue steel trowelling to produce smooth burnished surface.
- (e) Sprinkling of dry cement, or dry cement and sand mixture over concrete surfaces is not acceptable.
- (f) Saw cut crack-control joints to CAN/CSA-A23.1[, except in slabs containing brine piping].
- (g) Apply cure and seal compound to all interior floor surfaces, unless specified otherwise. Do not apply cure and seal to concrete receiving epoxy finishes.
- (h) Apply curing compound to all exterior concrete such as exterior paving, curbs and sidewalks. Note: Cure and seal compounds may not be used until twenty-eight (28) days after placement.
- (i) Wet curing: wet cure exposed concrete floors using polyethylene sheeting over entire floor area, weighted down and taped on all edges for total sealing of wetted down concrete, and keep in place a minimum of seven (7) days.
- (j) Use plain and coloured, non-metallic hardener where exposed concrete floors require hardener. Refer to schedule.

#### E10.4 SIDEWALK PAVINGS

- (a) Use full depth pre-moulded isolation joints at building, stairs, ramps, changes in paving thickness, at existing paving, and at property lines.
- (b) Place sidewalks to provide a slope for drainage of 6mm/300mm (1/4"/12") minimum, in direction of Site drainage.
- (c) Spread and vibrate concrete to force coarse aggregate into concrete mix, and then screed.
- (d) Level concrete with straight edge. Darby or bull-float immediately.
- (e) Float surface, then apply slightly roughened surface by means of a stiff broom in one direction across width of sidewalk.

- (f) Saw cut 5mm (0.2") saw cut to depth of 1/5 paving thickness at intervals shown but not more than 2500mm (8'-4") each way.
- (g) In addition to the above requirements, sidewalks on Municipal property shall also meet the Municipal requirements.

## **PVC SWIMMING POOL LINER - SECTION 13159**

### **E11. GENERAL**

#### **E11.1 REFERENCES**

- (a) Canadian General Standards Board (CGSB)
  - (i) CGSB 37-GP-54M-1979, Roofing and Waterproofing Membrane, Sheet Applied, Flexible, Polyvinyl Chloride.
- (b) Canadian Standards Association (CSA)
  - (i) CAN/CSA-ISO 14001-96, Environmental Management Systems – Specifications with Guidance for Use.

#### **E11.2 SUBMITTALS**

- (a) Submit proof of manufacturer's CCMC Listing and listing number to Contract Administrator.
- (b) Submit proof of manufacturer's participation certificate for Environmental Choice Program to Contract Administrator.
- (c) Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, and cleaning procedures.

#### **E11.3 PRODUCT DATA**

- (a) Submit product data in accordance with Section 01330 – Submittal Procedures.
- (b) Submit WHMIS MSDS – Material Safety Data Sheets in accordance with Section 01330 – Submittal Procedures. WHMIS acceptable to Labour Canada, and Health and Welfare Canada for seaming material and sealants.
- (c) Submit product data sheets for membrane. Include:
  - (i) Product characteristics.
  - (ii) Performance criteria.
  - (iii) Limitations.

#### **E11.4 SHOP DRAWINGS**

- (a) Submit shop drawings in accordance with Section 01330 – Submittal Procedures.
- (b) Indicate flanges at penetrations and field fabricated seam details.
- (c) Indicate expansion joint details, main drain details, overflow gutter detail.
- (d) Provide layout for lane markings.

#### **E11.5 DELIVERY, STORAGE AND HANDLING**

- (a) Deliver, handle, store and protect materials in accordance with Section 01610 – Basic Product Requirements.
- (b) Provide and maintain dry, off-ground weatherproof storage.
- (c) Store rolls of PVC flat on cross supports.
- (d) Remove only in quantities required for same day use.

- (e) Store materials in accordance with manufacturer's written instructions.

#### E11.6 WASTE MANAGEMENT AND DISPOSAL

- (a) Separate and recycle waste materials in accordance with Section 01355 – Waste Management and Disposal, and with the Waste Reduction Workplan.
- (b) Place materials defined as hazardous or toxic waste in designated containers.
- (c) Ensure emptied containers are sealed and stored safely for disposal away from children.
- (d) Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- (e) Fold up metal banding, flatten and place in designated area for recycling.
- (f) Plan and coordinate insulation work to minimize generation waste.
- (g) Collect and separate plastic and/or paper packaging for recycling.
- (h) Use the least toxic sealants and adhesives necessary to comply with requirements of this section.
- (i) Close and seal, tightly, all partly used sealant and adhesive containers and store protected in well ventilated, fire-safe area at moderate temperature.
- (j) Place used hazardous sealant tubes and adhesive containers in areas designated for hazardous materials.
- (k) Collect, package and store PVC membrane cut-offs and waste material for recycling and return to recycler in accordance with Waste Management Plan.

#### E11.7 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- (a) Temperature, relative humidity, moisture content.
  - (i) Install PVC membrane only when surfaces and ambient temperatures are within manufacturer's prescribed limits.
  - (ii) Do not install PVC membrane when temperature remains below 5 degrees Celcius, or when wind chill gives equivalent cooling effect.
  - (iii) Install PVC membrane on dry substrate, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into system.
- (b) Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.
- (c) Ventilation:
  - (i) Arrange for ventilation system to be operated during installation of membrane. Ventilate area of work as directed by Contract Administrator by use of approved portable supply and exhaust fans.
  - (ii) Ventilate enclosed spaces in accordance with Section 01510 – Temporary Utilities.
  - (iii) Provide continuous ventilation during and after membrane application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of membrane installation.

#### E11.8 WARRANTY

- (a) For the Work of this Section 13159 – PVC Swimming Pool Liner, the 12 months warranty period prescribed in subsection GC 32.1 of General Conditions "C" is extended to 10 years.

#### E12. PRODUCTS

## E12.1 COMPATIBILITY

- (a) Compatibility between components of system and adjacent materials is essential. Provide a written declaration to Contract Administrator stating that materials and components, as assembled in system, meet this requirement.

## E12.2 MANUFACTURER

- (a) All PVC Membrane System components to be from a single manufacturer.

## E12.3 MEMBRANE

- (a) Flexible polyvinyl chloride PVC sheet membrane: Class B, type 2-reinforced, and having chemical and physical properties indicated below, complete with black depth and lane markings as indicated.
  - (i) Two layers of PVC fuse-bonded to a polyester mesh substrate.
  - (ii) Thickness: 60 mil (1.52 mm), when tested to ASTM D374C.
  - (iii) Specific Gravity: 1.22g/cc, when tested to ASTM D792/method A.
  - (iv) Yield tension: MD 166 lbs/in – XD284 lbs/in when tested to ASTM D638.
  - (v) Yield elongation: MD 110% - XD 104% when tested to ASTM D638.
  - (vi) Break tension: MD 51 lbs/in – XD 70 lbs/in when tested to ASTM D638.
  - (vii) Break elongation: MD 181 lbs/in – XD 132 lbs/in when tested to ASTM D638.
  - (viii) Secan modulus: MD1352psi – XD1125 when tested to ASTM D5323 (100%).
  - (ix) Tear resistance: MD18.2 lb – XD 24.7 lb. when tested to ASTM D1004-DieC.
  - (x) Low temperature brittleness: - 50 degrees Celcius when tested to ASTM D1790.
  - (xi) Water absorption: 0.78% when tested to ASTM D570.
  - (xii) Puncture resistance: 125 lb. when tested to ASTD D4833.
  - (xiii) UV resistance: % change when tested to ASTM D4355.
    - (i) Tensile Strength @ Yield MD-12%-XD-16%
    - (ii) Tensile Strength @ Break MD 0%-XD 20%
  - (xiv) .14MD = machine direction; XD = cross machine direction.

## E12.4 SEPARATION FLEECE

- (a) Engineered polyester fleece, having the following chemical and physical properties.
  - (i) Weight: 10.5 oz/yd<sup>2</sup> (365 g/m<sup>2</sup>) when tested to ASTM D-3776.
  - (ii) Thickness: 150 mil thickness when tested to ASTM D-1777.
  - (iii) Grab Strength: 390/330 lb when tested to ASTM D-4632.
  - (iv) Grab elongation: 75/85% when tested to ASTM D-4632.
  - (v) Trapezoid tear strength: 135/120 lb. when tested to ASTm D-4533.
  - (vi) Puncture resistance: 155 lb when tested to ASTM D-3787.
  - (vii) Mullen burst strength: 550 psi when tested to ASTM D-3786.
  - (viii) Water flow rate: 100gpm/ft.
  - (ix) Permiability: 1.52 cm/sec.

## E12.5 ACCESSORIES

- (a) PVC Steel Edging: PVC coated steel sheet, at least 20 gauge (0.9mm) thickness, with PVC laminated to one side, to be used to form edges, angles, corners or other transitions where a firm surface is required to weld the PVC membrane.

- (b) Stainless Steel Sheet: Minimum 20 gauge (0.9mm) thickness, to be used as reinforcement, shaping, or separations as required over expansion joints where sealants have been installed.
- (c) Sanitizing agent: Sanitizing agents, formulated from a mixture of halogenated organic compounds, and specifically designed for this purpose, to be applied to the pool surface, beneath the pool liner, to prevent the growth of microbes or fungus.
- (d) Transition Flanges: Compression flanges fabricated of rigid white polymer ¼”(6mm) thick, to be provided at all membrane penetrations or openings. Secure all transition flanges with stainless steel anchoring systems.
- (e) Edge Sealant: Liquid edge sealant solution to be applied to all free material edges after welding at material lap joints.
- (f) Pool water return fittings and pipe, compatible with PVC membrane liner. Size to suit specified turnover rate of 500 GPM, and connect to existing main as indicated.
- (g) Main drain fittings and piping to existing main as indicated, compatible with PVC membrane liner. Size each drain to accommodate 100% of specified turnover rate.
- (h) Secondary drain fittings and piping from behind separation fleece to sump pit provided by others, as indicated.
- (i) Ladder bumpers, compatible with PVC membrane liner, at locations indicated.
- (j) Lane rope anchors, and deep end rope anchors, compatible with PVC membrane liner, at locations indicated.

#### E12.6 SOURCE QUALITY CONTROL

- (a) Submit laboratory test reports in accordance with Section 01450 – Quality Control.
- (b) Submit glass transition temperature of all PVC materials considered for use on this project, “as manufactured” and after heat-aging for 28 days at 100 degrees Celsius. The increase in the glass transition temperature (Tg) shall not exceed 5 degrees Celsius regardless of its value.

### **E13. EXECUTION**

#### E13.1 PROTECTION

- (a) Cover walls and adjacent work where materials hoisted or used.
- (b) Use warning signs and barriers. Maintain in good order until completion of work.
- (c) Protect from traffic and damage. Comply with precaution deemed necessary by Contract Administrator.

#### E13.2 SUBSTRATE EXAMINATION

- (a) Examine and immediately inform Contract Administrator in writing of defects.
- (b) Prior to commencement of work ensure:
  - (i) Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.
  - (ii) Pressure test existing plumbing to ensure soundness of piping.
  - (iii) Verify that the Site conditions are in accordance with the Manufacturer's requirements, shop drawings and/or technical bulletins and are suitable for the installation of the membrane.

#### E13.3 CUTTING AND PATCHING

- (a) Remove existing main drains and piping. Cut trench in the bottom of existing concrete pool tank to accommodate new main drains and secondary drain.
- (b) Remove existing return fittings and piping. Core concrete pool wall to accommodate new return fittings and piping, as indicated.
- (c) Do work in accordance with section 01730.
- (d) Repair concrete as indicated in accordance with Section 03300 and Section 01730.

#### E13.4 SURFACE PREPARATION

- (a) Final tank preparation to include sanitization of all concrete surfaces using sanitizing agent in accordance with manufacturer's instructions.
- (b) Complete surface preparation prior to the commencement of installation. Ensure the surface is reasonably smooth without oil or tar-based materials present. Fill deteriorated surfaces or voids with cementitious patching compounds. Ensure areas immediately surrounding fittings, lights, and other transitions, or entrances to the pool, are sound and suitable for drilling of ½ inch (12mm) diameter anchor holes for the installation of the PVC compression flanges.

#### E13.5 MEMBRANE INSTALLATION AND APPLICATION

- (a) Performed all work using skilled technicians having adequate experience with, and specific training in, the field welding and fabrication of flexible PVC swimming pool membrane systems. Supervise the installing crew by a crew leader having had no less than two (2) years experience in the application of PVC membrane systems on at least five (5) pool projects similar in size and scope to this project.
  - (i) All membrane system installation personnel shall be full-time, regular employees of the prime bidder, system manufacturer or shall be a factory trained licensee of the manufacturer. No sub-contract or independent membrane installers shall be utilized.
- (b) Performed all work in accordance with the manufacturer's technical bulletins. Should the requirements of these bulletins contradict this or any other section of the specifications, the procedures called for in the bulletins shall govern. The work under this section shall be performed by or directed by an authorized licensee of the system manufacturer so that the complete installation will function in accordance with the intent of these specifications.
- (c) Gluing of separation fleece to the substrate, and gluing of the PVC membrane to the substrate below the water line will not be permitted.

#### E13.6 SEQUENCE OF WORK

- (a) Attach the fleece to the pool wall and/or the bottom with the appropriate adhesives in the amounts adequate to secure the fleece. Isolate deteriorated surfaces of voids, cracks, or any other areas with moisture proof composition board or galvanized sheet (20 –gauge) as required.
- (b) Secure compound PVC welding strip to top lip of overflow gutter and glue membrane to substrate to 125 mm below water line.
- (c) Securely welded the flexible reinforced PVC membrane to PVC coated steel, which has been attached to the pool surface with fasteners approximately four (4) inches on center.
- (d) Install PVC coated steel or shaped galvanized sheet as necessary to form angles, edges, corners, or other transitions.
- (e) Weld the flexible reinforced PVC membrane in accordance with the procedures established by the manufacturer. The joints shall be hot air welded with a minimum of two (2) inches of overlap. Probe all seams with a hand-held lance or air lance to ensure complete welding. Completely close the seam edge using a PVC edge sealing compound.

- (f) All seams in the membrane shall be one-piece, single overlap seams. Patching and overlaying of multiple layers of the membrane material is not acceptable. All material sections are to be applied in full roll widths and lengths except where pool conditions dictate otherwise. No scrap or short-roll material is to be utilized in the membrane installation. To minimize visible seams, the membrane is to be applied to the pool walls in horizontally oriented sheets. Applying the membrane to the pool walls in vertically oriented sheets is not acceptable. Any areas of the membrane which are damaged during installation are to be completely removed and replaced with new material. There are to be no visible patches on the completed membrane.
- (g) Apply special markings, lane markings, targets, lines, etc., as indicated on the drawings as specified. The Contract Administrator is to provide detailed instructions as to necessary markings.
- (h) After installation of the PVC membrane, apply an appropriate elastomeric sealant to all transitions to flanges or other construction materials, utilizing only sealants suitable for submerged application, and compatible with the flexible reinforced PVC membrane.
- (i) All inlets, outlets, drains, underwater lights, skimmers, stanchion posts, and other required membrane penetrations, shall be fitted with rigid PVC compression flanges securely anchored to the pool structure to ensure a watertight seal. The "wrapping and clamping" of the membrane material around stanchion posts, ladder rails, and other protrusions through the membrane will not be considered acceptable. Utilize only rigid compression flanges for all membrane penetrations.
- (j) Prepare top 125 mm below overflow lip to accommodate installation of ceramic tile.

#### E13.7 ADJUSTING AND CLEANING

- (a) After installation is complete, "broom" clean all surfaces. Remove all scraps, debris, or construction material and dispose of in accordance with Section 01355.

#### E13.8 FIELD QUALITY CONTROL

- (a) Limit access to the project Site to minimize possibility of damage to the membrane. Materials and equipment shall not be dragged across the surface of the liner or allowed to slide down the slopes. All parties working on the liner shall wear soft soled shoes. Immediately following installation, verify completion and testing of all seams. Retesting may be necessary to ensure complete sealing, to satisfaction of Contract Administrator.
- (b) Upon completion of installation and testing, the completed PVC Membrane System shall be hydrostatically tested by filling the pool or water feature to the typical operating level and operating all systems for a period of 6 hours without evidence of leakage.

#### E13.9 DEMONSTRATION AND COMMISSIONING

- (a) Provide three full sets of bound operation and maintenance manuals in accordance with section 01780.
- (b) In the company of the Contract Administrator, inspect the completed installation, make final adjustments, place the system in operation and give operating instructions relative to its care and use.
- (c) Submit a complete "Project Completion Report and Warranty Application", documenting the proper completion of the project, training of Owner's personnel, and application for warranty, in accordance with Section 01770, and Section 01780.