

Lov-It Campus

SANITARY Wastewater plan

Page 1 of 3

Please note this report is for informational purposes only and is not meant for regulatory permit review nor system construction.

The project will have (TWO) separate sewers

One for sanitary (bathrooms, handwashing sinks and non production floor drains only)

Second sewer for any process/ production water including floor drains within the production area.

This report is for the sanitary sewer only.

To treat the sanitary wastewater we are proposing a fixed film aerobic process which will highly pretreat the wastewater prior to being treated in the mound soil component. Several of the processes described below are processes used in municipal treatment plants such as BOD reduction, denitrification, reduction of Fecal Coliform and more.

- (A) Sanitary sewer will first go to a 9,100 gallon Primary Settling tank with Effluent Filter
 - a. This tank should be constructed as traffic rated if there is any chance of vehicle traffic over the tank. This first tank should be as close to the building as possible, but must maintain a five foot setback from the building.
- (B) The second tank in the treatment train is a 9,100 gallon flow equalization tank.
 - a. This tank will have two pumps which shall time dose to the next tank(s)
 - b. Time dosing reduces spikes in hydraulic and organic loading to the system allowing for better treatment.
 - c. Flow equalization tank will monitor pH and adjust it accordingly
- (C) The third stage of treatment is aerobic pretreatment and reduction of BOD (Biochemical (sometimes referred to as Biological) Oxygen Demand).
 - a. This stage has two separate 10,000 gallon tanks each with an aerobic unit and blower, designed for BOD reduction
- (D) "D" on the drawing are the blowers for tanks C, E, F, &G
 - a. TWO alternating blowers per aerobic unit for a total of ten blowers
- (E) 6,010 gallon tank with Nitrification system
 - a. First step of denitrification is nitrification which occurs in this tank
- (F) 10,000 gallon tank for denitrification
 - a. This tank includes a dosing carbon feed at inlet to mix with the nitrified influent
 - b. This tank has a denitrification system and denitrification mixing pump.

Lov-It Campus

SANITARY Wastewater plan

Page 2 of 3

Please note this report is for informational purposes only and is not meant for regulatory permit review nor system construction.

- (G) Polishing. This process is further aerobic pretreatment in a 6,010 gallon tank
 - a. Tank includes sludge grid with camlock for solids pumping
 - b. This is the final treatment prior to being pumped out to a mound system.

- (H) 9,100 gallon dose tank
 - a. Duplex alternating pumps that dose to and pressurize the mound system.
 - b. Mound is pressurized for the purpose of equal distribution throughout the mound system with each dose.

- (K) Mound system

Mound system is the next phase of treatment which uses three different soil layers within the mound for additional treatment.

On July 3, 2024 three certified soil testers performed soil tests on this site. A Dane County inspector was present and confirmed the soil test findings. Soil test determined that the soil in the areas tested is suitable for mound systems.

Construction of mound systems creates several layers of different size soil pores which continue to treat the water beyond the above treatment.

The mound area is 'chisel plowed' to open the pores of the topsoil. Once the pores of the topsoil are opened, coarse washed sand is carefully placed on top of the plowed topsoil to prevent compaction of those pores. The amount of coarse washed sand applied to the surface is determined based on the soil test results. Once the coarse washed sand is applied, on top of the sand a six inch layer of washed stone is applied and created into a perfectly flat level bed of washed stone. On top of the washed stone, the distribution laterals are placed. Distribution laterals are pipes with specifically sized and spaced orifices to facilitate equal distribution throughout the mound. The laterals are covered with more stone. The stone bed with the pipes inside of them are covered with a synthetic fabric to protect the stone from the topsoil which is applied to cover the entire mound. The topsoil is seeded with grass seed and mulched so that a sod forms to prevent erosion.

Lov-It Campus

SANITARY Wastewater plan

Page 3 of 3

Please note this report is for informational purposes only and is not meant for regulatory permit review nor system construction.

So once the water is treated through the process detailed above in the treatment process through the tanks , the water is dosed under pressure into the mound. The water is further treated first through the layer of washed stone (largest pores), then down through the sand (medium pores), then through the layer of topsoil (smallest pores), on its way back into the soil.

Studies (some at the University of Wisconsin Madison) have long shown that water treated through three feet of suitable soil is safe water. This water is being highly pretreated prior to even getting to the soil portion of the treatment. This water is then being treated through the mound layers of soil after being highly pretreated through the tank system.

All control panels will be datalogging and meters will be used to quantify flow.