

## **Process sewer**

### **There will be a separate sewer for process/ production water**

Due to the temperatures of sanitation and cleaning , this sewer shall be at minimum a schedule 80 high temperature pipe.

The following treatment can take place either within the main building or inside of a separate treatment building

This process will be metered with datalogging to maintain accurate flow records. This will help with any maintenance or adjustments to the system. pH will also be monitored and adjusted accordingly

- (1) Process wastewater will be directed into a receiving pit for initial settling of larger solids
  - a. Receiving pit can also monitor and adjust pH
- (2) From the receiving pit water is directed through a rotary drum screen for the further removal of solids from the wastewater stream.
- (3) The filtered wastewater will be pumped to wastewater equalization tanks to balance the pollutant loadings throughout the day and process.
- (4) From the equalization tank the wastewater is pumped to a Dissolved Air Flotation system
  - a. Dissolved Air Flotation (DAF) removes fats, oils, and greases (FOG), and suspended solids (TSS). The DAF also reduces insoluble BOD
  - b. The DAF will break the emulsion and remove any Fats, Oils, and Grease (FOG) prior to discharge.
  - c. Dissolved Air Flotation technology will float the suspended solids to the surface of the unit. The solids (sludge) will be skimmed off of the DAF and transferred to a sludge holding tank.
  - d. Solids will be dewatered using a plate and frame filter press.
- (5) Influent Wastewater Flow Meter (magnetic flow meter)
- (6) pH Neutralization will be required to adjust the wastewater pH to a neutral level
- (7) DAF effluent will be sent to a biological treatment technology (MBBR-Moving Bed Biofilm reactor) to reduce BOD concentrations to discharge level.
- (8) Effluent Wastewater Flow Meter
- (9) Reverse Osmosis will be used to reduce chloride concentrations before discharge.

(10) Although the intent is to treat the process water to such a high standard that it meets the DNR's approval for surface discharge, there are four areas represented on the attached site plan that are to be used for subsurface discharge of the treated process water.

(11) In the unlikely event that production should exceed field capacity, there are the following contingency plans:

- a. (l) on attachment is the pump tank to pump to the field locations. This pump tank is sized to act as a large holding tank and excess treated process water can be pumped out and hauled off site if and when needed.
- b. There are dozens of acres of wetland. The project will treat water to a DNR approved standard that would allow the ability to apply treated process water to the wetland. This would only be done as a last case resort as we have the above options available first.