

## Appendix A

### Waterway Designation and MNR Site Information Package

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*Aird & Berlis LLP*
2. Site Description Package (SDP) for Big Eddy Rapids, Site ID#2KB21  
*Ministry of Natural Resources*

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July 4, 2011

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**Confidential**

Xeneca Power Development Inc.  
5160 Yonge Street  
Suite 520  
Toronto ON M2N 6L9

Attention: Mr. Mark Holmes, Vice President

Dear Mr. Holmes:

**Re: Designation of Managed Waterway for the Purpose of the Ontario  
Waterpower Class Environmental Assessment  
Project: Half Mile Rapids and Big Eddy (2KB21)  
River: Petawawa River**

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In carrying out the environmental review as part of the Ontario Waterpower Association's Waterpower Class Environmental Assessment (the "Class EA") the proponent is to indicate whether the proposed project is located on a managed or unmanaged waterway. The primary difference being the obligation for the proponent to publish a Notice of Inspection and circulate a draft copy of the screening report for review prior to the Notice of Completion.

You have requested that Aird & Berlis LLP review whether the Petawawa River should be considered a managed or an unmanaged waterway within the context of the Class EA. . This letter may be shared with the Ministry of Natural Resources ("MNR") and the Ministry of the Environment ("MOE").

**Background and Facts:**

In preparing this opinion, Aird & Berlis LLP has relied upon the following information, which if untrue, could have a significant impact upon the views expressed herein.

The Petawawa River has its origin at Ralph Bice Lake (formally Butt Lake) in northern Algonquin Park and flows east, emptying into the Ottawa River at the Town of Petawawa. The river is 187 kilometres (116 mi) in length and drains an area of 4,200 square kilometres (1,600 sq mi), with a mean discharge of 45 m<sup>3</sup>/s (source: Atlas of Canada).

The Petawawa River was used historically for logging and there are remnants of the logging industry at various points along the river. Today, the river is used by kayakers and canoeists for recreational purposes.

The Petawawa River passes through the Department of National Defense base located near Petawawa. Activities in and near certain stretches of the river are restricted because of the base and the live ammunition range.

The Petawawa River is one of 5 major rivers within Algonquin Park and has several tributaries including:

- Barron River
- Crow River
- Little Madawaska River
- Nipissing River
- North River

In reviewing literature and maps available on-line, showing the Petawawa River, we would note the following:

- a. Petawawa Blvd (Hwy 51) and the Trans Canada Highway (Hwy 17) have bridges that cross the Petawawa River in or near the Town of Petawawa and relatively close to the proposed projects.
- b. There are two privately owned water control structures on the river used for impounding water for swimming.
- c. CP Rail has a railway bridge that crosses the Petawawa River in close proximity to the Big Eddy Rapids.
- d. The Petawawa River flows into the Ottawa River downstream of the Des Joachims Generating Station and upstream of the Chenaux Generating Station. The flow and water levels on the Ottawa River are regulated by Ottawa River Regulation Planning Board ("ORRPB"). As the Ottawa River forms the border between Ontario and Quebec, the ORRPB has representatives from Canada (3), Ontario (2) and Quebec (2).
- e. CNR has a bridge upstream of Devils Chute
- f. Within Algonquin Park there are a number of dams located on the Petawawa River such as upstream of Travers Lake and near Big Thompson Rapids and there is an old railway crossing. In addition, several of the tributaries also have dams and other infrastructure (e.g. Crow River near entrance to Petawawa River).



- g. There are highway bridges (e.g. Achray Road) across the Petawawa River within Alonquin Park.
- h. The Park Management Plan provides a general overview of the management of the various rivers, lakes and infrastructure within the park. There is a management plan in place for the park. If you require an exhaustive list of the dams and infrastructure within Algonquin Park along the Petawawa River and its tributaries, we can provide the list.

The Ontario Waterpower Association has informed Xeneca that during the development of the Class EA the policy discussion regarding “unmanaged waterway” was intended to pertain to undisturbed rivers for which there tends to be very little information such as rivers in the Northern Rivers Area.

**Analysis:**

The classification of a project is completed in a manner that is consistent with the policy and definitions provided in the Class EA. The terms “managed waterway” and “unmanaged waterway” are defined in the Class EA. The Class EA also states that the plain meaning of terms is to be presumed unless a statutory definition provides a different meaning. The relevant definitions from the Class EA are:

**Managed Waterway** – A waterway on which other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist and for which a human-made water management regime (i.e., levels and flows) has been established.

**Unmanaged Waterway** – A waterway on which no other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist and for which no human-made water management regime (i.e. levels and flows) has been established.

**Waterway** – a river, stream, canal, lake or other water related feature.

It should be noted that the Ontario Waterpower Association, the proponent of the Class, has suggested minor amendment to the MOE regarding the definition of Managed and Unmanaged Waterway. These requested clarification support the contention that the designation of the river looks at the "full reach" and not the zone of influence. Further it suggests that Unmanaged Rivers tend to be in the Northern Rivers area and are without human structures. The proposed definitions are:

- **Managed Waterway** – A waterway, including its full reach on which other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exists.

- **Unmanaged Waterway** – A waterway, including its full reach, generally in Ontario's Far North, on which no other water management infrastructure (dams, diversions, weirs etc.) and/or waterpower facilities exist.

The OWA Class EA provides the following:

### **3.1.2 New Projects on Managed Waterways**

These are new projects on waterways that are already subject to water level and/or flow management. These projects may be expected to have potential broader effects and/or public, Aboriginal community and/or agency interest. However, given that projects in this category are restricted to those that take place on river systems already subject to water management, the evaluation and assessment will be primarily focused on the development site, the immediate zone of influence and the potential incorporation of the new operation into the existing water management regime. Some developments may involve changes to the existing regime and, hence, the involvement of a broader scope of interests and potentially a broader study area / zone of influence.

The Class EA provides the following rationale for categorizing projects as “unmanaged”.

### **Section 3.1.3**

These projects occur on unmanaged waterways and can have the most potential to cause broad effects and/or are expected to have considerable public, Aboriginal community and/or agency interest. These projects feature new developments on river systems not previously subject to water level and flow management. They will not only involve consideration of the direct effects of the new infrastructure, but are also most likely to require an assessment of the implications of an introduced water management regime.

Where a facility is proposed on a river system that does not contain structures or a water management plan the introduction of the new infrastructure should be carefully considered because there is the introduction of a “new” influence on the waterway for which the potential impacts should be carefully considered – in part because of a lack of a presumed lack of knowledge of the river. The unmanaged waterway projects are therefore subjected to an additional public notice, the Notice of Inspection, to ensure the public and the MNR is informed of the potential impacts and the proposed mitigation strategies are discussed.

For a managed waterway, the project must be integrated into the existing water management regime and much of the dialogue will revolve around the current management of the waterway and the potential changes to the manner in which the levels/flows are regulated. With a managed waterway there is an understanding of the behaviour of the waterway through the water management regime and typically the new facility will be integrated into the existing scheme rather than making significant alterations to the water management plan.

**Conclusion: Is the Petawawa River a Managed Waterway?**

Based upon the available information, it is our conclusion that the Petawawa River is a managed waterway within the meaning of the Class EA. Water flows are regulated both upstream and downstream of the proposed generating stations and there are a number of there are a significant number of bridges, highway and railway, that cross the river near the proposed generating stations. Further, there have been several studies about the Petawawa River so the lack of knowledge about the river is not a concern.

If there are any questions, please contact the undersigned at your earliest convenience.

Yours truly,

AIRD & BERLIS LLP

  
Scott Stoll

SS/hm

cc Mr. A. Chan, Xeneca (letter only)

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## Site Description Package (SDP)

Site Description Package (SDP) for Big Eddy Rapids, Site ID # 2KB21

Application Number: WSR-2008-02

Applicants must incorporate the SDP information below into their response to the “Waterpower Site Strategy Requirements” Document, Section 7.0.

1. Listing of “Identified Aboriginal Communities” and local Aboriginal Communities and Outcome of Preliminary Discussion

<u>Local Aboriginal Communities</u>	<u>Outcome of Preliminary District Discussion</u>
Algonquins of Ontario; This site falls within the boundaries of the Algonquin Land Claim.	September 23, 2008 MNR notified the Algonquins of Ontario, through the ANR Contact and their consultant Jp2g, that an application for Direct Site Release had been accepted.

2. Maps

<u>Applicable Maps</u>	<u>Included as Attachment</u>
Petawawa River Watershed	Map 2.1
Land Use	Map 2.2
Natural Environment	Map 2.3

3. Information

<u>Land-Use</u>		
<u>Site Feature</u>	<u>Additional Information</u>	<u>Applicable Map</u>
Aboriginal Values and Traditional Activities	This site falls within the boundaries of the Algonquin Land Claim	
Cultural Heritage Values	There are no known archaeological sites within the immediate vicinity of this site; however, the Petawawa River has been a key transportation corridor since the retreat of the glaciers from this region.	
Access Points	Public access points for the Petawawa River are located in Black Bay. Whitewater recreationalists access the river North of 17 via Rantz Road.	Map 2.2
Access Road Locations	Access into the Big Eddy from Portage Road in Petawawa via Petawawa Boulevard. This access is along an all season trail.	Map 2.2
Existing Mining Tenure or Claims	There is no existing mining tenure or claim in the vicinity of Big Eddy as of November 5, 2008. An application was submitted to the Ministry of Northern Development and Mines to withdraw from staking, approximately a 75 hectare area of the bed of the Petawawa River.	

Canoe Routes/ Portages/ Kayaking	The Petawawa River is a known canoe route and it is extensively used for Whitewater kayaking and canoeing.	
Land Tenure	The north bank of the Petawawa River, upstream and downstream of the site, is owned by the Federal Government (Canadian Forces Base Petawawa). The south shore bank of the river is patent land (privately owned). The Township of Petawawa owns the municipal shore road allowance fronting many of the privately owned parcels of land. The bed of the Petawawa River in the vicinity of Big Eddy is Provincial Crown Land.	Map 2.2
Other industrial/ Commercial Activities	The Trans Canada Pipeline crosses the Petawawa River above the Big Eddy Site. Ontario Power Generation owns and operates a number of waterpower facilities on the Ottawa River.	
Railway	There is an Ottawa Valley Railway crossing at the Big Eddy Site.	Map 2.2
Parks and Protected Areas	The recommended Barron River Provincial Park is located upstream of the Big Eddy Site. The majority of the Petawawa River Watershed is located within Algonquin Provincial Park.	Map 2.1, 2.2
Settled Areas	The Big Eddy site is located within the Town of Petawawa. Other settled areas within the vicinity are the Town of Deep River, Chalk River, and the City of Pembroke.	Map 2.1, 2.2, 2.3
Tourism/Cottaging	The Petawawa River, including the area of interest, is enjoyed and utilized by local residents and tourists for a number of general recreational uses.	
Trails (snowmobiling, skiing, hiking)	There is a TOPS A snowmobile trail and bridge that crosses the Petawawa River at the Big Eddy rapids.	Map 2.2
Transmission line route location (planned)	The transmission line route location is unknown.	
Bear Management Agreement Areas	There are no Bear Management Areas within vicinity of the site as it is surrounded by private and federal land.	
Baitfish Harvest Area	The Big Eddy site is within the allocated Baitfish Harvest Area PE0123 (10). Other Baitfish Harvest Areas in the study area include PE0124 (6) and PE0125.	Map 2.2
Trapping Activities	There are registered traplines in the study area (N001, N022, N024).	Map 2.2
Resource Management Plans	There are no resource management plans that will be affected by this proposal as the area surrounding the site is private and federal land.	
Existing Water Management Plan(s)	There is no existing water management plan for the Petawawa River.	
Generic Waterpower Lease Agreement (WPLA)	A generic Water Power Lease Agreement may be required for this site.	
Existing MNR Infrastructure i.e. dams, bridges which may be impacted – decommissioning	There is no existing MNR infrastructure within the vicinity of the Big Eddy Site.	



requirements		
Dams/control structures upstream of the site	Downstream of the Big Eddy Rapids there are two privately owned water control structures that are used for impounding water for swimming in the summer. The area is known as the Catwalk. Additionally there are a number of MNR dams within Algonquin Park.	Map 2.2

<b>Natural Environment</b>		
<b>Site Feature</b>	<b>Additional Information</b>	<b>Applicable Map</b>
Aquatic Resource Area Data	The Petawawa River and inline lakes are documented to support a cool/warm water fishery that includes walleye, pike, channel catfish, yellow perch, smallmouth bass, largemouth bass, lake sturgeon, muskellunge, rock bass, pumpkinseed, white sucker, shorthead redhorse, river redhorse, brown bullhead, logperch, blacknose shiner, brassy minnow, longnose dace, fallfish, central mudminnow, Iowa darter, and Johnny darter. The potential to support coldwater species exists in many reaches of the Petawawa River as mottled sculpin are present throughout and brook trout have been documented in the headwater areas in Algonquin Park and in other adjoining tributaries. The Petawawa River is also known to contain historical American eel habitat and a migration route to other areas within Algonquin Park. Eel are still present in the Ottawa River in low numbers so potential still exists for them to be in the Petawawa River system and this likelihood will be increased as recovery measures are planned on the Ottawa River in the future.	Map 2.3
Terrestrial/Aquatic Invertebrate and Invertebrate Habitat	Potential for rare fresh water mussels exists due to the proximity to the Ottawa River. Additionally, some rare dragonflies have been documented in the area.	
Fish Species present and Fish Habitat	The 2001 Petawawa River survey observed the following species; Longnose gar, smallmouth bass, gar species, Common white sucker, silver redhorse, greater redhorse, emerald shiner, blackchin shiner, spottail shiner, rosyface shiner, mimic shiner, bluntnose minnow, longnose dace, fallfish, brown bullhead, channel catfish, rock bass, pumpkinseed, yellow perch, walleye, Iowa darter, Johnny darter, and logperch. See ARA information above for additional fish species in the Petawawa River. Spawning habitat is known at the Big Eddy Rapids for common white sucker, redhorse spp., Lake Sturgeon, and walleye.	
Special Concern/Threatened/	Lake sturgeon, river redhorse, American eel, wood turtle, map turtle, Blanding's turtle, bald eagle,	

Endangered Species (Aquatic/Terrestrial)	Kirtland's Warbler and their habitats are known to be present in the Petawawa River system. Stink pot turtle, milk snake, ribbon snake, golden winged warbler, monarch butterfly their habitats may also be present. Eastern wolf are present and typically follow the deer migration to the wintering yards.	
Wildlife Species present and Wildlife Habitat	Fur bearers present in the area include: otter, mink, beaver, weasels, muskrats, and northern water shrew. Reptile and amphibians such as the northern water snake, blue spotted salamander, bullfrog, painted turtle, snapping turtle, mud puppy, green frog, leopard frog have been observed in the Petawawa River. Additionally, deer, moose, black bear, red fox and coyote are known to be in the vicinity. There are known deer wintering yards and migration trails in the area.	
Provincially Significant Wetlands (PSW's)	Black Bay PSW is located within the vicinity of the site.	Map 2.3
Areas of Natural and Scientific Interest (ANSI's)	There are no ANSIs in the vicinity of the site.	Map 2.3
Water Quality	There is little information available or known.	
Flow Regime Characteristics	A Water Survey of Canada Streamflow Gauge (02KB001) is located on the Petawawa River upstream of the Big Eddy site. Flows on the Petawawa River have been measured at this gauge since 1915. Flow Metric Data Sheets for the Petawawa River will be forwarded as an addendum to the Site Description Package.	
Soil (Leada Clay), Steep Slopes	There are steep slopes in the study area which could pose a potential hazard.	

#### 4. Information Gaps

Land-Use		
Site Feature	Information Gap	Applicable Map
Historic/Cultural/ Archaeological Sites	Since there are no known archaeological sites located in project vicinity, it is suggested that prior to any construction a minimum of a Phase 1 Assessment be conducted and any subsequent recommended assessments be completed.	
Canoe Routes/ Portages/ Kayaking	The impact to the Whitewater kayaking community at the Big Eddy Rapids is unknown.	
Transmission Line Route Location	The location of the transmission line to be utilized for the proposed water power development is unknown. Values have not been supplied for this aspect of the project and as such other values may need to be considered.	
Trapping Activities/ Baitfish Harvesting	The impact of the proposal is unknown on the resident trappers and the baitfish harvesters of the area.	Map 2.2

<b>Natural Environment</b>		
<b>Site Feature</b>	<b>Information Gap</b>	<b>Applicable Map</b>
Aquatic Resource Area Data	Water quality parameters are unknown (Dissolved Oxygen, Temperature, TDS, etc.)	
Terrestrial/Aquatic Invertebrate and Invertebrate Habitat	The effect of the proposal on the terrestrial and aquatic invertebrate population and their habitat in the study area is unknown. The benthic macro-invertebrate/mollusc community should be a part of the assessment requirements.	
Fish Species present and Fish Habitat	The extent of the migration and use of the river is generally unknown. However, lake sturgeon, muskellunge, walleye and red horse spp., often move between the Petawawa River and the Ottawa River. Similar movements have been documented between the Muskrat River and the Ottawa River for lake sturgeon and walleye. It is unknown how significant the rapids are in this section of the river to spawning. A detailed study and analysis would be required to answer the question along with the fish that utilize the area at different times of year. Fish passage also needs to be considered. The extent of the habitat of fish species present is unknown. Additionally, the population size is unknown.	
Special Concern/Threatened/Endangered Species (Aquatic/Terrestrial)	Several SAR fish species have been observed upstream and downstream of the proposed location, suggesting that migration is occurring. Potential impacts to migration need to be assessed. Extent of range/distribution of all the SAR species within the watercourse is not known and should be a part of assessment requirements.	
Wildlife Species present and Wildlife Habitat	The impact of this proposal to the wildlife species listed is unknown. Generally the size of the population (other than deer & moose) is generally unknown as is the extent of their range. The land surrounding the proposal is also a travel corridor bottleneck for wildlife. Deer winter migration may be impacted. A detailed analysis of major travel corridors in the vicinity are required to determine whether deer will continue to cross the river safely without causing high mortality.	
Water Quality	The impact of flow change on water quality as it pertains to erosion, sedimentation and loss of fish habitat is unknown. Additionally, the effect of lost aeration from the rapids is unknown.	
Soil (Lead Clay), Steep Slopes	The affect of the project on the slopes/shores of the Petawawa River is unknown. A geotechnical investigation is recommended.	

**5. Potential Stakeholders (Note: This is not intended to be a comprehensive list of all stakeholders. Other stakeholders may be identified through the environmental assessment and approvals process.)**

<b>Site Feature</b>	<b>Potential Stakeholders</b>
Aboriginal Values and Traditional Activities	The Algonquins of Ontario through the ANR's and Jp2g.
Historic/Cultural/ Archaeological sites	Ministry of Culture
Access Points	Local Residents Tourism Industry Town of Petawawa
Land Tenure	Local residents, including all adjacent private property owners upstream and downstream of the Big Eddy Rapids.
Canoe Routes/Portages	Canoe Association of Ontario Recreationalists Ottawa Valley Tourist Association
Whitewater Community	Whitewater Organizations (Petawawa River Rats, etc.) Commercial Whitewater Rafting Companies (Esprit, Wilderness Tours, Owl Rafting, River Run, etc.)
Settled areas	Town of Petawawa, City of Pembroke, Town of Deep River, Town of Laurentian Hills, County of Renfrew, CFB Petawawa
Railway	Ottawa Valley Railway
Other industrial/ Commercial Activities	Trans Canada Pipeline Ontario Power Generation Hydro One
Parks and Protected Areas	Ontario Parks Superintendent of Algonquin Park
Tourism	Ottawa Valley Tourist Association
Baitfish Harvest Area	Baitfish Harvesters
Trapping Activities	Resident Trappers
Trails	Keetna Snowmobile Club

<b>Site Feature</b>	<b>Potential Stakeholders</b>
Aquatic Resource Area Data	MNR, Fisheries and Oceans Canada (DFO)
Fish Habitat	DFO, MNR, Ministry of Environment (MOE)
Fish Species Present	DFO, MNR Petawawa Bass Masters, local anglers Pembroke and Area Field Naturalists Pembroke Outdoor Sportsman Club Ontario Federation of Anglers and Hunters
Flow Regime Characteristics	DFO, MNR, MOE, Environment Canada OPG Town of Petawawa CFB Petawawa
Leda Clay, Steep slopes	County of Renfrew, Town of Petawawa MNR CFB Petawawa
Special Concern/ Threatened/Endangered Species (Aquatic/Terrestrial)	Environment Canada (SARA) MNR
Water Quality	MOE
Wildlife Habitat & Wildlife Species present	Pembroke and Area Field Naturalists MNR Resident Trappers Fish and Game Clubs

## 6. Flow Metric Data

Information regarding Flow Metrics Data will be provided by MNR as soon as it is available.

## 7. Listing of Potential Permits and Approvals Required

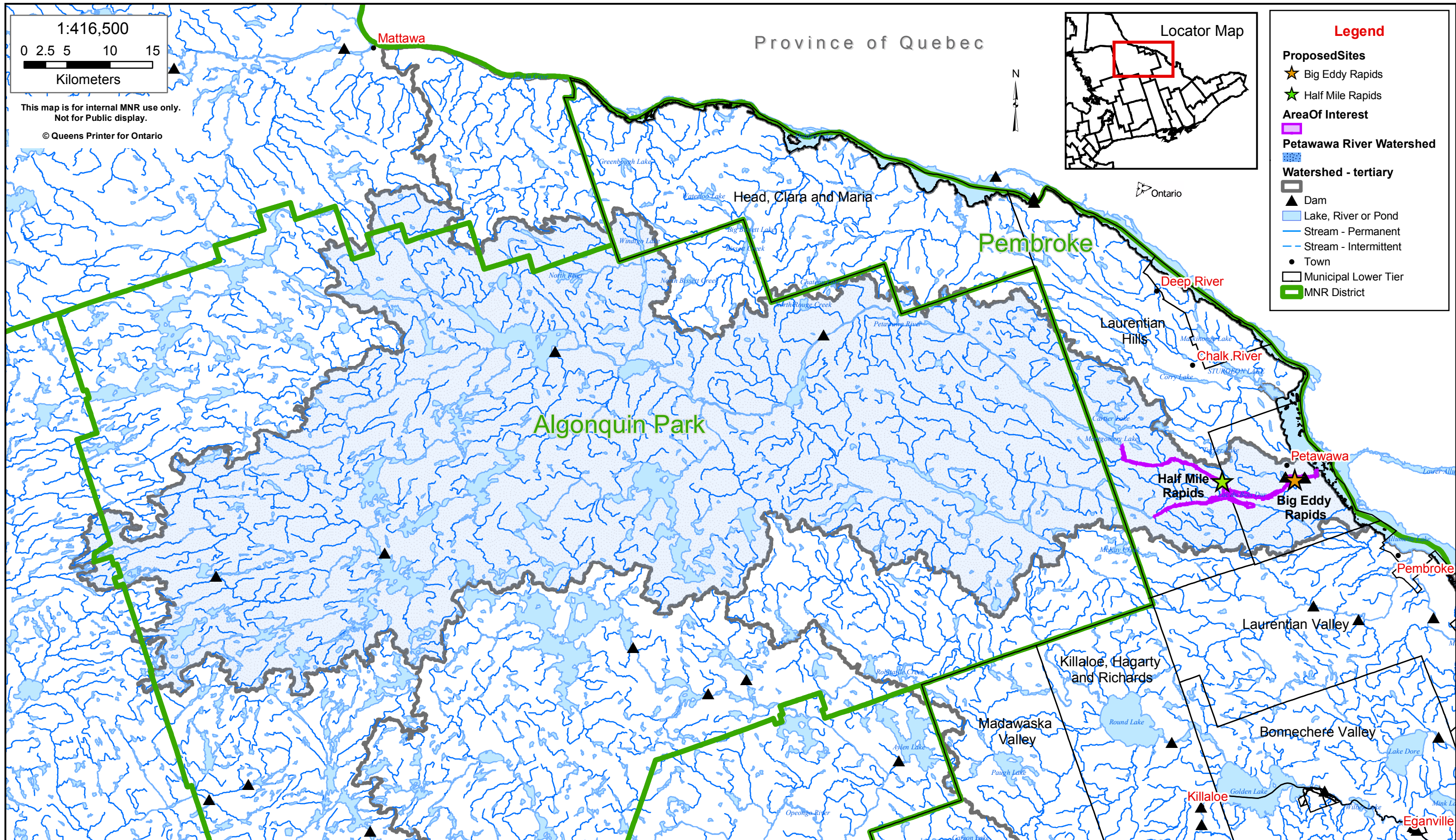
<b>Permits and Approvals</b>
Class Environmental Assessment for Waterpower Projects - Ministry of Environment (MOE), Ontario Waterpower Association (OWA)
Environmental Assessment Requirements – Canadian Environmental Assessment Agency
Permit to Take Water – (MOE) (OWRA)
Work Permit under the <i>Public Lands Act</i> – Ministry of Natural Resources (MNR)
Land Use Permit under the <i>Public Lands Act</i> – (MNR)
Lakes and Rivers Improvement Act Approval – (MNR) Location Approval and Plans & Specification Approval
Lakes and Rivers Improvement Act –(MNR)–Dam Operations Plan, Water Management Plan Approval
Crown Easement under the <i>Public Lands Act</i> – (MNR)
Water Management Planning Requirements – (MNR)
Authorizations under the Fish and Wildlife Conservation Act to destroy beaver dams, dens of furbearing mammals or bears and the nests of eggs of birds. - MNR
Scientific Collectors Permits for fish or wildlife under the Fish and Wildlife Conservation Act - MNR
Licence of Occupation of Crown Land under the <i>Public Lands Act</i> - MNR
Permit or Agreement under Endangered Species Act 2007 if an Endangered or Threatened species is found/identified - (MNR)
MNR Waterpower Lease Agreement
Archaeological Approvals – Ministry of Culture and Recreation
Planning Act considerations –if project involves private land– Ministry of Municipal Affairs and Housing
Fisheries Act Approval – Fisheries and Oceans Canada (DFO)
Blasting Approval in aquatic environment – (DFO)
Fish Habitat Authorizations under the <i>Fisheries Act</i> – (DFO)
Navigable Waters Protection Act Approval – Approval for Works – Transport Canada
Approvals for water crossings – Fisheries and Oceans Canada
Temporary Magazine Licence, required for purchase and storage of explosives for blasting – Natural Resources Canada
Approval for Construction within Navigable Waters – Transport Canada/Canadian Coast Guard
Navigable Waters Protection Act Approval – Transport Canada
Placement of Safety Buoys Approval – Transport Canada
Ministry of Labour Notice of Project
Ontario Energy Board Generator's Licence
Hydro-One Customer Impact Assessment
IESO System Impact Assessment
Approvals to connect to IESO transmission grid
Interconnection Agreement with Hydro One
Landowner agreements for access
Leases or Agreements for lands for the transmission lines or for flooded areas
Building Permits issued by the local Municipality
Species at Risk Act Permit/Agreement (Federal)
Other Federal, Provincial and/or Municipal permits or approvals as required

**Note: Through the environmental assessment and approval processes additional information requirements may be identified.**



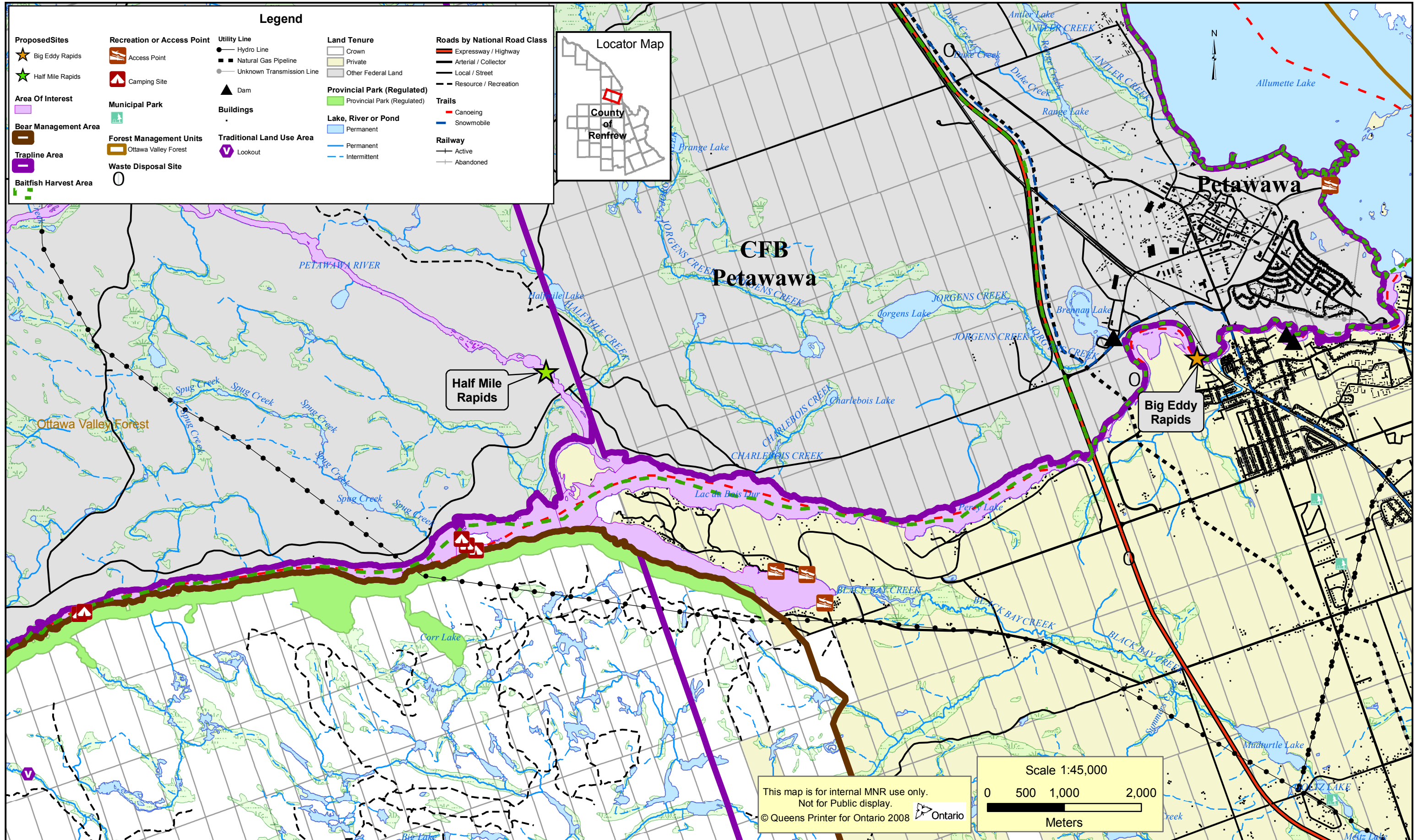
# Big Eddy Rapids DSR

## Map 2.1 - Petawawa River Watershed





# Big Eddy Rapids DSR Map 2.2 - Land Use





# Big Eddy Rapids DSR Map 2.3 - Natural Environment

