Lagoon discharge will proceed as follows: March 11th 2019 - UPDATE

1. **Gypsum will be applied to cells.**

Gypsum Supply:
60-70% 325 mesh like flour = $200/ton
Shipping: $100 per tons
Total: $300 / Ton

Quantity Required: 12 Tons (9 Totes)
Total Budget: $3600

Required Date: Latest by Friday 15 March 2019

Delivery Address: 1208A-Hwy 642 Sandy Beach, AB. Delivery Truck should call Trevor at Super Sucker Hydrovac at: 780-967-5552 or supersuckervac@gmail.com. Trevor will direct the location where the Gypsum is to be unloaded.

Gypsum Application:

1) Hydrovac truck will be filled about 50% from the top of 1st Cell (no solids, just water)
2) Two (2) totes of Gypsum will be vacuumed into the truck
3) Hyrovac truck will be filled with water and mixed
4) The water in hydrovac truck will be released onto the surface of the storage cells
5) This process will be repeated till equal volume of gypsum is applied to each storage cell

2. **Water testing and release will take place – note the location of the release**

Water Testing:

Alberta Environment is also asking for water testing as follows:

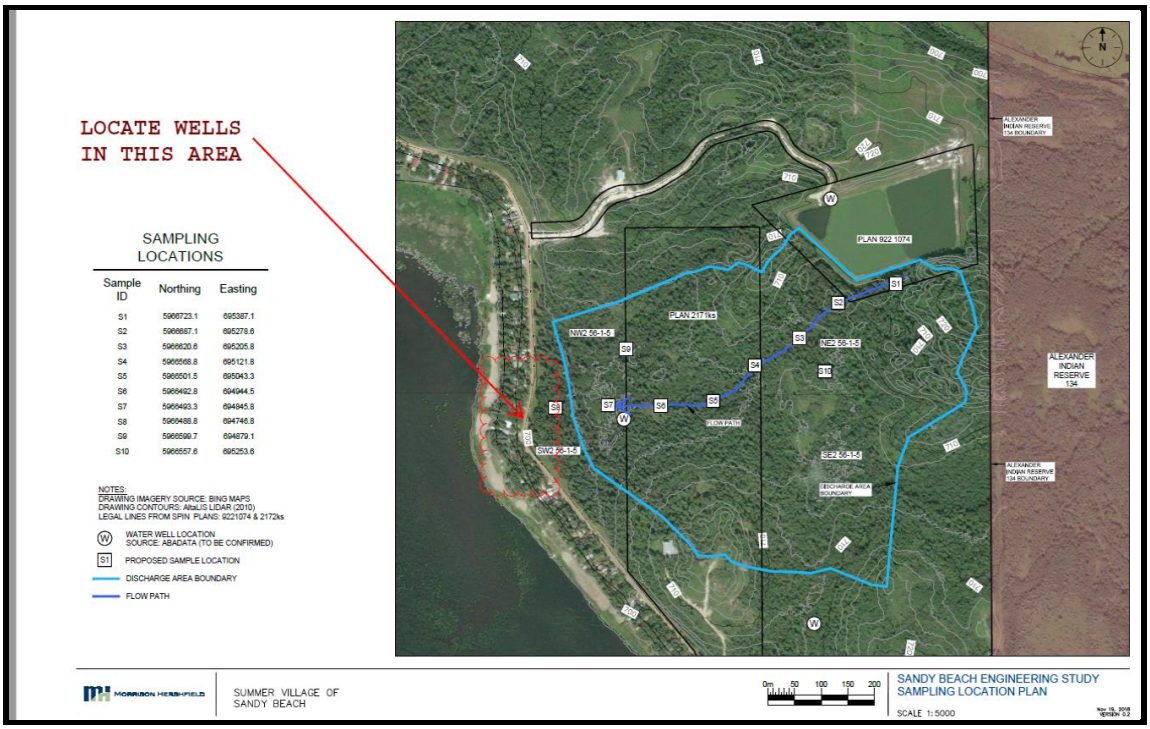
1) Water from the Lagoon.
2) Water from well closer to the release area

- will collect water testing bottles from the Health Department in Onoway.
- It is my understanding that the health department also offers subsidized testing of the well water.
- confirm with them whether they would be able to complete Alberta Environment Routine Analysis for Groundwater Quality Analysis per the attached page.
- will find wells in the area close to the release area in the attached map.
- Well water sample will be collected and the time, date, location will be recorded
- will punch hole in the frozen cover of the final cell in the lagoon to collect wastewater sample.
- The samples will be sent to lab for the testing.

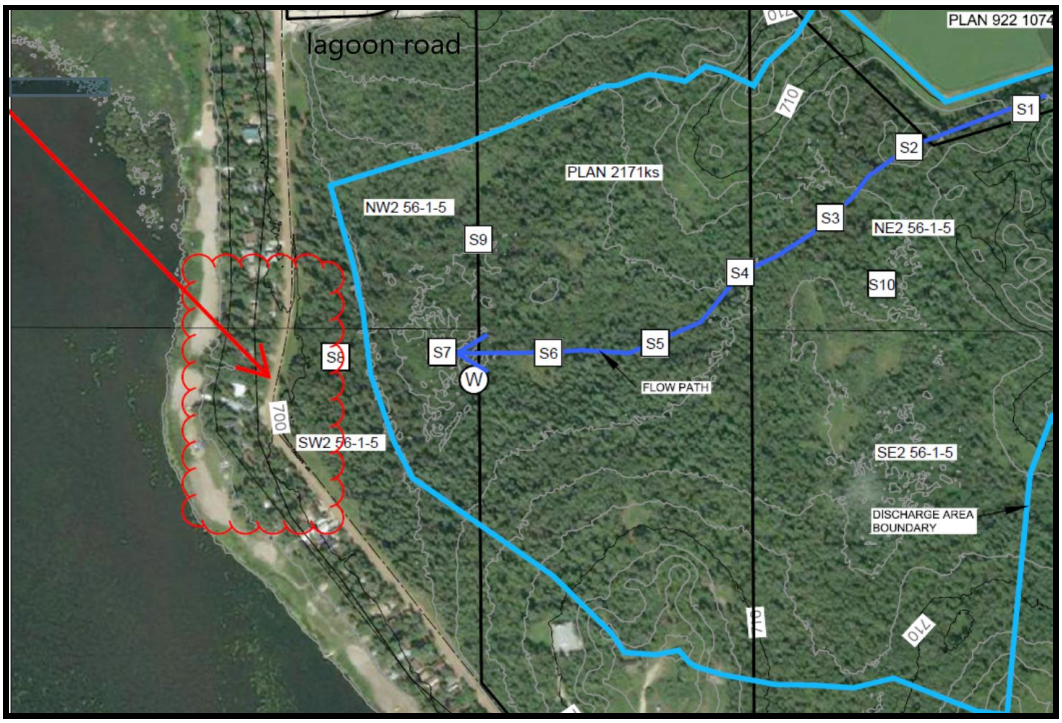
TABLE 1.0 **LIST OF PARAMETERS FOR GROUNDWATER QUALITY ANALYSIS**

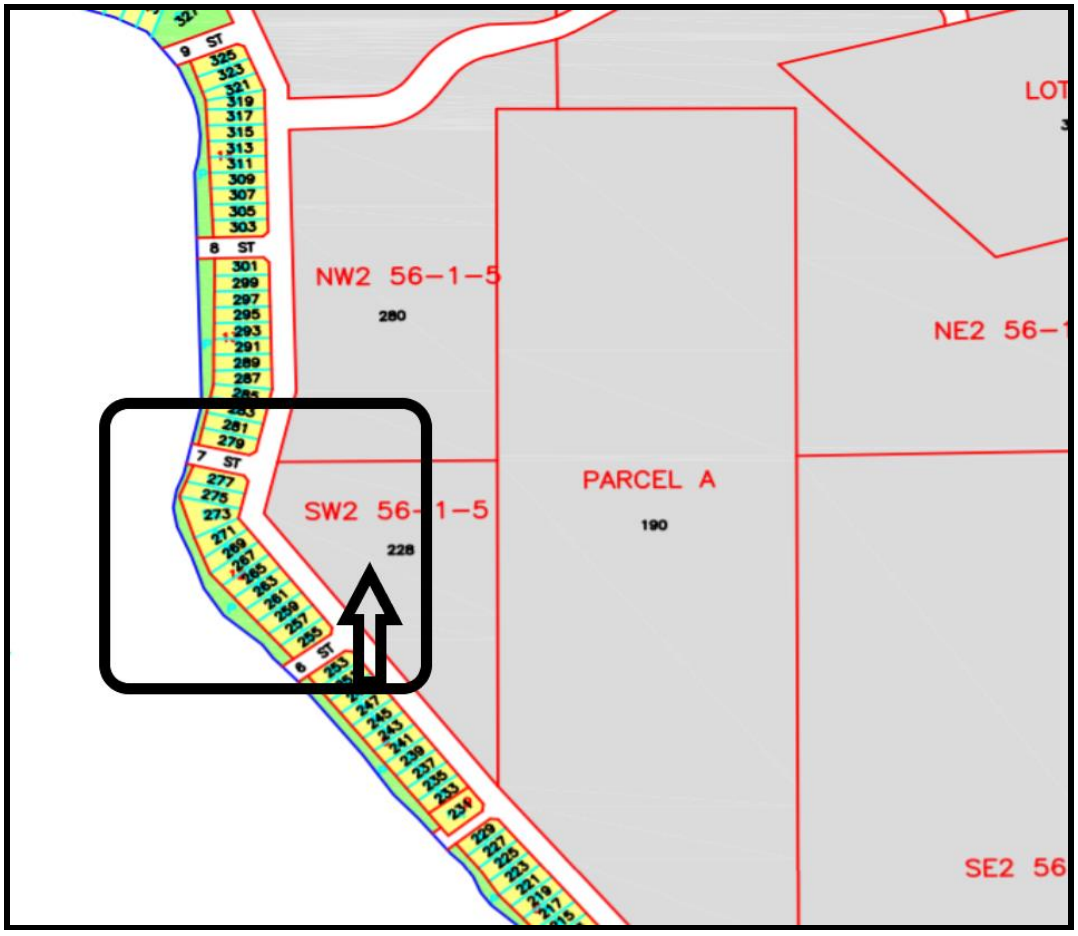
Routine Analysis		Detailed Analysis		Bacteriological Analysis
Bicarbonate (HCO_3)	Sulphate (SO_4)	Arsenic (As)	Nitrite + Nitrate (NO_2 + NO_3)	E. coli (CFU/100 mL)
Calcium (Ca)	Temperature	Bicarbonate (HCO_3)	Nitrogen-Ammonia (NH_3)	Coliforms–Total (CFU/100 mL)
Carbonate (CO_3)	Total Dissolved Solids	Calcium (Ca)	Total Kjeldahl Nitrogen (TKN)	
Chloride (Cl)	Total Alkalinity	Carbonate (CO_3)	pH	
Electrical Conductivity	Total Hardness	Chloride (Cl)	Phosphorus (P)	
Fluoride (F)		Colour (TCU)	Potassium (K)	
Iron (Fe)		Copper (Cu)	Sodium (Na)	
Magnesium (Mg)		Fluoride (F)	Sulphate (SO_4)	
Manganese (Mn)		Iron (Fe)	Sulphide (H_2S)	
Nitrite + Nitrate (NO_2 + NO_3)		Lead (Pb)	Total Alkalinity	
pH		Magnesium (Mg)	Total Dissolved Solids (TDS)	
Potassium (K)		Manganese (Mn)	Total Hardness	
Sodium (Na)		Mercury (Hg)	Turbidity (NTU)	
		Metals (total)	Zinc (Zn)	

Guide to Groundwater Authorization



Water wells location for extraction and testing


lagoon road
PLAN 922 1074
PLAN 2171ks
NW2 56-1-5
NE2 56-1-5
SW2 56-1-5
SE2 56-1-5
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
W
FLOW PATH
DISCHARGE AREA BOUNDARY
700
710


NW2 56-1-5
280
NE2 56-1
PARCEL A
190
SW2 56-1-5
228
SE2 56
LOT
9 ST
8 ST
7 ST
6 ST