

APPENDIX B

Water Supply Source Assessment (Initial Application)

Water Supply Source Assessment Initial Application
PID 70314075
55 Allée du Parc, Cap-Pelé, New Brunswick

1.0 Name of Proponent

Camping Plage Aboiteau Beach Inc.

2.0 Location of Drill Targets

The purpose of the water supply is to provide potable water to campsites within the proposed campground. The proposed campground will have 255 sites. Two water supply wells are proposed (Well No. 1 and Well No. 3) to supply the water needs of the entire campground. One observation well is proposed (Well No. 2) to monitor water levels during pumping tests. The well locations were chosen to provide optimal water distribution once the campground is in operation. Well locations are shown on Figure 1.

3.0 Required Water Quantity

There are currently no provincial guidelines for water requirements at campgrounds. In the absence of New Brunswick guidelines, water requirements for campgrounds from the Ontario Ministry of Environment (OMOE) were used. According to Table 3-2 in the Design Guidelines for Drinking Water Systems (OMOE, 2008), the daily average water use for campgrounds is 225 to 570 litres (L) per campsite day. Based on the size of the proposed campground including two comfort stations and an office (50 feet by 50 feet) (Figure 1), it was assumed that the daily water requirement for the campground would be on the lower end of the OMOE range at approximately 275 L/day per campsite. Therefore, for the proposed 275 campsites, the total daily water requirement is 75,625 L/day. To account for additional water usage from public washrooms, showers and the office building, an additional water requirement of 5,000 L/day is conservatively assumed, for a total water demand of 80,625 L/day.

4.0 Alternate Water Supply Sources in Area

There is one additional water supply well on the Project PID that services the existing cottages (Chalets Aboiteau). This well is 15.8 m deep in sandstone bedrock; the driller's estimated safe yield is 22.7 imperial gallons per minute (igpm). Based on the well driller's log for this well, the initial water level was 0.61 metres below ground surface (m bgs). Neighbouring properties obtain potable water from individual private wells (Figure 1).

5.0 Project Hydrogeology

Surficial mapping indicates that the Project area is covered with undifferentiated marine sediments (sand, silt, minor clay and gravel) generally 1 to 10 m thick, of Late Wisconsinan and/or Early Holocene age (Rampton, 1984).

Bedrock mapping indicates that the area is underlain by Late Carboniferous sedimentary rocks consisting of the Pictou Group (Richibucto Formation). The Richibucto Formation consists of sandstone, pebble sandstone, intraformational mudstone-clast conglomerate, siltstone and mudstone, minor intraformational limestone-cobble conglomerate, thin limestone beds and minor thin coal seams (Smith, E.A. 2007).

The surficial and bedrock geology described in the New Brunswick Department of Environment and Local Government (NBDELG) Online Well Log System (OWLS; NBDELG, 2016) for a search area of 500 m from PID 70314075, indicates that the area is predominately sandstone with some shale, overlain by sand and clay. Based on 12 well logs within the search area, the depth to bedrock ranges from 0.0 to 15.9 mbgs, with an average depth of 5.8 mbgs.

Based on 30 well logs, the well depths in the Project area range from 13 to 60 m with an average well depth of 22 m (NBDELG, 2016). Initial water levels recorded by the well driller's ranged from 0.0 (artesian well) to 4.6 m bgs. The estimated safe yield of these wells ranges from 23 to 137 igpm, with an average safe yield of 73 igpm.

6.0 Proposed Hydrogeological Testing and Work Schedule

Once this WSSA initial application is approved and has been received by the proponent, the proposed well drilling and hydrogeological testing will be completed. At this time it is proposed that necessary land clearing for drill access will be completed in the winter of 2017, followed by the installation of the proposed water supply wells. The hydrogeological testing will be completed in the winter of 2017 to avoid the fall and spring recharge seasons.

7.0 Existing Pollution / Contamination Hazards

Currently, surrounding land uses are: residential to the west and south, vacant (undeveloped) to the east and the Northumberland Strait is located to the north.

A 20 unit motel is located approximately 300 metres southeast of the Project area (up / cross gradient from the Site). The Service New Brunswick land gazette was reviewed for this property (PID 1101401) and no records were returned.

There are two registered Federal Contaminated Sites in the area of the project. Two Fisheries and Oceans Canada contaminated sites are located to the northeast of the project area, approximately 1 km away. One Federal Contaminated Site is listed as closed (FCSI # 00016925) and the other is listed as open (FCSI # 04312002). Impacts at the open Site are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and polychlorinated dibenzo-p-dioxin/dibenzofuran (PCDD/Fs) in soil. These Federal Contaminated Sites are located immediately adjacent to the Northumberland Strait and are downgradient of the Project area. Based on their location relative to the Project area, it is unlikely that environmental contamination is present on-site.

Historically the Site appears to be an agricultural field (Overdale Environmental Inc., 2016).

8.0 Groundwater Use Problems

Available water chemistry data for 12 wells within 500 m of the Project area were compared to the Canadian Drinking Water Quality Guidelines (CDWQG; Health Canada 2015) as shown in Table 1. Exceedances of the CDWQGs were noted in one or more wells for iron, manganese and total coliform bacteria. While an exceedance of total coliform bacteria was noted, the water sample from this well would have been collected prior to the well being shocked. Exceedances of the CDWQG for iron and manganese is common in New Brunswick.

GEMTEC is not aware of any groundwater quality or quantity issues in the neighbouring cottages or residential properties in the area.

9.0 Watercourses / Wetlands

The Project location is located adjacent to the Northumberland Strait in Cap-Pelé, New Brunswick. Based on the tentative subdivision plan (Aboiteau Subdivision, dated 2015-09-02). The original PID (70314075) has been subdivided to create the Project PID (which includes Lot 15-01 and Lot 15-02) and the remnant PID (70245337). The Project is located on Lot 15-1 (Figure 1). The majority of the remnant PID is regulated wetland. In addition, a small unnamed water body is located on the northern portion of the remnant PID adjacent to the Northumberland Strait. This water body is located approximately approximately 320 metres (m) from the proposed Project area (Figure 1). The confluence of the Tedish River and Friel Brook is located approximately one kilometre (km) to the east of the Project area (NRCan, undated). In addition, the Kouchibouquac River is located approximately 4 km west of the Project area.

10.0 Project Personnel

Project Hydrogeologist: Abigail Garnett, M.Sc.Eng., P.Eng., GEMTEC Limited.

Well Driller: Eastern Well Drillers

11.0 Attach a 1:10 000 map and/or recent air photo

The attached map shows the proposed location of all three wells (two supply wells and one observation well) in the Project area. Domestic wells within 1 km of the center of the Project area are also shown on the attached map (NBDE, 2016). As indicated in Section 7.0 of this application, there are no nearby potential hazards.

12.0 Attach a land use / zoning map of the area

The Project area is located in the Southeast Regional Service Commission. The Zoning map is attached. The proposed campground is located in land classified as “Development Project”.

13.0 References

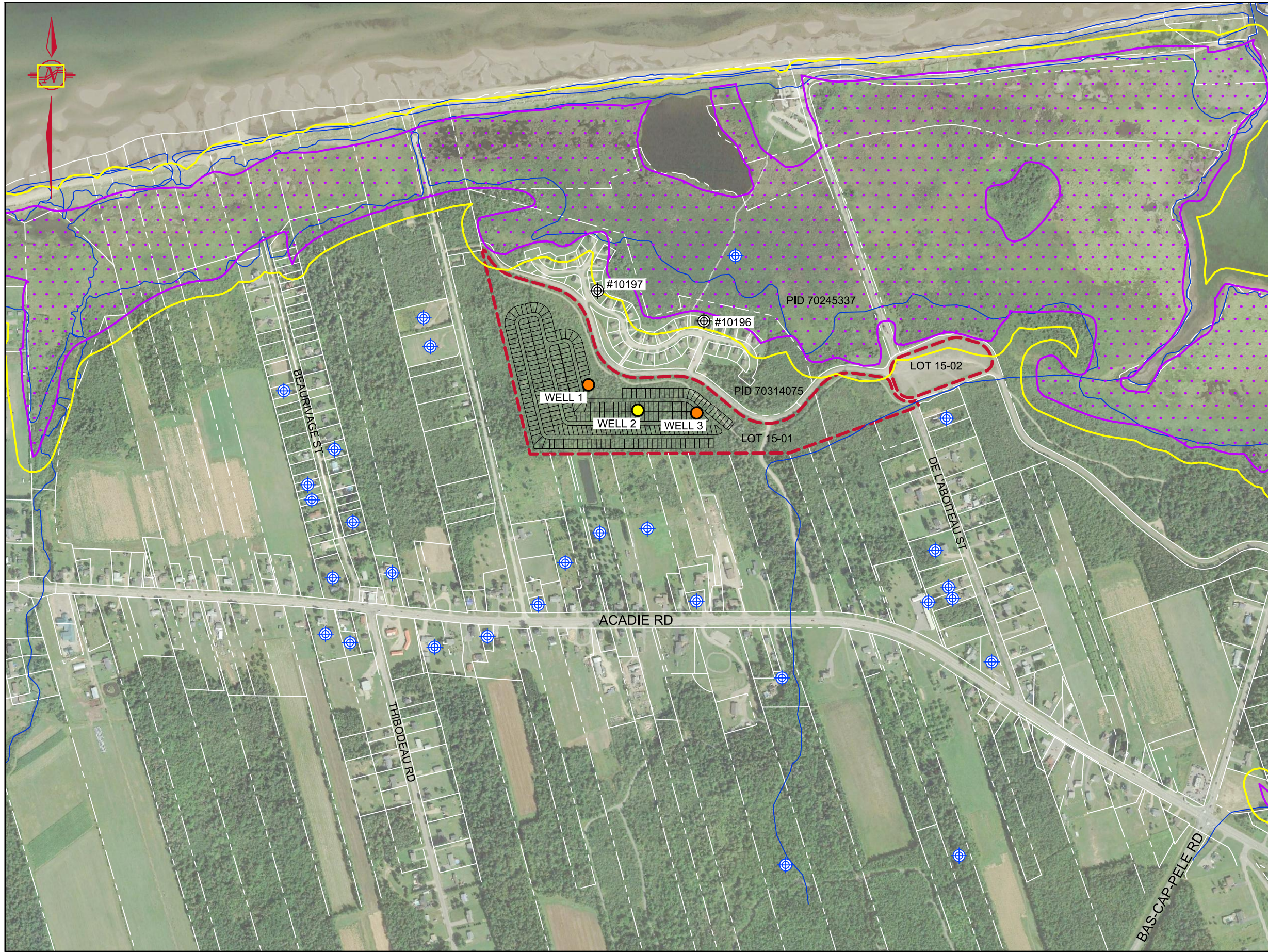
Natural Resources Canada (NRCan), undated. The Atlas of Canada – Toporama. <atlas.gc.ca/toporama/en/>. Accessed on December 14, 2016.

Overdale Environmental Inc. Cap Pele EIA. Contributions to selected sections. December 13, 2016.

Rampton, V.N. 1984. Generalized surficial geology map of New Brunswick Department of Natural Resources and Energy, Minerals, Policy and Planning Division, NR-8 (scale 1: 500 000).

Smith, E.A (Complier). 2007. Bedrock geology of the Port Elgin area (NTS 21 I/01). Westmoreland County, New Brunswick. New Brunswick Department of Natural Resources: Minerals, Policy and Planning Division. Plate 2007-47.

New Brunswick Department of Environment (NBDE). Online Well Log System. <<http://app.elg-egl.gnb.ca/0375-0001/>>. Accessed on December 13, 2016.



Legend

	EXISTING PRIVATE WATER WELL
	EXISTING CHALETS WELL
	PROPOSED WATER SUPPLY WELL
	PROPOSED OBSERVATION WELL
	WETLAND
	30m BUFFER FROM WETLAND
	SITE

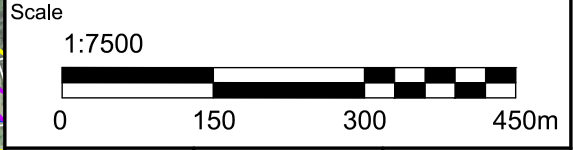
Note
 1. THIS DRAWING IS A SCHEMATIC REPRESENTATION. SIZES, LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

Drawn By	CHG	Checked By	AG
Calculations By	---	Checked By	---

Date
 FEBRUARY 2017

Project
 PROPOSED CAMPGROUND
 PID 70314075
 55 ALLE DU PARC
 CAP PELE, NB

Drawing
 PROPOSED WATER SUPPLY WELL
 LOCATION PLAN



File No.	Drawing	Revision No.
42070501	FIGURE 1	0



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