

Plant Profile

Dockside Green – Victoria BC

Development

Dockside Green is a 15-acre award-winning development that includes residential, retail, office, and light industrial uses and extensive public amenities. Once completed, Dockside Green will include 26 buildings totaling 1.3 million square feet and be home to about 2,500 people in three neighborhoods - Dockside Wharf to start, followed by Dockside Commons and Dockside Village. Superior building practices and extensive community planning are transforming the site from a contaminated industrial wasteland into a healthy, lively community. The entire project is targeting LEED® Platinum designation with the first two residential phases and first commercial phase already reaching this goal.



Figure - Dockside Green Wastewater Treatment Plant

Wastewater Treatment Plant

The wastewater treatment plant was built directly adjacent to a popular bakery and coffee shop within the development. Being built 'underground' the treatment plant is roofed with a walkway, waterway features and greenery which allow this highly technical treatment plant to blend in. Dockside is a fully automated treatment system by the use of SCADA.

Statistics:

Design Flow: 380m³/day

Average Flow: 100m³/day

Total Plant Volume: 740m³

Average Retention Time: 5.5 days

The process was built around the Zenon Zeeweed Membrane technology. There are 2 trains within the treatment plant with the capacity to treat all the wastewater at full development without upgrades or additions.

The wastewater is screened through one of 2 Huber screens, collected in the Equalization Tank and then pumped into the process. The biological portion of the treatment plant consists of an Anoxic zone for nitrate removal and an Aeration zone for ammonia conversion. The water then flows into the membrane tank. The membranes are a hollow 'spaghetti-like' construction that filters the clean water into the center of these strands by way of vacuum. This treated water travels through a Trojan UV disinfection stage before storage and discharge. Excess sludge is sent to a screw press dewatering unit. Onsite chemical addition controls phosphorus, alkalinity, pH and disinfection properties of the effluent. The use of a Sol-Air (UV) system eliminates foul-air being discharged to the environment.



Figure 2 - Zeeweed Membranes

Effluent Discharge

Effluent from Docksider WWTP is discharged one of two ways. A High Pressure system delivers treated water back to the toilets and roof-top gardens throughout the whole development, while a Low Pressure system maintains the water level in a development-length waterway and is used for irrigation during summer months. The waterway is designed to collect all the rainwater from the development along with the treated effluent. If the level in the waterway gets too high it automatically overflows out a diffuser into the Victoria Harbour. This waterway is stocked with certain types of fish as well as crayfish and is a local hangout for ducks and otters.



Figure 2. Effluent Waterway and Condos

Analytical Data

The wastewater treatment plant is a Class IV Wastewater Treatment Plant as classified by the Environmental Operators Certification Program. Docksider Wastewater Treatment Plant regularly meets and exceeds the Effluent Requirements laid out in the Operational Certificate.

Effluent Quality Requirements:

Suspended Solids: < 5.0mg/L

BOD: < 10.0mg/L

Coliforms: < 2.2 CFU/100mL

Total Phosphorus: < 1.0mg/L

Total Nitrogen: < 10.0 mg/L
Ammonia Nitrogen: < 1.0 mg/L

Gasification Facility

In addition to the wastewater treatment plant, Dockside Green Development also has an onsite heat generation facility. This 'biomass' facility gasifies woodchips to create 'syngas'. The gas is used as a fuel source for a boiler. This heat is then transferred to the whole development for heating of living spaces and hot water through heat exchangers. This facility has the ability to create 2 MW of thermal heat.

Both facilities are operated by Corix Utilities. Thanks to Shantelle Clarke from Corix Utilities for the profile.

Operator Profile

Shantelle graduated from the Water Quality Technology Program from Okanagan University College in 2002. She moved directly into operating a treatment facility in Pemberton, BC. This move gave her the opportunity to learn both RBC and SBR treatment. After spending a couple years there she moved back home to the Okanagan and worked at the City of Penticton Advanced Wastewater Treatment Plant. This plant introduced and taught her BNR treatment, primary and secondary clarification, anaerobic digestion, fermentation, sand filtration, chlorine disinfection, and liftstation operation. She was also able to obtain her MWWT-III at this point of her career. When the opportunity presented itself, Shantelle moved her skills to Lake Country and became the Operations Manager for the wastewater treatment plant, liftstations, and package plants located within the District. She had a key role in implementing a preventative maintenance program throughout the District for both water and wastewater and assisted with the Liquid Waste Management Plan development until her move to Victoria in 2009. Originally Shantelle was the Senior Utility Operator for Corix Utilities operating the wastewater treatment plant for Dockside Green, a LEEDS Platinum development in downtown Victoria. This position has now developed into overseeing operations of all coastal wastewater treatment plants operated by Corix Utilities. During all this she was also an instructor for BCWWA and is now embarking on her new adventure of teaching for Thompson Rivers University.

