

**HILLSIDE FARM  
LEWISPORTE JUNCTION MAPLE AND  
BIRCH SYRUP FARM  
10 Km South of Lewisporte**

**ENVIRONMENTAL ASSESSMENT  
REGISTRATION DOCUMENT**

**Submitted by  
Hillside Farm  
1 Tower Road Route 340 Lewisporte NL A0G3A0**

**April 19, 2023**

**NAME OF UNDERTAKING: LEWISPORTE JUNCTION MAPLE / BIRCH SYRUP FARM**

**PROPONENT:**

- (i) Name of Corporate Body: Hillside Farm (HSF)
- (ii) Chief Executive Officer:  
Name: Phil Nicholas  
Official Title: Owner
- (iii) Principal Contact Person for purposes of environmental assessment:  
Name: Phil Nicholas  
Official Title: Owner

**THE UNDERTAKING:**

- (i) Name of the Undertaking: Hill Side Farm
- (ii) Purpose/Rationale/Need for the Undertaking: Maple and Birch Syrup / Sap Farm

**DESCRIPTION OF THE UNDERTAKING:**

- (i) Geographical Location: The farm is located on route 340 approximately 2 km north of the TCH intersection on the west side of highway 340, it shares boundaries with the Emanuel Convention Center, and has existing access via an existing tower access road. The site is located approximately 10 km south of the municipality of Lewisporte, refer to Figure 1 and Figure 2.

(ii) Physical Features:

- The project will utilize the existing hardwood forest to collect sap from maple and birch trees. This sap will be collected using 3/16" spiles, 5/16" tubing (feeder lines) and 20L buckets to collect the sap in the first year. The sap is then transported to a commercial facility in Lewisporte (figure 2) where it will undergo evaporation to produce syrup, and the final bottling process.
- The proposed site is home to a vast hardwood forest. It has many maple and birch trees, some exceeding 4' in diameter. This location is ideal to collect sap as it also has a natural grade that faces south. The lease has a mix of trees that include balsam fir, spruce and cherry which are to be removed from the lease to allow for the maple birch and trembling aspen to thrive. The land has rich soils that allows the large deciduous trees to grow well. It has a southern slope that provides full sun in the late spring which helps increase the sap flow in maple.
- The land is inhabited by many native animal species including the cotton tail rabbits, ruffed and spruce grouse as well as many songbirds. There are also other non-native species such as the red squirrel and moose.
- Hillside Farm will not require the land to be fenced or protected from any wildlife or the public. The boundary lines will have identification signs placed along it, and a

public awareness campaign with social media posts and media coverage will alert the public to the farm's existence and operation. Areas where equipment is stored may require a fenced yard of an estimated size of 10 000 square feet.

- In the second year of operation HSF intends to install a mainline network of 1" piping to connect the 5/16" feeder lines and use a vacuum pump to increase the flow rate. This 1" piping system connects to a series of moisture traps. The moisture traps are large barrels that collect the sap under vacuum, and when the sap level rises it triggers a float switch that engages a pump to evacuate the traps of all sap and pump it to the sap processing building. The sap is stored in 2500 L vats and undergoes reverse osmosis to concentrate the sugar in the sap and reduce boiling time and fuel required to produce the syrup.
- The collection piping and tubing will be constructed above ground. The main lines will run along the ground. The feeder lines will stay suspended at 6-10 ft from the ground for the duration of their life. The taps are removed from the trees at the end of the season, sterilized, and capped until the following sugaring season.
- The project will require the construction of a sap processing facility. (Figure 3) This facility will accommodate the collection of the sap from the field via a 1-1.5" piping network that is under a vacuum. The sap will also undergo reverse osmosis in this structure prior to it being fed to the evaporator in the sugar shack. There are various models of commercial reverse osmosis systems available on the market, the typical system can increase the sugar content, or brix, by up to 16x, or 32% sugar (32 brix). The reverse osmosis will produce water, permeate, which is stored in large tanks and used onsite for all the water needs other than drinking water.
- A 30'x40 structure will house the sugaring operations. (Figure 4) It will be called the sugar shack and is scheduled to be constructed in the spring of 2024. The sugar shack will house a wood fired evaporator that will process up to 400 liters of sap per hour. The evaporator currently in use is a 2'x6' Thor evaporator from a manufacturer in Quebec. HSF intends to increase the capacity by acquiring a 3'x13' wood fired evaporator from CDL also out of QC. CDL is working to develop an optimized solution for the farm including the vacuum and piping system, reverse osmosis, filtration, and evaporating equipment required to tap up to 6000 trees per season.
- The bottling facility will be designed to meet CFIA regulations. The facility will take raw sap from maple and birch and process it into a flavored beverage. The process and equipment for this site are currently being researched. The current technology uses ultra purification, UV treatment and pasteurization before carbonization and canning. The structure will measure approximately 40' wide and 60' long.
- Other storage structures will be required in the future as the farm expands and the sugaring equipment increases. A workshop onsite will be required for repairs to equipment. An open structure measuring 30'x40', currently this structure is scheduled for the fall of 2024.
- An onsite retail location will also be added during the 4<sup>th</sup> year of operation, it will be a basic structure with one washroom, a storage room and showroom.
- Electrical power can easily be supplied from the exiting power line infrastructure and adding several poles to access the sugar shack location.

- Road access is available through existing roads, new access roads will be constructed to access the tree fields and structures that are built on site.
  - The lease application covers 177 acres of land. The area will be split into zones, and zones will be alternated on a 2-year collection cycle. (Figure 5) The zones are created for forest management and identification of the trees. Trees in each zone are to be identified and geotagged. Each tree will be logged and identified with a unique number sequence. The zoning will allow for HSF to manage the forest in a way that will have the least impact on the overall health of the trees.
  - There are several drainage areas on the land that are wetlands, no fueling or cutting operations will take place within a 100 m buffer of these areas, all wetlands will be left in their natural state and access roads will be designed to avoid crossing them. There is one small pond on the south of the project, HSF will maintain a 100 m buffer and will not proceed with any activity in the established buffer. The forest will be thinned to allow for growth and propagation of new areas. No new species will be imported from other areas. This project will not adversely affect the population of moose, or other wild game in the area. There are no chemicals used in the production of maple syrup that will be released in the environment that will affect any species of fish or wildlife in any way.
- An Access Road from Route 340 will be constructed on the southern end of the property. This access road will measure approximately 300 m and join to a 4-acre area where the structures for the business will be located. Another road will be constructed on the southern border of the property. This road will measure approximately 1 km and serve as the access road to the site. A trail network will also be cleared to access the woodland, this network of trails will include 5kms of trail construction. The trails will be cleared, and the brush will be mulched and used as fill material for the trail's construction.

(iii) Construction:

- Construction and clearing activities will take place in stages to align with the cooler weather temperatures, and fire season. Initial line cutting and survey work will begin immediately after the approval of the land, March– May, and finish by mid-summer 2023. Clearing operations for the trail network, new road access, and the building sites will commence in the spring of 2023 and finish in the fall of 2023. All non-production species, balsam fir, spruce, alder, and cherry trees will be removed from the farm in production areas during thinning and road construction in all 15-20 percent of the trees will be removed from the property. All wood removed from the property will be used as firewood in the production of maple and birch syrup, or chipped and used as a top dressing for the trail network. The evaporator is wood fired and uses approximately 1 cord of wood per 4000 liters of sap boiled. HSF will use between 20-30 cords of seasoned wood per season. Gas powered brush saws and small chainsaws will be used to complete the thinning and clearing operations No fueling will take place within 100m of any stream or water body, all operators will always have a spill kit within close proximity of

the work locations.

- The sap processing building is scheduled to begin construction in the fall of 2023, and finish by the end of the year. In the spring of 2024, May – June, the new sugaring facility will be erected to house the sugaring and bottling equipment. A structure for equipment storage, and a retail store will be erected in the fall of 2024. Construction will be completed by a third-party contractor. The contractor will use small equipment such as an excavator, bobcat, and dozer to complete the building site prep. Hand, pneumatic, electric tools, and boom truck to complete the construction of all facilities.
- Potential pollutants will be diesel emissions from equipment used on site, gas emissions from vehicles and tools used in construction. There is a remote possibility of a small gas or diesel spill when refueling, Haz Mat kits will be present with all fueling operations. Solid wastes produced onsite will include wood wastes from construction, other construction wastes such as excess shingles, Tyvek, siding, etc. Cardboard, glass from broken bottles, wasted syrup, cleaning supplies such as paper towels and rags will also be disposed of. All recyclable materials will be recycled, and all other refuse will be disposed of at the Central Newfoundland Waste Management terminal in Norris Arm.
- The applicant has not been made aware of any resource conflicts with the proposed site.
- Roads will have ditches, and culverts as necessary to channel runoff in a manner that the silt can be stopped by using silt fence, or hay mats. The network of trails will be made using wood chippings made during the thinning process.
- Temporary porta potties will be utilized to handle all sewage produced during the construction phase of the operation.

(iv) Operation:

- In any given year sap collection lines will be set in place in Jan- Feb yearly, then taps will be drilled once the temperature forecasts are favorable. The tapping season for maple is from early March to early April, running 4-5 weeks, weather dependent. Birch sap flows from the 3<sup>rd</sup> week in April until the later part of May, again 4-6 weeks depending on the conditions.
- In 2023 sap produced on site will be transported to Lewisporte via truck for processing. The site is located at 126 main St Lewisporte and is a licensed food establishment that houses the bottling equipment. (Figure 7) There is a secondary structure that houses the evaporator. The evaporator is manufactured by Thor, it is a 2x6 wood fired model and has an evaporation rate of approximately 25 gallons per hour.
- In the spring of 2024, the new sugar shack will house the evaporators on lease as shown in figure 6. This structure will replace the temporary location in Lewisporte. The site in Lewisporte will then be utilized as a retail location for the various

products. The sap will be pumped directly into the sugar shack from the sap processing building onsite.

- Thinning operations will primarily take place from April to early June and resume in September until December. Construction of facilities and structures will occur from late August until December with construction of all structures on site scheduled to be completed by the fall of 2025. Trail networks are to be constructed during the thinning operations. Production trees on the land will be inventoried and zones will be established to allow for tree cycling from year to year.
- The sap is collected using a network of tubing and moisture traps that will pump the sap to the sap storage tanks. The sap is put through an RO system that will increase the sugar content of the sap by up to 16x. The sap is then put into a high efficiency wood fired evaporator where the sap is boiled until the syrup is produced. Syrup is then filtered and bottled. Ashes produced during the production of syrup will be disposed of at the CNWM location in Norris Arm.
- The RO process will significantly reduce the firewood required to produce syrup by up to 16x. The water produced will be stored onsite in large storage tanks and used to clean the equipment and sap storage tanks. All unused water will flow through the sewer system. At peak production the RO system will produce approximately 5000 L of water per day. This water will be used for cleaning and the remaining water will be tested and released through the septic system.
- The operation will include work that extends throughout the year, with the summer months being the lull period. During the 2025 season the product lines will expand to include processed maple and birch sap drinks, this will extend the onsite operations to year-round.
- The process used will produce solid wastes in the form of cardboard, glass, wood wastes, ash from the evaporator, broken tubing, and other materials used in the sugaring process. Liquid emissions could come from excess or spoiled sap, water from cleaning processes, fuel, or gas from refueling operations, and vegetable oil from wood cutting operations. Air born emissions will primarily be from the stream of the evaporator. Vehicles used onsite will also emit hydrocarbon combustion pollutants. The cutting of wood and onsite equipment will be electric, including all power tools, chainsaws, and other processing equipment.
- There are no potential resource conflicts that we are aware of currently.
- The use of electric equipment, solar and wind energy to help mitigate the use of fossil fuels. Also, the use of the wood that is present on the land in a high efficiency wood boiler will reduce the emissions and impact of the operations overall. An electric equipment technology and availability advances HSF will use as much electrical equipment, including off road vehicles and tractors to complete day to day operations.
- Roads will be constructed with the use of a small excavator, dozer, and bobcat, they will use a right of way approximately 15 m wide and have a road that is 6-8 m wide.
- The network of trails will be made using wood chippings made during the thinning process. The trails will be 3-4 m wide and used to gain access to

the land for thinning, tree tapping etc. The trails will measure 3-4 m in width. All trails will avoid bog areas and any water crossing will be bridged using wooden bridges or culverts as necessary, with silt mitigation using silt fence or hay mats. Trails will be used to access the farm with the use of ATVs, UTVs, and Snowmobile. They will not be designed for vehicles.

- Water for the operation will come from a small groundwater well that will be built onsite. (Figure 8) The well location will be finalized once the septic field has been identified during the septic approval process. The well will be at least 100 m away from the field, and upstream from any runoff of the septic field. The water from this well will be used for general uses such as washing, and cleaning. Equipment cleaning water will come from the water produced during the reverse osmosis process. Drinking water will be brought onsite and dispensed from water dispensers.
- An Approved septic system will be used to manage all onsite sewers and wastewater. (Figure 8) The septic system will be designed to meet all standards and regulations of the various agencies and departments prior to construction. The final location of the septic field will be finalized during the septic system approval process. It will be near the buildings on the South-East corner of the lease, and away from the water well.

(v) Occupations:

- During 2022 one employee will be employed to liaison with the various government agencies and departments involved in the initial startup phase of the operation. In Jan. 2023 3 positions will be required to manage the setup and processing of the sap collected, an additional person will be hired to help with the birch sap in April, and the season will end late May. (NOC 95106) Students will be hired in the summer months to inventory the trees on site and geotag their locations. (NOC 85101) During the spring and fall, contractors will do most road work and site prep. HSF will employ construction workers for structures onsite. (NOC 75110). Workers will also be required to thin the forest (NOC 84111), construct the trail network, install mainline and feeder lines for the spring harvest (NOC 85101).
- The project will grow to employ 10-15 people seasonally, with 3-4 full-time permanent positions to maintain the sales and warehousing. Employees will all require training, the goal is to employ people that represent the full spectrum of genders, sexes, and races. Training will be made available, and employees will be mandated to take the training in a timely manner or risk termination. Employment opportunities will be posted on various employment sites to ensure that all people will have equal opportunity to apply for the vacant positions.

(vi) Project Related Documents:

See attachments label them of them as figures.

(vii) Consultation

Hillside Farm recognizes that the land we occupy may have been used by indigenous groups in the past. To the best of our Knowledge there are no existing claims to the land by any individual or group of individuals. Hillside farm is committed to working with all interest groups to make this project a success for the region and the residents, while recognizing the importance of consultation and reconciliation.

**APPROVAL OF THE UNDERTAKING:**

Approvals for this project include.

- Forestry permits for forestry related work including cutting and thinning. Also, fire permits for burning brush.
- Agricultural approval to tap the trees and use the land as intended in the project description.
- The department of Environment approval for land use and operations as outlined in this document.
- Crown Lands approval for the lease of the land as an agricultural undertaking.

**SCHEDULE:**

The earliest construction of the roadways is May 2023, due to the requirement for snow to be melted and necessary tree removal during the spring season. The latest this process being would be the fall of 2023. Construction of facilities onsite will begin in the fall of 2023, potentially delayed until the spring of 2024 due to supply chain issues or other delays during the process. Construction of the facilities onsite will end in 2025, delayed until 2026 if there are any unforeseen difficulties in sourcing equipment or workforce at the time.

The production trees will be tagged and inventoried in the summer of 2023 and may require extra time in the summer of 2024 to capture the remaining trees. Collection Zones will be established in the spring of 2025, potentially spilling over into the fall season of 2025 depending on weather and worker availability. Thinning operations will be an ongoing operation from the approval of the application in 2023.



**FUNDING**

The project will require significant investment during the next 5 years. The initial stages of production will use an existing commercial property in Lewisporte to accommodate the bottling of the syrup with evaporation occurring in a separate secondary structure on the property. During the first quarter of 2024 HSF has invested approximately \$35000 to acquire the equipment, consumables, and materials required to produce maple and birch syrup. An additional \$5000 has been spent on contractors for site prep and construction of the evaporating structure.

Further investment in 2023 will include \$200,000 for road construction, site clearing equipment and the new sugar shack construction. During 2024 an additional \$300,000 will be invested to expand the sugar bush, finish the trail network, build an onsite store, and to purchase equipment for the farm. In 2025 additional land will be acquired to expand the sugarbush, with this expansion an additional \$500,000 will be invested to expand the farm to include storage structures and bottling equipment for the sap. Funding will primarily come from personal investment, loans secured through the Farm Credit Council, and Scotia Bank, coupled with government grants and loans including the caps program federally, and the growing forward program provincially.

The agencies involved are:

The Department of Agriculture

The Department of Innovation and Trade

..May 3, 2024..

Date



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Signature of Proponent/Chief Executive Officer

Figure 1 Hillside Farm Location



Figure 2 Area Map

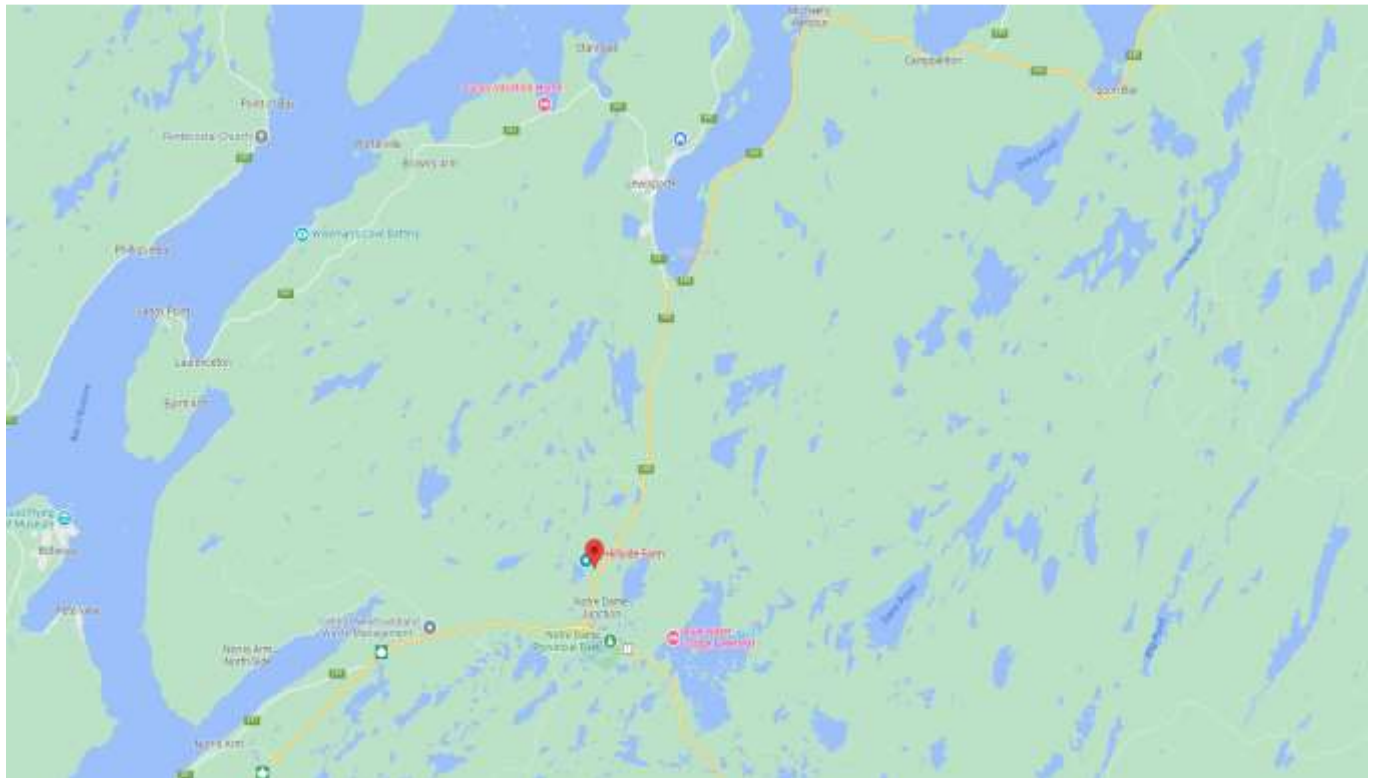


Figure 3 Sap Processing Facility

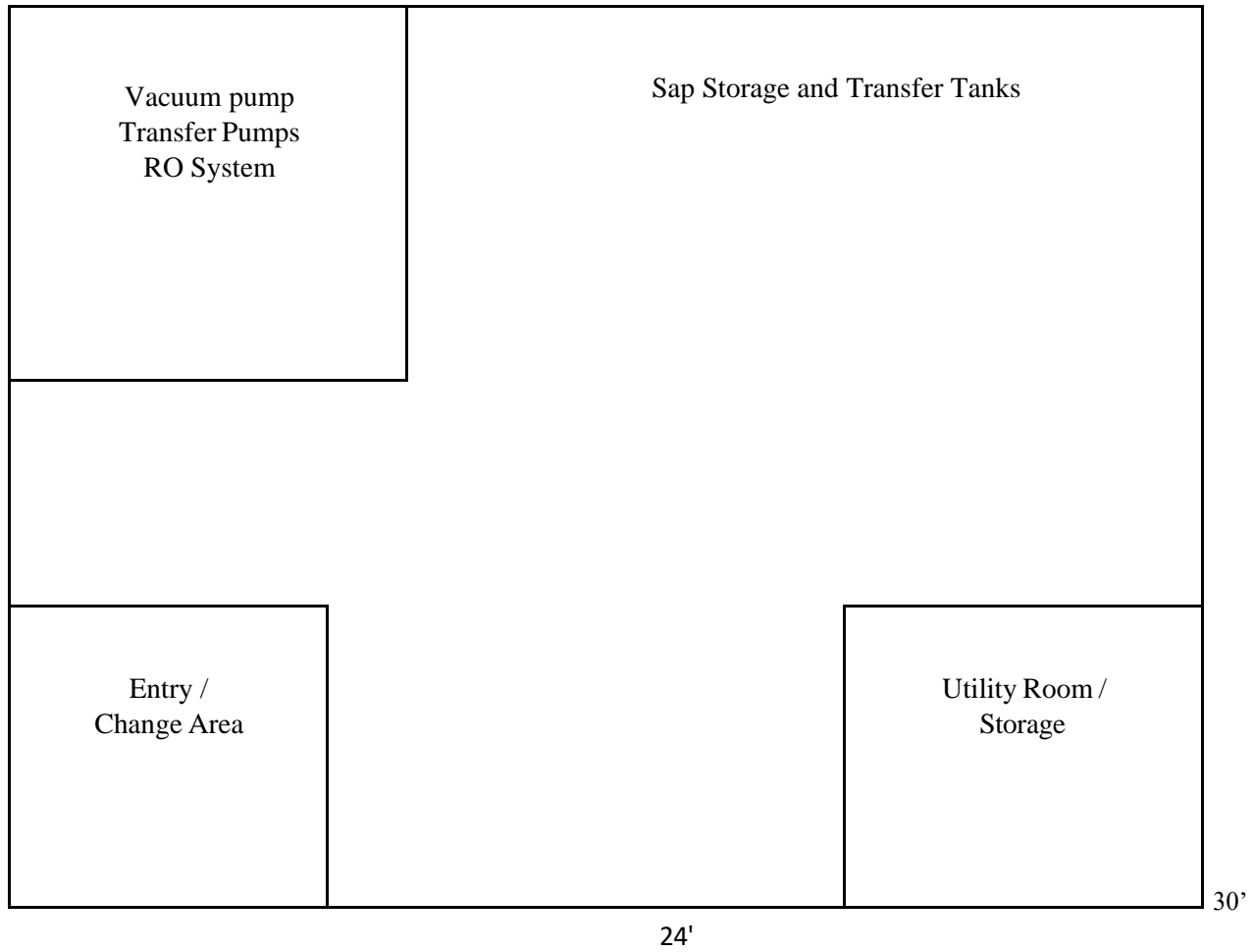
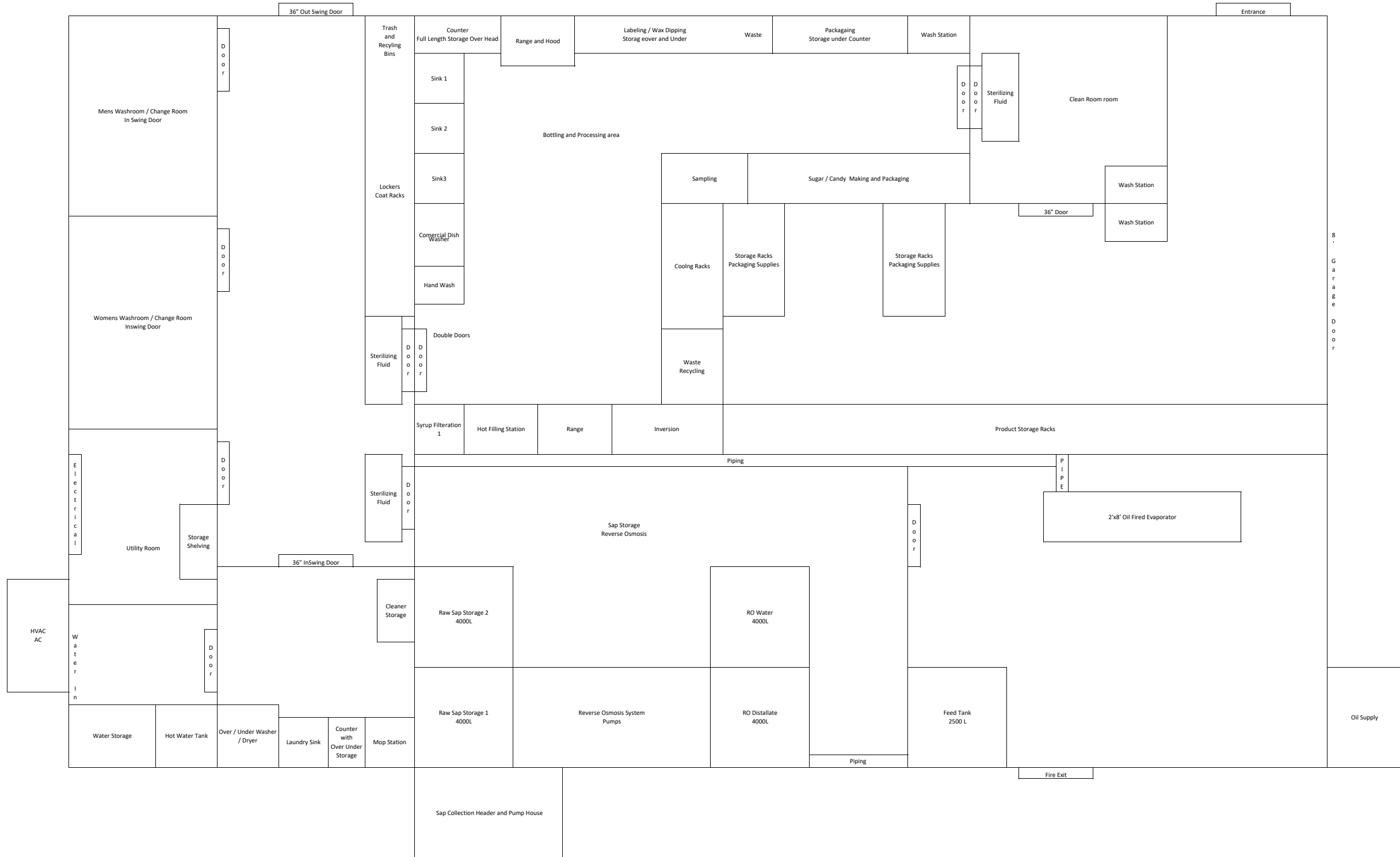


Figure 4 Future Sugar Shack



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Figure 5 Site Collection Zones



Figure 6 Site Layout



Figure 7 Temporary Sugaring and Bottling Facility in Lewisporte

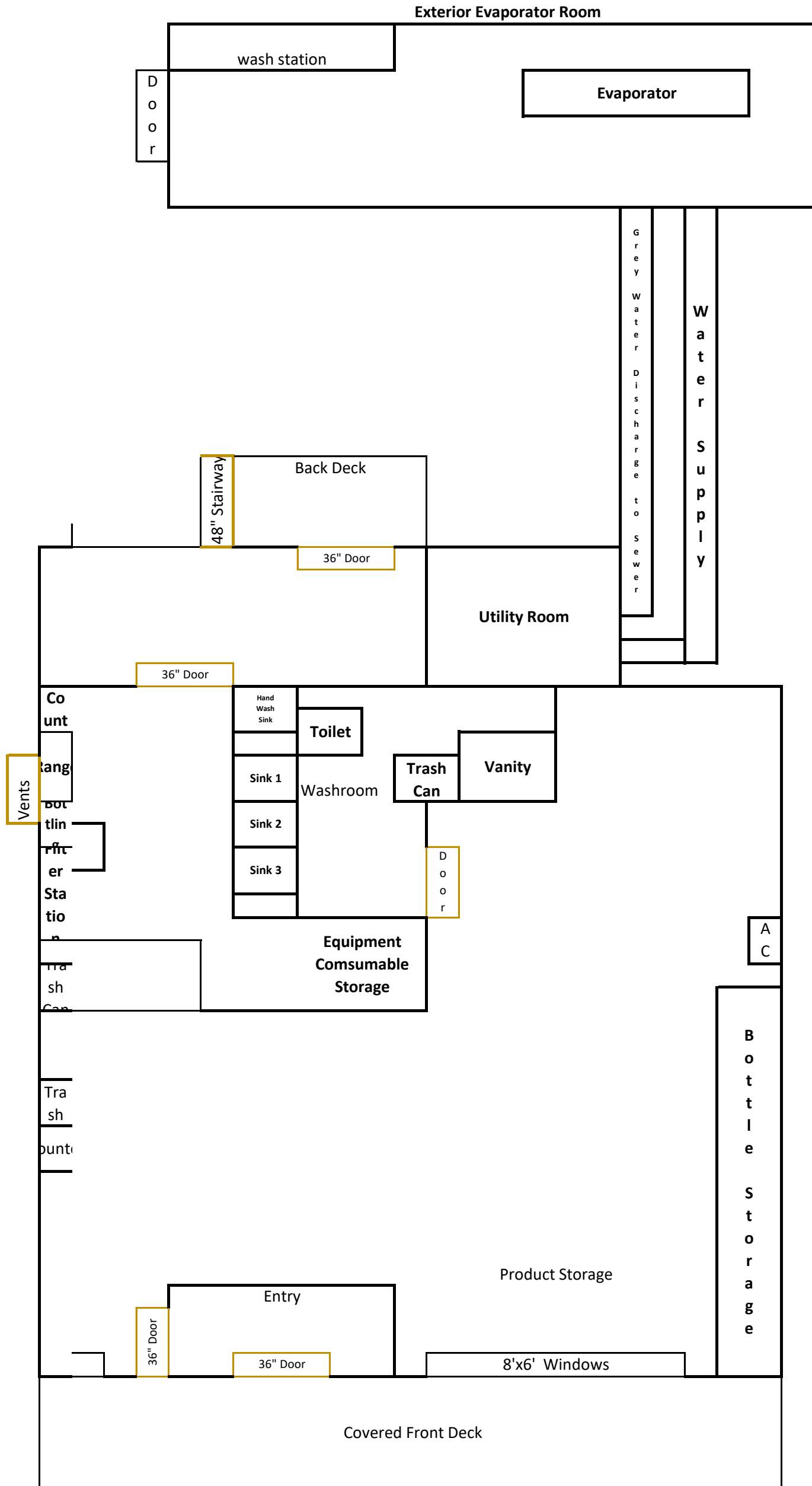
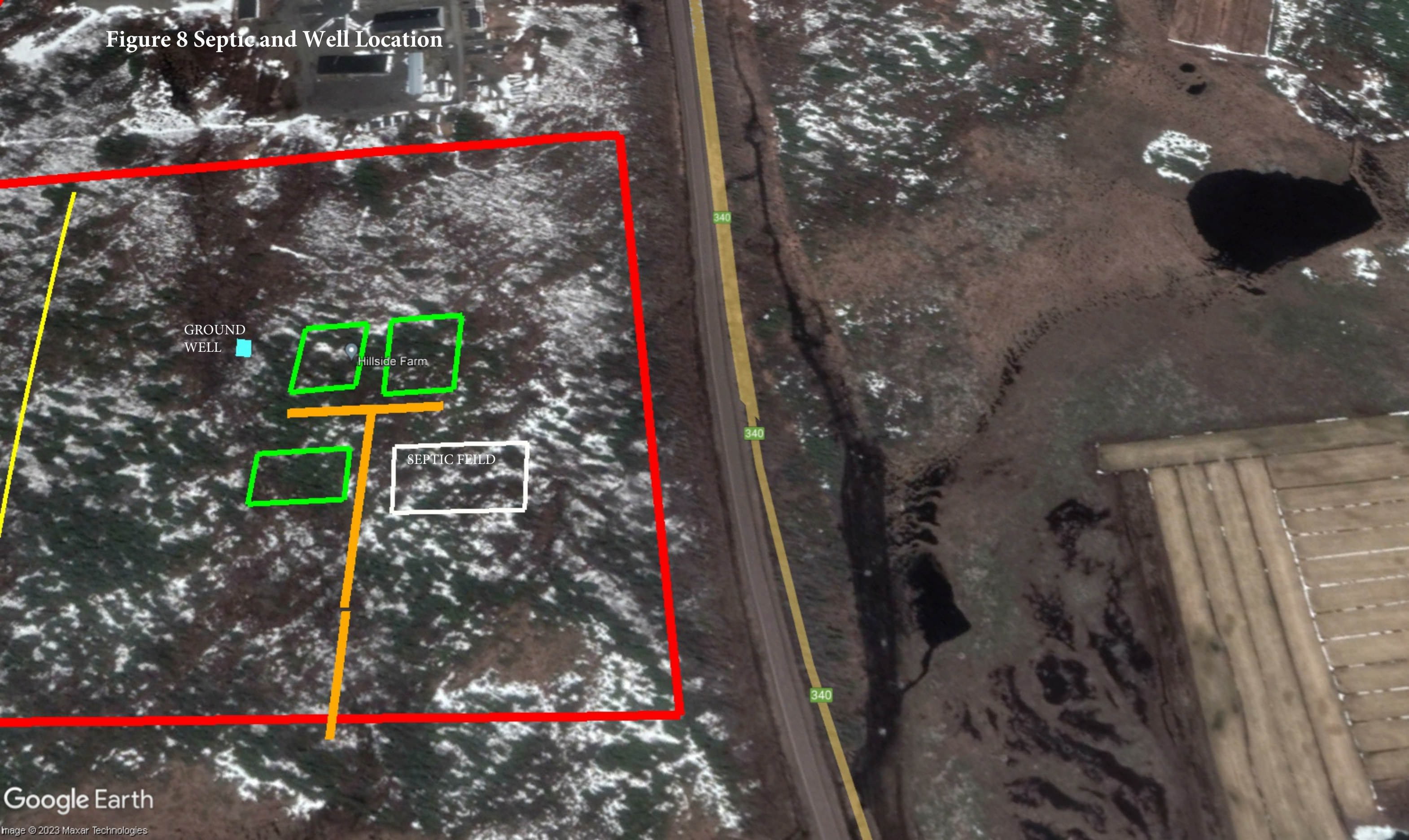




Figure 8 Septic and Well Location



GROUND WELL

Hillside Farm

SEPTIC FEILD

340

340

340