

BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT

Resolution No. 664

Waiving the Competitive Bid Process and Authorizing a Sole Source Purchase of an Integrated Irrigation Pump Station as part of the BCPUD's Wastewater Pump Station Upgrade and Pond Recirculation Project.

The Board of Directors of the Bolinas Community Public Utility District finds and determines as follows:

1. The District's existing irrigation pump station at its wastewater treatment plant is at the end of its useful life. Given the critical function of this pump station in the wastewater treatment process, District staff has determined that it should be replaced as soon as possible to ensure the reliability of the wastewater treatment process for the District's customers. The District's Board of Directors previously authorized staff to plan and implement a project to that effect.
2. The District retained Allied Engineers, Inc. to design and engineer a replacement irrigation pump station and associated treatment process improvements. During the design process, the District directed Allied Engineers, Inc. to identify and recommend an above-ground skid-mounted self-priming irrigation pump station to replace the two existing vertical turbine pumps, which each extend 15-feet below ground and require a crane to lift them out of their casings for repair; an above-ground station will allow staff easier and less costly access to the pumps for routine maintenance and repair. The District also directed Allied Engineers, Inc. to evaluate manufacturers capable of integrating a recirculation pump into this station (to enable staff to recirculate wastewater between ponds on a year-round daily basis) as well as a pre-built enclosure to protect the station from the corrosive effects of the local coastal marine environment.
3. A variety of alternative pumps were evaluated for this application as detailed in the attached letter from Allied Engineers, Inc. Selection criteria included the manufacturer's ability to supply an integrated pump station (including pumps, internal piping, controls and easy access enclosure) and positive reputation in the industry; pump reliability for wastewater applications; value and cost-effectiveness of the integrated pump station; ease of maintenance and repair by district staff (to reduce outside repair and maintenance costs); minimum twenty-years of experience providing fully integrated pump stations for the District's application; suitability for coastal conditions; local representation in Marin County, if possible; and, capacity to operate with the existing available power supply. Allied Engineers, Inc. evaluated the capabilities of a number of pump manufacturers to determine whether they met these criteria and determined that the integrated self-priming centrifugal pump station manufactured by Gorman Rupp Company is the single manufacturer that meets all of the District's criteria.
4. California Public Contract Code section 3400(c) permits the District to suspend competitive bidding and to make sole source purchases of products or equipment in order to match other products in use on a particular public improvement or to obtain a necessary item that is available from only one source.

5. Allied Engineers, Inc. and staff have determined that the proposal submitted by Gorman-Rupp in the amount of \$ 199,000 (net of taxes) to furnish an enclosed integrated pump station is fair and reasonable.
6. The purchase of this integrated pump station and enclosure will help ensure the reliability of the District's wastewater treatment system, reduce maintenance costs, and allow the District to continue to carry out its mission in a safe and efficient manner.
7. The lead time for procurement of the Gorman-Rupp irrigation pump station is estimated to be 14-20 weeks.

In consideration of the foregoing finding and determinations,

IT IS RESOLVED by the Board of Directors as follows:

- A. Based upon the preceding findings, the Board of Directors hereby declares that the purchase of the above-ground, skid-mounted integrated pump station and protective enclosure is clearly and legitimately limited to a single source of supply and that the sole source of supply is Gorman Rupp Company.
- B. Based upon the preceding findings, the competitive bidding requirements for the Bolinas Community Public Utility District are hereby waived and the General Manager is authorized to purchase the Gorman Rupp irrigation pump station and protective enclosure from Gorman Rupp at a cost of \$199,000 (net of taxes).
3. This resolution shall take effect immediately upon passage.

PASSED AND ADOPTED by the Board of Directors of the Bolinas Community

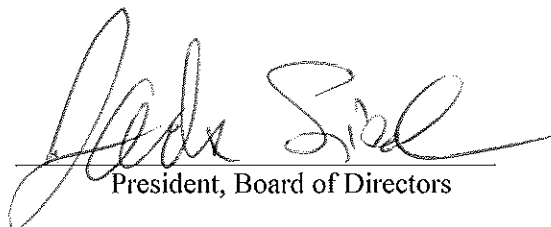
Public Utility District this 20th day of March, 2019 by the following vote:

AYES: AMOROSO, COMSTOCK, GODINO, SIEDMAN, SMITH

NOES: NONE

ABSTAIN: NONE

ABSENT: NONE

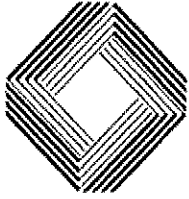


President, Board of Directors

attest:



secretary



ALLIED ENGINEERS, INC.

2303 Camino Ramon, Suite 290, San Ramon, CA 94583 Telephone (925) 867-4646

March 22, 2019

Ms. Jennifer Blackman
General Manager
Bolin Community Public Utility District
270 Elm Road
P.O. Box 390
Bolin, California 94924

SUBJECT: Sole-Source Purchase Recommendation for the Gorman-Rupp Integrated Irrigation & Recirculation Package Pump Station

Dear Ms. Blackman:

As you know, the existing Bolin Community Public Utility District Wastewater Treatment and Disposal System (WWT&DS) final effluent irrigation pump station (IPS) is nearing the end of its useful life due to the fact that it is nearly 50 years old. Significant corrosion is occurring in both the intake structure and the pumps, and the electrical control panel is badly deteriorated. Maintenance on the pumps requires a crane to lift the pumps out of their casings, which is excessively expensive given the District's remote location. In our discussions with Bill Pierce, the Chief Operator, Bill asked us to evaluate replacing the existing vertical turbine pumps with an above-ground package pump station utilizing self-priming pumps to allow easy access to the pumps for routine maintenance and repair.

The IPS pumps treated wastewater from Pond 3 to the adjacent effluent disposal fields. The original IPS utilizes two 40-hp vertical turbine pumps that are fed by an 85-foot long, 16-inch diameter pipe from the center of Pond 3 to the base of the pump. BCPUD Operators have experienced significant maintenance issues with these pumps that are located in underground casings and constantly exposed to a highly corrosive wastewater environment. As noted, a crane is required to lift the pumps out of their housings for repairs, adding considerably to the expense of routine operation and maintenance and increasingly more frequent pump repairs. The BCPUD has asked Allied Engineers, Inc. and in particular Mr. Robert Dawyot and Dr. Bailey Green to evaluate available pumping technologies and to recommend replacement pumps for a new and fully integrated package final effluent irrigation and recirculation pump station to be located adjacent to the existing IPS that it would replace.

BACKGROUND

The existing final effluent IPS is located on the southern berm of Pond 3 at the WWT&DS on Mesa Road. It consists of two vertical turbine pumps each extending down 15 feet below the ground surface. Each pump draws effluent from near the bottom of Pond 3 through an 85-foot subsurface horizontal pipe into the vertical turbine pump station. The vertical turbine pumps pump the treated wastewater, or final effluent, through a pipe distribution and spray irrigation system onto the adjacent 47-acre land application or disposal area where the final effluent either evaporates into the air or percolates through the soil into the receiving groundwater basin.

The Waste Discharge Requirements issued to BCPUD by the Regional Water Quality Control Board allow effluent to be sprayed onto the land application area from April 15th to November 15th to avoid irrigating during the rainy season. BCPUD operating procedures call for irrigation during a typical year to be completed by October 15th in preparation for years with above average or excessive rainfall.

BASIS OF DESIGN

Wastewater Flows

Based on information provided by the BCPUD, typical wastewater flows are between 20,000 gallons per day (gpd) and 30,000 gpd. The BCPUD's current Waste Discharge Requirements (WDR 88-100) allow for land application disposal of up to 65,000 gpd.

During the winter months, flows have reached as high as 200,000 gpd due to infiltration and inflow (I&I) entering the collection system. Measures have been taken to reduce the I&I, and the wastewater flows this winter indicate that these measures have been effective, reducing the high flows by approximately 50%; however, the collection system remains vulnerable to I&I given its age. Since the pond-based WWT&DS equalizes the effluent flow, the IPS only needs to be sized for the average flow over the previous year.

Total Dynamic Head

Total dynamic head for a water pumping system is comprised of the pressure needed to overcome differences between intake and discharge elevations and the pressure needed to both overcome friction losses in the piping system and provide a required flow and pressure output. The vertical lift required to pump water to the spray nozzles in the land application areas is a maximum of about 15 feet based on a low water level in Pond 3. The calculated friction loss in the irrigation piping at the design flow of 350 gpm is approximately 36 feet or 16 psi. The irrigation pipe diameter starts at 8 inches adjacent to the IPS and reduces down to 1.25-inch diameter at the end of the laterals feeding the spray nozzles. Total Dynamic Head for this system is estimated at 150 feet or 65 psi including 40 psi for the operation of the spray nozzles.

Solids

Solid material in the new surface intake structure in Pond 3 is expected to be typical of the effluent of multiple facultative wastewater ponds in series. Most of the suspended solids will be green microalgae. Minimal suspended solids are anticipated; however, the IPS must be capable of solids handling due to the possibility of windblown solid materials entering the ponds.

Electrical System

The electrical system serving the existing irrigation pump stations was sized to power the two 40-horsepower electric motors on the existing vertical turbine pumps. There is very little excess power capacity, and an increase in motor horsepower for the new pumps would require major modifications to the power supply system. Accordingly, the replacement IPS must be able to operate on the existing power supply.

PUMP TECHNOLOGIES

Given the location of the IPS on the southern berm of Pond 3, the water will need to be drawn up into the pumps under suction. The standard types of pumps that operate in this manner are self-priming centrifugal pumps and positive displacement pumps such as progressive cavity pumps and rotary lobe pumps.

Self-Priming Centrifugal Pumps are designed for applications where water must be drawn up from below the level of the pump. The pumps are specifically designed to create suction in the influent line so that the water rises to the impeller of the pump.

Positive Displacement Rotary Lobe Pumps are a type of positive displacement pump that utilizes counter-rotating elastomeric rotors inside a tight clearance pump housing. These pumps function well in low-flow, high-head conditions. However, the IPS is a high flow, medium-head application. Vogelsang pumps, which are used in the BCPUD influent wastewater pump station located on Wharf Road, are an excellent example of positive-displacement rotary-lobe pumps. We contacted a Vogelsang representative from their headquarters, and he advised that the new final wastewater effluent irrigation and recirculation pump station would not be a good application for their pumps as the treated wastewater does not have sufficient solids to warrant a positive-displacement rotary-lobe pump.

Progressive Cavity Pumps use a rotor that compresses an elastomeric stator to provide the force to pump liquids. These pumps would be capable of drawing water up from Pond 3; but, they are not high volume pumps. Therefore, progressive cavity pumps would not be appropriate for this application.

Our review of available pump technologies that are capable of drawing treated wastewater from the surface of Pond 3 to the irrigation and recirculation pump station and then pumping it to the

land application areas, and to the upwind surface of Pond 1A and Pond 1B, indicates that self-priming centrifugal pumps are the best technology for use at the new IPS.

After discussions with the BCPUD Operators and Staff, we developed a set of criteria to use in evaluating the field of potential pump manufacturers of integrated package pump station utilizing self-priming centrifugal pumps. These included the following:

1. Positive reputation in the self-priming pump industry and in supplying integrated package pump stations;
2. Pump reliability for treated wastewater applications;
3. Value and cost-effectiveness of the integrated pump station;
4. Ability to supply fully integrated package pump stations including pumps, internal piping, electrical controls and easy access pump station enclosure built using materials appropriate for a marine environment;
5. Minimum seven-year history in providing fully integrated package pump stations with self-priming pumps of the size and configuration required for this application;
6. Suitability for local coastal conditions, including corrosive marine environments and severe weather events;
7. Local representation in northern California and, if possible, Marin County; and,
8. Capacity to operate with existing available power supply.

We examined the capabilities of a number of pump manufacturers to determine whether they met these criteria and reviewed their websites to determine their pump station products. These manufacturers included: The Gorman-Rupp Company (Gorman-Rupp); Smith and Loveless; Crane Pumps; Xylem; Pinnacle Flo; Vogelsang; Peerless Pump; and Cornell Pumps. Gorman-Rupp is the single manufacturer we found that met all evaluation criteria. Gorman-Rupp is the industry leader in high-quality self-priming centrifugal pump technology. Their pumps are competitively priced and have a favorable life-cycle cost taking into account their purchase price, future operating costs and longevity. Gorman-Rupp has a proven track record of providing high-quality, fully integrated package pump stations with enclosures that are suitable for the local coastal conditions of the BCPUD Wastewater Treatment and Disposal System.

RECOMMENDATION

Our conclusion from this evaluation is that the District should purchase the Gorman-Rupp fully integrated, self-priming centrifugal package pump station. This pump station can be expected to perform exceedingly well in this wastewater effluent irrigation and recirculation application and meets all of the District's project criteria. Our recommendation is based on the results of our investigation, including the site visit made by Bill Pierce and Bailey Green to a Gorman-Rupp integrated pump station at the San Francisco International Airport.

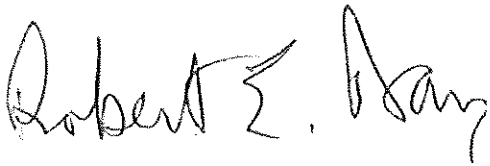
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We will continue to work closely with you and your staff, the local Gorman-Rupp representative Dennis Prahm, and the Gorman-Rupp Company to expedite the pump station design submittals, production, delivery and timely installation of the Irrigation and Recirculation Package Pump Station.

Please call Robert Dawyot at (925) 867-4646 or Bailey Green at 510-282-8947 if you have any questions or would like to discuss our evaluation and recommendation in greater detail.

Sincerely,

Sincerely,



Robert E. Dawyot, P.E.
President



F. Bailey Green, Ph.D.
Senior Associate



Signed 03-22-19