Environmental Impact Assessment Registration for Nicholson's Waste Management Ltd. Septage De-watering Facility

Submitted to: **NB Department of the Environment and Local Government**
Sustainable Development & Impact Evaluation
Marysville Place
P. O. Box 6000
Fredericton, NB
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Hanwell, N.B.
E3E 2C2

Date: **December 5, 2017**

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1 THE PROPONENT

1.1 Name of Proponent

Nicholson's Waste Management Ltd. (NWM)

1.2 Address of Proponent

590 Rt 148
Killarney Road
Nashwaak Village, NB
E3G 9C9

1.3 Chief Executive Officer

Mr. Ken Robinson

1.4 Principal Contact for Purposes of Environmental Impact Assessment

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NATECH Environmental Services Inc.
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1.5 Property Ownership

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E9C 2P5

2 THE UNDERTAKING

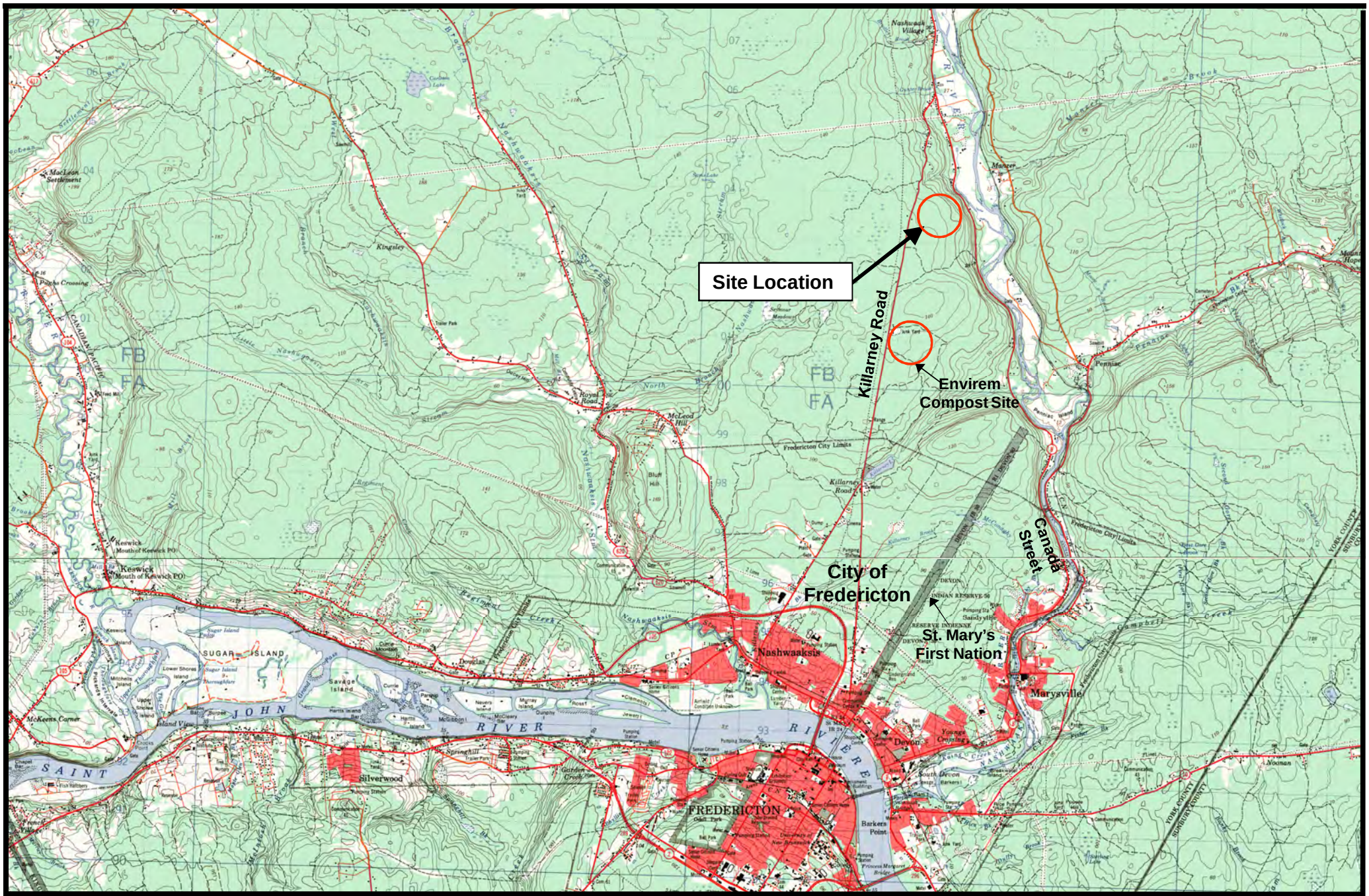
2.1 Name of the Undertaking

Nicholson's Septage De-watering Facility

2.2 Project Overview

Nicholson's Waste Management (NWM) is an established, locally owned company that has been offering septic tank cleaning for residential and commercial customers in Fredericton and the surrounding areas for almost 30 years. The company employs six experienced drivers who have training in First Aid, Confined Space Entry and WHIMS.

In the past, the company's septage was collected from septic tanks in un-serviced areas and transported to various centrally located de-watering facilities in the province. In 2014 in an effort to improve efficiencies, the company purchased a property off the Killarney Rd (Route 148), and started storing septage sludge there temporarily. The site location and a satellite image of the property are shown in Figures 2-1 and 2-2.



Environmental Impact Assessment Registration
Nicholson's Waste Management

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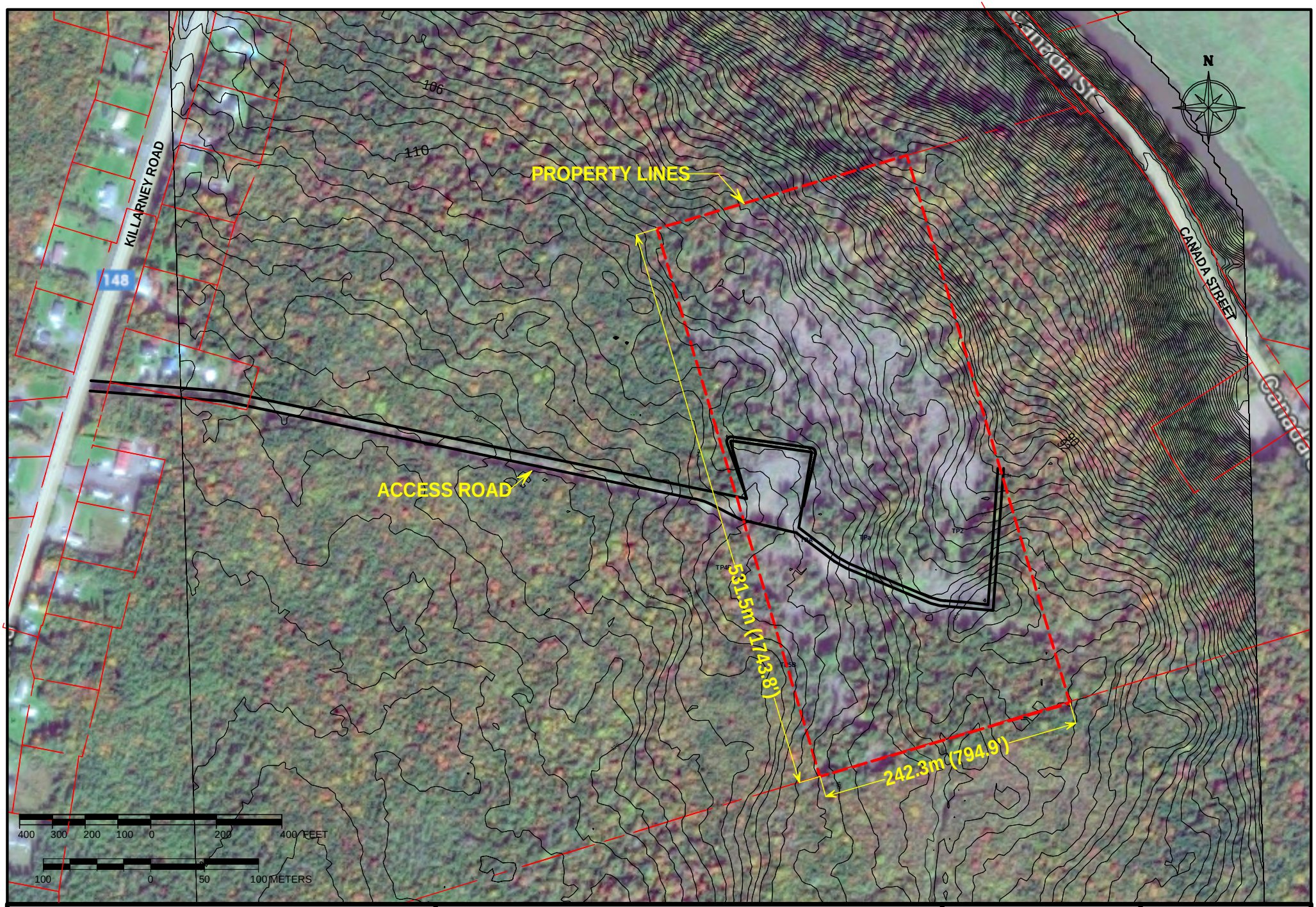

Environmental Impact
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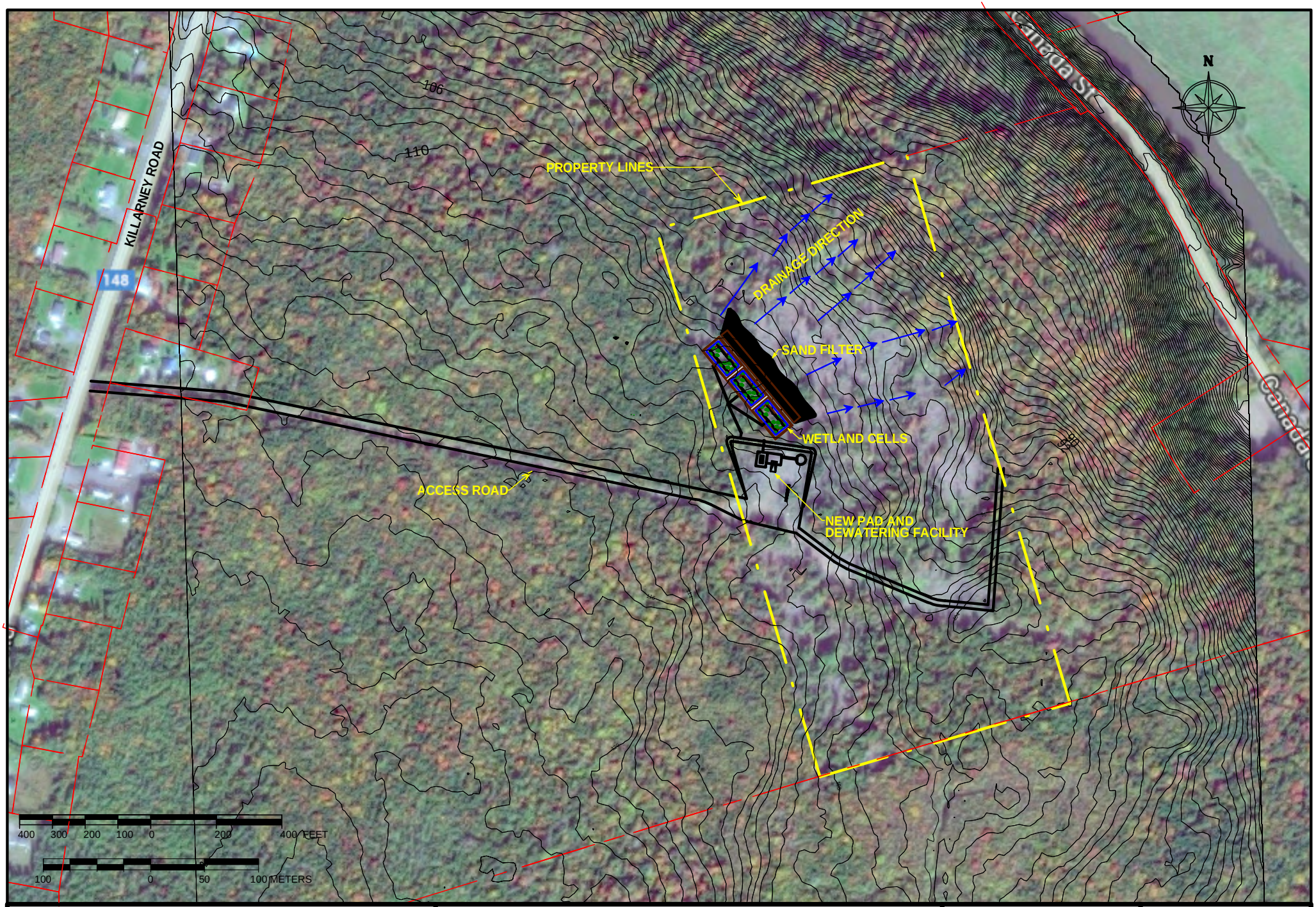
AS SHOWN		2-2	

The existing site was developed as a temporary storage facility for small loads of septage. Site development activities included limited land clearing, building an access road, and placing a gravel pad on the ground. Four holding tanks of 10,000, 8,0000, 6,000 and 3,000 gallon capacity respectively, were installed underground. Electric power or a water well were not installed. The access road is not paved.

Currently, three to five trucks of 3,000 gal capacity deliver septage sludge to the site for storage. One or two trucks of 7,000 gal transport the consolidated sludge to a septage processing plant in Fredericton. There have not been any complaints about noise, dust or odour generation from the existing operation in the past.

The proposed project consists of the construction of a septage de-watering facility. The "In the Round" de-watering technology will be utilized. A processing building will house the "In the Round" de-watering system. The processing building and the holding tank will be built on a concrete pad (3,100 m^2). Solid waste generated by the process will be trucked off site. De-watering effluent will be treated on-site and discharged into the ground. The effluent treatment facilities consist of a constructed wetland followed by a sand filter. Figures 2-3 and 2-4 show the conceptual site layout.

The facility is intended to be used solely by Nicholson's Waste Management. Septage from other haulers will not be accepted.



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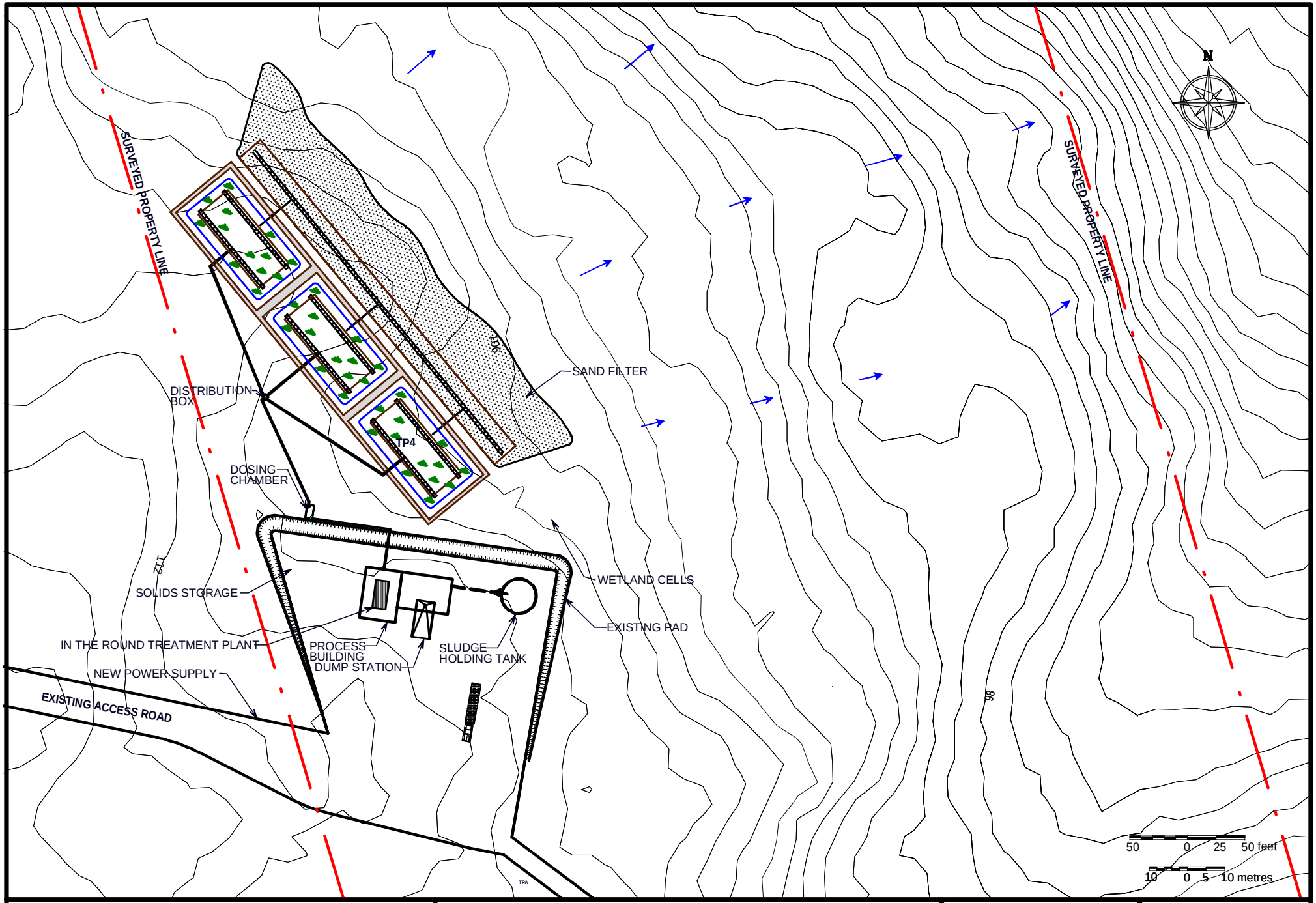

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2.3 Purpose/Rationale/Need for the Undertaking

Septage disposal is a long standing concern in New Brunswick. Only a few de-watering plants are in operation in the province. This results in long haul distances for trucks and high disposal fees. By providing an owner operated disposal facility, Nicholson's waste management will be able to expand its range of services and provide septage pumping and hauling at a reduced cost and with a reduced carbon foot print.

2.4 Project Location

The proposed project is located on private land identified by Service New Brunswick (SNB) as PID No. 75234989, off the Killarney Road, in the Local Service District of Nashwaak Village, N.B, in the County of York. The approximate coordinates of the center of the property N 46.063º, W -66.608º (latitude and longitude).

2.5 Siting Considerations

Ideal site conditions for any septage de-watering facility include:

- ❏ large buffer from neighbouring properties to reduce any odour concerns,
- ❏ gentle slope to allow for infiltration of treated effluent into the ground,
- ❏ soils with good absorption capabilities,
- ❏ low groundwater table (i.e. re-charge area),
- ❏ significant spacing to surface water courses,
- ❏ short distance to a electrical power supply,
- ❏ proximity to a major highway,
- ❏ low population density.

Most of these siting conditions are met at the proposed site.

2.6 Zoning

The property is currently zoned as "Rural" and the land use of septage storage was accepted by the Regional Service Commission 11 in March of 2014. Expanding the services to include de-watering is viewed as a compatible land use and is in line with the Waste management aspect of the approved land use (see attached Appendix A for applicable correspondence). Initial consultation with the Regional Service Commission was carried out.

2.7 Physical Components and Dimensions of the Project

The proposed physical components of the project include a concrete pad for the processing building and the septage holding tank, a dumping area, an "In The Round" septage de-watering plant, a pumping station, a dosing chamber, a distribution box, five constructed wetland cells, and a sloping sand filter. The proposed area of the project (portion to be developed) encompasses an approximate area of 15,000 m^2 (4 acres). The length of the property lines are 532 m by 242 m and the total approximate area of the site is 130,000 m^2 (32 acres).

All septage processing will be done on site. Approximately once per week, a roll off truck will deliver the de-watered sludge cake to the Envirem Composting Facility on the Killarney Rd (2.5 km distance). One operator will be working on site. There are no plans to increase the trucking fleet or the septage processing quantities.

A concrete tank of 50,000 gal capacity will be built to replace the existing underground tanks. The concrete tank will be located inside a tarped dome building. Processing of the waste will be done in a "In the Round" drum filter. This filter is located in a processing building. The plant is designed for a throughput of up to 12,000 Imperial gallons (55 m^3) per day. Average annual septage processed is in the order of 35 m^3/d (8,000 Igpd).

Photos of the current site usage and of the "In the Round processing" unit are shown in Appendix B.

Once the drum is filled, it slowly rotates for a period of 12 hours. Water seeps through filter tiles and is collected in a sump. The entire drum is picked up and trucked to the nearby Envirem Composting site. There the drum is emptied and returned to the processing building.

Effluent from the sump is drained to a pump station. From there, the effluent is pumped to a distribution box (D-box). The effluent is then directed to three engineered wetlands. Biological treatment occurs in each of the wetlands. As long as the organic strength of the effluent does not exceed 300 mg/L of BOD, additional treatment is not required. If the strength is consistently above this value, a mechanical wastewater treatment plant will be installed between the pump and the D-box. Discharge from the wetlands will be routed to a sloping sand filter for effluent polishing and infiltration into the surficial humus layer.

Groundwater absorption rates of 2.06*10-2 cm/sec, and 1.80*10-2 cm/sec (2.05 min/inch, 2.35 min/inch) were measured in the field, indicating that 2,600 m^2 of sand filter are required for effluent disposal.

2.8 Construction Details

The construction is planned for the spring of 2018. The land is already cleared as a result of a previous logging operation. A gravel pad has been built in 2010 and four underground storage tanks that are already in place. The access road is already in place. Electric power will be provided by NB Power. A minimum of three groundwater monitoring wells will be drilled to observe groundwater quality and flow direction. Two wells will be located down gradient from the treatment facilities.

2.9 Management Structure

The company is incorporated in New Brunswick. Mr. Nicholson is the sole owner.

2.10 Future Modifications, Extensions, or Abandonment

Initially, the plant will only consist of one holding tank, one processing facility, three engineered wetlands, and a sloping sand filter for disposal.

Should effluent quality increase above design levels, a mechanical wastewater treatment plant will be added.

There are no plans to increase the amount of septage that is being processed. However, there is more space available on the land to expand the effluent treatment and disposal facilities, if necessary.

If and when the plant ceases operation, all buildings and structures will be removed. The wetlands and the sand filter will be left in place to allow natural re-vegetation.

2.11 Project-related Documents (attached)

Appendix A – Correspondence from Rural Planning Zoning Commission
Appendix B – Site Photographs
Appendix C – ACCDC - Rare and Endangered Species Report
Appendix D – Historic Land Use
Appendix E – Public Consultation - Draft Document

3 DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Physical and Natural Features

Site topography: Predominantly covered with shrubs and small trees, with a slope ranging from 5% to 17%.

General surface drainage: To the Northeast of the property. There are no mapped wetlands on the property. No streams were encountered on the property.

The property is located between the Killarney Road, and Route 8 (Canada Street) in Nashwaak Village.

Protected areas: There are no protected areas on the property where construction will take place

Species at risk or of conservation concern: According to the Atlantic Canada Conservation Data Center, there are two location sensitive species that may be found in the study area. Those are the Wood Turtle (Threatened), and the Bald Eagle (Endangered). Inside a 100 Km radius from the property there are reports of rare and endangered species including one record of one vascular flora, 78 records of 24 vertebrate as well as one invertebrate fauna have been recorded. The entire document from the Atlantic Canada Conservation Data Center may be found in Appendix C.

3.2 Cultural Features

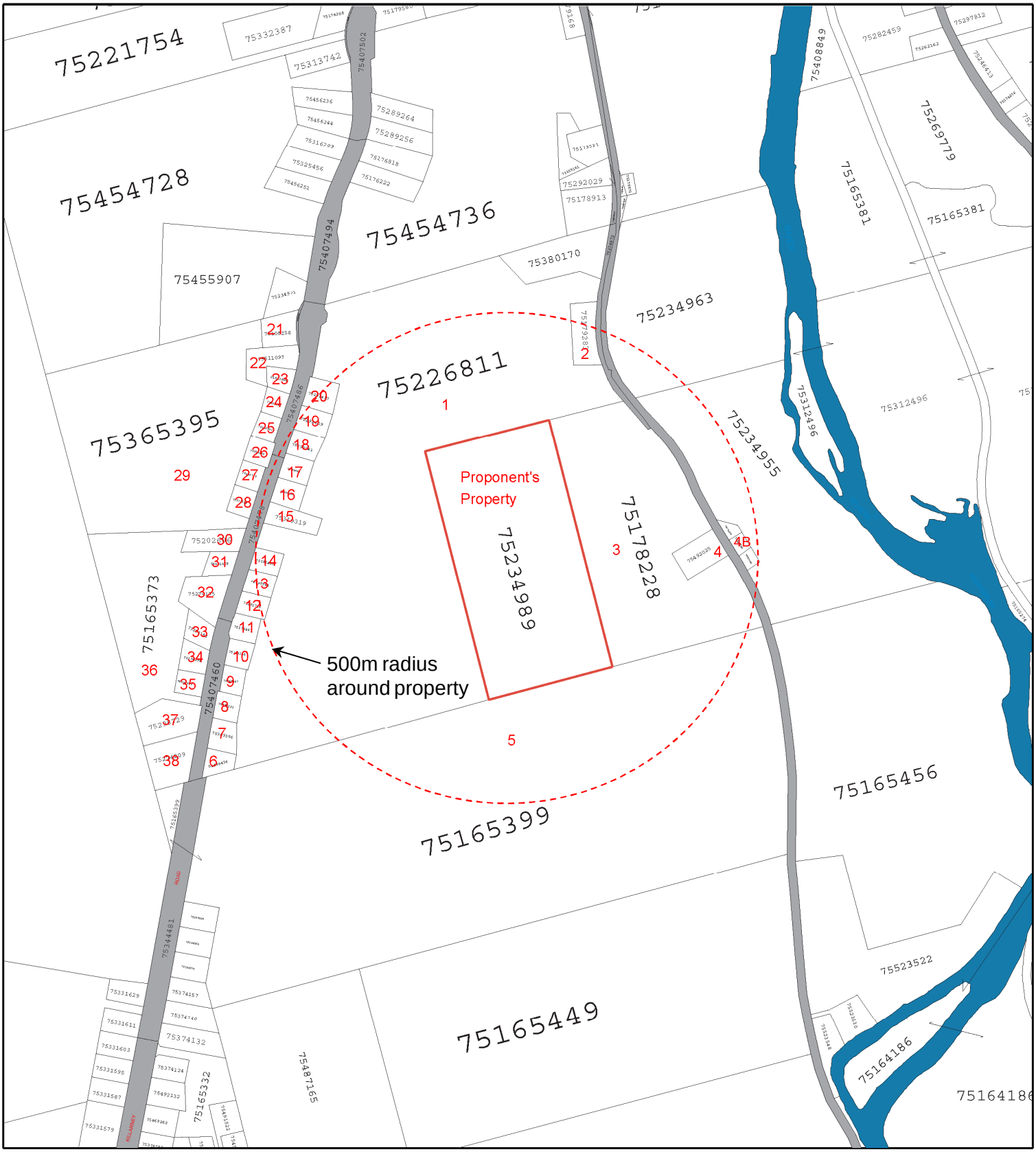
There are no known cultural features of concern on the property.

3.3 Existing and Historic Land Uses

Based on a review of historic aerial photos, the property appears to always have been forested. There are no records of petroleum storage on the property (see Appendix F).

3.4 Neighbouring properties

Figure 3-1 shows adjacent properties. The numbers printed in red correspond to the PID's listed in Table 3.1. The names of the property owners and the property usage are listed as well.



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SCALE: As Shown	FIGURE: 3-1

Table 3.1 Neighbouring properties

No.	PID	Property Owner	Usage
1	75226811		wood lot
2	75179283		residential
3	75178228		wood lot
4	75492025		residential
4B	75227090		residential
5	75165399		wood lot
6	01488436		residential
7	75289306		residential
8	75196121		residential
9	75165357		residential
10	75173245		residential
11	75176461		residential
12	75292706		residential
13	01490341		residential
14	75282400		residential
15	75319319		residential
16	75304733		residential
17	75389569		residential
18	75299941		residential
19	75292409		residential
20	75292417		residential
21	75108258		residential
22	75511097		residential
23	01512805		residential
24	75226753		residential
25	75226803		residential
26	75258350		residential
27	75146779		residential
28	75272518		residential
29	75365395		wood lot
30	75202606		residential
31	75061069		residential
32	75274175		residential
33	75274183		residential
34	75274191		residential
35	75207993		residential
36	75165373		wood lot
37	75298729		residential
38	75274209		residential

3.5 Archeological resources

If requested by the New Brunswick Heritage Branch, testing for archaeological resources will be carried out in the areas that will be disturbed and that have not been disturbed in the past. The proponent will follow the instructions by the Heritage Branch.

3.6 First Nations claims

The proponent will advise the NB Aboriginal Affairs secretariat in accordance with any instructions by the NB Department of the Environment. The Proposed site is located at a distance of 2,700 m from the closest boundary of First Nations land (Saint Mary's First Nation) to the south.

4 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATIONS

The following potential impacts were identified during the construction phase.

Potential Impact	Mitigation
Erosion from site construction	Best construction practices including placement of silt fencing and check dams
Noise and vibration from trucking, and from heavy machinery	Best construction practices, limiting construction to day light hours.
Disturbance of wild life	Work during day light hours

The following potential impacts were identified during the operational phase.

Potential Impact	Mitigation
Odour	Best management practices, avoidance of material storage on site, installation of enclosures over storage facilities.
Drainage of contaminated effluent to surface water	Installation and operation of biological effluent treatment and disposal systems
Drainage of contaminated effluent to ground water	Monitoring and improved treatment, if required
Presence of endangered species i.e. wood turtle and bald eagle	Re-location of animals. Tree removal only outside of the bird nesting season.
Observation of archeological artifacts	Stop work and obtain clearance from the NB Archaeological Services Branch

There are no records of oil tanks on the property.

5 PUBLIC INVOLVEMENT

Based on the minimum public involvement standards for registered projects outlined in of "A Guide to Environmental Impact Assessment in New Brunswick" (NBDELG, 2012), the proponent will notify the owners of the neighbouring properties (identified in red on Figure 3-1) by hand delivery of flyers with relevant project information. Additional relevant stakeholders (local watershed group, MLA, etc.) will be informed about the development as well. The proponent will also place a notice in the local newspaper (The Daily Gleaner) and a French newspaper (L'Acadie Nouvelle). The draft mailout letter and the draft notice are attached in Appendix E, including information on where to find the EIA registration document. The comments received from the public will be provided to the technical review committee.

6 APPROVAL OF THE UNDERTAKING

Permits, licenses and other authorizations required for the undertaking include:

- Building permit for the building (will be obtained by the owner before starting construction).
- Approval from the NB Department of Public Safety for the onsite effluent disposal system.