ANNEX VI

DESCRIPTION OF NAVIGABILITY

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1056

To: Kai Markvorsen

From: Michael Ewaschuk

Date: August 10, 2011

Re: **Serpent River Navigable Waters – Notes from NRSI field experience**

Dear Kai,

The following memo is provided in response to your email request for information regarding navigability and public navigation use of the Serpent River between Pecors and McCarthy Lake. The information provided is from experience on three separate trips to the Serpent River in 2011, including one trip through the entire river from Pecors to McCarthy Lake.

Attached with this memo is a map showing various site identification codes that show features such as portages and associated non-navigable sections of river, which are described in the text in this memo. The site ID's provided on this map will be used as markers to describe sections of river as one moves downstream from Pecors to McCarthy Lake.

P1
The stretch of river from Pecors Lake to P1 is Class II or III rapids in high water conditions and easy Class II or Class I rapids in low-water conditions in summer. Low-water can pose a navigational issue to a heavily-loaded canoe in summer due to insufficient water depth.

At P1, the channel becomes braided and the main channel is on the river-left (the left side of the river as one faces downstream). This channel appears navigable until you round the first bend where a tree crosses the entire channel. This situation is referred to as a "sweeper" or "strainer", and is extremely dangerous to paddlers because the tree tends to trap the paddler in the branches as the force of the water pins them there. We portaged around this obstruction by going across the island and into the side channel. There is no active portage trail at this site.

P2

This next stretch of river between P1 and P2 is lower gradient than above and thus slower flow. Most of this stretch is Class 1, but there are some short sections of Class II where basic manoeuvring is required to navigate logjams at sharp bends.

At P2 is a short waterfall. The waterfall is Class IV or V, and thus navigable by experts. There is no active portage trail around it. We portaged around it on the river-left side through the bush. An old fire at a vantage point over the falls indicates that others have been at the site relatively recently, despite the lack of a worn portage trail.

P3
The reach of river between P2 and P3 is the same as described for P1 to P2.

P3 itself is a nasty longer waterfall/chute that is Class V or VI and could be run (or attempted) by expert kayakers, and probably only under specific water levels. It is likely not navigable in high-water conditions in spring. There is an active portage trail around the falls on the river-right side.

P4
The reach of river between P3 and P4 is fairly high-gradient, but very easy paddling with minimal manoeuvring required, and is thus likely Class I rapids.

At P4 itself there is a chute that requires some manoeuvring skills and is a Class II. We ran this chute earlier in the spring of 2011, and lined our canoe (i.e. steered it from shore with ropes) through it in the summer, although it is navigable. We did not see a portage trail at this site.

The river remains at a fairly high-gradient for approximately 750m (linear) downstream, is a Class I, and is fully navigable. Downstream from this point to McCarthy Lake the river decreases in gradient and is a fully navigable and very easy Class I.

It should be noted that at bankfull discharge (the point at which the river overflows onto the floodplain) in the spring of 2011, we were able to drive a 16 foot boat using a 25 hp engine upstream to P5. This point was the upstream limit to boating navigation in spring due to low water depths and very high water velocity. There is no portage trail at this location.

Twice during the spring of 2011 we observed the same boater moving slowly upstream through the Serpent River around the area marked as P6. This entire reach is fully navigable, as noted earlier, but abundant wood in the channel can pose a danger to boat props in lower water conditions, and logjams can pose a risk to boaters in highwater conditions if motors fail.

Should you have any questions or comments please do not hesitate to contact us.

Sincerely,

Michael Ewaschuk

Figure 1

Four Slide Falls Hydroelectric Generating Station Project

Study Area

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

December 21, 2010
Project: 1056
NAD83 - UTM Zone 17
Scale 1:20,000 (11x17")

386000 387000 388000 389000 390000

5138000 5137000 5136000 5135000 5134000 5133000 5132000 5131000

Serpent River

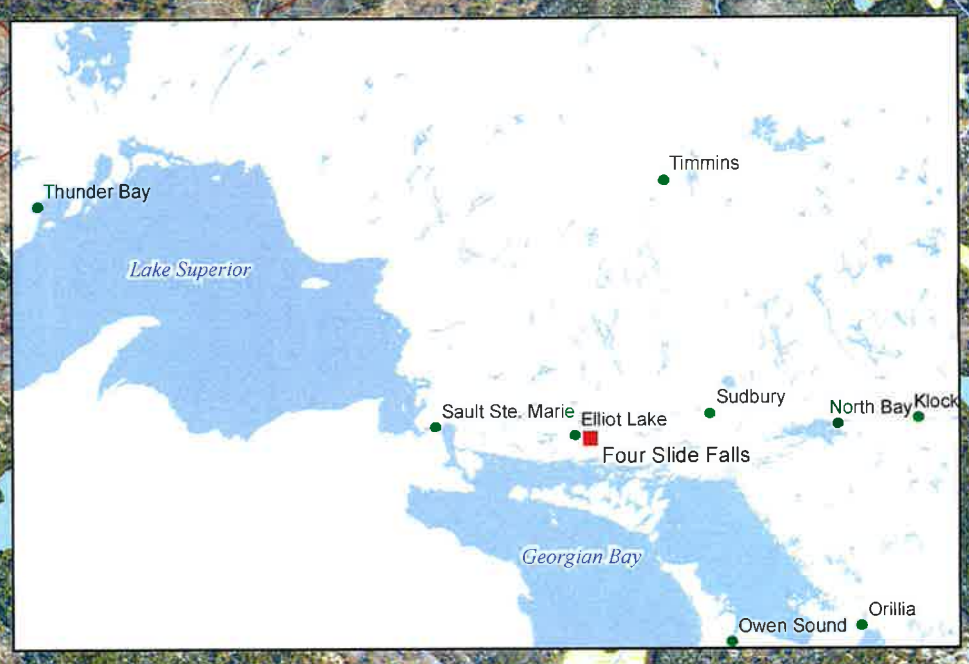
No Navigable Channel, Sweeper across main channel

P1 P2 P3 P4 P5 P6

FALLS

Four Slide Falls

Serpent River



Legend

- Proposed Dam Site
- Primary Road
- Secondary Road
- Tertiary Road
- Watercourse
- Waterbody
- Wetland Area
- Elevation Contour (10m Interval)

N

0 250 500 750 1,000 Meters

386000 387000 388000 389000 390000

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