COUNTY OF ROCKLAND
Department of General Services
Purchasing Division

Contract Award Notification

Title: **Pump Parts and Replacement Pumps for Cornell Pumps**

Contract Period: October 4, 2023 through October 3, 2024 w/ 2 one-year options

Original Date of Issue: 10/11/23

Date of Revision:

BID No: RFB-RC-2023-086

Authorized Users: County Agencies, All Political Subdivisions

Address Inquiries To:

Name: Raheela Akhter
Title: Assistant Buyer
Phone: 845-364-3813
Fax: 845-364-3809
E-mail: akhterr@co.rockland.ny.us

Description
This contract is to provide various Cornell replacement pump and parts.

Contract #	Vendor Number	Contractor & Address	Telephone No.
BID 23-086	0000020528	Koester Associates Inc. 3101 Seneca Turnpike Canastota, NY 13032 Contact: Kyle Buckles & Daniel Jean kbuckles@koesterassociates.com djean@koesterassociates.com	315-697-3800 FAX: 315-697-3888

VENDOR: Koester Assoc.

COUNTY OF ROCKLAND
DGS – PURCHASING DEPARTMENT
BLDG. A, 6th FLOOR, 50 SANATORIUM ROAD
POMONA, NY 10970
TELEPHONE NO.: 845-364-3820
FAX NO.: 845-364-3809

LINE NO.	DESCRIPTION	CATEGORY CODE(FOR ROCKLAND COUNTY USE)	QUANTITY ESTIMATED	UNIT	UNIT PRICE	MANUFACUTER	MODEL/PART NUMBER
1	MAHWAH PUMP STATION, MFG. CORNELL, SERIAL NUMBER 227308 13.44, MODEL #6NHTA, CATEGORY- SUMBERSIBLE, HP 100	72064000033	1	**EACH**	**$ 68,571.00**	**Cornell Pump (pump and motor)**	**TB11700**
2	GRANDVIEW PUMP STATION, MFG. CORNELL, SERIAL NUMBER 15790813-56, MODEL #6NHTA VMS, CATEGORY- SUMBERSIBLE, HP 125	72064000035	1	**EACH**	**$ 91,607.00**	**Cornell Pump (pump and motor)**	**TB07963**
3	GRANDVIEW PUMP STATION, MFG. CORNELL, SERIAL NUMBER 244124 14.00, MODEL # 6NHTA-SUB, CATEGORY- SUMBERSIBLE, HP 125	72064000043	1	**EACH**	**$ 80,550.00**	**Cornell Pump (pump and motor)**	**TB12911**
4	GRANDVIEW PUMP STATION, MFG. CORNELL, SERIAL NUMBER 239631 14.00, MODEL # 6NHTA-SUB, CATEGORY- SUMBERSIBLE, HP 125	72064000044	1	**EACH**	**$ 80,550.00**	**Cornell Pump (pump and motor)**	**TB12911**
5	WEST NYACK PUMP STATION, MFG. CORNELL, SERIAL NUMBER 79468/69/70, MODEL # 8NHTA Vertical Frame, CATEGORY- Dry Pit - Shaft Driven, HP 60	72064000045	1	**EACH**	**$ 41,193.00**	**Cornell Pump (pump and elbow)**	**TB00018**
6	PASCACK PUMP STATION, MFG. CORNELL, SERIAL NUMBER 81769/70/71, MODEL # 6NHTAVF18, CATEGORY- Dry Pit - Shaft Driven, HP 75	72064000046	1	**EACH**	**$ 35,371.00**	**Cornell Pump (pump and elbow)**	**TB00108**

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7	PINEBROOK PUMP STATION, MFG. CORNELL, SERIAL NUMBER 81772/3/4, MODEL # 6NHTA-VF18DR, CATEGORY- Dry Pit - Shaft Driven, HP 100	72064000047	1	**EACH**	**$ 35,371.00**	**Cornell Pump (pump and elbow)**	**TB00109**
8	CHERRY LANE PUMP STATION, MFG. CORNELL, SERIAL NUMBER 81778/79/80, MODEL # 6NHTB-VF18DB, CATEGORY- Dry Pit - Shaft Driven, HP 125	72064000048	1	**EACH**	**$ 39,021.00**	**Cornell Pump (no motor)**	**TB00110**
9	NORTH PUMP STATION, MFG. CORNELL, SERIAL NUMBER 79461/2/3/4, MODEL # 6NHTB-VF18DB, CATEGORY- Dry Pit - Shaft Driven, HP 125	72064000049	1	**EACH**	**$ 39,021.00**	**Cornell Pump (pump and elbow)**	**TB0016**
10	SOUTH PASCACK PUMP STATION, MFG. CORNELL, SERIAL NUMBER 81775/6/7,129731–16.00, MODEL # 6NHTB-8VCX, CATEGORY- Dry Pit - Shaft Driven, HP 200	72064000050	1	**EACH**	**$ 39,021.00**	**Cornell Pump (pump and elbow)**	**TB05408**
11	TWIN LAKES PUMP STATION, MFG. CORNELL, SERIAL NUMBER 79465/6/7, 85450–17.50, 143283, MODEL # 8NHTA Vertical Frame, CATEGORY- Dry Pit - Shaft Driven, HP 250	72064000051	1	**EACH**	**$ 47,321.00**	**Cornell Pump (pump and elbow)**	**TB00017**

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12	SADDLE RIVER PUMP STATION, MFG. CORNELL, SERIAL NUMBER 148851/2–17.5, 148853–16.00, MODEL # 8NHTA-8VCX, CATEGORY- Dry Pit - Shaft Driven, HP 300	72064000052	1	**EACH**	**$ 41,193.00**	**Cornell Pump (pump only)**	**TB07000**
13	MAHWAH PUMP STATION, MFG. CORNELL, SERIAL NUMBER 82962/9 13.44, MODEL # 6NHTA-SUB, CATEGORY- SUMBERSIBLE, HP 100	72064000053	1	**EACH**	**$ 68,571.00**	**Cornell Pump (pump and motor)**	**82962/9**
14	POMONA PUMP STATION, MFG. CORNELL, SERIAL NUMBER 123541/40, MODEL # 4NHTR, CATEGORY- SUMBERSIBLE, HP 75	72064000054	1	**EACH**	**$ 71,121.00**	**Cornell Pump**	**TB04700**
15	PLANT FACILITY, MFG. CORNELL, SERIAL NUMBER 82962/63./64/65/68, MODEL # 4NNT, CATEGORY- Dry Pit - Shaft Driven, HP 75	72064000055	1	**EACH**	**$ 18,214.00**	**Cornell Pump (pump and elbow)**	**BME900C**
16	Bidder to offer a % Discount off of current Mfg. List Price. Price list must be uploaded with bid submission. Bidder to enter % offered as whole number e.g. 10% = 0.10	72064500008	$10,000	**% Discount**	**5 _____ % Discount**	**Cornell Pump**	any

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Pump parts and replacement pumps for Cornell pumps	**RFB-RC-2023-086**

PURCHASES BY OTHER

LOCAL GOVERNMENTS, SCHOOL DISTRICTS, AND NON PROFIT AGENCIES

As per the New York State General Municipal Law, all political subdivisions of New York State are allowed to make purchases through the resulting contract(s). As per Rockland County Procurement Policy, Non Profit Agencies approved to participate in New York State's Contract Extension Program are authorized to make purchases through the resulting contract(s).

1. The County of Rockland shall make all contract award information available to other political subdivisions and non profit agencies through our website: **www.rcpurchasing.com**
2. Any other political subdivision or Rockland County non profit agency will issue purchase orders directly to vendors within the specified contract period referencing the County's contract and shall be liable for any payments due on such purchase orders; and shall accept sole responsibility for any payment due.
3. All purchases shall be subject to audit and inspection by the other political subdivisions and Rockland County non profit agencies for which the purchase was made.
4. No officer, board or agency of a county, town, village, or school district shall make any purchase through the County when bids have been received for such purchase by such officer, board or agency, unless such purchase may be made upon the same terms, conditions and specifications at a lower price through the County.
5. All Bidders shall be on notice that as a condition of the award of a County contract, the successful bidder shall accept the award of a similar contract with any other political subdivision in New York State and Rockland County non profit agencies authorized to use New York State's contracts, if called upon to do so. A listing of approved Rockland County non profit agencies is available on the Purchasing Division's website at www.rcpurchasing.com. The County, however, will not be responsible for any debts incurred by the participants pursuant to this or any other agreement.
6. Necessary deviations from the County's specifications in the award of a participant contract, whether such deviations relate to quantities, or delivery points shall be resolved between the successful bidder and the other political subdivisions and Rockland County non profit agencies.

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Pump parts and replacement pumps for Cornell pumps	**RFB-RC-2023-086**

SPECIFICATIONS

1. SCOPE

1.1. The scope of this bid is to furnish and deliver parts and replacement pumps for Mfg. Cornell or approved equal on an as needed basis as authorized. All items are to be as specified and not require adaptors.

1.2. The Quantities listed are estimated, orders will be placed on an as needed basis.

1.3. The Current inventory of Cornell Pumps by location is attached. (see Attachment A)

1.3.1. Pumps are located at various Pump Stations throughout the County.

2. PRICING

2.1. Bidder to provide unit pricing for each pump model listed. Pricing submitted to include FOB Destination, Orangeburg, NY 10962.

2.2. Pricing must be valid for a period of one (1) year with two (2) one (1) year options. See Price Adjustment clause below. Options to renew are based on mutual agreement between the County of Rockland and the Contractor.

2.2.1. Pricing must include One (1) day installation assistance, start-up service and field testing.

2.3. Bidder to provide a % discount off of Mfg. list price for replacement parts for the specified pumps. Mfg. list price to be submitted with quote requested by RCSD#1 for parts not listed in this bid.

2.3.1. Bidder must maintain a satisfactory inventory of repair and replacement parts for the specified Cornell pumps.

2.3.2. A copy of the current Manufacturers' Price list and/or Nationally Offered Vendor Catalog and Price List or approved equal items must be included with the bid response.

2.3.3. Once awarded a contract, the percentage discount offered to authorized users may, at the contractor's option, be increased based on individual orders. Discounts may be greater, but in no instance shall they be lower than the awarded discount. If contractor is offering a single discount structure, the same discount is applied to all purchases made from the contractor's pricelist.

3. PRICE ADJUSTMENT

3.1. The County recognizes this product or service has a price component that may have a commodity with changing costs. The Contractor/Supplier may request a Price Adjustment no more frequently than once each quarter (3-month period).

A Price Adjustment request must be made in writing and include the reason for the request, documentation supporting the request (ie, commodity increases), the current pricing, and the

requested revised pricing.

The County will review the Price Adjustment request. If the Price Adjustment is deemed reasonable the Price Adjustment request will be accepted by written acknowledgement. If the request is not accepted the County may entirely reject the request or may counter with revised pricing. In either case the County will provide a written explanation in support of the decision.

The Director of Purchasing may use available indexes (e.g. CPI or PPI) to determine if the requested Price Adjustment is reasonable. Typically, a Price Adjustment that exceeds 5% will not be approved unless very unusual and significant changes have occurred in the industry.

In the event industry costs decline, the County shall have the right to receive, from the Contractor, a reasonable reduction in prices/pricing that reflect such cost changes in the industry. The County will make a written request to the Contractor for a Price Adjustment in writing with supporting documentation.

4. BRAND NAME

4.1. The use of a brand name is for the purpose of describing a standard of quality, performance and characteristics desired and is not intended to limit or restrict competition.

5. APPROVED EQUAL OR EQUIVALENT PRODUCTS

5.1. If proposing an equivalent pump, bidder shall submit an item by item (side by side comparison) listing and explanation of any differences between their product specifications and performance and the specified model. Product and service warranties must be included with bid. Failure to comply with this requirement may deem your bid non-responsive.

5.1.1. Bidder shall show the proposed pump meets or exceeds with the:

5.1.1.1. Cornell – Performance Data Sheet – See Attachment B

5.1.1.2. Performance Curves – See Attachment B

5.2. If bidders submit or bid for equivalent or approved equal products, they must submit manufacturer's product description and specifications. These specifications must include all functionality and parts of the specified model.

5.3. Bidders must list five entities currently using the proposed pump on the certification of experience page in the bid package. Proposed pump requiring adapters will not be acceptable.

5.4. Bidder must be able to demonstrate within one week after notice and guarantee in writing that the item bid is interconnectable with existing equipment.

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6. WARRANTY

6.1. Equipment shall be warranted against all defect in material and workmanship as specified by the manufacturer. All warranties from the manufacturer shall apply. Bidder shall, as part of its bid furnish its warranty/guarantee for all goods/services to be furnished hereunder. As a minimum, Bidder shall warrant all goods for a period of one year from date of acceptance. Bidder shall be obligated to repair or replace all defects in material or workmanship which are discovered or exist during said period.

6.1.1. Bidders shall include all product and service warranties and guarantees with their bid.

7. INTERCONNECTABILITY

7.1. This equipment must have the ability to interconnect with the existing equipment. Bidder must guarantee interconnectability in writing with the bid. In addition, vendor must provide any required data within five business days of request from the Rockland County Sewer District # 1 authorized representative.

8. **GENERAL REQUIREMENTS** - Pumps shall be factory tested with certified performance report showing design head and flow, HP rating, and efficiency. Pump shall also be hydrostatically tested at 1.5 times the shutoff head for a minimum of 15 minutes.

8.1. **PUMP SCOPE:**

8.2. Furnish vertical shaft driven dry pit centrifugal non-clog pumps. Pump shall be designed for continuous operating service in conjunction with a variable speed drive and constructed as follows to meet the intended service. The pumps shall be able to operate continuously in air or under water for a period of 2 weeks. Pumps shall be as manufactured by CORNELL PUMP COMPANY of Portland, Oregon, USA and shall be warranted for a period of two full years after date of shipment. Contractors shall include in their submittal as a minimum the pump curves with the selected impeller trim for a speed of 1800RPM as well as variable speed curves in 50 RPM increments to 1200 RPM, certified dimension prints and bearing life calculations. Alternate manufacturers shall also supply the following additional information: shaft fatigue calculations, written certification from the pump manufacturer that the pump meets the specifications, and a list of references with a minimum of 5 years experience of similar pumps operating at these conditions with the specified features.

8.3. Pumps shall be 8NHTA-VF18DB VERTICAL FRAME SHAFT DRIVEN

• Design Capacity	3250 USGPM	Pumpage Temp	50 Deg f
• Design Capacity Head	240Ft	Max. NPSHR @ design pt.	13 ft
• Maximum Capacity	4500 USGPM	Max. NPSHR @ maximum pt.	20 ft
• Maximum Capacity Head	170.0 Ft	Min. Solids Capability	3.38 inch
• Maximum Speed	1780 rpm	Min. Shut Off Head	350 ft
• Min. Efficiency Design Pt	80 %	Max. Shut Off Head	360 ft
• Min. Efficiency Maximum Pt.	80 %	Rotation (CW)	CW

- Min. Pump Suction Size 10 inch Max Driver HP 300
- Min Pump Discharge Size 8 inch

8.4. The pump casing shall be centerline discharge of back pullout design allowing for removal of rotating element without disturbing piping connections. The casing shall be constructed of fine grain Cast Iron of ASTM A48 Class 30. All casing sections shall have heavy wall thickness to provide long life under abrasive and corrosive operating conditions. All mating surfaces shall have register fits to insure proper alignment. Piping connections shall be ANSI 125# flat face drilled flange. Flange face surface finish shall be a minimum of 250 micro-inch finish. Casing Shall have a removable inspection cover. Casing Shall have a removable suction cover to allow for a flip volute type design. Volute shall be of the double volute design to reduce hydraulic thrust and minimize shaft deflection and maximize bearing life.

8.5. The impeller shall be of heavy section Ductile iron ASTM A48, Class 30 with Two-Port design. Single Port Impellers will not be permitted. Impellers will have back vanes to reduce axial thrust and lower the stuffing box pressure. Internal vane edges shall be well rounded to present smooth flow. Impeller shall have a straight non-tapered bore, be dynamically balanced, keyed to the shaft and further secured with a Stainless Steel washer and a Stainless Steel impeller lockscrew. The impeller shall be fixed at location with no expected or required adjustment.

8.6. Replaceable suction wear ring shall be press fit into the suction cover and heat shrunk onto the Impeller. The double wear ring system shall be of the peripheral design requiring no axial adjustment.

8.7. The wear rings shall be constructed of AISI 420 Stainless Steel, Heat Treated to 400-500 BHN, with a minimum of 50BHN difference to prevent galling. Wear rings that require an external axial adjustment are not acceptable.

8.8. A dished style backplate with deflector vanes constructed of ASTM A48 Class 30Grey iron shall be provided, including a single mechanical seal. John Crane Type 2 of material $BO_{15}10_{58}1$. (Tungsten Carbide vs Silicon Carbide). The design shall allow for continuous operation without the need for external flush water or venting. Double seals or cartridge seal with a water flush are not acceptable.

8.9. Impeller and Backplate shall be coated with a ceramic based coating manufactured by Devcon or equal.

8.10. The end suction centrifugal pump shall be pedestal frame style with ASTM A48 Class 30 fine grain Grey Iron bearing frame. The bearing frame shall be line bored for exact concentricity and be equipped with antifriction style bearings. The bearings shall be either ball or roller style properly sized to accommodate all thrusts, both mechanical and hydraulic imposed upon them. The frame shall be designed for captured bearing positioning and shall not require any field axial adjustment. The bearings shall have a minimum calculated B-10 bearing life rating of 100,000 hours at the stated design condition. A complete bearing life, and shaft stress loading

calculation, shall be provided by the pump manufacturer to illustrate compliance with this requirement. Thrust Plate shall be provided if required by bearing life analysis. Bearing lubrication shall be grease with proper provisions, drains, vents or relief's to facilitate easy lubrication in the field. Pumps that are close coupled or rely on the motor bearings to handle the hydraulic loading will not be acceptable.

8.11. The shaft shall be of high strength AISI 1144 Stressproof Alloy Steel. The shaft shall be accurately machined and polished and of sufficient size to transmit full driver output without excessive flexure or stressing. Shaft deflection shall not exceed .006" measured at end of shaft when operating at the specified design condition. A complete shaft stress analysis calculation shall be supplied by the pump manufacturer to illustrate conformance with this requirement.

8.12. The shaft shall be protected by a renewable shaft sleeve which extends through the stuffing box and under the gland. The sleeve shall be grooved on the inside for an o-ring to prevent leakage along the shaft and shall be positively locked to prevent rotation. The sleeve constructed of 420 Stainless Steel, Heat Treated to 400-500 BHN.

8.13. Pump shall be provided with Driveshaft Hub compatible with existing shafting. Lower Section of Shafting shall be modified if required for proper length to current Cornell Bearing Frame Offering.

8.14. The new pumps shall be compatible with the existing Lift-out System and shall be able to fit within the hatch cover without disassembly of the lift out claw.

SUBMERSIBLE NON-CLOG WASTEWATER PUMPS

Cornell 6NHTA-SUB

Contractor shall furnish and install two submersible non-clog pumps to mate up with existing lift-out assemblies. The Pumps shall be designed for continuous operating service and constructed as follows to meet the intended service. Pumps shall be model 6NHTA-SUB as manufactured by Cornell Pump Portland, OR and distributed by Koester Associates or approved equal. Pumps shall carry a full 2year warranty and an additional 3 year prorated warranty.

GRANDVIEW PS

Pumps shall be 6NHTA-Sub-125-4 Submersible

Design Capacity	1300 USGPM	Pumpage Temp	Deg f
Design Capacity Head	180Ft	Max. NPSHR @ design pt.	12 ft
Maximum Capacity	2300 USGPM	Max. NPSHR @ maximum pt.	18 ft
Maximum Capacity Head	130.0 Ft	Min. Shut Off Head	240 ft
Maximum Speed	1790 rpm	Max. Shut Off Head	250 ft

Min. Efficiency Design Pt	77 %	Rotation (CW/CCW)	CW
Min. Efficiency Maximum Pt.	82 %	Max Driver HP	125
Min. Suction Size	6 inch	Min. Solids Capability	3.0 inch
Max Discharge Size	6 inch		

MAHWAH PS

Pumps shall be 6NHTA-Sub-100-4 Submersible

Design Capacity	1250 USGPM	Pumpage Temp	Deg f
Design Capacity Head	150Ft	Max. NPSHR @ design pt.	12 ft
Maximum Capacity	2300 USGPM	Max. NPSHR @ maximum pt.	18 ft
Maximum Capacity Head	110.0 Ft	Min. Shut Off Head	210 ft
Maximum Speed	1770 rpm	Max. Shut Off Head	220 ft
Min. Efficiency Design Pt	77 %	Rotation (CW/CCW)	CW
Min. Efficiency Maximum Pt.	82 %	Max Driver HP	100
Min. Suction Size	6 inch	Min. Solids Capability	3.0 inch
Max Discharge Size	6 inch		

GENENERAL

Pumps shall be factory tested with certified performance report showing design head and flow, HP rating, and efficiency. Pump shall also be hydrostatically tested at 1.5 times the shutoff head for a minimum of 15 minutes.

CASING

The Pump casing shall be centerline discharge of back pullout design allowing for removal of rotating element. Casing shall have a Suction Cover to allow for inspection of impeller and wear rings without removing rotating element. Volute shall be reversible to allow for prolonged life. Casing shall be manufactured of close-grained ASTM A48 class 30 heavy-duty cast iron, free from blowholes or impurities. The volute case shall include a flat face flanged centerline discharge. A Stainless Steel Wear Ring hardened to 400-450bhn shall be pressed into case. Where the pump motor flange comes in contact with the volute there shall be an adapter plate or the volute shall have an indexed register to insure an accurate fit. Suction Cover shall have 125# flange drilling to allow pressure testing and Suction Bell if required. Casings shall have ribs to handle high pressure and add strength to pump.

IMPELLER

Impeller shall be cast iron ASTM-A48, 2-vane non-clog enclosed type. Impeller shall have back vanes to reduce axial thrust and reduce the lower seal pressure. Internal vane edges shall be well rounded to present smooth flow and prevent sharp edges that may collect stringy material, Impeller shall have a straight non-tapered bore, be dynamically balanced, keyed to the shaft, and further secured with stainless steel washer and lock screw. A Stainless Steel Wear Ring hardened to 400-450 bhn. Impeller shall pass a minimum 3" diameter non-collapsible sphere. Impeller shall be fixed at location with no expected or required adjustment.

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MOTOR:

The motor shall be of, Submersible type with 50' cable and an epoxy sealed butt spliced connecting system. It shall be not less than (125- hp at 1800 rpm-Grandview)(100HP at 1800RPM-Mahwah). Motor supply power is 460 volt, 60 hertz, 3 phase. It shall be rated for continuous operation and shall not exceed HP rating at any point at the full speed hydraulic curve. The motor bearings shall be selected to withstand thrust loads and have a minimum B-10 life of 100,000 hours. The motor bearings shall be prepacked and sealed for life with special high temperature grease. The motor shaft shall be high strength AISI 420 Stainless Steel. The maximum allowable no-load shaft run out shall be .003". Special treated Class AF@non-hydroscopic insulation with multiple dips and bakes shall be provided. Rotor shall be die cast aluminum and dynamically balanced to exceed NEMA limits per MG1 - 12.06. Each motor shall have its own two wire / two probe moisture-monitoring system. It is designed to constantly monitor oil chambers and stator housing for moisture. The pump motor seal must be a Tandem Mechanical shaft seal designed to work independent of each other and withstand up to 200 PSI. The outer and inner seal material shall be Silicon Carbide vs. Silicon Carbide. The motor will be of standard efficient design and have a 1.15 SF available. Motors shall also be FM. listed for Class I Div IGroups C & D hazardous locations. Motor suitable for 15 minutes in air. No Sewage jackets allowed for cooling purposes. Automatic reset, normally closed thermal overloads, shall be installed in adjacent phases of the motor winding to provide the overheating protection. Motors that require the pumped media or a cooling agent to be circulated, as part of the pump motor cooling system shall not be utilized.

MOTOR SHAFT:

Shall be one-piece high strength AISI 420 Stainless Steel. The shaft shall be accurately machined and polished to transmit full driver output without excessive flexure or stressing. All steps in the shaft shall be radiused to reduce stress concentrations. The shaft shall extend through both bearings with proper length to connect directly to pump impeller. Bearings shall be prelubricated at the factory and designed for a minimum B-10 life of 100,000 hours. Motor shaft bearings shall be locked to prevent shaft movement and to take high thrust loads. Shaft deflection shall not exceed .003 inch measured at the outer seal face when operating at specified design condition. A complete shaft stress analysis calculation shall be supplied by the pump manufacturer to illustrate conformance with this requirement. Alternate Shaft Materials such as 410 17-4 PH may be considered to meet shaft deflection and Bearing Life requirements.

MOTOR ENCLOSURES:

Shall be cast iron, water-tight enclosures and shall be sealed by the use of Buna-N O-rings and shall have rabbit joints with a large overlap, or there shall be furnished a adapter plate to accomplish an accurate fit equal to an indexed register fit. Cast Iron shall be ASTM type A-48, Class 35 or equal. All external hardware including motor nameplates shall be made of Stainless Steel.

Motor rotor construction shall be die cast aluminum. Rotors on frames 210TY and above shall be keyed to shaft and rotating assembly dynamically balanced to NEMA limits per MG1-12.05.

All motors shall successfully operate under power supply variations per NEMA MG1-14.30. All Motors shall be NEMA Design B or A with torque and starting current in accordance with NEMA MG1-12. All motors not meeting these NEMA requirements shall not be acceptable. Motors shall have copper windings.
Motor Insulation System shall be Class H nonhygroscopic insulation system. Entire wound stator assembly shall receive a minimum of 2 coats of varnish applied using a dip and bake process.

Electrical cable leads shall be 50 feet in length and joined to motor enclosure by use of an epoxy mold and blind-splice in the motor and bracket. The sealing method shall be approved by U.L. for a Class 1, Group C & D Division 1, hazardous location. The motor power leads, moisture detection and thermal detection cord shall have a primary sealing system which utilizes an epoxy compound with each cord conductor stripped back and a blind splice utilized to stop any possible moisture from leaking into the motor body. In addition to the blind splice each conductor shall be separated and the epoxy compound shall flow completely around each conductor thus, causing a leak proof seal. Motors, which rely only on grommets and compression systems, will not be acceptable nor equal. Motors that utilize a grommet and epoxy compounds will not be considered acceptable nor equal. Motors which utilize a terminal board will not be considered acceptable nor equal. Motors shall be dual voltage and shall be supplied with a conductor sized to handle the lower of the two voltages specified. Motors which are single voltage and which are not field reconnectable will not be acceptable nor equal.

Lifting eyes shall be cast into the motor housing and shall be adequate strength to lift the entire pump and motor assembly.

All exposed motor parts shall receive an alkyd prime and epoxy ester finish. All Fasteners shall be 304 Stainless Steel

Motor Seals:

Two independently mounted mechanical face type seals shall be provided. The inner and outer seal shall be separated by an oil filled chamber. Double seal (back to back) configurations are not acceptable due to the potential of failure of both seals as a result of lodged solids. Similarly bellows-type and jacketed seal construction is also prohibited. A Silicon Carbide/ Silicon Carbide upper seal with Buna-N elastomers and a Silicon Carbide/Silicon Carbide lower seal with Buna-N elastomers shall be installed prior to pump shipment. The metal parts shall be 316 Stainless Steel. The outer seal assembly in conjunction with the backplate and impeller wiper vanes will be designed to allow solids and particles to be thrown away from the seal face.

Motors shall be constructed with a separate oil chamber which shall be used to detect moisture intrusion past the lower seal and give adequate warning of an impending inner seal failure. Motors that utilize moisture detection systems where a float is used or where the moisture probe is located in the stator housing will not be acceptable nor equal. Two moisture-sensing probes shall be used to detect any influx of conductive liquid past the outer seal and provide ample warning of first seal failure. The moisture probes shall be located in a separate oil chamber. All motors to include 2 normally closed automatic reset thermostats connected in series and embedded in adjoining phases.

Each motor shall receive a routine factory test per NEMA and IEEE standards.

The pump exterior ferrous metal surfaces shall be prepared in accordance with SSPC SP-6, Commercial Blast Cleaning. Primer coat shall be shop-applied Tnemec 69 epoxy applied as recommended by the manufacturer. Finish coat(s) shall be field-applied Tnemec 69 epoxy for a total system minimum thickness of 10 mdft. Finish color to be as specified by the district.

9. AWARD

9.1. Bid will be awarded to the lowest responsive responsible bidder whose proposal and proposed pump meets the stated requirements.

9.1.1. The County reserves the right to award this bid on a line by line basis.