

**Project Name** | Oak Glen Golf Course Irrigation Reuse

**Date** | 7/5/2024

**To / Contact info** | BCWD Board of Managers

**Cc / Contact info** | Karen Kill, BCWD Administrator

**From / Contact info** | Ryan Fleming, PE

**Regarding** | Irrigation pump data metering and logging equipment purchase

## Background

Oak Glen Golf Course's irrigation system draws water from three water sources: the lift station pumping water from the McKusick wetland, installed by BCWD in 2020; the South Well Pump in the Jordan Sandstone aquifer; and the North Well Pump in the Tunnel City-Eau Claire aquifer. BCWD has been working with the golf course to optimize the usage of wetland water for its irrigation needs since it was installed. This has involved ongoing communication regarding adjustments to the wetland water level and the water levels at which the pump turns on and off. Both BCWD and the golf course are responsible for reporting water usage to the Department of Natural Resources for these sources under the water appropriations permits for the pumps (BCWD for the wetland reuse pump, Oak Glen Golf Course for the two well pumps).

Currently, the monitoring scheme for the irrigation water inflows is as follows:

- Wetland Reuse Pump: inline flow meter records totalized flow that is read manually monthly via BCWD site visit.
- South Well Pump (Well #2): flow meter with data logger, downloaded by BCWD monthly on USB drive, installed in 2021.
- North Well Pump (Well #1): pump run time in hours, recorded by golf course staff and water appropriation reporting yearly to MnDNR based on maximum pump capacity for the periods the pump was manually turned on.

BCWD has established goals and policies to protect Brown's Creek from thermal loading and conserve groundwater resources. This can be better achieved by installing a more robust monitoring systems at all three existing pumps and using the data to optimize of operation of the wetland water reuse system.

Furthermore, drawdown events have been observed at the DNR observation well at Brown's Creek Park, occurring for 1-3 days, after which the water level rises back to the original level. This pattern is recognizable as the influence of a pumping well or wells. Preliminary analysis determined that the well pumping capacities at the Oak Glen Golf Course can create this decrease in the groundwater level. A further benefit of monitoring and recording the pump flow rate and timing at both golf course wells would be to understand the relative impact of each well on Brown's Creek. Additional analysis of that data would be necessary and may lead to optimizing the well pumping schedule to limit the effect of pumping on the hydraulic head of the aquifers during times when baseflow is critical to sustaining flow in the stream. Oak Glen Golf Course staff have expressed interest in working with BCWD on this effort.

## Update

The pumping systems at Oak Glen vary in age and type of technology, however EOR confirmed the feasibility of retrofitting the North Well Pump with equipment of the same specification as was installed on the South Well Pump in 2021. Additionally, these systems can be retrofitted to report to a web interface such that data can be downloaded via desktop computer, reducing the number of site visits to only troubleshooting or when collaborating with golf course staff.

Maintaining consistency of the equipment installed at the site is important from an ongoing support standpoint, thus a quote was requested from Tri-State Pump and Control, the distributor and installer of the flow metering and recording equipment at the South Well Pump. Tri-State Pump and Control is the local distributor of the PointWatch remote monitoring and control system that will provide the online portal for data viewing and downloading.

### Scope of Services

Tri-State Pump and Control provided a quote in the amount of \$13,738.40 to furnish and install equipment that will allow accurate remote monitoring of all three pump systems. The quote includes \$1,436.40 for one year of remote monitoring service.

EOR's services include reviewing project submittals, collaborating with the administrator and legal counsel to draft agreements for construction and access, and to provide support during the installation. EOR will also update the Oak Glen Reuse project standard operating procedures manual (SOPM) to include the specifications for the remote monitoring equipment and online access to the data portal.

**Table 1: EOR scope of services summary**

| <b>Task</b>                    | <b>Description</b>  | <b>Hours</b> | <b>Cost</b>    |
|--------------------------------|---|--------------|----------------|
| 1. Agreement Coordination      | Collaborate with the administrator and legal counsel to draft construction and ongoing access agreements with the contractor and Oak Glen Golf Course | 4            | \$792          |
| 2. Construction Administration | Contractor & golf course coordination, review of project submittals, construction observation, pay request review                                     | 18           | \$3,150        |
| 3. SOPM Update                 | Update the SOPM with the specifications for the remote monitoring equipment and online access to the data portal                                      | 4            | \$668          |
| <b>Total</b>                   |   | <b>26</b>    | <b>\$4,610</b> |

### Requested Action

1. Authorize the administrator to enter a contract with Tri-State Pump and Control for the purchase and installation of pump-flow monitoring equipment for pump systems at Oak Glen Golf Course for not to exceed \$13,738.40.
2. Approval of this EOR scope of services in the not to exceed amount of \$4,610 to complete Tasks 1 through 3 as outlined above.