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Welcome
Public Information Centre

Omemee Wastewater Treatment Upgrade

July 15th, 2021

Location: Virtual Zoom Meeting
Time: 6pm until 7pm

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Background Information

The City of Kawartha Lakes owns the municipal wastewater system in the Town of Omemee. It was originally constructed as a dual lagoon /spray irrigation system in 1976.

In 2011, the City completed a Class Environmental Assessment based on a Growth Management Plan that forecasted substantial growth in the area. Accordingly, the City elected to upgrade the system by designing a large sub-surface disposal system (LSSDS) which was constructed in 2014. The original spray irrigation system was to be decommissioned. Unfortunately, the LSSD has not performed to its original design standards, and is unable to handle the capacity of design flows. The system is currently operating as a combination of the new LSSD and the original spray irrigation system.

Since that time, the growth forecast has been revised downward. Omemee will not require the wastewater treatment capacity that had originally been forecasted. The City and Greer Galloway are reviewing the current system to determine the best path forward.

These upgrades and recommendations will be carried out as a Schedule 'C' project under the terms of the Municipal Class Environmental Assessment (Class EA) process, which is approved under the Environmental Assessment Act.

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Limitations of The Existing System

Slime and Suspended Solids - In spring and warmer months of the year, effluent from the lagoons contain expected seasonal spikes of suspended solids. These can clog pumping systems. Effluent undergoes a screening process before the pump-chamber that removes some of the suspended solids, but not all. This causes an organic slime on both the screen and the side walls of the wet well. The presence of slime clogs the screen and the pumps and requires continuous attention to keep the system functioning.

Soil Composition – In the tile bed area, pockets of silty sand exist within the layers. The effluent is unable to filter through the dense lower level quick enough, causing build up and affecting the upper level. Other issues might be low permeability due to sand and silty sand, fouling of the sand due to slime/suspended solids or hydraulic segregation where different types of sand/silt/soil separate into layers, reducing permeability.

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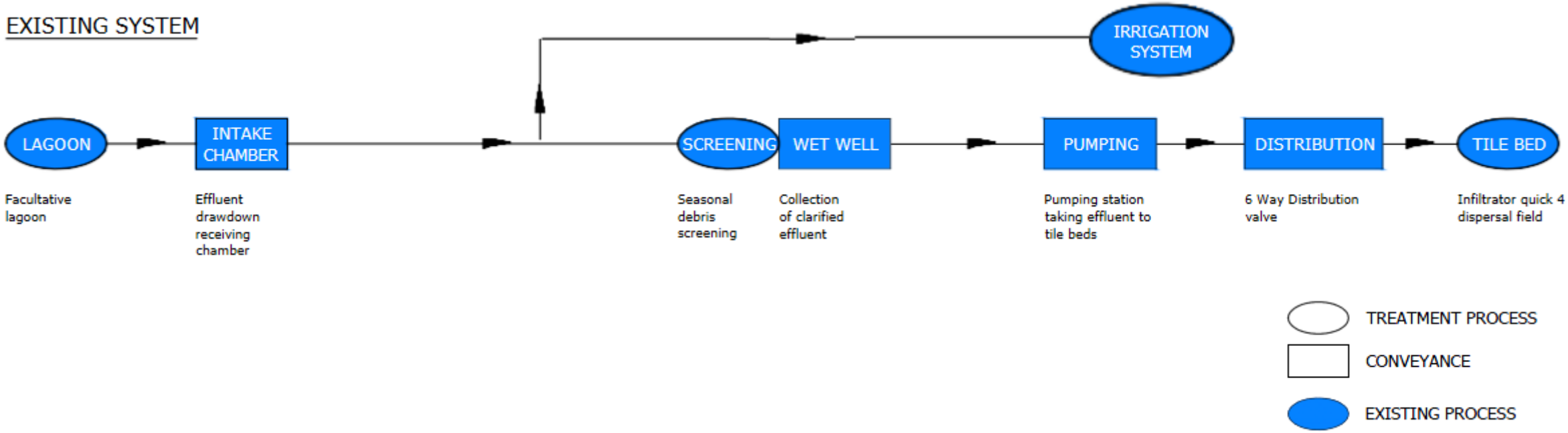
Existing Process



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Proposed Upgrades – Pre-Wet Well

Pre-Treatment of the Effluent

To assist with the removal of suspended solids, the effluent could be treated before entering the wet well. Options include:

Self-Cleaning Cloth Filters

This type of filter only removes a minimal amount of wet well slime, requires labour and chemical storage.

An Auto-Cleaning Strainer

This type of filter only removes a minimal amount of wet well slime and is ineffective against BOD levels.

Dissolved Oxygen Flotation

Removes almost everything required but requires new infrastructure and power.

The Travelling Screen

This screen Intercepts weeds and debris before entering the wet well, reducing clogging in the well.

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Proposed Upgrades – Post-Wet Well

Enlargement of the Existing Wet Well
A larger 2-stage tank would increase the amount of time for any suspended substances to settlement.

New Pumps
In the case that existing pumps do not meet the design requirements of the new system.

Distribution to LSSDs
Replace six-way distribution valve with two-way valves

Hydraulic Load Control
Reduce the hydraulic load to tile bed in accordance with field conditions.

Utilise Existing Spray Irrigation
Continue to use the spray irrigation to supplement the LSSD system's current deficiencies.

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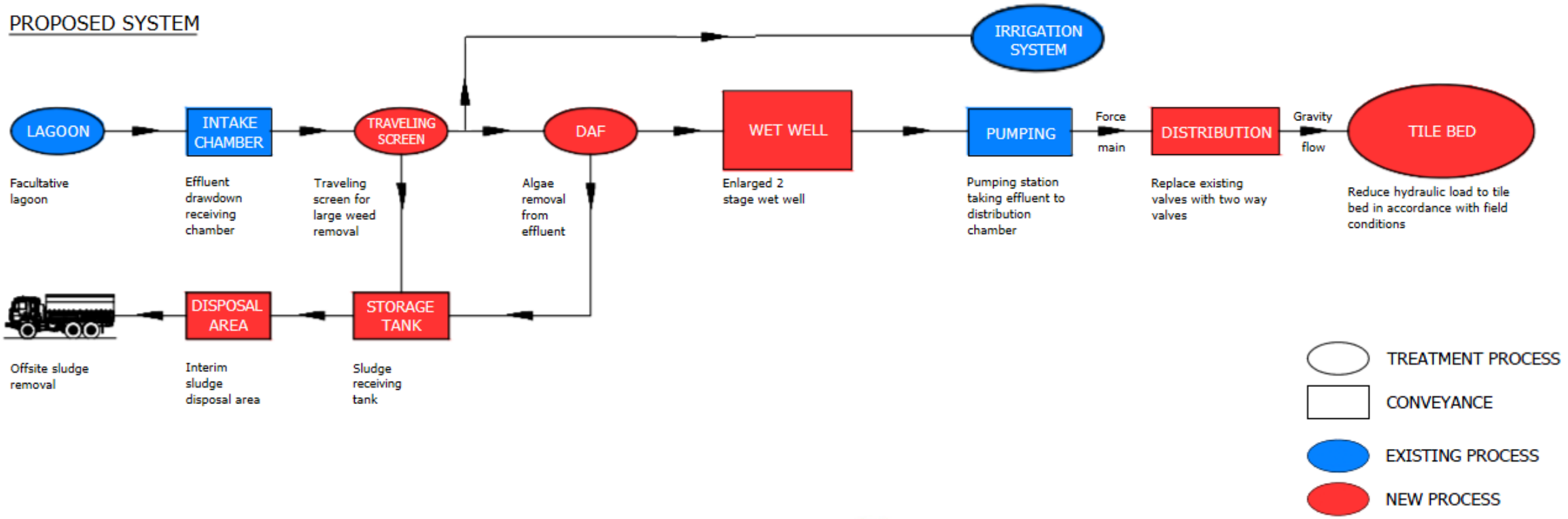
Proposed Upgrades



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Cost Estimates

Upgrade	Cost ($)
The Pre-Treatment Travelling Screen	200,000
The Sludge Storage Tank and Disposal Area	300,000
The Dissolved Air Flotation Package Plant (DAF)	400,000
A Concrete Block Building to House Pre-Treatment Equipment	400,000
The Wet Well Expansion	100,000
Modifications and Additions to the Pumping Station	200,000
The Effluent Distribution Valves and Piping	100,000
TOTAL PROJECT COST	1,700,000

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Next Steps…

- Confirm the alternatives to be implemented
- Confirm the details of design for new stages to implemented
- Identify operational procedure for using the spray irrigation in conjunction with the LSSD

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