



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 660-2005

**SUPPLY AND DELIVERY OF PROPELLER PUMPS FOR HAWTHORNE FLOOD
PUMP STATION**

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 SUPPLY AND DELIVERY OF PROPELLER PUMPS FOR HAWTHORNE FLOOD PUMP STATION

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, November 10, 2005.

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. ENQUIRIES

B3.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B3.2 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.

B3.3 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.

B3.4 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.

B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. ADDENDA

B4.1 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.

B4.2 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.

B4.2.1 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>.

B4.2.2 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.

B4.3 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.

B5. SUBSTITUTES

- B5.1 The Work is based on the materials, equipment, methods and products specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.
- B5.4 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 material, equipment, method or product 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 Contract;
 - (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 Contract.
- B5.5 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.
- B5.6 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.
- B5.6.1 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.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 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 B13.
- B5.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B6. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;

- B6.2 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.
- B6.3 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B6.4 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 Branch
185 King Street, Main Floor
Winnipeg MB R3B 1J1
- B6.4.1 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.
- B6.5 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178
- B6.5.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B6.6 Bid Submissions submitted by internet electronic mail (e-mail) will not be accepted.

B7. BID

- B7.1 The Bidder shall complete Form A: Bid, making all required entries.
- B7.2 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.
- B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.
- B7.3 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.
- B7.4 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.

B7.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.

B7.4.2 All signatures shall be original.

B7.5 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.

B8. PRICES

B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B8.1.1 Prices on Form B: Prices shall include:

- (a) duty;
- (b) freight and cartage;
- (c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid;
- (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.

B8.1.2 Prices on Form B: Prices shall not include the Manitoba Association for Resource Recovery Corporation (MARRC) Environmental Handling Charge (EHC) which shall be extra where applicable.

B8.2 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.

B8.3 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. QUALIFICATION

B9.1 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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business;
- (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);

B9.2 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.

B9.3 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.

B10. OPENING OF BIDS AND RELEASE OF INFORMATION

B10.1 Bid Submissions will not be opened publicly.

B10.2 Within two (2) Business Days 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

B10.3 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>.

B10.4 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.

B11. IRREVOCABLE BID

B11.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B11.2 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.

B12. WITHDRAWAL OF BIDS

B12.1 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.

- B12.1.1 Notwithstanding GC.7.05(2), 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.
- B12.1.2 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.
- B12.1.3 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 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B12.1.3(b), declare the Bid withdrawn.
- B12.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B11.2 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.

B13. EVALUATION OF BIDS

- B13.1 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 B9 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B5.
- B13.2 Further to B13.1(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.
- B13.3 Further to B13.1(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.
- B13.4 Further to B13.1(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.
- B13.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B13.5 This Contract will be awarded as a whole.

B14. AWARD OF CONTRACT

- B14.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B14.2 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.
- B14.2.1 Without limiting the generality of B14.2, 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.
- B14.3 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.
- B14.4 Notwithstanding GC.3.01 and GC.3.02, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B14.5 The Contract Documents, as defined in GC.1.01(7), in their entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that they are not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for the Supply and Delivery of Goods* (Form 21: 88 03) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for the Supply and Delivery of Goods* 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 the Supply and Delivery of Goods*, 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 "Board of Commissioners" or "Commissioner" wherever it appears in the General Conditions and substituting the "Chief Administrative Officer".
- D1.4 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.5 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.6 The General Conditions are amended by striking out "Bidding Instructions" wherever it appears in the General Conditions and substituting "Bidding Procedures".

D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of the supply of 2 propeller pumps and discharge pipes for the Hawthorne Flood Pump Station Project.

D3. DEFINITIONS

- D3.1 When used in this Bid Opportunity:
- (a) "**Business Day**" means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
 - (b) "**Submission Deadline**" and "**Time and Date Set for the Final Receipt of Bids**" mean the time and date set out in the Bidding Procedures for final receipt of Bids;

D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is KGS Group, represented by:
- Rudy Derksen, P.Eng.
KGS Group
3rd Floor – 865 Waverley Street
Winnipeg, Manitoba, R3T 5P4
- Telephone No. (204) 896-1209
Facsimile No. (204) 896-0754

D5. NOTICES

- D5.1 GC.7.05 is hereby amended to delete reference to "registered mail" and to replace same with "ordinary mail".

- D5.2 GC.7.05 is further amended hereby to include delivery by facsimile transmission (fax) as an acceptable means of delivering notices, consents, approvals, statements, authorizations, documents or other communications required or permitted to be given under this Contract. Deliveries by fax will be deemed to have been received on the day of delivery, if a business day, or if not a business day, on the business day next following the day of delivery.
- D5.3 Further to GC.7.05, all notices, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.4, D5.5 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.
- D5.4 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
- D5.5 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

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

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

D7. WORKERS COMPENSATION

- D7.1 The Contractor shall be registered with the Workers Compensation Board of Manitoba, shall provide and maintain Workers Compensation coverage throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D8. INSURANCE

- D8.1 The Contractor shall provide and maintain 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, to remain in place at all times during the performance of the Work.

- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the Contract Administrator with a certificate of insurance of the policy 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.
- D8.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

SCHEDULE OF WORK

D9. COMMENCEMENT

- D9.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order authorizing the commencement of the Work.
- D9.2 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 D7;
 - (iii) evidence of the insurance specified in D8;
 - (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.
- D9.3 The City intends to award this contract by November 17, 2005.

D10. SUBSTANTIAL PERFORMANCE

- D10.1 The Contractor shall achieve Substantial Performance by January 15, 2006 for the delivery of the Discharge Pipes and by April 7, 2006 for the delivery of the pumps and all remaining components.
- D10.2 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 reinspected.
- D10.3 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.

D11. TOTAL PERFORMANCE

- D11.1 The Contractor shall achieve Total Performance for the accepted inspection of the installation by June 30, 2006. That is, discharge pipes have been delivered, the installed pumps have been inspected all manuals have been submitted and satisfactorily performance tested.
- D11.2 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.

D11.3 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.

D12. LIQUIDATED DAMAGES

D12.1 If the Contractor fails to deliver the discharge pipes to the site by January 15, 2006, the Contractor shall pay the City One Thousand Dollars (\$1,000) per calendar day for each and every day such failure to deliver occurs, up to a maximum of Ten Thousand Dollars (\$10,000).

D12.2 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 One Thousand dollars (\$1,000) per Calendar Day for each and every Calendar Day following the day fixed herein for Substantial Performance during which such failure continues, up to a maximum of twenty thousand dollars (\$20,000).

D12.3 The amount specified for liquidated damages in D12.2 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D12.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

MEASUREMENT AND PAYMENT

D13. PAYMENT SCHEDULE

D13.1 Further to GC.9.01 and GC.9.03, payment shall be in accordance with the following schedule:

- (a) Discharge Pipes
 - Delivery to site – 100%
- (b) Pumps
 - Acceptance of shop drawings – 10%
 - Delivery of Pumps to Winnipeg - 80%
 - Total Performance - 10%

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE DRAWINGS

E1.1 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
M1	Site Plan
M2	FPS - Section
M3	FPS Plan – At Elev. 226.0 m.

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 11 - EQUIPMENT

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DIVISION 01 – GENERAL REQUIREMENTS

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SCOPE OF WORK

1. GENERAL

- .1 The scope of the Contract includes the design, supply, delivery, installation assistance and commissioning of all equipment and appurtenances required for the Propeller Pumps, Monitoring modules, and associated Discharge Pipes.
- .2 Scope of Supply consists of the following major items:
 - .1 Provide equipment information to the Contract Administrator during design to facilitate progress of the Installation Contract;
 - .2 Fabricate and factory test the equipment. This includes, but is not limited to the following:
 - .1 Two (2) propeller pumps, complete with lifting chains, power and control cables.
 - .2 Two (2) fabricated, pump discharge pipes, as shown on Drawing No. M2.
 - .3 Pump Monitoring equipment.
 - .3 Supply and deliver the equipment specified;
 - .4 Off-load and inspect delivered equipment;
 - .5 Provide installation training;
 - .6 Supervise the installation of the equipment;
 - .7 Supervise equipment performance testing and commissioning;
 - .8 Provide As-Built Drawings;
 - .9 Provide technical support and remedy defects during the Warranty Period as detailed in GC 10.
- .3 The supplied equipment shall include all accessories required to ensure the supplied equipment safely and satisfactorily operates as an integral system as required by the Bid Opportunity.
- .4 Provide any appurtenances or services not specifically mentioned or included in the Contract Documents but which are necessary as part of the Work to ensure that the equipment is fully operational when installed.
- .5 This Contract is intended to be a supply and delivery Contract.

2. COORDINATION

- .1 The Contractor is advised that other contractors or the City's own forces may be working on the Site during the execution of this Contract. It will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area and such cooperation is an obligation of the Contractor under the terms of this Contract.
- .2 The Contractor shall cooperate and liaise with the Contract Administrator in order to make appropriate working arrangements to ensure satisfactory execution and timely completion of the Work.

END OF SECTION

SUBMITTALS

1. SHOP DRAWINGS

- .1 Refer to GC 4.04 - General Conditions.

2. OPERATING AND MAINTENANCE MANUALS

- .1 Not less than eight (8) weeks prior to the time of Equipment Performance Testing, submit to the Contract Administrator for review two (2) draft copies of Operating and Maintenance (O&M) manuals containing information required by the Specifications. All instructions in these manuals shall be in simple language to guide the City in the proper operation and maintenance of the installation.
- .2 Submit O & M manuals in paper format.
- .3 Furnish four (4) complete operations and maintenance manuals. Provide information as specified in this Section for installation check-out, operation, maintenance, and lubrication requirements for each unit of mechanical, electrical, and instrumentation equipment or system and each instrument.
- .4 Customize the O&M manuals to describe the equipment actually furnished. Do not include extraneous data for models, options, or sizes not furnished. When more than one (1) model or size of equipment type is furnished, show the information pertaining to each model, option or size.
- .5 In addition to information called for in the Specifications, include the following:
 - .1 Title sheet, labelled "Operating and Maintenance Instructions", and containing project name and date.
 - .2 List of contents.
 - .3 Record Drawings of all mechanical and electrical installations.
 - .4 Full description of entire mechanical and electrical system and operation.
 - .5 Address and telephone number of the Contractor and the nearest Contractor's Representative, including distributors for parts, servicing, and repairs.
 - .6 Detailed Specification and O&M instructions for all items of equipment provided including a preventative maintenance program.
 - .7 Process control/operating instructions for each component and the entire system as a whole. This shall include, but not necessarily be limited to:
 - .1 The Contractor's recommended step-by-step procedures for starting and stopping under normal and emergency operation. Include all specified modes of operation including recommended operation after the assembly or equipment has been in long-term storage.
 - .2 Control diagrams with data and information to explain operation and control of systems and specific equipment.
 - .3 Technical information on all alarms and monitoring devices provided with the equipment.

SUBMITTALS

- .4 Routine maintenance requirements including procedures and specific description of consumable items such as lubricants, filter, seals, etc. and listing Canadian sources of supply.
- .5 Complete disassembly, inspection, repair and re-assembly instructions including required tolerances, fastener pre-loads, specialty tools and any other information necessary to restore equipment to correct operation.
- .8 List of spare and replacement parts and consumables.
- .9 List of special tools.
- .10 Nameplate information including equipment number, make, size, capacity, model number, serial number and equipment tag number.
- .6 Submit separately originals of all warranties and guarantees. Arrange to conform to same sequence as project Specifications. Provide two (2) additional copies of warranties and guarantees.

END OF SECTION

EQUIPMENT DELIVERY AND INSTALLATION SUPPORT

1. INTENT

- .1 This Section describes general requirements for all equipment supplied under the Contract relating to factory inspections, equipment delivery, and equipment performance testing.

2. DEFINITIONS

- .1 Contractor's Representative: A Contractor's Representative is a trained serviceman empowered by the Contractor to provide:
 - .1 Witnessing of delivery
 - .2 Witnessing of equipment installation
 - .3 Assistance in equipment commissioning
 - .4 Confirmation of satisfactory equipment operation
 - .5 Participation in the performance testing

3. EQUIPMENT DELIVERY

- .1 The schedule shall allow for a one (1) week period for the Contract Administrator to review and comment on the Contractor's Shop Drawings for the equipment to be supplied.
- .2 Ten (10) days before delivery, give notice to the Contract Administrator.
- .3 Goods shall be delivered to Hawthorne Flood Pump Station in accordance with D10 and D11. Goods shall be delivered F.O.B destination, freight prepaid.
- .4 Pack and crate each component to provide protection during transport, handling, and storage. The Contractor shall identify each component with durable labels or tags securely attached to each piece of equipment, crate or container.
- .5 Protect polished and machined metal surfaces from corrosion and damage during shipment and storage. Protect threaded connections with threaded plugs or caps and protect open plain end pipes with caps. Pack electrical equipment and control panels to prevent scratching, access by dirt, moisture, or dust or damage to insulation, and shall cover equipment having exposed bearings and glands to exclude foreign matter. All openings in the equipment shall be covered before shipment. Sufficient lifting hooks shall be supplied for handling all crates or boxes and heavy pieces

4. INSTALLATION SUPPORT

- .1 Provide instructions regarding the installation of the equipment. If it is found necessary, or if so directed by the Contract Administrator, the Contractor may be asked to visit the site to provide assistance during installation
- .2 Prior to completing installation, the Contract Administrator will inform the Contractor and arrange for the attendance at the Site of the Contractor to verify successful installation.
- .3 Conduct a detailed inspection of the installation including, wiring, electrical connections, controls and instrumentation, rotation direction, running clearances, lubrication, workmanship, and all other items as required to ensure successful operation of the equipment.

EQUIPMENT DELIVERY AND INSTALLATION SUPPORT

- .4 Identify any outstanding deficiencies in the installation and provide a written report to the Contract Administrator describing such deficiencies.
- .5 Deficiencies shall be rectified by the City and the Contractor shall then re-inspect.

5. EQUIPMENT AND PERFORMANCE VERIFICATION

- .1 Equipment will be subjected to a demonstration test, running test, and equipment performance tests (EPT) after the installation has been verified and any identified deficiencies have been remedied.
- .2 The Contract Administrator will inform Contractor at least seven (7) days in advance of conducting the tests and arrange for the attendance of the Contractor. The tests may be concurrent with the inspection of satisfactory installation if mutually agreed by the Contract Administrator.
- .3 The Contractor shall conduct all necessary checks to the equipment and if necessary, advise the Contract Administrator of any further Work needed prior to confirming the equipment is ready to run.
- .4 Demonstration Test: If river levels are high enough to provide water for pump testing, the Contract Administrator shall operate the equipment for at least one (1) hour to demonstrate to himself the operation of the equipment and any required ancillary services. Any remedial measures required to ensure satisfactory operation will be promptly undertaken.
- .5 Running Test: The equipment will then be run for one (1) hour. Local controls will be satisfactorily verified by cycling the equipment through several start-stop operations. Operating parameters such as temperature, pressure, voltage, vibration, etc., will be checked to ensure that they are within the specified or the Contractor's recommended limits, whichever is more stringent.
- .6 On satisfactory completion of the one (1) hour demonstration test, the equipment will be stopped and the Contractor shall recheck all critical parameters.
- .7 Equipment Performance Test: The equipment will be restarted and run continuously for three (3) days. During this period, as practicable, conditions will be simulated which represent maximum or most severe, average, and minimum or least severe conditions. These conditions will be mutually agreed by the Contractor, and the Contract Administrator on the basis of the information contained in the Contract Documents, as well as the methods utilized to create the simulated conditions and the time periods allotted to each.
- .8 Should the initial demonstration, running test or EPTs reveal any defects, then those defects shall be promptly rectified and the demonstration, running tests, and / or performance tests will be repeated to the satisfaction of the Contract Administrator.

END OF SECTION

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DIVISION 11

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SUBMERSIBLE MOTORS

1. GENERAL

1.1 Work Included

- .1 The submersible motor is an integral part of the Propeller Pump, this Section details the requirements pertinent to the submersible motor.

1.2 Submittals

- .1 Shop Drawings: Submit with the related item of process equipment in accordance with Section 01300. In addition, submit the following details:
 - .1 Submit efficiency and power factor information at 100% and 75% load for each motor size and type required.
 - .2 Operating and Maintenance (O&M) Data: Provide with the related item of process equipment for incorporation in an O&M manual as specified in Section 01300.

1.3 Service Conditions

- .1 Unless specified otherwise, provide motors suitable for continuous operation at an elevation of 220 m above sea level.
- .2 Provide motors suitable for continuous operation in a 40°C ambient temperature.

1.4 Quality Assurance

- .1 Build motors in accordance with Canadian Standards Association (CSA) C22.2 No. 100, CSA C22.2 No. 145, National Electrical Manufacturer's Association (NEMA) Standard MG1, and to the requirements specified.

1.5 Shipment, Protection and Storage

- .1 Ship, protect, and store equipment in a manner that prevents damage or premature aging.
- .2 Handle motors with suitable lifting equipment.
- .3 Store motors in heated, dry, weather-protected enclosure.

2. PRODUCTS

2.1 Acceptable Manufacturers

- .1 Flygt
- .2 KSB
- .3 ABS
- .4 Ebara

2.2 Exposure Classification

- .1 The exposure classification for each motor is specified with the related equipment.

SUBMERSIBLE MOTORS

- .2 All other motors shall be totally enclosed, waterproof.

2.3 Motors - Sewage Application

- .1 Heavy duty service.
- .2 Squirrel cage induction type with non-hygroscopic windings. Insulation temperature rise not to exceed Class F. Insulation to be moisture resistant.
- .3 For starting and torque characteristics, conform to Electrical and Electronic Manufacturers Association of Canada (EEMAC) Design B.
- .4 Provide motor nameplate rated for 600 V, 60 Hz, 3-phase service unless otherwise noted.
- .5 Design motors for full voltage starting and capable of running successfully when terminal voltage is from +10% to -10% of nameplate voltage. Motors with a service factor of 1.0 shall run at not more than 90% of nameplate current rating and motors with a service factor of 1.15 shall operate at not more than 100% of nameplate current rating.
- .6 Provide motors capable of ten (10) evenly spaced starts per hour on a continuous basis without temperature rises which would harm insulation and windings.
- .7 Design motors for semi-continuous immersion in liquid with an ambient temperature of 40°C unless higher temperatures are noted. Design casing for adequate heat rejection. Designs utilizing the circulation of the pumping liquid are not permitted.
- .8 Design the pump control / monitoring system with solid modules for monitoring motor stator high temperature, high bearing temperature and moisture sensing / water intrusion into the stator housing and seal chamber.
- .9 Provide sealed ball bearing type bearings with an Anti-Friction Bearings Manufacturers Association (AFBMA) B10 life of 100,000 hours.
- .10 Provide 304 or 316 stainless steel hardware.

2.4 Cable

- .1 Supply submersible motors with cable, of a minimum length to reach the pump's control panel/starter. The motor and cable to be capable of continuous submergence under water without loss of watertight integrity to a depth of 20 m.
- .2 Provide cable that contains power and ground wires, copper, of sufficient size for the service and in compliance with applicable codes.
- .3 Provide cable that contains instrument leads, shielded as necessary to prevent electrical interference.
- .4 Provide heavy duty cable, water tight and capable of withstanding operating loads.
- .5 Seal end of cable prior to shipping to prevent ingress of moisture.

END OF SECTION

PROPELLER PUMPS

1. WORK INCLUDED

1.1 Work Included

- .1 Supply and supervision of the installation, testing, and commissioning of propeller pumps, with motors, discharge pipes, alarm monitoring panel, and power and signal cables.

2. PRODUCTS

2.1 Description

- .1 Mount pumps onto seats at the bottom of vertical discharge pipes in a wet pit. The pumps are held in place by their own weight and the pumping head.
- .2 Make pumps completely removable from the discharge columns from above so that entry into the wet pit is not required for inspection or service.
- .3 Close-couple pump and motor to form one integrated direct drive unit.
- .4 Provide the discharge pipes complete with seats and support flanges, as required.
- .5 Include a spring-loaded hooking device (or equal) and lifting chains with a working load 50% greater than the pump/motor unit weight.
- .6 Attached drawings M1 to M3 provides a general layout of the proposed Flood Pump Station. The successful Contractor shall advise if there is any aspect of the station design that would jeopardize the reliable performance of the propeller pumps.

2.2 Acceptable Manufacturers

- .1 ABS
- .2 Ebara
- .3 Flygt
- .4 KSB

2.3 Capacities and Performance

- .1 Provide 2 propeller pumps.
 - .1 Drive: Constant Speed
 - .2 Design Point – Flow: 1.42 m³/s
 - .3 Design Point – Head: 6 m
 - .4 Operating Head Range: 4.5 to 7.0 m
 - .5 NPSHR not to exceed this value over operating Head Range: 9.5 m
 - .6 Maximum speed: 1200 rpm

PROPELLER PUMPS

2.4 Materials

- .1 Fabricate propeller of cast aluminum bronze conforming to American Society for Testing and Materials (ASTM) B 584 or stainless steel.
- .2 Fabricate all exposed nuts and bolts of 304 stainless steel.
- .3 Fabricate wear ring between bowl assembly and propeller of ASTM A320 stainless steel.

2.5 Propeller

- .1 Make propeller a four (4) bladed, fixed pitch design.
- .2 Curve blades backward to minimize any tendency to clog.
- .3 Fit the propeller assembly onto the shaft with a sliding fit with one (1) key.

2.6 Pump Shaft

- .1 Use single piece shaft.
- .2 Completely isolate the shaft from the pumped liquid.

2.7 Bearings

- .1 Design the motor shaft to rotate on four permanently lubricated bearings.
- .2 Provide cylindrical roller upper motor bearing.
- .3 Provide a lower bearing arrangement of two single-row angular contact ball bearings in tandem with one cylindrical roller bearing.
- .4 Provide bearings with a minimum Anti-Friction Bearings Manufacturers Association (AFBMA) B10 bearing life of 100,000 hours minimum.
- .5 For the lower thrust bearing housing, include a thermal sensor (RTD) of the platinum - 100 type to monitor the temperature of the thrust bearing outer race during operation.

2.8 Mechanical Seals

- .1 Provide tandem mechanical rotating shaft seal system between the propeller and the motor.
- .2 Design seals to run in an oil reservoir.
- .3 Design lapped seal faces to be hydrodynamically lubricated at a constant rate.
- .4 Design each interface to be held in contact by its own spring system.
- .5 Provide each pump with an oil chamber for the shaft sealing system. Design the oil chamber for oil pressure compensation.

2.9 Pump Discharge Column

- .1 Fabricate pump discharge pipe to meet the requirements of the pump.

PROPELLER PUMPS

- .2 Provide stiffening and guiding webs at the pump support seat to ensure concentric positioning of pump within the discharge column.
- .3 Provide an O-ring seal at the bottom of the pump inlet so that the weight of the pump unit effectively form a seal between pump and discharge column.

2.10 Motor

- .1 Use submersible motor in accordance with the requirements of Section 11207.

2.11 Cooling System

- .1 Design each pump and motor to be cooled by the passage of the pumped fluid up, about, and past the motor housing.

2.12 Power Cable

- .1 Provide adequate length of cable to reach the junction box without splices, situated outside the pump chamber.
- .2 Make outer jacket of oil resistant chloroprene rubber and insulate the copper conductors with ethylene-propylene rubber. Make the cable UV protected and abrasion resistant.
- .3 Use cable rated for 750V and 90°C.

2.13 Cable Entry

- .1 Design the cable entry to be 100% watertight during immersion of up to 20 m depth, while providing sufficient strain relief to prevent the cable from pulling out when handling, installing or operating the pump.

2.14 Junction Box

- .1 Design the junction box with two (2) separate terminal boards, one for connecting the signal wires and signal cable, and one (1) for connecting the stator leads and power cables.
- .2 Seal the lower terminal board from the motor by an elastomer compression seal (O-ring) so that it is leakproof.
- .3 In the junction box, provide a collection cavity placed so that any leakage into the junction box terminates in the cavity. Separately wire a sensor in the cavity to provide an alarm in the event of water intrusion into the cable junction box.

2.15 Controls

- .1 Provide a pump control status monitoring system for each pump. The motor starters, disconnect switches, and other power ancillaries will be provided by the installation contractor.
- .2 Design the pump control/monitoring system with solid state modules for monitoring motor stator high temperature, high bearing temperature and moisture sensing/water intrusion into the stator housing and cable connection housing.

PROPELLER PUMPS

- .3 For each pump control/monitoring system provide 25 m of control wiring and a junction box to connect between the pump and the control enclosure.

2.16 Factory Tests & Factory Performance Testing

- .1 Perform the following inspections and tests on each pump before shipment from the factory. Include the test results in the O&M Manuals.
 - .1 Check the propeller, motor rating, and electrical connections for compliance to the Specifications and the pump data plates.
 - .2 Test motor and cable insulation for defects.
 - .3 Prior to submergence, dry run the pump to establish correct rotation and mechanical integrity.
 - .4 Submerge the pump and run for thirty (30) minutes.
 - .5 Simulate the head conditions at 4.5 m and at 7 m.
 - .6 Develop a certified test curve (per Hydraulic Institute Class A standards) showing the performance of the pump.
 - .7 Repeat the insulation tests after the operational test.
 - .8 Document the tests and submit the results.

END OF SECTION

DISCHARGE PIPES

1. GENERAL

1.1 Work Included

- .1 Supply two (2) Schedule 10 304 stainless steel discharge pipes and integral pump support plates as specified and as shown on drawing M2.

1.2 Submittals

- .1 With the submittals required in Division 1 the Contractor shall submit detailed fabrication Drawings, welding procedures, and coating details for review prior to manufacture.

1.3 Fabrication & Welding Requirements

- .1 Use ASTM A312 Gr. TP304L butt welded, ANS1 B36.19 Sch 10S material for the entire pipe and pump support plate assembly.
- .2 All welding shall be done by qualified welders, under CSA Specification W47 in accordance with the requirements of CSA W59.
- .3 The following process are approved for pipe fabrication, assembly and erection:
 - .1 Gas Tungsten Arc (GTAW) – manual or automatic welding, inert gas shielding.
 - .2 Gas Metal Arc (GMAW) – semi-automatic welding, inert gas shielding
 - .3 Plasma Arc (PAW) – automatic welding only for thickness above 3/8", neutral (non-alloying) flux shielding.
 - .4 Submerged Arc (SAW) – automatic welding only for thickness above 3/8", neutral (non-alloying) flux shielding.

Inert gas shielding shall consist of Argon, Helium or a mixture of these two. Mixtures of Argon and / or Helium with not more than 5% by volume of H₂, O₂ and/or CO₂ shall be used only with Engineer's prior approval.

1.4 Shipment, Protection and Storage

- .1 Deliver discharge pipes and integral pump support plates to the project site by the specified delivery date.

END OF SECTION