



## CLEARWATER RIVER WATERSHED DISTRICT

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September 25, 2017

Re: Clearwater Harbor & Hidden River Communal Sanitary Sewer Systems  
Nitrogen Mitigation & Analysis Plan (NMAP) Implementation Update

### PURPOSE

The Clearwater River Watershed District (CRWD) has prepared this letter to update residents of the Clearwater Harbor & Hidden River Communal Sanitary Sewer Systems on efforts to implement the Minnesota Pollution Control Agency's (MPCA) mandated Nitrogen Mitigation & Analysis Plan (NMAP). This plan is a requirement of the MPCA's operating permit both systems fall under. The CRWD, as owner and operator of the systems, is mandated to implement this plan.

### BACKGROUND

The two sewer systems are located north of Clearwater Lake. The systems treat wastewater for 112 properties in a manner that must protect groundwater as well as nearby surface waters from sewage pollution. Both systems were constructed in the early-to-mid 2000s at a cost of ~\$2 million, paid for by residents via special assessments.

The systems are permitted by the Minnesota Pollution Control Agency (MPCA). The permits have a robust set of requirements which includes groundwater monitoring for nitrogen levels. The original MPCA permit required monitoring of nitrogen via groundwater wells, but in 2014 the permit changed to require that nitrogen not exceed 10mg/liter. One of the monitoring wells located down-gradient of the drain fields for the two systems has had total concentrations above 20mg/liter, exceeding the MPCA policy standards. As such, the MPCA mandated the CRWD address these levels and develop a nitrogen mitigation and analysis plan (NMAP). By May 30, 2019, the CRWD must demonstrate to the MPCA the nitrogen policy standards are being met in order to comply with the permit.

The CRWD Board of Managers has developed the required NMAP and is currently in the process of implementation. For implementation, the following has been accomplished:

- Held public information sessions for residents of the two systems to provide input;
- Conducted detailed engineering analysis to determine potential alternatives to meet permit requirements;
- Developed preliminary engineered designs needed to apply for grant funding to offset residents' costs;
- Prepared cost analysis to estimate potential costs;
- Secured placement of the project on the state's project priority list, increasing opportunities for grant funding;
- Contacted state legislators for the support of state legislation to increase grant funding;
- Conducted a detailed hydrogeological investigation to better quantify what is occurring with groundwater to provide better information for project design;
- Hosted a listening session where residents could voice concerns directly with their local legislators.

At the public information sessions in May and June 2016, the Board of Managers made the following clarifications:

- The implementation of a nitrogen removal system rests on the assumption that the State of Minnesota will provide at least 50% grant funding to help offset implementation costs to residents;
- Determined that until such time that the residents of the Hidden River development are able to demonstrate broad consensus regarding decommissioning the Hidden River Sewer System and converting to individual septic treatment systems, the CRWD will not spend any further time investigating this option;
- Funding the implementation of the NMAP will be accomplished by a multi-year special assessment

## GRANTS AND LOANS

Numerous grant and loan options were evaluated for plan implementation. The Point Source Implementation Grant (PSIG) Program via the MN Public Facilities Authority (PFA) continues to provide the best opportunity. During its previous session, the MN Legislature funded the PSIG program and changed funding ratios from 50-50% to 80-20% grant-to-local match. As such, the program will reimburse 80% of project costs (if selected), including costs incurred prior to grant execution.

## OPTIONS TO REDUCE NITROGEN

Four options were evaluated to meet nitrogen reduction goals. Option two is being pursued. Current operation and maintenance (O&M) for the two systems is approximately \$70,000 per year.

Option	Description	Estimated Nitrogen Load Reduction	Estimated Capital Cost	Estimated Annual Operation & Maintenance
1	Orenco Treatment & Denitrification System	50%	\$1,620,000	\$68,000
2	Bio Microbics Treatment & Denitrification System	45%	\$1,160,000	\$72,000
3	Recirculating Gravel Filter & Denitrification System	40-75%	\$1,440,000	\$66,000
4	Connect to Annandale Wastewater System	100%	\$4,850,000	\$127,000

## ESTIMATED RESIDENT COSTS

Below is an estimated break-down of costs of option 2 per resident.

Option	Description	Estimated capital cost per household (1- w/o grant, 2- w/ 80%grant)*
2	Bio Microbics Treatment & Denitrification System	1- \$10-13K   2- \$3-4K

\*Factors in additional costs, such as bonding and one year O&M reserve

## NEXT STEPS

The CRWD Board of Managers, at its August 16, 2017 meeting, moved forward with ordering the completion of 95% engineering design for option 2 in order to better position the project for grant funding. The project was not funded by the PSIG program for 2018; however, by moving forward with design and certified bids, the project will receive a more favorable ranking during the 2019 funding cycle. In addition, the Board, at its September 20, 2017 meeting, directed a permit extension with MPCA be pursued, to allow time for grant funding to be acquired to complete the project.

Listed below are additional steps to complete the project:

- [IN PROGRESS] Complete 95% engineering designs for submission to the MPCA for review and comment (required by PSIG)
- [IN PROGRESS] Pursue permit extension with MPCA to allow time for grant funding to be acquired
- Seek certified bids to formalize construction costs, and submit said bids to MPCA and PFA (required by PSIG)
- Complete Technical and Cost Specifications Report
- Hold public hearing on said report for affected residents
- Reapportion benefits and create assessment roll to provide local match
- Formalize local match financing arrangements
- Construct nitrogen removal system

## CLOSING

The Clearwater River Watershed District is committed to the residents of Clearwater Harbor and Hidden River to resolve the nitrogen mitigation issue in a long-term, fiscally responsible manner. Feel free to contact the CRWD using the information about, or by e-mail at: [cole.loewen@crwd.org](mailto:cole.loewen@crwd.org).