

**REGISTRATION**

Pursuant to s. 49 of the Environmental Protection Act, SNL 2002, c. E-14.2

**UNDERTAKING:**

Microbrewery

**LOCATION:**

6 Ship Cove Road, Port Rexton, Newfoundland

**SUBMITTED BY:**

Sonja Mills, on behalf of  
Port Rexton Brewing Company Ltd.

**SUBMISSION DATE:**

October 20, 2015

**NAME OF UNDERTAKING:**

Port Rexton Microbrewery

**PROPONENT:**

**(i) Name of Corporate Body:**

Port Rexton Brewing Company Ltd.

**(ii) Address:**

P.O. Box 130  
6 Ship Cove Road  
Port Rexton, NL, A0C 2H0

**(iii) Chief Executive Officer:**

Name: Sonja Mills  
Official Title: Director  
Address: P.O. Box 130  
6 Ship Cove Road  
Port Rexton, NL, A0C 2H0  
Telephone No.: (902) 489-7807

**(iv) Principal Contact Person for purposes of environmental assessment:**

Name: Alicia MacDonald  
Official Title: Director  
Address: P.O. Box 130  
6 Ship Cove Road  
Port Rexton, NL, A0C 2H0  
Telephone No.: (902) 237-7807

**THE UNDERTAKING:**

**(i) Nature of the Undertaking:**

Sonja Mills and Alicia MacDonald, the owners of Port Rexton Brewing Company Ltd., are presently seeking approval to re-develop a portion of a building (approximately 1,870 square feet of a building totaling 2,855 square feet) located at 6 Ship Cove Road in Port Rexton to operate a very small, 4-barrel capacity microbrewery along with a tasting and retail area. The beer we will produce will be made with all natural ingredients (water, malted barley, hops and yeast) with no added preservatives or pasteurization.

The remaining part of the building mentioned above will be used as a residence for the owners of the business (approx. 985 sqft).

A microbrewery is a small brewery, often defined as producing less than 15,000 hectolitres per year. In our case, we will be a very, very small microbrewery, producing less than 300 hectolitres per year. This is pale in comparison to the major breweries, such as Labatt which produces 10 million hectolitres annually. We will only be 1/20<sup>th</sup> of the size that Quidi Vidi Brewing was when they opened their doors in 1994.

In addition to producing beer, visitors to our facility will be able to tour the brewery equipment to learn about and experience how beer is made as well as to meet and chat with the brewer. They will also have the opportunity to sample and drink our beer as well as purchase souvenir merchandise.

**(ii) Purpose/Rationale/Need for the Undertaking:**

The Discovery Trail region is a significant tourist destination area within the province, with out-of-province visitors exceeding 30,000 per tourist season. A recent government study has shown that along with the beauty of the natural geography and friendliness of the local people, visitor/user experiences and locally-made products are two of the top reasons drawing visitors to the area and providing visitor satisfaction.

Craft beer and the microbrewery industry have also exploded across the country with many microbreweries opening in rural locations and experiencing unprecedented successes. For example, Nova Scotia currently has over 30 microbreweries with many of these succeeding in rural locations. Newfoundland, however, has only three in the province with all three located in the St. John's area.

Therefore, there is a great opportunity in the tourism destination of Port Rexton to make craft beer on a small "artisan" level so as to offer a craft product to tourists as well as to provide them with a unique visitor experience of touring the brewery, learning about the process and meeting the brewer who made the product.

In order for us to offer this tourism business, we need to purchase the necessary equipment and carry-out renovation work to a portion of an existing building that will accommodate the brewery. This existing building also contains a residential area that will house the two owners of the business.

**DESCRIPTION OF THE UNDERTAKING:**

**(i) Geographic Location:**

The site (building) is located within the Town of Port Rexton, at 6 Ship Cove Road. The entire property (land and building) that the microbrewery will be located on is approximately 12,600 square feet and is completely surrounded by either a road or vacant, undeveloped and unused, land.

The property for the Undertaking is zoned commercially and we are waiting approval by the Town of Port Rexton at their next council meeting (which has yet to be scheduled). We do have assurances from several council members that it will not be a problem and they are excited about our business plans.

Attached at the end of this document is a topographic map and several different scale aerial photos are attached showing the vicinity of Port Rexton and location of our project. A site survey of the building and property is also attached along with a drawing of the building indicating the portion that will contain the brewery and showing the location of the septic system and drilled well.

The drilled well will be located on the vacant privately-owned land to the west of our property line approximately 20 ft away from our property. We are currently working with the owners of the land to obtain a grant of easement for the well and piping to run to our building. We will ensure this documentation and all other relevant approvals are in place before proceeding with drilling the well.

We have also attached a map of the neighbourhood with indicators of the approximate locations of known wells and whether such are either dug or drilled (to the best of our knowledge). There is an old well across the street from us that is enclosed in shelter under lock and key, owned by the property owners to the north. I have been unable to reach them to determine whether the well is drilled or dug, but I have learned that it is only used by one of the households (the other house is abandoned) and used only during the summer. I am unaware at this time of any drilled wells in the neighbourhood other than the possibility the one across the street is drilled (only because I cannot verify it).

**(ii) Physical Features:**

As mentioned, the site is a portion of an existing building located on a property that abuts a road to the east and vacant unused land surrounding all other borders. The property will contain an approved septic field and there will be a drilled (artesian) well on the vacant land abutting the property. The well and septic system will be shared between the residential premises and the microbrewery. The design of our septic system is on a commercial scale and has been preliminarily approved by Service NL for our commercial operations.

There will be no new buildings, pipelines, transmission lines, roads, etc. constructed for the microbrewery as the microbrewery will use all existing structures.

While the brewery, tasting and retail areas will only take up approximately 1,870 square feet, if we considered the entire property lot as well as the portion of the land containing the artesian well and piping as the area physically affected by the undertaking, then the affected area is approximately 12,600 square feet in total.

There has been no industrial use of the property (nor any in the area) and no kerosene or oil tanks on the property, the affected area or underground. The building is currently heated by electricity only.

The area affected is very similar to other residential lots within the Town of Port Rexton. It is flat, contains our building and is almost entirely landscaped land such as grass, gravel, a few small boxed gardens and a couple of hand-planted trees for decoration. The lands surrounding/abutting the entire property lot consist of a small portion of a gravel road and an asphalt road while the rest being vacant lots that are also relatively flat (though a bit lower in elevation than our property). The vacant lots abutting the property consist almost entirely of tall grass, a couple of trees and a few patches of alders.

The vacant land had been cleared many years ago and was once used for grazing animals, but that use ceased many decades ago and for the many years since it has not been used in any way. The only wildlife in the area would be that normally seen within the town such as birds, rodents and perhaps the once-a-year moose that makes its way through town. The nearest body of water is approximately ¼ of a kilometer away, being the ocean/salt water. There are no fresh water bodies near the affected area.

There is a well across the road from our property as well as a dug well two property lots to the south of ours. There are no more wells within the nearby vicinity of our property. The location of these wells are shown on one of the maps attached.

**(iii) Construction:**

The existing building in which the microbrewery will be housed is mixed use with a residential portion and a commercial portion. As mentioned, the commercial portion, which will contain the microbrewery, tasting room and retail area, is approximately 1,870 square feet. The microbrewery area itself (only where the brewing operations will occur) will be approximately 600 square feet.

No work will be carried out to the residential portion of the building. However, the owners of the property will be installing a new septic system and artesian well, which will be used by the residential premises and will be shared with the brewery once it becomes operational. The owner will also be installing a larger door and improving the existing cement slab in the commercial portion of the building in order to receive and storage of the brewery tanks that will be delivered in November 2015.

We will require confirmation from all contractors that they are following provincial occupational health, safety and environmental standards and guidelines throughout the construction work.

The brewery construction work will consist of renovation work/leasehold improvements to the existing commercial portion of the building in order to accommodate a brewery, tasting room and retail are. This will be carried out over 6 -7 months as follows:

- Electrical upgrade to a 200amp service.
- Plumbing upgrade and installations, including proper drainage in the brewery area.
- Installation of fixtures and other finishing work to existing bathrooms, including work to ensure one is wheelchair accessible.
- Other construction and finishing work such as installation of a wheel chair ramp, fire-rated dry wall, industrial hand-washing sinks, etc. to bring the building up to code to obtain all the necessary permits and approvals (e.g. Building Accessibility and Life & Fire Safety, Food Establishment Licence, Newfoundland Liquor Corporation licences, etc.). The interior and exterior finishing of the tasting room and overall aesthetics of the building will be rustic in style, reminiscent of a traditional Newfoundland outport building.
- The only potential sources of pollutants we can think of during the construction period would be related to the use of any machinery, such as an excavator, such as the spill of any diesel fuel or

lubricants. Though the use of such equipment would very be minimal, should this be a concern, we will purchase a BrenKir (from Mount Pearl) spill kit on site. Equipment will be fueled off-site and should not need to be re-fueled at our location due to the short nature of the work requiring such equipment.

We will not be sharing any resources during the renovation phase and Port Rexton is primarily residential, so we are unaware of any potential resource conflicts.

#### (iv) Operations:

##### Microbrewery Operations:

The operation of the microbrewery will consist of: (a) the brewing process, which is carried out once or twice a week with stages taking place over a 2-3 week period, (b) bottling, (c) milling grain and (d) cleaning.

##### *(a) The Brewing Process*

A schematic of the brewing process is as follows:



The brewing process typically runs over an 8-hour period and the steps shown above can be described as follows:

- Heating, via electrical elements, approximately 477 L of water in a large stainless steel tank to a temperature of 75 C.
- The heated water is transferred via pump and hose to a second stainless steel insulated tank where malted barley/grain is added. The grains are “steeped” in the hot water (63 C) for approximately 1 hour. Additional water (approximately another 100 – 150 L, depending on the recipe) is added to sprinkle over the grains to draw off more starches where possible.
- The liquid (now called “wort”) is then drawn off the tank via pump and hose and transferred into a third stainless steel tank fitted with electrical elements. The wort is heated to 100 C and boils for approximately 1 hour. During the boil, hops (the female flower of the hop plant, *Humulus lupulus*) are added giving the beer its bitterness along with further flavour and aroma.
- The wort is then drawn off the tank via pump and hose and passes through a plate chiller (heat exchanger, marked as “cooler” on the above schematic) that runs on cold water. In the plate chiller, the wort passes alongside cold running water to cool it down to room temperature.

- The wort then leaves the plate chiller and enters a fermentation tank that contains a glycol jacket. Dry brewer's ale yeast is added to the wort in this tank. The temperature of the tank is controlled to hold the wort at a consistent 18 degrees Celsius for 5-7 days. Glycol circulates throughout the outside of the tank (via the "jacket") to keep the temperature consistent. The glycol is kept cool via the operation of a small glycol chiller.
- After fermentation is complete, the liquid (now alcohol beer) is cooled in the same tank over a 12-24 hour period to reach a temperature of 4 degrees Celsius. The beer is then transferred via pump and hose to a carbonating/conditioning tank that is also glycol-jacketed.
- The temperature of the carbonating/conditioning tank is held at 4 C during which is carbonated via the addition of CO<sub>2</sub>. The carbonated beer is then transferred into kegs.
- During the brewing process, we will be operating two 2.5 HP mobile variable frequency drive pumps that will perform all of the above transfers of liquid via hose.

*(b) Bottling:*

Bottling is carried out over a couple of hours and consists of transferring beer from kegs into a small bottling machine that is also connected to a source of CO<sub>2</sub>. The bottling machine has ports for filling 2 bottles at a time (it is not a conveyor belt operation). The footprint is very small a foot or two in width and length. The machine operates via electricity.

*(c) Milling Grain:*

We will be milling small amounts of grains prior to brewing and we will be doing so in a small enclosed room with explosion-proof fixtures, emergency stops, and proper ventilation.

*(d) Cleaning:*

The tanks and equipment are cleaned and sanitized after every use utilizing a clean-in-place (CIP) system with non-caustic (alkaline) cleaner and sanitizer. Less frequently on an as-needed basis, diluted caustic cleaners are used to remove scale and stone from inside the tanks. The cleaners will be discussed further below.

Other Operations

We will also be operating a walk-in cooler in the premises for keg and hop storage. We will also run a tasting area, which will be a licensed lounge area, including a patio, where we will have a small draft system to offer our beer on tap to the public in pint and sample-sized glasses. We will also have a small retail area where we will offer souvenir merchandise and our packaged beer for off-site consumption.

Water Demand/Usage

During our entire operations, our water demand will fluctuate daily. Despite a baseline demand for regular washroom use of visitors, the only times water will be required will be: 1) on a brew day and 2) during cleaning. On a brew day, our water demand is approximately 650 litres (170 gallons) for the brewing process. During the cleaning process (which follows a brew day), approximately 150 litres (40

gallons) is used. Based on our discussions with Fire & Life Safety and Service NL, we are currently working on the assumption of a 50-person maximum occupancy and using the formula for water usage for a lounge/bar of “max. occupancy \* 2 \* 25 litres” to determine our maximum water usage for regular washroom use. This works out to “50 \* 2 \* 25 litres” = approximately 2,500 litres (660 gallons).

Therefore, the maximum water demand possible in one day, if we brewed, cleaned and had maximum capacity of occupants, would be approximately 3,300 litres (870 gallons).

This possibility is only once every 4 or 5 days as we will only be brewing every 4 or 5 days and if we had days of high occupancy of visitors to our premises, then we would do our cleaning on a non-brewing day to scatter our water demand.

We will also be using a hot water tank as a storage tank to collect our brewing water over time so that on a brew day we will already have the 650 litres (170 gallons) of water ready and will not need to draw that water in a single day.

### Period of Operations

The brewery and tasting room (lounge area) will be open to the public on a seasonal basis from May until October. This is the peak time that the microbrewery will operate as well; however, there will be some brewing throughout the winter season as well on a minimal basis (it will not be open to the public during this time however).

### Potential Sources of Pollutants

#### *Airborne emissions:*

There are only two very small opportunities for airborne emissions during our operations: 1) vented steam during the brewing and 2) vented grain dust during the milling process. We confirm that both will result in very little to no actual air emissions and all are 100% natural and will contain no chemicals or toxic substances.

The vented steam occurs during the brewing process. Water that has steeped in malted barley/wheat is drawn off and put into a boil kettle. It is boiled for approximately 1 hour and hops (a natural plant grown in the North-west of the U.S. and throughout Europe) are added at various stages of the boil to give the beer a more distinct flavour. At this point, the liquid only contains starches from the grains and flavours drawn off of the hops, which are all-natural and contain no chemicals or toxic substances. The team from this boil emits only a slight odour, as mentioned consisting only of barley and hops. We will be venting such steam outside of our building and due to the very small production capacity of our brewing equipment, the smell would be very minor (if at all) and only detected if you were standing very close (almost next to) the exterior vent on our roof as our brewery system is simply too small to create any significant air emission or obnoxious smell. We confirm that there are no chemicals or toxic substances that will be emitted.

There will also be a very small amount of airborne grain dust when we mill the grains. To deal with this we will be milling the grain in a small fully-enclosed room with an exterior wall with direct ventilation to



the outside to vent out the dust. We will also use explosion-proof fixtures and motor for the mill as well. We confirm that the emission of grain dust will be very small in nature, all-natural (non-toxic and no chemicals of any nature) and will dissipate in the air within a meter or two from the exterior vent.

*Solid Waste & Liquid effluents:*

Fortunately, all waste produced during the brewing process is organic material, which therefore has the potential to be recycled, reused or composted. It is our goal to operate as environmentally-friendly as possible and with the very small scale of our operations, we believe a fully sustainable operation is attainable.

The wastes produced during the brewing process of a single batch of 475 litres of beer and subsequent cleaning of the equipment, consist of:

- **Water (varies, around 150 litres)** – though the majority of water used makes up the beer product, a considerable amount of water will also be used to cool the beer through our plate chiller and used in cleaning the equipment. We intend to recapture the water used in the plate chiller for our cleaning process to dilute and rinse our cleaners. Upon completion of the cleaning process, it will become an effluent discharge.
- **Waste beer (variable)** – this will be a minimal liquid effluent that will result from any accidental spillage.
- **Spent grains (approx. 200-250 lb)** – this is the “steeped” grains leftover once the liquid has been drawn off from the tank. Since this is a food-grade by-product, it will be reused for a subsequent brew, as ingredients for baking or animal feed for a local farmer that we have an arrangement with. We can also compost the grains if we cannot reuse them.
- **Spent hops/Kettle Trub (approx. 10 – 15 litres)** – this is the precipitate left in the boil kettle upon completion of the boil and removal of the liquid. It has a “slurry” consistency since this is a food-grade by-product, we intend to either re-use it as a soil improver or compost it. We also plan to grow our own hop plants and will incorporate some of our spent hops in our own garden as well.
- **Yeast/Fermentation Trub (approx. 15 – 20 litres)** – this is the biomass left at the bottom of the fermentation tank upon removal of the liquid (beer). It is composed of mainly heavy fats, proteins and inactive yeast. A portion (5-7 litres) will be re-used for yeast propagation for a future batch and once its lifespan has expired, we will use it for compost.
- **Cleaning products (small amounts)** – fortunately there are environmentally-friendly products available for the cleaning needs of the brewery. The cleaning product most used, particularly for every cleaning session after every brew, will be PBW (powdered brewery wash). This is a low alkaline, non-caustic, environmentally and user-friendly clean-in-place cleaner. Not every cleaning session, but there may be some instances where we have to use a peroxide-based acid cleaner to dissolve scale and beerstone from inside the tanks. This would be highly diluted (2000:1 ratio of water to cleaner) and will not be used during every cleaning session. When required with our system, 20mL of caustic is used and diluted with 40L of water.

All “slurry” and liquid effluents will be disposed of to our septic system. If this presents a problem or concern, we will alternatively drain these to a grey water holding tank for alternate proper and safe disposal.

For cleaning of the tasting room, bathrooms, etc. we also intend to use biodegradable, environmentally friendly cleaning products.

**(v) Occupations:**

The brewery will operate on a seasonal basis, focusing on the tourism market. Because the brewery is so small in size, there will not be any employees as it will be small enough to be operated by the two owners, who will be working without salaries as they will be receiving salaries from other part-time flexible employment.

All of the previously mentioned renovation work will be completed by contracts with local suppliers. Once the business is operating, if any maintenance or repair-work is required for the equipment, this will also be contracted out to local businesses.

We are two females who own 100% of the business and should we engage in any hiring down the road, we will ensure there will be no gender or age discrimination in that process.

**APPROVAL OF THE UNDERTAKING:**

The following is a list of permits, licences and approvals required for this microbrewery:

Municipal

- **Municipal Approval** – Town of Port Rexton

Provincial

- **Food Establishment Licence** (includes well & septic approval) - Department of Health
- **Septic System Approval** – Service NL
- **Non-Domestic Well Permit** – Department of Environment and Conservation, Water Resources Management Division
- **Environmental Assessment Approval & Registration** – Department of Environment and Conservation
- **Building Accessibility & Fire and Life Safety Approval** – Service NL
- **Manufacturer’s Licence (Brewery)** – Newfoundland Liquor Corporation
- **Lounge Licence** – Newfoundland Liquor Corporation
- **Patio Licence** – Newfoundland Liquor Corporation
- **Brewer’s Agent Licence** – Newfoundland Liquor Corporation

Federal

- **Excise Duty Licence** - Canada Revenue Agency
- **Labelling requirements** - Canadian Food Inspection Agency

**SCHEDULE:**

The construction date depends on final approval of this application. Construction can otherwise begin prior to the remaining licences and approvals as such will not be granted until final inspections of the completed construction work.

**FUNDING:**

Loans have been requested from:

*Federal:*

Atlantic Canada Opportunities Agency (ACOA)  
John Cabot Building, 11th Floor  
10 Barter's Hill  
P.O. Box 1060 STN C  
St. John's, NL, A1C 5M5

*Provincial:*

Department of Business, Tourism, Culture and Rural Development  
221 B Memorial Drive  
Clarenville, NL, A5A 1R3

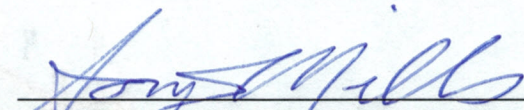
Estimated capital costs of the project: \$295,000

**PROJECT-RELATED DOCUMENTS ATTACHED**

- Topographic maps, aerial photos and site survey.

Oct. 20/2015

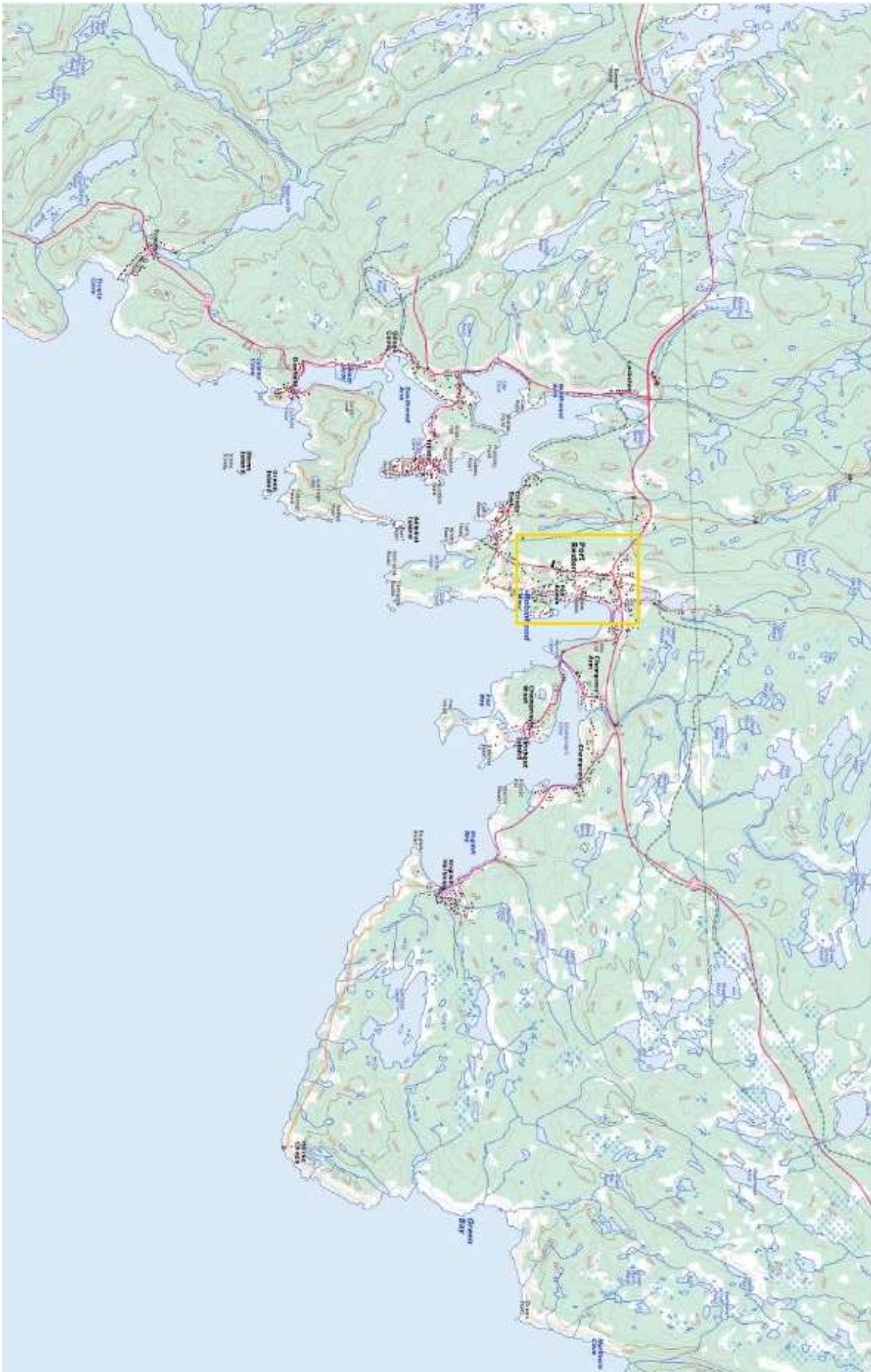
DATE

  
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SIGNATURE OF CHIEF EXECUTIVE OFFICER

# Registration

Microbrewery

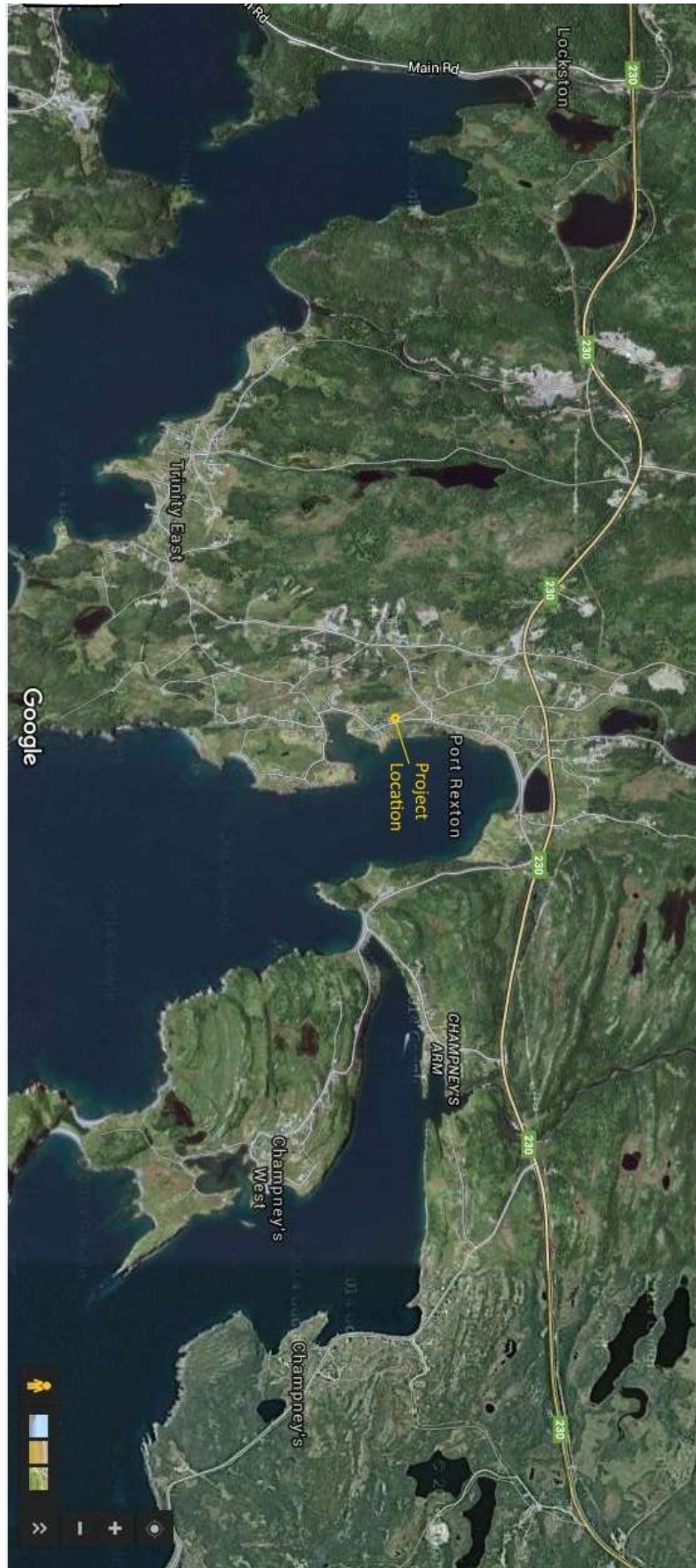
Port Rexton Brewing Company Ltd.



# Registration

Microbrewery

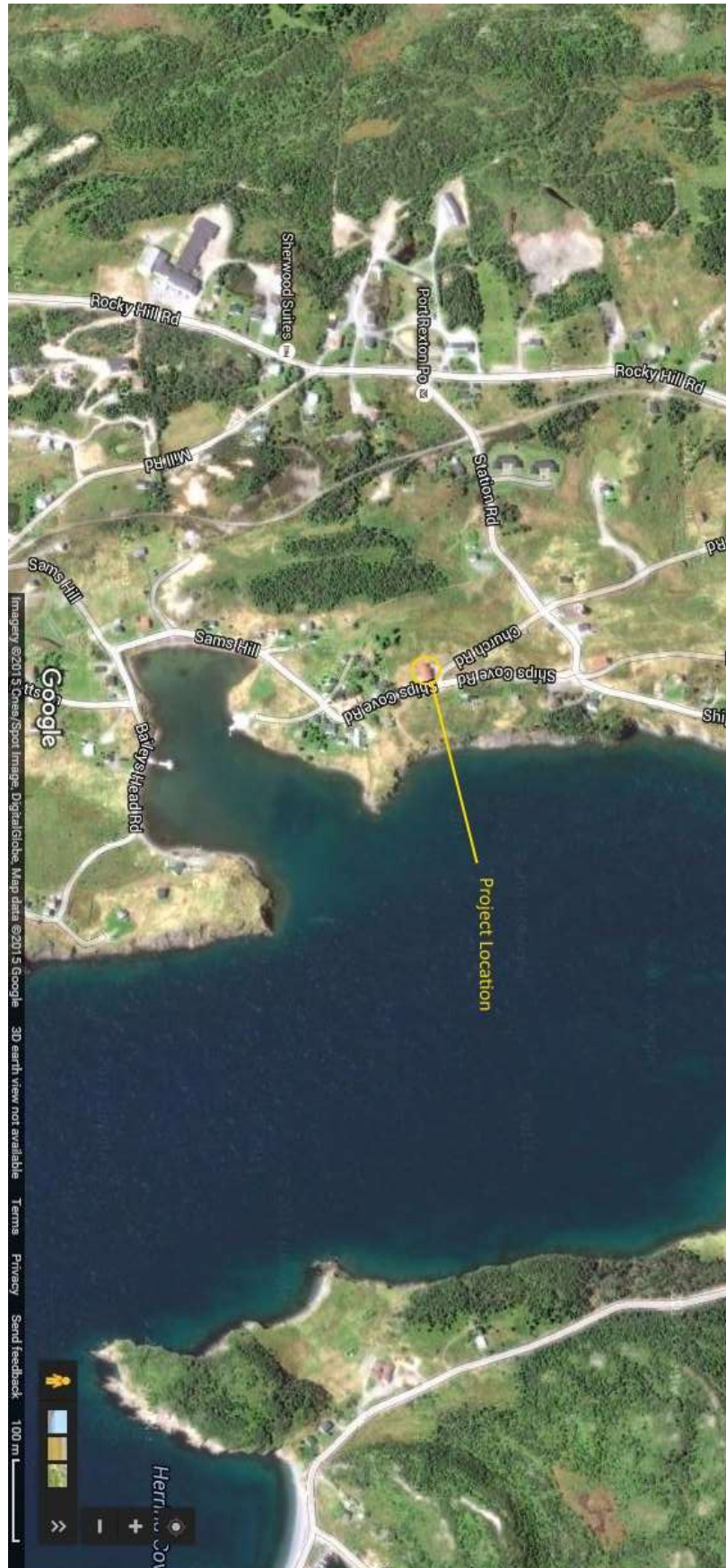
Port Rexton Brewing Company Ltd.



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Microbrewery

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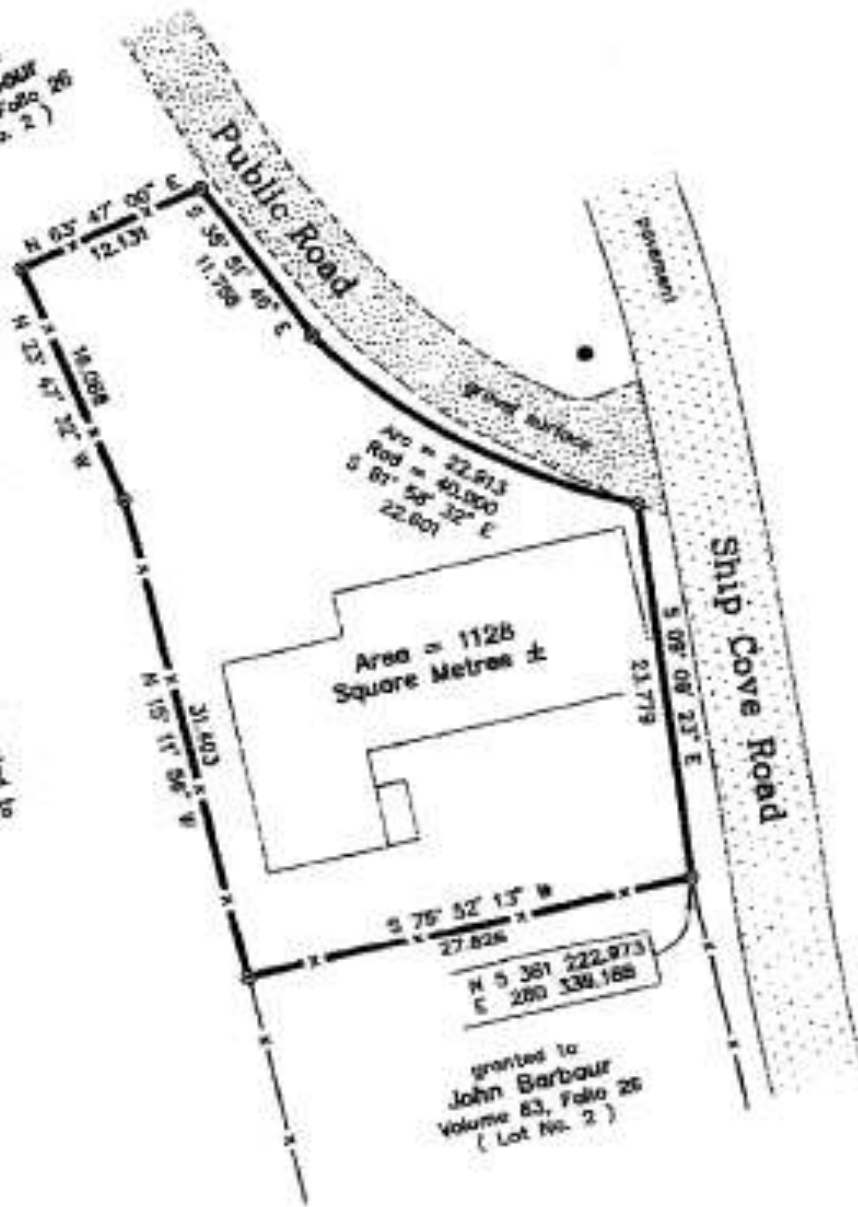
Microbrewery

Port Rexton Brewing Company Ltd.

granted to  
John Barbour  
Volume 63, Folio 26  
( Lot No. 2 )

granted to  
John Barbour  
Volume 63, Folio 26  
( Lot No. 2 )

granted to  
John Barbour  
Volume 63, Folio 26  
( Lot No. 2 )



**Notes:**

- 1. ff = Found
- = Iron Pin
- ⊙ = Capped Iron Pin
- x - = Remarks of Frame Line

- 2. Starting point derived from Real Time Kinematic GPS observations relative to Coordinate Monument No. 8806013.

- 3. Copyright: 2008, D. W. Hodder, NLS  
Barrow & Hodder Surveys Ltd.

Reference Monuments  
No. 8806013      No. 8806014  
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E 280 862.213    E 281 108.763  
(NAD83) - Adjusted 92/06/02

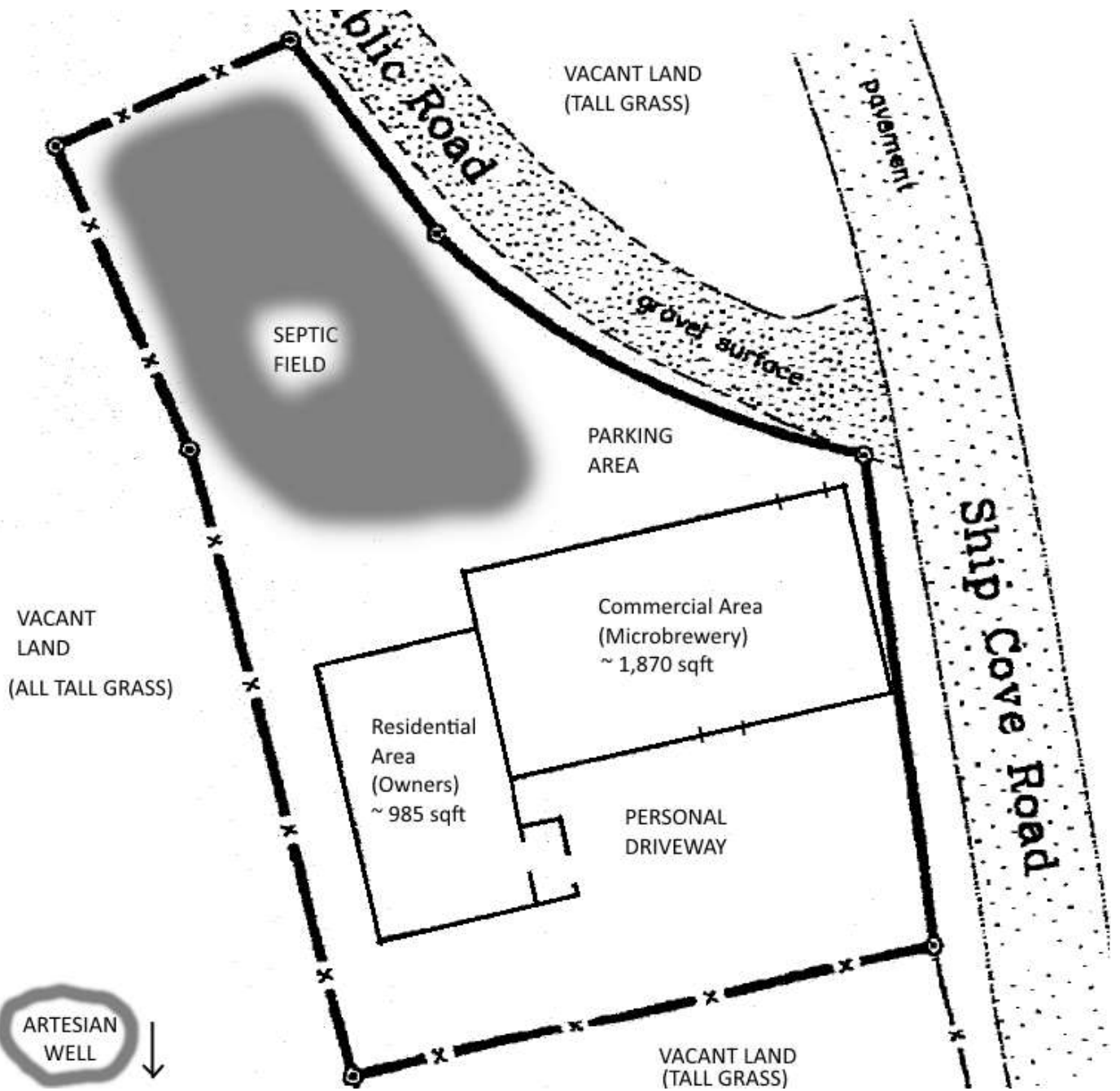


Barrow & Hodder  
Surveys Ltd.

**Registration**

Microbrewery

Port Rexton Brewing Company Ltd.



**Approximate Locations of Wells in the  
Vicinity of the Undertaking**

