

COUNTY OF ROCKLAND  
Department of General Services  
**Purchasing Division**

# Contract Award Notification

**Title:** Pump-Sludge Pump Swaby Lobeline MR160DM or equal

**Contract Period:** November 3, 2016 through November 2, 2017 with a one-year option,  
**Extend through November 2, 2018**

**Original Date of Issue:** November 3, 2016

**Date of Revision:** **October 31, 2017**

**BID No:** **RFB-RC-2016-091**

**Catalog:** **WASTEWATER**

**Authorized Users:** County Agencies, All Political Subdivisions

**Address Inquires To:**

**Name:** Ann Marie Curley, CPPB  
**Title:** Assistant Director of Purchasing  
**Phone:** 845-364-3698  
**Fax:** 845-364-3809  
**E-mail:** [curleya@co.rockland.ny.us](mailto:curleya@co.rockland.ny.us)

**Description**

This contract is for a Swaby Lobeline Pump

| Contract # | Vendor Number | Contractor & Address  | Telephone No.   |
|------------|---------------|---|---|
| BID 16-091 | 0000018750    | PCS Pump and Process Inc.<br>41 Plymouth Street<br>Fairfield, NJ 07004<br>Contact: Peter Tabone<br><a href="mailto:ptabone@pcspump.com">ptabone@pcspump.com</a> | 973-575-7464<br>Ext. 156<br><br>CELL: 201-953-9126<br><br>FAX: 973-575-7464 |

COUNTY OF ROCKLAND  
DGS – PURCHASING DEPARTMENT  
BLDG. A, 2ND FLOOR, 50 SANATORIUM ROAD  
POMONA, NY 10970  
TELEPHONE NO.: 845-364-3820  
FAX NO.: 845-364-3809

VENDOR: PCS Pump and Process Inc.

| LINE NO | DESCRIPTION  | ITEM NUMBER | EST QTY | UNIT | UNIT PRICE  | EXTENDED PRICE        | Bran/Mfg/Model |
|---------|--|-------------|---------|------|-------------|-----------------------|----------------|
| 1       | Swaby Lobeline™ Pump<br>Size: MR160DM 6/600<br>ductile iron rotor case and gear case or approved equal | 72064000034 | 1       | EA   | \$31,420.00 | \$31,420.00           | Swaby Lobeline |
| 2       | Days to complete Delivery from receipt of Purchase Order   |             |         |      |             | 30-45 working<br>DAYS |                |

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**PUMP – SLUDGE PUMP SWABY LOBELINE MR160DM  
 OR EQUAL**

**RFB-RC-2016-091**

### **GENERAL SPECIFICATIONS**

#### **1. SCOPE**

- 1.1. The scope of this bid is to provide the Rockland County Sewer District with one (1) Rotary Lobe Positive Displacement Pump that will be suitable for exposure to thickened sludge. Pump shall be a new Swaby Lobeline Pump, Size MR160DM 6/600 or approved equal, refurbished pumps are not acceptable. The specified replacement pump to match pump S/N 16032601 with Mechanical Seals.
- 1.2. RCSD#1 has an immediate need for one (1) pump.

#### **2. GENERAL**

- 2.1. The pump that is being requested is a replacement for a unit that has been removed and is no longer available for physical inspection or for sizing purposes. The steel skid where the pump will be mounted is available for inspection. The pump will be coupled to the existing motor and gear assembly, currently mounted on the skid.
- 2.2. The replacement unit must have mechanical seals and have the same physical, hydraulic, and material composition to be compatible with the existing system. The pump must fit on the existing base and must align with the existing suction and discharge flange connections. The base and the piping are not being replaced and will not be modified as part of this project.
- 2.3. Bidders are encouraged to visit the site. Site visits can be arranged by calling Mr. Josue Thomas at (845) 365-6111. Vendors must perform as specified whether or not they visit the site.

#### **3. APPROVED EQUAL OR EQUIVALENT PRODUCTS**

- 3.1. If proposing an equivalent pump, bidder shall submit an item by item 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.
- 3.2. 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.
- 3.3. 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.
- 3.4. Bidder must be able to demonstrate within one week after notice and guarantee in writing that the item bid is interconnectable with existing equipment.

#### **4. SPECIFIC REQUIREMENTS**

##### **4.1. STANDARDS**

- 4.1.1. The pump shall be manufactured in accordance with all codes standards, regulations and regulatory agency requirements including the partial listing below
  - 4.1.1.1. ANSI, American National Standard Institute.
  - 4.1.1.2. AGMA, American Gear Manufacturer's Association.

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4.1.1.3. Hydraulic Institute Standards.

4.1.1.4. ASTM, American Society for Testing and Materials.

4.1.1.5. ASTM A470, Vacuum-Treated Carbon and Alloy Steel Forgings for Turbines Rotors and shafts.

4.1.1.6. ASTM A536, Ductile Iron Castings.

**4.2. PUMP MINIMUM FEATURES**

4.2.1. Pump shall be able to run dry indefinitely without damage.

4.2.2. Design to provide access to complete pump chamber without disconnecting pipework or disturbing seals or bearings.

4.2.3. Design to provide unhindered access to rotors to facilitate ease of maintenance and operator safety.

4.2.4. Design to provide unhindered access to rotors to facilitate ease of maintenance and operator safety.

4.2.5. Stainless steel nameplates giving the name of the manufacturer, the rated capacity, head, speed and all other pertinent data shall be attached to the pump.

4.2.6. The nameplate ratings of the existing motor and reducing gear assemblies shall not be exceeded, nor shall the design service factor be reduced when the pump is operating at any point on its characteristic curve at maximum speed.

4.2.7. Pumps shall be designed with an air space between the pumping head containing the sludge and the timing gearbox such that a leak in the shaft seal will allow sludge to run onto the floor and not into the timing gear box. An oil-filled seal chamber is not acceptable.

4.2.8. Pumps shall be designed with replaceable radial wear plates with attachment hardware located on the exterior of the rotor case.

4.2.9. Pumps shall be designed with rotors that connect to shafts with a splined and taper-locked arrangement.

4.2.10. Pumps shall be designed with timing gears that connect to shafts with a self centering taper-locked arrangement.

4.2.11. Pumps shall be designed with a one piece ductile-iron rotor case with integral flanges.

4.2.12. Pumps shall be designed without end bearings.

4.2.13. Only one (1) upper rotor and one (1) lower rotor shall be provided on the pump.

4.2.14. The rotors shall be of a tri-lobe design. In addition, the tips of each lobe shall be parallel to the axis of rotation of the rotor. Helical or twisted rotors are not acceptable.

4.2.15. The rotors must be capable of being removed individually. Pumps which require the simultaneous removal of both rotors shall not be acceptable.

**4.3. PUMP CONSTRUCTION**

**4.3.1. ROTOR CASE:**

4.3.1.1. The rotor case shall be constructed of ductile iron incorporating 150 lb. ANSI flanged connections. The pump flanges shall be integrally cast with the rotor case. Fabricated

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ports/flange connections are not acceptable. Multiple piece rotor cases will not be acceptable.

- 4.3.1.2. The internal rotor case surface shall provide a smooth transition from circular port connections at the flanges, to a full width rectangular port at the rotor chamber, with a greater cross sectional area than at the flanged port connection, to allow for unimpeded passage of solids.
- 4.3.1.3. The front of the rotor case shall incorporate an O-ring to form a reusable seal for the front cover. All fasteners shall be stainless steel.
- 4.3.1.4. The rotor case bore shall be fitted with removable restriction bushings enabling the removal of the shaft sleeve or mechanical seals and O-rings through the rotor case without requiring its removal.
- 4.3.1.5. The rotor case shall have an open area between it and the gear case. This area shall allow for physical, visual inspection and/or adjustment of the mechanical seal. The area shall also isolate the gear case in the event of failure of the seal. Pumps without an open area between the rotor case and gear case or open areas less than a 3-1/2" air gap are not acceptable. The open area shall also allow ample room for a packing gland arrangement in the event that the mechanical seals would need to be changed out for packing gland arrangements. The change over from mechanical seals to a packing gland or visa versa shall be accomplished with no modifications to the pump.

**4.3.2. RADIAL WEARPLATE:**

- 4.3.2.1. The peripheral surface of the rotor case shall be fitted with removable 40 Rockwell C AISI 4140 carbon steel radial wearplates to permit the restoration of the rotor case in the eventuality of worn surfaces without replacing the whole case. The radial wearplates shall be retained through a series of stainless steel socket-head cap screws located at the exterior corners of the rotor case. The securing screws for the radial wearplates shall not protrude into the wearing surface of the wear plates to prevent premature grooving of the rotors. Other wearplate securing methods such as those with the screw heads or exposed to the rotors or with unprotected threads or with screw heads/attachment hardware protruding in the flow of the pumped liquids are not acceptable.
- 4.3.2.2. The wearplates and wearplate/rotor case machining, shall be as designed and manufactured by the original pump manufacturing factory. Wearplates and rotor case machining not designed and manufactured by the original equipment manufacturer will not be acceptable.

**4.3.3. REAR WEARPLATE:**

- 4.3.3.1. The rear surfaces of the rotor case body shall be lined with a pair of 55/60 Rockwell C AISI 8620 carbon steel wearplates. These wearplates shall incorporate fiber-cutting grooves that prevent the accumulation of fibers behind the rotors. The wearplates shall be secured with stainless steel hex screws through the rear of the rotor case. The rear wearplates shall be retained from the rear in a tapped recessed boss. The securing screws for the rear wearplates shall not protrude into the wearing surface of the wearplates to prevent premature grooving of the rotors. Other wearplate securing methods such as those with the screw heads touching or exposed to the rotors or with unprotected threads or with

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screw heads/attachment hardware protruding in the flow of the pumped liquids are not acceptable. Wearplates shall have no mounting holes on the rotor mating side.

**4.3.4. FRONT COVER:**

- 4.3.4.1. The front cover shall be reversible, hinged open and constructed from AISI 8620 carbon steel with a 55/60 Rockwell C ground finish (or contain wearplates) and fitted with an oil impregnated bronze pin and designed to allow for mounting on a stepped seat on either the suction/discharge flange.
- 4.3.4.2. The reversible front cover shall be rigidly supported by a front hinge constructed of cast ductile iron. The hinges shall be secured on the front of the front cover, but away from the swept surface of the rotors (in order to prevent drilled/tapped mounting holes from accumulating fibers and interfering with the rotors). The hinge mounting holes shall not intrude on the swept surface of the rotors.

**4.3.5. ROTORS:**

- 4.3.5.1. The pump shall be fitted with a pair of intermeshing rotors with a minimum of three lobes, constructed with a heavy ductile iron core covered with an abrasion resistant Urethane with a Durometer hardness of 90. The elastomeric-coated rotors shall be guaranteed against “bonding failure” otherwise known as delamination. The pump manufacturer shall verify rotor material and hardness are suitable for the application.
- 4.3.5.2. The rotors shall be end-mounted on the shafts, held precisely in radial position through an involute hub design. This shall ensure the positive positioning of the rotors on the shaft as well as providing precise intermeshing clearances around the rotors. The rotors shall be axially locked into position by a recessed self-centering taper locking assembly consisting of internal and external radial expanding rings. The complete locking assembly shall be protected from the sludge by an O-ring seal at the rear of the rotor and an O-ring sealed cover completely flush with the front face of the rotors. The sealing arrangement shall shut out any water, grit or sludge from touching the shaft or the splines, thereby simplifying rotor replacement and preventing shaft failure. The replacement of the rotors shall not necessitate the adjustment of the shaft timing gears.
- 4.3.5.3. The rotors shall be able to be removed and/or replaced individually. Rotors that require removal and/or replacement as a set and/or with special pullers are not acceptable.

**4.3.6. SHAFTS:**

- 4.3.6.1. The shafts shall be constructed of carbon steel in accordance to AISI 4340 HT (minimum) and be appropriately sized and heat treated to ensure a smooth operation and concentric positioning on the rotors.
- 4.3.6.2. The motor driven shaft shall be the upper shaft as determined by the centerline height of the driver.
- 4.3.6.3. The shafts shall be non-wetted at all points and sealed from the pumped liquid.

**4.3.7. SHAFTS SLEEVES:**

- 4.3.7.1. The shaft sleeves shall be of the O-ring sealed, hooked typed design. An O-ring shall be positioned at the back-end of the sleeve and the front-end shall be compressed by the

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elastomeric surface of the rotor. The shaft sleeves shall fully extend to the labyrinth bearing isolators, thereby leaving no exposed surface of the shaft. The shaft sleeve shall be constructed from AISI 316 stainless steel. The shaft sleeves shall be easily removable from the pump without the removal of the rotor case. Pumps that require removal of the rotor case are not acceptable.

**4.3.8. BEARINGS:**

- 4.3.8.1. Each shaft shall be supported by pre-loaded heavy-duty duplex taper roller bearing of the anti-friction type. The positioning of the shafts relative to the gearcase shall be such to permit removal of one shaft bearing without disturbing the bearings of the opposing shaft.

**4.3.9. BEARINGS ISOLATORS:**

- 4.3.9.1. Bearing shall be completely protected from water or sludge by grease packed stainless steel labyrinth bearing isolators providing full protection with the pump either operating or idle. The gearcase wall adjacent to the rotor case shall be sealed from water or sludge penetration by a pair of non-wearing stainless steel AISI 316, grease filled, and labyrinth-bearing isolators. Bearing isolators shall consist of a statically mounted shaft retainer with double-groove on the outer face. A labyrinth ring shall be mounted against the shaft and interlock with the grooves on the retainer. The retainer shall be fitted with a grease connection nipple allowing grease input to act as a barrier within the labyrinth. The design shall incorporate a double lip oil seal to contain the gearcase oil and provide additional bearing protection. Mechanical or magnetic seals are not acceptable in this area. The design shall ensure that no water or dirt enters the gearcase adjacent to the seal housing area, permitting periodic hose down of any eventual sludge run-off in the gland area.

**4.3.10. GEARCASE:**

- 4.3.10.1. The gearcase shall be constructed of cast iron and incorporate a separate oil reservoir for the bearings of each shaft to ensure adequate lubrication at low running speed. Pumps that incorporate force feed oil lubrication system, or an external pump with controls, electrical hardware, switches and piping to lubricate the pump bearings, are not acceptable. Sealed expansion chambers shall be used for vent caps preventing any air transfer to and from the gearbox. The gearcase cover shall be fitted with a timing cover plate on the top shaft to permit adjustment of the rotor timing.
- 4.3.10.2. The cover plate removal shall expose all of the cap screws on the torque-locking device. Pipe plugs, caps or drilled holes, which do not expose all of the cap screws, are not acceptable. (Pumps that require the removal of gearcase oil and the gearcase cover plate to adjust rotor timing are not acceptable).

**4.3.11. FRONT LOADING MECHANICAL SEALS:**

- 4.3.11.1. Each pump shall be supplied with front-loading cartridge-type single mechanical seals. Tungsten Carbide to Tungsten carbide seal faces shall be provided. The mechanical seals shall be manufactured by a major mechanical seal manufacturing company such as John Crane, Chesterton, Durometalic or Environamics, etc. with their main emphasis and business being engaged in the manufacturing of mechanical seals. Each cartridge seal shall

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be removable as a complete unit, consisting of a seal, shaft sleeve and seal housing. (Designs requiring the removal of the rotor case or the disturbance of both seals will not be acceptable). The seals must be able to be removed and replaced as a complete unit without

## **5. BRAND NAME**

5.1. 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.

## **6. SUBMITAL**

6.1. The bidder shall submit his bid application with the following:

- 6.1.1.1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. If deviations from the specifications are indicated and, therefore requested by the vendor, the submittal shall be accompanied by a detailed, written justification for each deviation.
- 6.1.1.2. Manufacturer's literature, illustrations, specifications and engineering data including dimensions, materials, size, weight, performance data and curves showing overall pump efficiencies, flow rate, head, brake horsepower speed and shut-off head.
- 6.1.1.3. Product and service warranties must be included in the bid package.
- 6.1.1.4. Complete details of mechanical seal, including water flow rate and pressure required.
- 6.1.1.5. A sample of typical Factory Test Report and quality assurance check list for this equipment.
- 6.1.1.6. Bidder must list five entities currently using the same proposed equipment in thickened sludge application on the certification of experience page in the bid package.
- 6.1.1.7. Submit horsepower, RPM, gear ratio, and coupling requirements of the prime mover for the proposed pump. This information will be used to check if the existing motor and gear assembly is adequate.
- 6.1.1.8. Bidder must guarantee in writing that the item bid is interconnectable with existing equipment.

## **7. DELIVERY**

7.1. All deliveries shall be made to the Rockland County Sewer District # 1 between the hours of 8:00 AM and 2:30 PM, Monday through Friday excluding holidays.

## **8. AWARD**

8.1. Bid shall be awarded to the lowest responsible bidder. Quantities listed are estimates. Actual amounts ordered will depend on the requirements of the Rockland County Sewer District #1.



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**PRODUCT SPECIFICATIONS**

Bidder shall submit an item-by-item explanation of any differences between their product specifications and performance and the listed bid specifications. Bidders are to note comply or write in alternative specification in column at right of specification pages.

| <b><i>DESCRIPTION</i></b>  | <b><i>BIDDER TO NOTE “COMPLY” OR LIST<br/>ALTERNATE SPECIFICATIONS</i></b> |
|--|--|
| <b>ITEM</b>  |  |
| One (1) Swaby Lobeline™ size MR160DM 6/600 or approved equal                           |  |
| <b>PUMPHEAD</b>  |  |
| Manufactured in ductile iron, has ductile iron rotor case.                             |  |
| <b>BASE</b>  |  |
| Horizontal in-Line-Base  |  |
| <b>GEARBOX</b>   |  |
| Cast iron, heavy duty tape roll on bearings  |  |
| <b>PORTS</b>   |  |
| Tungsten carbide coated 150 mm ports 6.00  |  |
| <b>SHAFT SLEEVES</b>   |  |
| Polyimide packing hard coated shaft sleeves  |  |
| <b>ROTORS</b>  |  |
| NFT lantern flush NBR elastomer urethane coated trilobe rotors 70 degree               |  |
| <b>COVER</b>   |  |
| Carbon steel hardened hinge front cover  |  |
| <b>SHAFTS</b>  |  |
| Carbon steel nitride shafts top drive, Manufactured from surface hardened carbon steel |  |
| <b>WEAR PLATES</b>   |  |
| Fitted with hardened, replaceable wear plates  |  |
| <b>INLET AND OUTLET CONNECTIONS</b>  |  |
| 6 inches   |  |
| <b>DISPLACEMENT (US GAL./100 REV)</b>  |  |
| 93.26  |  |
| <b>MAXIMUM DIFF. PRESS. (PSI)</b>  |  |
| 215  |  |
| <b>MAXIMUM SPEED</b>   |  |
| REV/MIN 500  |  |
| <b>SLUDGE APPLICATIONS</b>   |  |
| REV/MIN 350  |  |
| <b>WEIGHT (BARE SHAFT PUMP)</b>  |  |
| 662  |  |
| <b>MISCELLANEOUS</b>   |  |