



CITY OF HOUSTON INVITATION TO BID

Issued February 27, 2009

Bid Opening

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, in the City Hall Annex, Public Level, 900 Bagby, Houston, Texas 77002 until **10:30 a.m. Thursday, March 19, 2009**, and all bids will be opened and publicly read in the City Council Chamber at 11:00 A.M. on that date for the purchase of:

**PUMPS
FOR THE
PUBLIC WORKS & ENGINEERING DEPARTMENT
BID INVITATION NO. S48-N23078
NIGP CODE 720-64**

Buyer:

Questions regarding this solicitation should be addressed to Martin L. King, Sr. Staff Analyst, at 832.393.8705 or email to martin.king@cityofhouston.net and Irina Chong, Senior Buyer, at 832-393-8764 or e-mail to irina.chong@cityofhouston.net.

Pre-Bid

A Pre-Bid Conference will be held for all Prospective Bidders in the Strategic Purchasing Division, Conference Room No.2, 901 Bagby, City Hall Basement, Houston, Texas 77002 at 10:00 a.m. Wednesday, March 11th, 2009.

Electronic Bidding:

In order to submit a bid for the items associated with this procurement, you must fill in the pricing information on the "**PLACE BID**" page.

All Prospective Bidders are urged to be present. It is the bidder's responsibility to ensure that they have secured and thoroughly reviewed all aspects of the solicitation documents prior to the Pre-Bid Conference. Any revisions to be incorporated into this solicitation document arising from discussions before, during and subsequent to the Pre-Bid Conference will be confirmed in writing by Letter(s) of Clarification prior to the bid due date. Verbal responses will not otherwise alter the specifications, terms and conditions as stated herein.

Bidding forms, specifications, and all necessary information should be downloaded from the Internet at <https://purchasing.houstontx.gov/>. By registering and downloading this solicitation document, all updates to this solicitation document will be automatically forwarded via e-mail to any registered bidders. This information may also be obtained from the Supplier Assistance Desk, Strategic Purchasing Division, 901 Bagby, Concourse Level, Houston, Texas 77002.

The place of the bid opening may be transferred in accordance with Paragraph (b), (5) of Section 15-3 of The Code of Ordinances, Houston, Texas. The bid-opening meeting may be rescheduled in accordance with Paragraph (b), (6) of said Section 15-3.

The City reserves the right to reject any or all bids, or to accept any bid or combination of bids deemed advantageous to it.

City employees are prohibited from bidding on this solicitation in accordance with the Code of Ordinances Section 15-1.

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- A. OFFER
- B. SCOPE OF WORK/SPECIFICATIONS
- C. GENERAL TERMS & CONDITIONS

*Note 1: Actual page numbers for each section may change when the solicitation document is downloaded from the Internet or because of Letters of Clarification. Therefore, bidders must read the solicitation document in its entirety and comply with all the requirements set forth therein.

*Note 2: To be considered for award, please submit the electronic bid form and the forms listed in Section A, including the official signature page which must be signed by a company official authorized to bind the company

**SECTION A
OFFICIAL BID FORM**



**PUMPS
FOR THE
PUBLIC WORKS & ENGINEERING DEPARTMENT
BID INVITATION NO. S48-N23078**

FORMAL ONE-TIME BID

To The Honorable Mayor
and City Council Members
of the City of Houston, Texas (the "City"):

The undersigned hereby offers to **furnish and deliver** Prepaid F.O.B. destination point Houston, Texas, the item(s) listed on the **electronic bid form** and on individual Purchase Orders, in accordance with the price(s) bid and other conditions shown herein, and in accordance with the City's Specifications and General Terms & Conditions and/or samples/drawings provided herein. When issued by the City of Houston, Letters of Clarification shall automatically become part of this bid document and shall supersede any previous specifications or provisions in conflict with Letters of Clarification. It is the responsibility of the bidder to ensure that it has obtained all such letters. By submitting a bid on this project, bidder shall be deemed to have received all Letters of Clarification and to have incorporated them into the bid.

The City may accept this bid offer by issuance of a Notice of Award Letter and/or a Purchase Order at any time on or before the 120th day following the day this Official Bid Form is opened by the City. This offer shall be irrevocable for 120 days after bid opening or for 90 days after City Council awards the bid, whichever comes last, but this period may be extended by written agreement of the parties.

The City reserves the right to INCREASE quantities during the twelve-month period following the issuance of the first purchase order subject to agreement in writing by the Prime Contractor/Supplier to honor the same bid price.

The City reserves the option, after bids are opened, to adjust the quantities listed on the electronic bid form upward or downward, subject to the availability of funds, and/or make award (s) on a line item basis.

SECTION A

Documents/forms must be downloaded from the City's Website:

<https://purchasing.houstontx.gov/>

Additional Required Forms to be Included with this Bid:

In addition to the electronic Bid Form and the Official Signature Page, the Forms listed in Table 1 **must be completed and submitted to the Office of the City Secretary on or before the date and time the bid is due:**

| Table 1 – Required Forms |
|------------------------------------|
| Affidavit of Ownership |
| Fair Campaign Ordinance |
| Statement of Residency |
| Conflict of Interest Questionnaire |
| Contractor's Questionnaire |

Table 2 lists other documents and forms that should be viewed/downloaded from the City's website, but are not required to be submitted with the bid. The City will request these forms, as applicable, to be completed and submitted to the City by the recommended awarded supplier:

| Table 2 – Documents and Forms |
|--------------------------------------|
| Drug Forms |
| Sample Insurance Over \$25000 |
| Formal Instructions for Bid Terms |
| EEOC |

Questions concerning the Bid should be submitted in writing to: City of Houston, Strategic Purchasing Division, 901 Bagby, Room B109, Houston, TX 77002, Attn: Irina Chong or via fax: 832-393-8764 or via email (preferred method) to irina.chong@cityofhouston.net no later than 10:30 A.M., Thursday, January 15, 2009.

SECTION B
PART I - GENERAL SPECIFICATIONS

1.0 BIDDING AND AWARD:

- 1.1 The City may accept this bid offer by issuance of a Notice of Award Letter and/or a Purchase Order at any time on or before the 120th day following the day the Official Bid Form is opened by the City. This offer shall be irrevocable for 120 days after bid opening or for 90 days after City Council awards the bid, whichever comes last, but this period may be extended by written agreement of the parties.
- 1.2 Prices quoted shall remain firm through delivery and shall not be subject to increases (or supplemented on Prime Supplier/Awardee's invoice(s) for payment).
- 1.3 The City reserves the option to adjust the quantities listed on the City's Official Bid Form upward or downward, subject to the availability of funds, and/or make award on a line item basis. It is the intent of the City to order items on an as needed basis. Therefore, the City shall not be liable for any contractual agreements/obligations the Bidder enters into based on the City purchasing all the quantities specified herein.
- 1.4 The City reserves the right to INCREASE quantities during the twelve-month period following the issuance of the first purchase order subject to agreement in writing by the Prime Supplier/Awardee to honor the same bid price.

2.0 APPLICABLE SPECIFICATIONS:

- 2.1 "Notice to Bidders", the "Official Bid Forms", the "General Specifications", the "Technical Specifications", the "General Terms and Conditions" and other specifications that may be included herewith and the purchase orders which refer to these specifications.

3.0 TECHNICAL LITERATURE:

- 3.1 To evaluate the bids, the user department and the City purchasing staff may require product literature/specification sheets. Technical literature may be provided with the bid submittal but is not required. However, the City reserves the right to request literature or clarifications, as needed, after bid submittal.
- 3.2 If required, the Bidder must submit a minimum of TWO SETS of the requested catalogue information, descriptive literature specifications and/or (if applicable) engineering drawings that completely identify the items bid. Bidder(s) shall furnish the requested literature within seven (7) calendar days after the receipt of the City's written request. FAILURE ON BIDDER'S PART TO FURNISH THE REQUESTED TECHNICAL DATA IN THE TIME LIMIT GIVEN MAY BE CAUSE FOR REJECTION OF THE BID.

4.0 WARRANTY:

- 4.1 A minimum twelve (12) month warranty in addition to the Standard Manufacturer's warranties shall be provided on both materials and workmanship. The warranty period shall commence the date the City officially accepts the completed item(s). When extended warranties are available as standard, they shall be included as a part of the bid for the benefit of the City. Any and all documents necessary to effect warranty shall be properly applied for and submitted by the Bidder.
- 4.2 Additional warranties required are listed in the Technical Specifications for each item.

- 4.3 With respect to any goods, materials, equipment, supplies and parts furnished by it, Prime Supplier/Awardee warrants:
- That all items are new and free of defects in title, design, material and workmanship.
 - That each item meets or exceeds the manufacturer's specifications and requirements for the equipment structure, or other improvement in which the item is installed and conforms in all respects to the terms of the City Purchase Order and Specifications.
 - That each replacement item is new, in accordance with original equipment
 - Manufacturer's specifications are of a quality of at least as good as the quality of the item that it replaces (when the replaced item was new).
 - That no item or its use infringes any patent, copyright or proprietary right.
- 4.4 The Prime Supplier/Awardee's product shall be supported by an authorized service facility that can provide warranty repair, service and maintenance work within 24 hours from notification by the City.
- 4.5 Any warranty work shall be completed without cost to the City. Prime Supplier/Awardee shall be responsible for all shipping and/or freight expense from the City's designated location to the Prime Supplier/Awardee's facility for all warranty repair and/or maintenance and return to the City's designated location.

5.0 **DELIVERY/INSPECTION:**

- 5.1 The item(s) specified above, with delivery tickets and/or other required documents shall be delivered FOB Destination, to the location(s) shown on the purchase order(s) **within the delivery time(s) as listed in the Technical Specifications** after receipt of City of Houston Purchase Order.
- 5.2 The Prime Supplier/Awardee shall notify the City Contact listed in the "Ship To" section of the purchase order not less than three (3) days prior to expected delivery/arrival to permit inspection scheduling. The City Contact shall advise Prime Supplier/Awardee as to the date, time and location of authorized delivery/location. An authorized representative of the Prime Supplier/Awardee shall supervise delivery to the City. The City will not assume any liability for equipment delivered to an unauthorized location.
- 5.3 Documentation at time of Delivery:
Prime Supplier/Awardee shall provide the following documentation **per purchase order** upon delivery:
- Copy of purchase order(s) and original invoice(s).
 - Warranty policy (ies) and/or certifications as may be required in the Specifications.
 - **Parts, service, operators and maintenance manual(s) as may be required in the Technical Specifications.**

6.0 **SHIPPING TERMS:**

- 6.1 Prices shall be prepaid F.O.B. Destination to the delivery locations, Houston, TX, as indicated on individual City of Houston purchase orders. Prime Supplier/Awardee shall retain title and control of all goods until they are delivered and the contract of coverage has been completed. All risk of transportation and all related charges shall be the responsibility of the Prime Supplier/Awardee. All claims for visible or concealed damage shall be filed by the Prime Supplier/Awardee. The City will notify the Prime Supplier/Awardee promptly of any damaged goods and shall assist the Prime Supplier/Awardee in arranging for inspection.

7.0 **CONFLICT IN TERMS:**

- 7.1 Should there be any conflict between the General Specifications and the Technical Specifications, the Technical Specifications shall prevail.

8.0 Resolution Of Late Delivery For Equipment:

- 8.1 Time is of the essence in this award and accordingly all time limits shall be strictly construed and rigidly enforced. The work shall be furnished and fully completed within the delivery time specified in the Bid Proposal and Purchase Order to be furnished to the awarded supplier by the City. In the event that the work or any portions thereof shall remain uncompleted after expiration of the specified time, the awarded supplier shall furnish to the City a like number of comparable equipment for the City's use until such time as the ordered equipment are delivered. The equipment shall be furnished to the City with insurance to cover the use of this equipment by City personnel and in pursuit of the City's business. Should the awarded supplier not furnish such specified equipment during the late delivery period, the City retains the right to lease such equipment from an equipment leasing firm and awarded supplier agrees and authorizes the City to deduct all such costs associated with such leases from the amounts due and owing to awarded supplier under the Purchase Order. The City may avail itself of other remedies that may be available to it in law or equity as to any other event of default
- 8.2 Awarded supplier will not be liable for delays in performing its obligations to the extent such delays are caused by unforeseeable conditions that are beyond the awarded supplier's reasonable control and directly interfere with performance, and are without awarded supplier's fault or negligence (force majeure). However, awarded supplier shall provide written notice to the City of the cause and extent of an **excusable delay** requesting a time extension equal to the estimated duration thereof. Upon cessation of the event causing the delay, awarded supplier shall provide written notice to the City of the actual delay incurred. Determination of force majeure shall rest solely with the City Purchasing Agent and the receiving department.

**SECTION B
PART II - TECHNICAL SPECIFICATIONS
FOR
PUMPS**

1.0 SCOPE:

The intent of this specification is to provide pumps to the City of Houston. The furnishing and delivery of all pumps specified herein shall be the sole responsibility of the awarded supplier.

1.0.1 If the bidder elects to offer a pump that is not the referenced manufacturer's product, including the serial/model numbers as specified in the electronic bid form and these technical specifications, the bidder "must" provide documentation listing its representative manufacturer's name, product name, product serial/model numbers and detailed product specifications, including applicable warranty information.

1.1 Pump Types/Sizes:

1.1.1 Bid Item No. 1

Referenced Manufacturer: [Gorman Rupp, Centrifugal Pump \(Self Priming\), Model No. T8A61S-B, 20HP, 1024 RPM, 1650 GPM @ 53', size: 8" or City approved equal.](#)

1.1.2 Bid Item No. 2

Referenced Manufacturer: [Flygt Corporation, Submersible Pump, Model No. Model No. BS-2670, 27HP, 420 GPM @ 150', Size: 6" or City approved equal.](#)

1.1.3 Bid Item No. 3

Referenced Manufacturer: [Flygt Corporation, Submersible Pump, Model No.N-3153, 20HP, 1080 GPM @ 54' Size: 6" or City approved equal.](#)

1.1.4 Bid Item No. 4

Referenced Manufacturer: [Flygt Corporation, Submersible Pump, Model No. CP-3127, 7.5 HP, 920 GPM @ 18' TDH, Size: 8" or City approved equal.](#)

1.1.5 Bid Item No. 5

Referenced Manufacturer: [Flygt Corporation, Electric Submersible, Model No. CP-3306, 140 HP, 2350 GPM @ 96' TDH, Size: 12" or City approved equal.](#)

1.1.6 Bid Item No. 6

Referenced Manufacturer: [Flygt Corporation, Grinder Pump, Model No. MF-3127, 11HP, 480 Volts, 100 GPM @60" TDH \(Size: 4"\) or City approved equal.](#)

1.1.7 Bid Item No. 7

Referenced Manufacturer: [KSB, 24" Discharge Electric Submersible, Model No. KRT, 402 HP, 460V, 900 RPM or City approved equal.](#)

1.1.8 Bid Item No. 8

Referenced Manufacturer: [KSB, 20" Discharge Electric Submersible, Model No. KRT, 250 HP, 460V, 13,000 RPM or City approved equal.](#)

1.1.4 Bid Item No. 9

Referenced Manufacturer: [Fairbanks Morse, Submersible Pump, Model No. DJ5731MV, 14", 95 Hp, 900 RPM or City approved equal.](#)

1.1.5 Bid Item No. 10

Referenced Manufacturer: [Fairbanks Morse, Submersible Pump, Model No. 5415, 10", 75 Hp, 900 RPM, 3,000 GPM @ 55' TDH or City approved equal.](#)

1.1.6 Bid Item No. 11

Referenced Manufacturer: [Periflo Peristaltic Pump for lime slurry, or City approved equal.](#)

1.1.7 Bid Item No. 12

Referenced Manufacturer: [Peristaltic Pump for powdered activated carbon slurry, or City approved](#)

equal.

1.1.8 Bid Item No. 13

Referenced Manufacturer: [Fibroc Pump, Series 1500, Size 3x4x10, 7.5 HP City approved equal.](#)

2.0 **DELIVERY:**

The supplier agrees to make deliveries only upon notification by a designated City of Houston representative and only after it is in receipt of duly signed and approved Purchase Order(s) issued by the City of Houston Purchasing Agent or designee. Deliveries made without such Purchase Order and notification shall be at Bidder's risk and shall leave the City the option of canceling any agreement implied or expressed herein.

2.1 The supplier shall deliver the pumps in the specified sizes and quantities "only" after it is notified to do so by a designated City of Houston representative. The supplier shall be required to delivery the pumps specified in the purchase order(s) within sixty (60) calendar days after receipt of the City of Houston Purchase Order.

2.2 All individual deliveries received by the City are subject to testing to determine if the items meet specifications. Items/Pumps that fail to meet specifications shall be rejected.

3.0 ITEM NO. 1: 8" SELF PRIMING CENTRIFUGAL PUMP, TRAILER MOUNTED

Furnish 2 ea. submersible non-clog wastewater pumps.

- 3.0.1 Gorman Rupp Model No. T8A61S-B, 8" X 8"
- 3.0.2 20HP
- 3.0.3 1024 RPM
- 3.0.4 Operating Point: 1650 GPM @ 53'
- 3.0.5 Casing shall be Gray Iron 30
- 3.0.6 Impeller: Two Vane Vortex, SSTL 316
- 3.0.7 Replaceable Wear Plate: SSTL 316
- 3.0.8 Removable Adjustable Cover Plate: Gray Iron 30; 94 lbs.
- 3.0.9 Flap Valve: Neoprene w/Nylon and Steel Reinforcing
- 3.0.10 Seal Plate: SSTL 316
- 3.0.11 Bearing Housing: Gray Iron 30
- 3.0.12 Radial and Thrust Bearings: Open Double Row Ball
- 3.0.13 Bearing and Seal Cavity Lubrication: SAE 30 Non-Detergent Oil
- 3.0.14 Flanges: #125 Gray Iron 30
- 3.0.15 Gaskets: Buna-N, Compressed Synthetic Fibers, PTFE, Cork, and Rubber
- 3.0.16 O-Rings: Buna-N
- 3.0.17 Internal Wetted Hardware: SSTL 316
- 3.0.18 External Hardware: Standard plated steel
- 3.0.19 Pressure Relief Valve: SSTL 316
- 3.0.20 Bearing and Seal Cavity oil level sight gauges;
- 3.0.21 Optional Equipment:
- 3.0.22 Metal Bellows Seal
- 3.0.23 Automatic air release valve
- 3.0.24 Seal plate and wear plate
- 3.0.25 120v/240v casing heater
- 3.0.26 High pump temperature shutdown
- 3.0.27 8" ASA Discharge

3.5 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The supplier shall conduct warranty work within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

3.6 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

3.7 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

3.8 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

4.0 ITEM NO. 2: 6" ELECTRIC SUBMERSIBLE PUMP, FLYGT CORPORATION MODEL NO. BS-2670,20HP:

Furnish one 6" submersible non-clog de-watering pump.

- 4.0.1 Model No. BS_2670
- 4.0.2 50Hz
- 4.0.3 Impeller: High chrome alloyed white cast iron
- 4.0.4 Operating Point: max +40°C
- 4.0.5 Wear Parts: Nitrile rubber, high chrome cast iron
- 4.0.6 Stator Housing: Cast iron
- 4.0.7 Strainer: SSTL
- 4.0.8 Shaft: SSTL
- 4.0.9 Flow capacity rating shall be 420 gpm or greater
- 4.0.10 Discharge head rating of 128 ft.
- 4.0.11 Pump shall be three phase 460 Volt unit
- 4.0.12 Top discharge size 4" diameter with NPT connection
- 4.0.13 Pump shall have strainer covering on intake
- 4.0.14 Motor shall be equipped with overload protection
- 4.0.15 On/Off control
- 4.0.16 Cable connection: At least 50'
- 4.0.17 50' shut off head
- 4.0.18 NEMA premium motor or equivalent
- 4.0.19 Top sprayed with grey pain

4.12 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

4.13 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

4.14 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

4.15 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

5.0 ITEM NO. 3: 6" ELECTRIC SUBMERSIBLE PUMP FLYGT CORPORATION MODEL NO. FLYGHT N-3153, 20HP:

5.1 Furnish two 8", submersible non-clog wastewater pump.

5.1.1 Each pump shall be equipped with a 20 HP submersible electric motor, connected for operation on 230 and 460 volts, 3 phase, 60 hertz, 4 wire service, with 50 feet of submersible cable suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval. The pump shall be capable of operating with existing 8 inch Flygt Corporation discharge connection with no modification or extra cost to the City. The pump shall be supplied with a drilled flanges and a stand for portable use. The pump shall be capable of delivering the design condition of 1080 GPM at 54 TDH. The pump shall operate at the design condition with an efficiency of 81.4 %. The pump shall also be able to operate 1880 GPM at 25 feet total head with out vibration or cavitations. Shut off head shall be 94 feet (minimum).

5.1.2 The pump must be able to be installed in dry pit application with no modification and be rated for continuous duty in a completely dry environment.

5.2 PUMP DESIGN

The pumps shall be capable of being used in a portable configuration or with a Flygt guide rail configuration with existing discharge connections.

5.3 PUMP CONSTRUCTION

Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be of stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

5.3.1 Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

5.3.2 Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

5.4 COOLING SYSTEM

Each unit shall be provided with an integral motor cooling system. A motor cooling jacket shall encircle the stator housing, providing for dissipation of motor heat regardless of the type of pump installation. An impeller, integral to the cooling system and driven by the pump shaft, shall provide the necessary circulation of the cooling liquid through the jacket. The cooling liquid shall pass about the stator housing in the closed loop system in turbulent flow providing for superior heat transfer. The cooling system shall have one fill port and one drain port integral to the cooling jacket. The cooling system shall provide for continuous pump operation in liquid or ambient temperatures of up to 104°F. (40°C.). Operational restrictions at temperatures below 104°F are not acceptable. Fans, blowers or auxiliary cooling systems that are mounted external to the pump motor are not acceptable.

5.5 MOTOR

The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of withstanding at least 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel.

5.5.1 The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.

5.5.2 The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C. ambient and shall have a NEMA Class B maximum operating temperature rise of 80° C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.

5.5.3 Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out.

5.6 BEARINGS

The integral pump/motor shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a single ball type bearing to handle radial loads. The lower bearing shall be a two row angular contact ball bearing to handle the thrust and radial forces. The minimum L₁₀ bearing life shall be 50,000 hours at any usable portion of the pump curve.

5.7 MECHANICAL SEALS

Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide seal ring. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.

5.7.1 Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.

5.7.2 The area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action.

5.7.3 A separate seal leakage chamber shall be provided so that any leakage that may occur past the upper, secondary mechanical seal will be captured prior to entry into the motor stator housing. Such seal leakage shall not contaminate the motor lower bearing. The leakage chamber shall be equipped with a float type switch that will signal if the chamber should reach 50% capacity.

5.8 PUMP SHAFT

The pump and motor shaft shall be a single piece unit. The pump shaft is an extension of the motor shaft. Shafts using mechanical couplings shall not be acceptable. The shaft shall be AISI type 431 stainless-steel. Shaft sleeves will not be acceptable.

5.9 IMPELLER

The impeller shall be of gray cast iron, ASTM A-48 Class 35B, dynamically balanced, semi-open, multi-vane, back swept, screw-shaped, non-clog design. The impeller leading edges shall be mechanically self-cleaned automatically upon each rotation as they pass across a spiral groove located on the volute suction. The screw-shaped leading edges of the impeller shall be hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw. The impellers shall be locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer.

5.10 VOLUTE/SUCTION COVER

The pump volute shall be a single piece gray cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages of sufficient size to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified. The volute shall have integral spiral-shaped, sharp-edged groove(s) that is cast into the suction cover. The spiral groove(s) shall provide the sharp edge(s) across which each impeller vane leading edge shall cross during rotation so to remain unobstructed. The internal volute bottom shall provide effective sealing between the multi-vane semi-open impeller and the volute.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

5.11 PROTECTION

Each pump motor stator shall incorporate three thermal switches, one per stator phase winding and be connected in series, to monitor the temperature of the motor. Should the thermal switches open, the motor shall stop and activate an alarm. A float switch shall be installed in the seal leakage chamber and will activate if leakage into the chamber reaches 50% chamber capacity, signaling the need to schedule an inspection.

5.11.1 The thermal switches and float switch shall be connected to the existing Mini CAS control and status monitoring unit. If pumps are supplied that will not operate with the existing monitoring unit, the pump supplier shall have an electrician approved by the City of Houston with the proper insurance and licenses, install the proper monitoring units at no cost to the City.

5.12 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

5.13 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

5.14 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

5.15 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

6.0 ITEM NO. 4: 8" FLYGT ELECTRIC SUBMERSIBLE MODEL NO. FLYGT CP-3127, 7.5HP

Furnish one 8" submersible non-clog wastewater pumps.

6.0 Each pump shall be equipped with a 7.5 HP submersible explosion-proof electric motor, connected for operation on 230 volts, 3 phase, 60 hertz, 4 wire service, with 40 feet of submersible cable suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval. 1637 GPM at 5 TDH. An additional point on the same curve shall be 7500 GPM at 5 TDH, Shutoff shall be 34 feet minimum. The motor shall be capable of operating 230 to 460 volts giving the City the ability to move the pump from location to location

6.1 The pump must be able to be installed in dry pit application with no modification and be rated for continuous duty in a completely dry environment.

6.2 PUMP DESIGN

The pumps shall be capable of being used in a portable configuration or with a Flygt guide rail configuration with existing discharge connections.

6.3 PUMP CONSTRUCTION

Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be of stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

6.3.1 Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

6.3.2 Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

6.4 COOLING SYSTEM

Each unit shall be provided with an integral motor cooling system. A motor cooling jacket shall encircle the stator housing, providing for dissipation of motor heat regardless of the type of pump installation. An impeller, integral to the cooling system and driven by the pump shaft, shall provide the necessary circulation of the cooling liquid through the jacket. The cooling liquid shall pass about the stator housing in the closed loop system in turbulent flow providing for superior heat transfer. The cooling system shall have one fill port and one drain port integral to the cooling jacket. The cooling system shall provide for continuous pump operation in liquid or ambient temperatures of up to 104°F. (40°C.). Operational restrictions at temperatures below 104°F are not acceptable. Fans, blowers or auxiliary cooling systems that are mounted external to the pump motor are not acceptable.

6.5 MOTOR

The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of withstanding at least 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel.

6.5.1 The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.

6.5.2 The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C. ambient and shall have a NEMA Class B maximum operating temperature rise of 80° C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.

6.5.3 Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out.

6.6 BEARINGS

The integral pump/motor shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a single ball type bearing to handle radial loads. The lower bearing shall be a two row angular contact ball bearing to handle the thrust and radial forces. The minimum L₁₀ bearing life shall be 50,000 hours at any usable portion of the pump curve.

6.7 MECHANICAL SEALS

Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide seal ring. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.

6.7.1 Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.

6.7.2 The area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action.

6.7.3 A separate seal leakage chamber shall be provided so that any leakage that may occur past the upper, secondary mechanical seal will be captured prior to entry into the motor stator housing. Such seal leakage shall not contaminate the motor lower bearing. The leakage chamber shall be equipped with a float type switch that will signal if the chamber should reach 50% capacity.

6.8 PUMP SHAFT

The pump and motor shaft shall be a single piece unit. The pump shaft is an extension of the motor shaft. Shafts using mechanical couplings shall not be acceptable. The shaft shall be AISI type 431 stainless-steel. Shaft sleeves will not be acceptable.

6.9 IMPELLER

The impeller shall be of gray cast iron, ASTM A-48 Class 35B, dynamically balanced, semi-open, multi-vane, back swept, screw-shaped, non-clog design. The impeller leading edges shall be mechanically self-cleaned automatically upon each rotation as they pass across a spiral groove located on the volute suction. The screw-shaped leading edges of the impeller shall be hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw. The impellers shall be locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer.

6.10 VOLUTE/SUCTION COVER

The pump volute shall be a single piece gray cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages of sufficient size to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified. The volute shall have integral spiral-shaped, sharp-edged groove(s) that is cast into the suction cover. The spiral groove(s) shall provide the sharp edge(s) across which each impeller vane leading edge shall cross during rotation so to remain unobstructed. The internal volute bottom shall provide effective sealing between the multi-vane semi-open impeller and the volute.

6.11 PROTECTION

Each pump motor stator shall incorporate three thermal switches, one per stator phase winding and be connected in series, to monitor the temperature of the motor. Should the thermal switches open, the motor shall stop and activate an alarm. A float switch shall be installed in the seal leakage chamber and will activate if leakage into the chamber reaches 50% chamber capacity, signaling the need to schedule an inspection.

- 6.11.1 The thermal switches and float switch shall be connected to the existing Mini CAS control and status monitoring unit. If pumps are supplied that will not operate with the existing monitoring unit, the pump supplier shall have an electrician approved by the City of Houston with the proper insurance and licenses, install the proper monitoring units at no cost to the City.

6.12 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

6.13 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

6.14 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

6.15 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

7.0 ITEM NO. 5: 8" FLYGT ELECTRIC SUBMERSIBLE MODEL NO. FLYGT CP-3306, 140HP

Furnish one 8" submersible non-clog wastewater pumps.

7.1 Each pump shall be equipped with a 140 HP submersible explosion-proof electric motor, connected for operation on 460 volts, 3 phase, 60 hertz, 4 wire service, with 90 feet of submersible cable suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval. Also, 90 linear feet of multi-conductor submersible cable will be used to convey pump monitoring signals. 2350 GPM at 96 TDH. An additional point on the same curve shall be 7500 GPM at 40 TDH, Shutoff shall be 120 feet minimum.

7.2 The pump must be able to be installed in dry pit application with no modification and be rated for continuous duty in a completely dry environment.

7.3 PUMP DESIGN

The pumps shall be capable of being used in a portable configuration or with a Flygt guide rail configuration with existing discharge connections.

7.4 PUMP CONSTRUCTION

Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be of stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

7.4.1 Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

7.4.2 Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

7.5 COOLING SYSTEM

Each unit shall be provided with an integral motor cooling system. A motor cooling jacket shall encircle the stator housing, providing for dissipation of motor heat regardless of the type of pump installation. An impeller, integral to the cooling system and driven by the pump shaft, shall provide the necessary circulation of the cooling liquid through the jacket. The cooling liquid shall pass about the stator housing in the closed loop system in turbulent flow providing for superior heat transfer. The cooling system shall have one fill port and one drain port integral to the cooling jacket. The cooling system shall provide for continuous pump operation in liquid or ambient temperatures of up to 104°F. (40°C.). Operational restrictions at temperatures below 104°F are not acceptable. Fans, blowers or auxiliary cooling systems that are mounted external to the pump motor are not acceptable.

7.6 MOTOR

The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of withstanding at least 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel.

7.6.1 The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.

7.6.2 The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C ambient and shall have a NEMA Class B maximum operating temperature rise of 80°C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.

7.6.3 Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out.

7.7 BEARINGS

The integral pump/motor shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a single ball type bearing to handle radial loads. The lower bearing shall be a two row angular contact ball bearing to handle the thrust and radial forces. The minimum L₁₀ bearing life shall be 50,000 hours at any usable portion of the pump curve.

7.8 MECHANICAL SEALS

Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide seal ring. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.

7.8.1 Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.

7.8.2 The area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action.

7.8.3 A separate seal leakage chamber shall be provided so that any leakage that may occur past the upper, secondary mechanical seal will be captured prior to entry into the motor stator housing. Such seal leakage shall not contaminate the motor lower bearing. The leakage chamber shall be equipped with a float type switch that will signal if the chamber should reach 50% capacity.

7.9 PUMP SHAFT

The pump and motor shaft shall be a single piece unit. The pump shaft is an extension of the motor shaft. Shafts using mechanical couplings shall not be acceptable. The shaft shall be AISI type 431 stainless-steel. Shaft sleeves will not be acceptable.

7.10 IMPELLER

The impeller shall be of gray cast iron, ASTM A-48 Class 35B, dynamically balanced, semi-open, multi-vane, back swept, screw-shaped, non-clog design. The impeller leading edges shall be mechanically self-cleaned automatically upon each rotation as they pass across a spiral groove located on the volute suction. The screw-shaped leading edges of the impeller shall be hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw. The impellers shall be locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer.

7.11 VOLUTE/SUCTION COVER

The pump volute shall be a single piece gray cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages of sufficient size to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified. The volute shall have integral spiral-shaped, sharp-edged groove(s) that is cast into the suction cover. The spiral groove(s) shall provide the sharp edge(s) across which each impeller vane leading edge shall cross during rotation so to remain unobstructed. The internal volute bottom shall provide effective sealing between the multi-vane semi-open impeller and the volute.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

7.12 PROTECTION

Each pump motor stator shall incorporate three thermal switches, one per stator phase winding and be connected in series, to monitor the temperature of the motor. Should the thermal switches open, the motor shall stop and activate an alarm. A float switch shall be installed in the seal leakage chamber and will activate if leakage into the chamber reaches 50% chamber capacity, signaling the need to schedule an inspection.

- 7.12.1 The thermal switches and float switch shall be connected to the existing Mini CAS control and status monitoring unit. If pumps are supplied that will not operate with the existing monitoring unit, the pump supplier shall have an electrician approved by the City of Houston with the proper insurance and licenses, install the proper monitoring units at no cost to the City.

7.13 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

7.14 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

7.15 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

7.16 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

8.0 ITEM NO. 6: PUMP, SUBMERSIBLE - 4" FLYGT MODEL NO. BMF-3127 GRINDER PUMP

Furnish eight submersible pumps.

8.1 GENERAL:

8.1.1 Flygt MF_3127 – recommended unit(s)

8.1.2 Submersible grinder pump

8.1.3 Pump shall be heavy duty free standing submersible non-clog rated for wastewater applications

8.2 PUMP:

8.2.1 Flow capacity rating shall be 100 gpm or greater

8.2.2 With discharge head rating of 60 ft.

8.2.3 Pump shall be three phase 480 Volt unit at 13 amps

8.2.4 Top discharge size 4" diameter with NPT connection

8.2.5 Stator windings shall be insulated with moisture resistant Class H insulation for 108° C

8.2.6 Shaft shall be constructed of Stainless Steel

8.2.7 Pump shall have strainer covering on intake

8.2.8 Motor shall be equipped with overload protection

8.2.9 Motor shall be able to operate dry without damage

8.2.10 Control shall be on/off

8.2.11 Cable connection shall be 50' nominal length or greater

8.3 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

8.4 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

8.5 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

8.6 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

9.0 ITEM NO. 7: PUMP, SUBMERSIBLE - 24" KSB MODEL NO. KRT

Furnish one submersible pump.

9.1 GENERAL:

9.1.1 KSB_KRT – recommended unit(s)

9.1.2 Discharge electric submersible pump

9.1.3 Pump shall be heavy duty free standing submersible non-clog rated for wastewater applications

9.2 PUMP:

9.2.1 Minimum Shutoff head: **106** FT

9.2.2 Maximum Motor HP: **402** HP

9.2.3 Voltage: **4160V**

9.2.4 Motor RPM: **900** RPM

9.2.5 Minimum Shutoff head: **106** FT

9.2.6 Maximum Motor HP: **402** HP

9.2.7 Voltage: **4160V**

9.2.8 Minimum Hydraulic Efficiency (at design): **71%**

9.2.9 Motor RPM: **900** RPM

9.2.10 Provide **98** ft of power/control cable

9.3 QUALITY ASSURANCE - REFERENCED STANDARDS:

American Iron & Steel Institute (AISI)

American Society for Testing and Materials (ASTM)

Factory Mutual (FM)

Hydraulic Institute Standards for Centrifugal, Rotary, and Recip Pumps (HI)

National Fire Protection Agency (NFPA)

National Electric Code(NEC)

National Electrical Manufacturers Association(NEMA)

Anti-Friction Bearing Manufacturers Association(AFBMA)

International Standards Organization (ISO) - ISO9001

9.4 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

9.5 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

9.6 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

9.7 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

10.0 ITEM NO. 8: PUMP, SUBMERSIBLE - 20" KSB MODEL NO. KRT

Furnish one submersible pump.

10.1 GENERAL:

10.1.1 KSB_KRT – recommended unit(s)

10.1.2 Discharge electric submersible pump

10.1.3 Pump shall be heavy duty free standing submersible non-clog rated for wastewater applications

10.2 Operating Conditions: **13,000GPM @ 50 FT TDH**

10.3 Minimum Shutoff head:**106** FT

10.4 Maximum Motor HP: **250** HP

10.5 Voltage: **460V**

10.6 Motor RPM: **900** RPM

10.7 Operating Conditions: **13,000GPM @ 50 FT TDH**

10.8 Minimum Shutoff head:**106** FT

10.9 Maximum Motor HP: **250** HP

10.10 Voltage: **460V**

10.11 Minimum Hydraulic Efficiency (at design): **81%**

10.12 Motor RPM: **900** RPM

10.13 Provide **85** ft of power/control cable

10.14 **QUALITY ASSURANCE - REFERENCED STANDARDS:**

American Iron & Steel Institute (AISI)

American Society for Testing and Materials (ASTM)

Factory Mutual (FM)

Hydraulic Institute Standards for Centrifugal, Rotary, and Recip Pumps (HI)

National Fire Protection Agency (NFPA)

National Electric Code(NEC)

National Electrical Manufacturers Association(NEMA)

Anti-Friction Bearing Manufacturers Association(AFBMA)

International Standards Organization (ISO) - ISO9001

10.15 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

10.16 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

10.17 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

10.18 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION B PART II TECHNICAL SPECIFICATIONS FOR PUMPS CONT'D.

11.0 ITEM NO. 9: PUMP, SUBMERSIBLE - 14" FAIRBANKS MORSE MODEL DJ5731MV

Furnish one submersible pump.

11.1 GENERAL:

11.1.2 Fairbanks Mose Model DJ5731MV– recommended unit(s)

11.1.3 Submersible non-clog sewage pump

11.1.4 Pump shall be furnished with corrosion protection i.e. attached zinc anodes

11.2 PUMP:

11.2.1 100HP, UL listed 900 RPM submersible motor, rated at 95 HP for continuous air operation

11.2.2 70 ft. of power and control cables

11.2.3 300-350 BHN impeller and volute wear rings

11.2.4 SSTL Impeller hardware

11.2.5 Cooling Jacket

11.2.6 Tnemec coating on exterior of pump

11.2.7 Meet vertical, single stage, non-clog centrifugal pump standards

11.3 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

11.4 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

11.5 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

11.6 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

12.0 ITEM NO. 10: PUMP, SUBMERSIBLE - 10" X 10" FAIRBANKS MORSE MODEL 5415

12.1 GENERAL:

- 12.1.1 Fairbanks Mose Model 5415, 10" X 10", CCS rotation, S/N K2S1-0644867– recommended unit(s)
- 12.1.2 Dry pit pump
- 12.1.3 Pump shall be furnished with corrosion protection i.e. attached zinc anodes

12.2 PUMP:

- 12.2.1 75HP, UL listed 705 RPM
- 12.2.2 70 ft. of power and control cables
- 12.2.3 3,000 RPM @ 55 TDH
- 12.2.4 SSTL Impeller hardware
- 12.2.5 Cooling Jacket
- 12.2.6 Tnemec coating on exterior of pump
- 12.2.7 Meet vertical, single stage, non-clog centrifugal pump standards

12.3 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

12.4 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

12.5 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

12.6 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

13.0 ITEM NO. 11: PUMP, PERISTALTIC PUMPS - PERIFLO MODEL FMP

13.1 PUMP MODEL

Pump shall be PERIFLO MODEL FMP

13.2 OPERATING CONDITIONS

Lime slurry.

13.3 Pump Construction:

13.3.1 Horizontal, positive displacement, peristaltic pump

13.3.2 Capable of operating in either direction without flow variation

13.3.3 Capable of running dry without damage to pump or hose

13.3.4 Capable of pulling 95% of full vacuum

13.3.5 Repeatability: 1% accurate

13.3.6 Valveless/Glandless with no dynamic seals in contact with the pumped product

13.3.7 Simplex or duplex as indicated in the Process Pump Schedule

13.3.8 Pump will be capable of being rotated in 90-degree increments for four (4) different port mounting configurations

13.3.9 Direct coupled gear arrangement. Pumps with close coupled or bare shaft arrangements are not acceptable

13.3.10 Angle of hose 180 degrees through the pump. Pumps with less than 180 degrees or more than 360 degrees are not acceptable.

13.4 Hose and Lubricant:

Hose will be manufactured of three-layer elastomer with an inner wetted layer compatible with the process fluid, multiple layers of nylon reinforcement suitable for pressure rating of the hose, and a natural rubber outer layer. Hose must be specifically designed for peristaltic pump service.

13.4.1 Minimum static burst pressure rating of 600 psi.

13.4.2 53-68 Shore A durometer

13.4.3 Hose must be replaceable without cover or pump removal

13.4.4 Pump hose must be lubricated. Pumps with rollers shall use a food grade silicone grease. Pumps with shoes shall be filled approximately 50% with a food grade glycerin based hose lubricant to remove heat of friction and provide lubrication.

13.4.5 Pumps with shoes: Provide a threaded drain plug at the lowest point of the priming chamber to allow the complete drainage of the lubricant.

13.4.6 Pumps that do not use an internal lubricant are not acceptable.

13.4.7 Single hose per pump casing. Pumps using more than one hose per pump casing to achieve the flow are not acceptable.

13.5 Pump Housing with Internal Bearing Frame:

Pump housing will be constructed of cast iron and will be supplied with an internally mounted bearing hub and rotor assembly. Gear unit will be directly coupled to the back of the pump housing and will be completely isolated from the process fluid and pump lubricant through the sealed bearing hub. Gear unit and drive components will be serviceable without removal of the pump rotor. Pumps with aluminum housing are not acceptable.

- 13.6 Rotor will be constructed of cast iron ASTM A48. Shoe pumps: Rotor will be supplied with two pressing shoes mounted 180 degrees apart. Shoes will be constructed of epoxy or aluminum as recommended by the manufacturer and will be adjustable for varying degrees of compression via flat shims constructed of 316SS. Roller pumps: Rotor will be supplied with two rollers mounted 180 degrees apart. Rollers shall be anodized steel or corrosion resistant metal as recommended by the manufacturer. Each will be supplied with two(2) permanently grease lubricated ball bearings and two (2) nitrile rubber lip seals.
- 13.7 Bearing cartridge – Pump displacement 1.76 gal/rev or less: Pump shall be equipped with a carbon steel cartridge type bearing housing including permanently grease lubricated anti-friction ball bearings with a minimum L-10 life of 40,000 hours at maximum operating speeds. A nitrile rubber lip seal will isolate the bearings from pumped liquid in the event of a hose failure. The bearing cartridge shall accept direct coupling to a flange mounted gearbox with a keyed output shaft and will be designed to absorb the full radial load of the hose compression mechanism.
- 13.8 Bearing cartridge – Pump displacement larger than 1.76 gal/rev: Pump shall be equipped with a carbon steel cartridge type bearing housing including permanently grease lubricated anti-friction ball bearings with a minimum L-10 life of 40,000 hours at maximum operating speeds. A nitrile rubber lip seal will isolate the bearings from pumped liquid in the event of a hose failure. The bearing cartridge shall accept direct coupling to a flange-mounted gearbox with a splined shaft. Bearing cartridge shall be removable from the rotor side of the housing without the need to remove the pump housing or gearbox and no special tools shall be required.
- 13.9 Direct-coupled pump: Close-coupled pumps with the rotor mounted directly on the gearbox output shaft or long-coupled pumps with external coupling are not acceptable.
- 13.10 Chemical service: Pump housing and rotor shall be coated with Halar. Shoes/Rollers shall be 316SS or epoxy. All fasteners shall be 316SS.
- 13.11 Connectors:
Inlet and outlet connections shall be 150# ANSI raised face flanges. Flange inserts or flanges (if wetted) shall be compatible with the process fluid. Hoses should be secured with integral compression flanges (preferred) or as an alternate may be secured with automotive style clamps.
- 13.12 Flange supports shall be constructed of 316SS with 316SS hardware on corrosive applications.
- 13.13 Van Stone-type flanges shall be 316SS on corrosive applications.
- 13.14 Pump Cover
- 13.15 Roller pumps: Carbon steel cover ring with a polyester epoxy powder coating and removable one (1) piece clear polycarbonate viewing window. Window shall be sufficiently sized to allow for adjustment of shims and view rotation from the front of the pump.

- 13.16 Shoe pumps:
For 25mm and 32mm pumps, cover will be constructed of carbon steel or cast iron and will be fitted with a fixed window. The cover will be removable for replacement of pressing shoes or shims.
- 13.17 For 40mm – 100mm pumps, cover will be constructed of carbon steel with a removable clear viewing inspection window sufficiently large enough to replace pressing shoes and allow for shim replacement without removing the pump cover.
- 13.18 Pump cover will be sealed to the pumphead via a captive Buna-N o-ring.
- 13.19 Pump hardware will be stainless steel.
- 13.20 Aluminum construction is not acceptable.
- 13.21 Frame:
13.21.1 Support frame will be constructed of steel (alternate: 316SS for corrosive applications). Welded steel or modular adjustable frames are not acceptable.
13.21.2 Frame and pump construction will be such that alignment is not required for installation.
- 13.22 Hose leak detector:
Roller pumps. Hose leak detector shall be of the capacitance type, located at the lowest point of the pump body. Switch shall be supplied NC (optional NO) rated 24-240VAC 300mA continuous switch current. Mount the sensor on the rear of the pump housing.
- 13.23 Shoe pumps. Hose leak detector shall be of the capacitance type, located at the highest point of the pump body. Switch shall be supplied NC (optional NO) rated 24-240VAC 300mA continuous switch current. Mount the sensor on the rear of the pump housing. This option allows direct wiring in series with the pump motor start circuit for pump shutdown in the event of hose leak. No other interface equipment is required.
- 13.24 **Gearing:**
13.24.1 Provide gearing with direct-coupled mounting to the pump housing.
13.24.2 For 25mm to 50mm pumps. Gearbox shall be of the in-line helical design, of standard commercial manufacture with a minimum service factor of 1.4 based upon motor nameplate rating, an AGMA Class II continuous duty rating, NEMA C-face motor input, footless design with flanged connection and keyed output shaft. Integral gearmotors are not acceptable
13.24.3 Gearbox replacement units, parts and service must be available directly from local gearbox distributor. Purchase directly from Pump Vendor shall not be required.

13.25 Motors:

- 13.25.1 Provide premium efficient, TEFC squirrel cage induction motors, NEMA C-Face, conforming to the latest applicable requirements of NEMA, IEEE, ANSI and NEC standards.
- 13.25.2 Provide motor HP appropriate for the maximum speed and pressure conditions specified in the Process Pump Schedule.
- 13.25.3 Motors are to be designed for 3-phase, 230-460VAC operation, NEMA Design B with torque and starting currents in accordance with NEMA MG-1. Ratings to be based on a 40 degree C ambient 3,300 feet altitude of lower operation with a maximum temperature rise of 80 degree C at 1.0 service factor (and 90 degree C rise 1.15 S.F.)
- 13.25.4 Motors will be furnished with Class F insulation. Motors will have a 1.15 service factor but will be selected for operation within their full load rating without applying the service factor.
- 13.25.5 Bearings will provide L10 rating of 100,000 hours minimum for C-face applications. For frame sizes 56-140, bearings will be permanently lubricated. For frame sizes 180 and larger, bearings shall be re-greasable.
- 13.25.6 For frame sizes 180 and larger, motor construction shall be cast iron For frame sizes 56-140, carbon steel construction is acceptable.
- 13.25.7 External cooling fan on TEFC motors shall be corrosion resistant, non-sparking.
- 13.25.8 Motors shall be suitable for use with PWM type variable frequency drives with a minimum turndown rating of 3-60 Hz.

13.26 Maximum flow rate: 12 gallons per minute

13.27 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

13.28 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

13.29 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

13.30 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

14.0 ITEM NO. 12: PUMP, PERISTALTIC PUMP - PERIFLO MODEL FMP

14.1 PUMP MODEL

14.2 Pump shall be PERIFLO MODEL FMP

14.3 OPERATING CONDITIONS

14.4 Powdered Activated Carbon slurry.

14.5 PERISTALTIC PUMPS

14.6 Acceptable bidders: PERIFLO, or equal.

14.7 Pump Construction: General

14.7.1 Horizontal, positive displacement, peristaltic pump

14.7.2 Capable of operating in either direction without flow variation

14.7.3 Capable of running dry without damage to pump or hose

14.7.4 Capable of pulling 95% of full vacuum

14.7.5 Repeatability: 1% accurate

14.7.6 Valveless/Glandless with no dynamic seals in contact with the pumped product

14.7.7 Simplex or duplex as indicated in the Process Pump Schedule

14.7.8 Pump will be capable of being rotated in 90-degree increments for four (4) different port mounting configurations

14.7.9 Direct coupled gear arrangement. Pumps with close coupled or bare shaft arrangements are not acceptable

14.7.10 Angle of hose 180 degrees through the pump. Pumps with less than 180 degrees or more than 360 degrees are not acceptable.

14.8 Hose and Lubricant

14.8.1 Hose will be manufactured of three-layer elastomer with an inner wetted layer compatible with the process fluid, multiple layers of nylon reinforcement suitable for pressure rating of the hose, and a natural rubber outer layer. Hose must be specifically designed for peristaltic pump service.

14.8.2 Minimum static burst pressure rating of 600 psi.

14.8.3 53-68 Shore A durometer

14.8.4 Hose must be replaceable without cover or pump removal

14.8.5 Pump hose must be lubricated. Pumps with rollers shall use a food grade silicone grease. Pumps with shoes shall be filled approximately 50% with a food grade glycerin based hose lubricant to remove heat of friction and provide lubrication.

14.8.6 Pumps with shoes: Provide a threaded drain plug at the lowest point of the priming chamber to allow the complete drainage of the lubricant.

14.8.7 Pumps that do not use an internal lubricant are not acceptable.

14.8.8 Single hose per pump casing. Pumps using more than one hose per pump casing to achieve the flow are not acceptable.

14.9 Pump Housing with Internal Bearing Frame

Pump housing will be constructed of cast iron and will be supplied with an internally mounted bearing hub and rotor assembly. Gear unit will be directly coupled to the back of the pump housing and will be completely isolated from the process fluid and pump lubricant through the sealed bearing hub. Gear unit and drive components will be serviceable without removal of the pump rotor. Pumps with aluminum housing are not acceptable.

- 14.10 Rotor will be constructed of cast iron ASTM A48.
 - 14.10.1 Shoe pumps: Rotor will be supplied with two pressing shoes mounted 180 degrees apart. Shoes will be constructed of epoxy or aluminum as recommended by the manufacturer and will be adjustable for varying degrees of compression via flat shims constructed of 316SS.
 - 14.10.2 Roller pumps: Rotor will be supplied with two rollers mounted 180 degrees apart. Rollers shall be anodized steel or corrosion resistant metal as recommended by the manufacturer. Each will be supplied with two (2) permanently grease lubricated ball bearings and two (2) nitrile rubber lip seals.
- 14.11 Bearing cartridge – Pump displacement 1.76 gal/rev or less: Pump shall be equipped with a carbon steel cartridge type bearing housing including permanently grease lubricated anti-friction ball bearings with a minimum L-10 life of 40,000 hours at maximum operating speeds. A nitrile rubber lip seal will isolate the bearings from pumped liquid in the event of a hose failure. The bearing cartridge shall accept direct coupling to a flange mounted gearbox with a keyed output shaft and will be designed to absorb the full radial load of the hose compression mechanism.
- 14.12 Bearing cartridge – Pump displacement larger than 1.76 gal/rev: Pump shall be equipped with a carbon steel cartridge type bearing housing including permanently grease lubricated anti-friction ball bearings with a minimum L-10 life of 40,000 hours at maximum operating speeds. A nitrile rubber lip seal will isolate the bearings from pumped liquid in the event of a hose failure. The bearing cartridge shall accept direct coupling to a flange-mounted gearbox with a splined shaft. Bearing cartridge shall be removable from the rotor side of the housing without the need to remove the pump housing or gearbox and no special tools shall be required.
- 14.13 Direct-coupled pump: Close-coupled pumps with the rotor mounted directly on the gearbox output shaft or long-coupled pumps with external coupling are not acceptable.
- 14.14 Chemical service: Pump housing and rotor shall be coated with Halar. Shoes/Rollers shall be 316SS or epoxy. All fasteners shall be 316SS.
- 14.15 Connectors
 - Inlet and outlet connections shall be 150# ANSI raised face flanges. Flange inserts or flanges (if wetted) shall be compatible with the process fluid. Hoses should be secured with integral compression flanges (preferred) or as an alternate may be secured with automotive style clamps.
 - 14.15.1 Flange supports shall be constructed of 316SS with 316SS hardware on corrosive applications.
 - 14.15.2 Van Stone-type flanges shall be 316SS on corrosive applications.
- 14.16 Pump Cover
 - 14.16.1 Roller pumps: Carbon steel cover ring with a polyester epoxy powder coating and removable one (1) piece clear polycarbonate viewing window. Window shall be sufficiently sized to allow for adjustment of shims and view rotation from the front of the pump.
 - 14.16.2 Shoe pumps:
 - 14.16.3 For 25mm and 32mm pumps, cover will be constructed of carbon steel or cast iron and will be fitted with a fixed window. The cover will be removable for replacement of pressing shoes or shims.
 - 14.16.4 For 40mm – 100mm pumps, cover will be constructed of carbon steel with a removable clear viewing inspection window sufficiently large enough to replace pressing shoes and allow for shim replacement without removing the pump cover.
 - 14.16.5 Pump cover will be sealed to the pumphead via a captive Buna-N o-ring.
 - 14.16.6 Pump hardware will be stainless steel.
 - 14.16.7 Aluminum construction is not acceptable.

- 14.17 Frame
 - 14.17.1 Support frame will be constructed of steel (alternate: 316SS for corrosive applications). Welded steel or modular adjustable frames are not acceptable.
 - 14.17.2 Frame and pump construction will be such that alignment is not required for installation.
- 14.18 Hose leak detector
 - 14.18.1 Roller pumps. Hose leak detector shall be of the capacitance type, located at the lowest point of the pump body. Switch shall be supplied NC (optional NO) rated 24-240VAC 300mA continuous switch current. Mount the sensor on the rear of the pump housing.
 - 14.18.2 Shoe pumps. Hose leak detector shall be of the capacitance type, located at the highest point of the pump body. Switch shall be supplied NC (optional NO) rated 24-240VAC 300mA continuous switch current. Mount the sensor on the rear of the pump housing. This option allows direct wiring in series with the pump motor start circuit for pump shutdown in the event of hose leak. No other interface equipment is required.
- 14.19 **Gearing:**
 - 14.19.1 Provide gearing with direct-coupled mounting to the pump housing.
 - 14.19.2 For 25mm to 50mm pumps. Gearbox shall be of the in-line helical design, of standard commercial manufacture with a minimum service factor of 1.4 based upon motor nameplate rating, an AGMA Class II continuous duty rating, NEMA C-face motor input, footless design with flanged connection and keyed output shaft. Integral gearmotors are not acceptable
 - 14.19.3 Gearbox replacement units, parts and service must be available directly from local gearbox distributor. Purchase directly from Pump Vendor shall not be required.
- 14.20 **Motors:**
 - 14.20.1 **Provide premium efficient, TEFC squirrel cage induction motors, NEMA C-Face, conforming to the latest applicable requirements of NEMA, IEEE, ANSI and NEC standards.**
 - 14.20.2 **Provide motor HP appropriate for the maximum speed and pressure conditions specified in the Process Pump Schedule.**
 - 14.20.3 **Motors are to be designed for 3-phase, 230-460VAC operation, NEMA Design B with torque and starting currents in accordance with NEMA MG-1. Ratings to be based on a 40 degree C ambient 3,300 feet altitude of lower operation with a maximum temperature rise of 80 degree C at 1.0 service factor (and 90 degree C rise 1.15 S.F.)**
 - 14.20.4 **Motors will be furnished with Class F insulation. Motors will have a 1.15 service factor but will be selected for operation within their full load rating without applying the service factor.**
 - 14.20.5 **Bearings will provide L10 rating of 100,000 hours minimum for C-face applications. For frame sizes 56-140, bearings will be permanently lubricated. For frame sizes 180 and larger, bearings shall be re-greasable.**
 - 14.20.6 **For frame sizes 180 and larger, motor construction shall be cast iron For frame sizes 56-140, carbon steel construction is acceptable.**
 - 14.20.7 **External cooling fan on TEFC motors shall be corrosion resistant, non-sparking.**
 - 14.20.8 **Motors shall be suitable for use with PWM type variable frequency drives with a minimum turndown rating of 3-60 Hz.**
- 14.21 Maximum flow rate: 12 gallons per minute

14.22 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

14.23 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

14.24 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

14.25 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

15.0 ITEM NO. 13: PUMP, HORIZONTAL FIBERGLASS - 3" X 4" X 10 FIBROC MODEL 1500

15.1 GENERAL:

FYBROC – recommended unit(s)

- 15.2 1.2 Pump shall be rated as a corrosive duty unit i.e. capable of handling water, with sodium hydroxide and sodium hypochlorite in dilute solution.
- 15.3 1.3 Pump shall be horizontally mounted
- 15.4 1.4 Pump to be installed by Vendor

15.5 Pump

2.1 Flow capacity rating shall be 250 gpm with motor speed of 1750 rpm

- 15.6 Discharge head rating shall be 60 ft.
- 15.7 Suction 4" diameter and Discharge 3" diameter
- 15.8 Housing Construction shall be fiber reinforced plastic with Teflon lining
- 15.9 Shaft shall be constructed of 316 Stainless Steel
- 15.10 Mechanical seals with external water flush
- 15.11 Conform to ANSI/ASME B73.1 Standards

15.12 WARRANTY:

The supplier shall provide a full one-year warranty on the pump, which includes parts and labor. The warranty work shall be conducted within 3 working days after receipt of written notice from the City. All shipping charges for warranty work that is required outside of the Houston area will be borne by the supplier.

15.13 LITERATURE:

The supplier shall provide two sets of operation, maintenance and parts manuals for each pump and hydraulic unit at the time of delivery.

15.14 DELIVERY:

Unit(s) as specified above, with delivery ticket and other documents and manuals, if requested shall be delivered to the location (s) as stated on each individual purchase order as expeditiously as possible, but no later than sixty (60) calendar days after receipt of a City of Houston Purchase Order.

15.15 TRAINING:

A minimum of four- (4) hours of training shall be conducted by the successful bidder. All training will be conducted at a City of Houston location to be determined at a later date.

SECTION C

GENERAL TERMS AND CONDITIONS

1.0 COMPETITIVE BIDDING:

- 1.1 It is the intent of the City of Houston to solicit the lowest and best responsible bid or price under competitive conditions. All materials and/or equipment shall be new unless stated otherwise. Prospective bidders are advised that the specifications within this bid invitation are not to be considered restricted to any referenced manufacturer.

2.0 AWARD:

- 2.1 The City reserves the right to consider and make awards of bids on articles of similar nature that will in all respects serve the purpose for which the purchase is being made. The City reserves the right to be the sole judge as to whether such articles will serve the purpose.
- 2.2 Unless otherwise specified, the City reserves the right to accept or reject in whole or in part any bid submitted or to waive any informalities that are in the best interests of the City.

3.0 CONDITIONS PART OF BID:

- 3.1 In the event of any conflict, the terms and provisions incorporated in the bid specifications shall control over the terms and provisions of the General Terms & Conditions for any or all purposes. Otherwise, all the terms and provisions appearing within the General Terms & Conditions shall be given full effect and shall be construed in harmony to the maximum extent by the parties hereto.
- 3.2 The failure of the City to insist, in any one or more instances, upon performance of any of the terms, covenants or conditions of this Contract, General Terms & Conditions or Specifications shall not be construed as a waiver or relinquishment of the future performance of such term, covenant or condition by the City, but the obligation of the Prime Supplier/Awardee with respect to such future performance shall continue in full force and effect.

4.0 SILENCE OF SPECIFICATIONS:

- 4.1 The apparent silence of these specifications as to any detail or the apparent omission from them of a detailed description concerning any point shall be regarded as meaning that only the best commercial practice shall prevail and only materials and workmanship of first quality are acceptable. All interpretations of these specifications shall be made upon the basis of this statement.

5.0 SPECIFIED EQUIPMENT, OR EQUIVALENT:

- 5.1 Wherever in the specifications any materials or processes are indicated or specified by patent of proprietary name and/or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating descriptions of the performance, materials and/or processes desired and shall be deemed to be followed by the words, "or equivalent", if not so stated in the specifications herein.
- 5.2 The burden of proof shall rest with the bidder, in the course of a technical evaluation, to prove that the proposed item(s) are equivalent to the performance, materials, processes, or articles specified. DETERMINATION AS TO WHETHER THE ITEM (S) BID IS (ARE) EQUIVALENT TO THOSE SPECIFIED SHALL REST SOLELY WITH THE CITY PURCHASING AGENT AND THE RECEIVING DEPARTMENT.

6.0 BRAND NAME OR TRADE NAME:

6.1 Any manufacturer's names, trade names, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing the general quality level, design and performance desired. Such references are not intended to limit or restrict bidding by other Prime Supplier/Awardees, but are intended to approximate the quality design or performance that is desired. Any bid that proposes like quality, design or performance, will be considered. Equivalent products will be considered, provided a complete description and product literature is provided. Unless a specific exception is made, the assumption will be that the item bid is exactly as specified on the Invitation to Bid.

7.0 PATENTS:

7.1 The Prime Supplier/Awardee agrees to indemnify and save harmless the city, its agents, employees, officers, and legal representatives from all suits and actions of every nature and description brought against them or any of them, for or on account of the use of patented appliances, products or processes, and it shall pay all royalties and charges which are legal and equitable. Evidence of such payment or satisfaction shall be submitted, upon request of the City Purchasing Agent, as a necessary requirement in connection with the final estimate for payment in which such patented appliance, products or processes are used.

8.0 TERMINATION OF AGREEMENT:

8.1 By the City for Convenience:

8.1.1 The City Purchasing Agent may terminate this Contract at any time upon 30-calendar days notice in writing to the Prime Supplier/Awardee. Upon receipt of such notice, Prime Supplier/Awardee shall, unless the notice directs otherwise, discontinue all services in connection with the performance of the contract and shall proceed to cancel promptly all existing orders and contracts insofar as such orders and contracts are chargeable to this Contract. As soon as practicable after the receipt of notice of termination, the Prime Supplier/Awardee shall submit a statement to the appropriate department(s) showing in detail the services performed or items delivered under this Contract to date of termination. The City agrees to compensate the Prime Supplier/Awardee for that portion of the prescribed charges for which the services were actually performed or items delivered under this project and not previously paid.

8.2 By the City for Default by Prime Supplier/Awardee:

8.2.1 In the event that the materials and/or services furnished by the Prime Supplier/Awardee do not conform to the standard set forth herein, or if the deliveries and servicing of this award do not conform to the requirements detailed herein, the City through a written notice from the City Purchasing Agent to the Prime Supplier/Awardee describing such default may as its options:

- (1) Terminate the award for default and the City shall have no further obligation under the Award.
- (2) Allow the Prime Supplier/Awardee to cure default within a reasonable time as specified in the notice. The City, at its sole option, may extend the proposed date of termination to a later date. If prior to the proposed date of termination, Prime Supplier/Awardee cures such default to the City's satisfaction, then the proposed termination shall be ineffective. If Prime Supplier/Awardee fails to cure such default prior to the propose date of termination, then the City may terminate its performance under this award as of such date and have no further obligation under the award.

8.2.2 In the event of failure to deliver any or all of the items or to perform required services, the City may cover its loss by reasonably procuring from another source the items not delivered or the services not performed. Prime Supplier/Awardee shall be responsible for and shall pay to the City immediately upon demand the difference in price between that offered by the Prime Supplier/Awardee and that which the City was forced to pay for covering Prime Supplier/Awardee's failure to deliver or perform services.

8.3 By the Prime Supplier/Awardee for Default by City:

8.3.1 Default by the City shall occur if the City fails to perform or observe the terms and conditions of this Award required to be performed or observed by the City, and the Prime Supplier/Awardee gives notice in writing to the City within 30 calendar days of the act or omission claimed by the Prime Supplier/Awardee to constitute default on the part of the City.

8.3.2 Upon receipt of such notice in writing from the Prime Supplier/Awardee, however, the City shall have 30 calendar days to cure such default. The Prime Supplier/Awardee, at its sole option, may extend the proposed date of termination to a later date.

8.3.3 If City cures such default prior to the proposed date of termination, the proposed termination shall be ineffective. If the City fails to cure such default prior to the proposed date of termination, then the Prime Supplier/Awardee may terminate its performance under this award as of such date

9.0 SUCCESSORS & ASSIGNS:

9.1 Prime Supplier/Awardee may not assign this award or dispose of substantially all of its assets without the written consent of the City Purchasing Agent. Prime Supplier/Awardee's failure to obtain such consent shall be an event of default, authorizing the City Purchasing Agent to terminate this award according to its terms.

10. RELEASE:

10.1 PRIME SUPPLIER/AWARDEE AGREES TO AND SHALL RELEASE THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") FROM ALL LIABILITY FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THIS AGREEMENT, EVEN IF THE INJURY, DEATH, DAMAGE, OR LOSS IS CAUSED BY THE CITY'S SOLE OR CONCURRENT NEGLIGENCE AND/OR THE CITY'S STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY.

11.0 INDEMNIFICATION:

11.1 PRIME SUPPLIER/AWARDEE AGREES TO AND SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") HARMLESS FOR ALL CLAIMS, CAUSES OF ACTION, LIABILITIES, FINES, AND EXPENSES (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS AND INTEREST) FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THIS AGREEMENT INCLUDING, WITHOUT LIMITATION, THOSE CAUSED BY:

(1) PRIME SUPPLIER/AWARDEE'S AND/OR ITS AGENTS', EMPLOYEES', OFFICERS', DIRECTORS', SUCCESSFUL BIDDERS', OR SUBSUCCESSFUL BIDDERS' (COLLECTIVELY IN NUMBERED PARAGRAPHS 1-3, "PRIME SUPPLIER/AWARDEE") ACTUAL OR ALLEGED NEGLIGENCE OR INTENTIONAL ACTS OR OMISSIONS;

(2) THE CITY'S AND PRIME SUPPLIER/AWARDEE'S ACTUAL OR ALLEGED CONCURRENT NEGLIGENCE, WHETHER PRIME SUPPLIER/AWARDEE IS IMMUNE FROM LIABILITY OR NOT; AND

(3) THE CITY'S AND PRIME SUPPLIER/AWARDEE'S ACTUAL OR ALLEGED STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY, WHETHER PRIME SUPPLIER/AWARDEE IS IMMUNE FROM LIABILITY OR NOT.

11.2 PRIME SUPPLIER/AWARDEE SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY HARMLESS DURING THE TERM OF THIS AGREEMENT AND FOR FOUR YEARS AFTER THE AGREEMENT TERMINATES. PRIME SUPPLIER/AWARDEE'S INDEMNIFICATION IS LIMITED TO \$500,000 PER OCCURRENCE. PRIME SUPPLIER/AWARDEE SHALL NOT INDEMNIFY THE CITY FOR THE CITY'S SOLE NEGLIGENCE.

11.3 INDEMNIFICATION PROCEDURES:

11.3.1 Notice of Claims. If the City or Prime Supplier/Awardee receives notice of any claim or circumstances which could give rise to an indemnified loss, the receiving party shall give written notice to the other party within 10 days. The notice must include the following:

- (a) a description of the indemnification event in reasonable detail,
- (b) the basis on which indemnification may be due, and
- (c) the anticipated amount of the indemnified loss.

11.3.2 This notice does not stop or prevent the City from later asserting a different basis for indemnification or a different amount of indemnified loss than that indicated in the initial notice. If the City does not provide this notice within the 10 day period, it does not waive any right to indemnification except to the extent that Prime Supplier/Awardee is prejudiced, suffers loss, or incurs expense because of the delay.

11.3.3 Defense of Claims.

- (a) **Assumption of Defense.** Prime Supplier/Awardee may assume the defense of the claim at its own expense with counsel chosen by it that is reasonably satisfactory to the City. Prime Supplier/Awardee shall then control the defense and any negotiations to settle the claim. Within 10 days after receiving written notice of the indemnification request, Prime Supplier/Awardee must advise the City as to whether or not it will defend the claim. If Prime Supplier/Awardee does not assume the defense, the City shall assume and control the defense, and all defense expenses constitute an indemnification loss.
- (b) **Continued Participation.** If Prime Supplier/Awardee elects to defend the claim, the City may retain separate counsel to participate in (but not control) the defense and to participate in (but not control) any settlement negotiations. Prime Supplier/Awardee may settle the claim without the consent or agreement of the City, unless it (i) would result in injunctive relief or other equitable remedies or otherwise require the City to comply with restrictions or limitations that adversely affect the City, (ii) would require the City to pay amounts that Awardee does not fund in full, (iii) would not result in the City's full and complete release from all liability to the plaintiffs or claimants who are parties to or otherwise bound by the settlement.

12.0 INSURANCE: (See City of Houston's website for sample certificate)

- 12.1 The Prime Supplier/Awardee shall have insurance coverage as follows:
- Commercial General Liability shall be \$500,000 per occurrence; \$1,000,000 aggregate, per 12-month policy period.
 - Automobile Liability Insurance for autos furnished or used in the course of performance of this Award. Including Owned, Non-owned, and Hired Auto coverage. (Any Auto coverage may be substituted for Owned, Non-owned and Hired Auto coverage.) If no autos are owned by Prime Supplier/Awardee, coverage may be limited to Non-owned and Hired Autos. If Owned Auto coverage cannot be purchased by Prime Supplier/Awardee, Scheduled Auto coverage may be substituted for Owned Auto coverage. EACH AUTO USED IN PERFORMANCE OF THIS AWARD MUST BE COVERED IN THE LIMITS SPECIFIED. \$1,000,000 - Combined Single Limit per occurrence; \$1,000,000 aggregate, per 12-month policy period.
 - **Worker's Compensation** including Broad Form All States endorsement shall be in statutory amount.
 - **Employer's Liability:** Bodily Injury/Accident \$100,000; Bodily Injury/Disease \$100,000 (per employee); Bodily Injury/Disease \$100,000 (policy limit).

12.2 The issuer of any policy (1) shall have a Certificate of Authority to transact insurance business in Texas or (2) shall be an eligible non-admitted insurer in Texas, and shall have a Best's rating of at least B+, and a Best's Financial Size Category of Class VI or better, according to the most current edition of Best's Key Rating Guide.

12.3 All insurance policies required by this Award shall require on their face that 1) the City of Houston is named as an additional insured; 2) the insurance carrier waives any rights of subrogation against the City; and 3) it shall give thirty (30) days written notice to the City before any policy required by this Award is cancelled. Within such thirty (30) day period, Prime Supplier/Awardee covenants that it will provide other suitable policies in lieu of those about to be cancelled so as to maintain in effect the coverage required under the provisions hereof. Failure or refusal of the Prime Supplier/Awardee to obtain and keep in force the above-required insurance coverage shall authorize the City, at its option, to terminate this Award at once.

12.4 REQUIREMENTS FOR CERTIFICATE OF INSURANCE:

- 12.4.1 Certificate must not be more than 30 days old.
- 12.4.2 Name and Address of Producer writing coverage.
- 12.4.3 Name of each insurance company providing coverage (as listed or on company's Certificate of Authority on file with the Texas Department of Insurance, or in Best's Key Rating Guide.)
- 12.4.4 Name and address of insured (as shown on policy).
- 12.4.5 Letter in the column must reference the insurer of the policy being described.
- 12.4.6 Must be a policy number; no binders will be accepted.
- 12.4.7 Date policy became effective.
- 12.4.8 Expiration date must be at least **60** days from date of delivery of certificate.
- 12.4.9 Name and file number of project (Bid Name and Bid Number).
- 12.4.10 Name of project manager (Buyer).
- 12.4.11 Signature or facsimile signature of authorized representative of Producer (blue ink preferred).

12.5 Prior to award and/or starting work, Prime Supplier/Awardee must present a Certificate of Insurance evidencing the insurance coverage specified above. This is a mandatory requirement.

Forward to Buyer at:

City of Houston
Strategic Purchasing Division
901 Bagby, room B500
Houston, Texas 77002

INSURANCE IS NOT REQUIRED IF ITEM IS DROP-SHIPPED BY MANUFACTURER OR IS DELIVERED BY COMMON CARRIER.

13.0 MINORITY AND WOMEN BUSINESS ENTERPRISES:

- 13.1 These provisions apply to goal-oriented contracts. A goal oriented contract means any contract awarded for the supply of goods or non-professional services of approximately \$100,000.00 for which competitive bids are required by law and which the City Purchasing Agent has determined to have City of Houston Certified MWBE subcontracting potential.
- 13.2 Prime Supplier/Awardee agrees to comply with the City's Minority and Women Business Enterprise programs as set out in Chapter 15, Article V of the City of Houston Code of Ordinances insofar as such programs apply to this Contract. Prime Supplier/Awardee further agrees that it will make good faith efforts to award subcontracts or supply agreements in at least 0% of the value of this Award to Minority and Women-owned Business Enterprises certified by the City's Affirmative Action Division. In addition, Prime Supplier/Awardee acknowledges that it has reviewed the requirements for good faith efforts that are on file with the City's Affirmative Action Division, is familiar with such requirements, and will comply with them.
- 13.3 Prime Supplier/Awardee shall require written subcontracts with all MWBE subsuccessful bidders and suppliers, which must contain the terms, set out in the documents attached herein. If Prime Supplier/Awardee is an individual person (as distinguished from a corporation, partnership, or other legal entity), and the amount of the subcontract is \$50,000 or less, then the subcontract must also be signed by the attorneys of the respective parties.
- 13.4 Refer to the "City of Houston Goal-Oriented Minority and Women Business Enterprises Contract Provisions" attachment, which is incorporated in the specifications herein by this reference for all purposes, for more detailed information on this requirement.

The above-mentioned goal will apply to Item Nos. N/A.

14.0 REJECTIONS:

- 14.1 Articles not in accordance with samples and specifications must be removed by the Prime Supplier/Awardee and at his expense. All disputes concerning quality of supplies delivered under this offer will be determined by the City Purchasing Agent or designated representative.
- 14.2 All articles enumerated in the offer shall be subject to inspection on delivery by an officer designated for the purpose and if found inferior to the quality called for, or not equal in value to the Department's samples, or deficient in weight, measurements, workmanship or otherwise, this fact shall be certified to the City Purchasing Agent who shall have the right to reject the whole or any part of the same.

15.0 INVOICING:

- 15.1 **In order to expedite payments all invoices must be submitted in triplicate, itemized as to quantity, part and/or model number, description in the same order and form as in the City of Houston Purchase Order. Variations will only delay payment. In addition, invoices must show the name of the Department, Division or Section to which the merchandise was delivered, and the City of Houston Purchase Order Number.**
- 15.2 **All delivery tickets must have a description of the item delivered.**
- 15.3 **Mail invoices to the Accounts Payable Section of the Department and to the address, as noted on individual purchase orders.**
- 15.4 **Delivery tickets and packing slips will contain the same information as the invoice.**
- 15.5 **All packing slips and delivery tickets must be signed by the receiving employee with their City Employee Number and must be signed by Prime Supplier/Awardee's Representative.**

16.0 TAXES:

16.1 The City is exempt from the Federal Excise and Transportation Tax, and the limited Sales and Use Tax. Unless the Bid Form or Specifications specifically indicate otherwise, the bid price must be net exclusive of above-mentioned taxes. A Prime Supplier/Awardee desiring refunds of, or exemptions from, taxes paid on merchandise accepted by the City, must submit the proper forms, and the City Purchasing Agent, if satisfied as to the facts, may approve or issue the necessary certificates.

17.0 PAYMENT:

17.1 Payment is due thirty (30) days after the City has approved the invoice or after the City has accepted the equipment and all required documents, whichever occurs later. Invoices received that do not agree with the provisions set forth herein shall be returned for correction and will result in payment being delayed.

17.2 PAYMENT OF SUBSUCCESSFUL BIDDERS:

17.2.1 Prime Supplier/Awardee shall make time payments to all persons and entities supplying labor, materials or equipment for the performance of this Award. Prime Supplier/Awardee agrees to protect, defend, and indemnify the City from any claims or liability arising out of Prime Supplier/Awardee's failure to make such payments. (Disputes relating to payment of MWBE unsuccessful bidders shall be submitted to arbitration in the same manner as any other disputes under the MWBE subcontract. Failure of the Prime Successful bidder/Supplier to comply with the decisions of the arbitrator may be deemed, at the sole discretion of the City, a material breach leading to termination of this Award.)

18.0 INSPECTIONS AND AUDITS:

18.1 The City reserves all rights to review all payments made to Prime Supplier/Awardees by auditing at a later date. Subject to such audit, any overpayments may be recovered from the Prime Supplier/Awardee.

18.2 City representatives may have the right to perform, or have performed, (1) audits of Prime Supplier/Awardee's books and records, and (2) inspections of all places where work is undertaken in connection with this Agreement. Prime Supplier/Awardee shall keep its books and records available for this purpose for at least three years after this Agreement terminates. This provision does not affect the applicable statute of limitations.

18.3 City representatives have the right to examine the books of all unsuccessful bidders and/or suppliers supplying goods and/or services under the prime award insofar as those books and records relate to performance under the prime award.

19.0 CITY OF HOUSTON FAIR CAMPAIGN ORDINANCE:

19.1 The City of Houston Fair Campaign Ordinance makes it unlawful for a Prime Supplier/Awardee to offer any contribution to a candidate for City elective office (including elected officers and officers-elect). All respondents to this invitation to bid must comply with Houston Code of Ordinances Chapter 18 as amended relating to the contribution and solicitation of funds for election campaigns. Provisions of this ordinance are provided in part in the paragraphs that follow. Complete copies may be obtained from the office of the City Secretary.

19.2 Candidates for city office may neither solicit nor receive contributions except during a period commencing 270 calendar days prior to an election date for which a person is a candidate for such office and ending 90 calendar days after the election date, including run off elections if such candidate is on the ballot.

19.3 Further, it shall be unlawful either for any person who submits a bid or proposal to contribute or offer any contribution to a candidate or for any candidate to solicit or accept any contribution from such person for a period commencing at the time of posting of the City Council Meeting Agenda including an item for the award of the Contract and ending upon the 30th day after the award of the Contract by City Council.

19.4 For the purposes of this Ordinance, a **Contract** is defined as each Contract having a value in excess of \$30,000 that is let by the City for professional services, personal services, or other goods or services of any other nature whether the Contract is awarded on a negotiated basis, request for proposal basis, competitive proposal basis or formal sealed competitive bids. The term **Prime Supplier/Awardee** includes proprietors of proprietorships, partners having an equity interest of 10% or more of partnerships, (including limited liability partnerships and companies), all officers and directors of corporations (including limited liability corporations), and all holders of 10% or more of the outstanding shares of corporations.

19.5 **A STATEMENT DISCLOSING THE NAMES AND BUSINESS ADDRESSES EACH OF THOSE PERSONS WILL BE REQUIRED TO BE SUBMITTED WITH EACH BID OR PROPOSAL FOR A CITY CONTRACT.** Completion of the attached form entitled "**Supplier Submission List**" will satisfy this requirement. Failure to provide this information may be just cause for rejection of your bid or proposal.

20.0 CITY OF HOUSTON PRIME SUPPLIER/AWARDEE OWNERSHIP DISCLOSURE ORDINANCE:

20.1 City Council requires knowledge of the identities of the owners of entities seeking to do business with the City in order to review their indebtedness to the City and other qualifying governmental entities prior to entering into contracts. Therefore, all respondents to this invitation to bid must comply with Houston Code of Ordinances Chapter 15, as amended (Sections 15-122 through 15-126) relating to the disclosure of owners of entities bidding on, proposing for or receiving City business. Provisions of this ordinance are provided in part in the paragraphs that follow. Complete copies may be obtained from the office of the City Secretary.

20.2 Contracting entity means a sole proprietorship, corporation, non-profit corporation, partnership, joint venture, limited liability company, or other entity that seeks to enter into a award requiring approval by the Council but excluding governmental entities.

20.3 A contracting entity must submit at the time of its bid or proposal, an affidavit listing the full names and the business and residence addresses of all persons owning 5% or more of a contracting entity or, where a contracting entity is a non-profit corporation, the full names and the business and residence addresses of all officers of the non-profit corporation.

20.4 Completion of the "**Affidavit of Ownership or Control**", included herein, and submitted with the Official Bid or Proposal Form will satisfy this requirement. Failure to provide this information with your bid or proposal may be just cause for rejection of your bid or proposal.

21.0 CHANGE ORDERS:

21.1 At any time during the Agreement Term, the City Purchasing Agent, or designated representative, may issue a change order to increase or decrease the scope of services, or change plans and specifications, as may be necessary to accomplish the general purposes of this Agreement. Prime Supplier/Awardee shall furnish the services or deliverables in the change order in accordance with the requirements of this Agreement plus any special provisions, specifications, or special instructions issued to execute the additional work.

21.2 Prime Supplier/Awardee shall not make any changes to the specifications or drawings contained herein without written authorization from the City Purchasing Agent or designated representative. The City may refuse to accept all or part of the work performed or equipment/supplies delivered if changes are made to the specifications or drawings without the written authorization of the City Purchasing Agent or designated representative. The City shall not be responsible for costs incurred by the Prime Supplier/Awardee on unauthorized change orders.

- 21.3 Documentation acceptable to the City Purchasing Agent as evidence of Prime Supplier/Awardee's change(s) shall reference the City's bid specification by section(s) and page number(s). A letter with supporting documentation of the requested change(s) shall be submitted to the City Purchasing Agent, and the City Purchasing Agent must approve any requested changes PRIOR TO ANY CHANGES BEING PERFORMED. The face of the envelope containing this letter shall clearly state, "CHANGE ORDER REQUEST" and THE NUMBER OF THE BID INVITATION AND THE NUMBER(S) OF THE PURCHASE ORDER(S) referenced. Failure to provide clear and concise evidence as stated above and in the format requested will result in denial until Prime Supplier/Awardee complies with these provisions. Documentation shall be mailed to:

City Purchasing Agent
City of Houston
Strategic Purchasing Division
901 Bagby
Houston, TX 77002

- 21.4 The City Purchasing Agent, or designated representative, may issue change orders, subject to the following limitations:
- 21.4.1 City Council expressly authorizes the City Purchasing Agent to approve change orders of \$25,000 or less. A change order of more than \$25,000 over the approved award amount must be approved by City Council.
- 21.4.2 The total of all change orders issued under this section may not increase the Original Agreement amount by more than 25%.
- 21.4.3 For any items described in a change order that the Prime Supplier/Awardee is otherwise required to provide under the Original Agreement, the City shall not pay additional money to Prime Supplier/Awardee.