WHITE RIVER (GITCHI ANIMKI) HYDRO POWER PROJECT

MODIFICATION TO FLOW ALLOCATIONS DURING WALLEYE SPAWNING SEASON

ENVIRONMENTAL SCREENING REPORT ADDENDUM

PIC MOBERT HYDRO INC.

Pic Mobert Hydro Inc.

White River (Gitchi Animki) Hydro Power Project
White River, ON

Addendum

Environmental Screening Report Addendum: Modification to Flow Allocations During Walleye Spawning Season

BBA Document No. / Rev. 3766012-000000-4E-ERA-0001 / R00
April 13, 2021

FINAL

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REVISION HISTORY

Revision	Document Status – Revision Description	Date
R00	Final	2021-04-13

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1. INTRODUCTION

Pic Mobert Hydro Inc.(PMHI), a partnership which comprises the Gitchi Animki Energy LP (Pic Mobert First Nation (Pic Mobert)) and White River Hydro LP (Regional Power Inc. (Regional Power)) currently operates two hydroelectric power generating facilities on the White River in northwestern Ontario. The overall name of the Project is the Gitchi Animki Hydroelectric Project (hereinafter referred to as the Project). The two generating facilities are approximately 12 km apart on the river. The upper facility (Gitchi Animki, Bezhig) is located approximately 3.2 km downstream from the site of the former White Lake Dam and the other (Gitchi Animki, Niizh) approximately 1.6 km downstream from Chicagonce Falls. The Gitchi Animki Bezhig site has replaced the former White Lake Dam as the means of controlling water levels in White Lake. Following an environmental assessment process which was undertaken between 2005 and 2010, an integrated Project Information Package (PIP), Environmental Review Report and Environmental Screening Report (ESR) was prepared to satisfy the Ministry of Natural Resources (MNR), Ministry of Environment (MOE) and Federal requirements, respectively. Extensive public and First Nation consultation was conducted throughout the process as well. This document was submitted for public and agency review in August 2010.

Required federal and provincial permits and approvals were obtained subsequent to the completion of the EA process and construction of the Project commenced in October 2013 and was completed in April 2016. The two facilities have been operating in compliance with all regulatory approvals since April 2016. PMHI is proposing a modification to the allocation of flows during the walleye spawning season from what is currently approved. This proposed modification requires the application of the O. Reg. 116/01 Addendum Provisions. According to Section B.5.2 (Addendum Provisions) of the Guide to EA Requirements for Electricity Projects based on O. Reg. 116/01, the provisions must be applied:

> *where a project has been constructed/implemented as described in a completed Screening or Environmental Review report under the Environmental Screening Process, and where the proponent wishes to make a minor modification to the project.*

2. PROPOSED MODIFICATION

The Project was originally proposed and approved to provide a minimum flow of $3m^3/s$ and $4m^3/s$ through the bypass reaches of the Upper (Bezhig) and Lower (Niizh) sites, respectively, at all times except during the walleye spawning and incubation period. During this spawning and incubation period, both plants are currently required to pass a minimum of $30m^3/s$ through the bypass reach in order to support some areas of naturally-occurring walleye spawning habitat which were identified in the bypass reach.

As a condition of authorization by Fisheries and Oceans Canada (DFO), PMHI was directed to construct walleye spawning habitat in the tailrace areas of the Bezhig and Niizh plant. The tailrace is the channel downstream of the power plant that carries water away after it has passed through the turbines in the powerhouse. PMHI exceeded the spawning habitat requirements by constructing 8,475m^2 of spawning habitat in the tailrace of the Bezhig plant and 8,859m^2 in the tailrace of the Niizh plant. Flow exiting each plant flows through the tailrace and over this constructed spawning habitat. Water flowing through the bypass reach (including the minimum 30m^3/s) does not go through the powerhouse and does not flow over the constructed spawning habitat.

PMHI is proposing a modification to the flow allocations during the walleye spawning and incubation period. It is proposed that during this period, the minimum flow requirement of 30m^3/s through each of the bypass reaches be reduced to 3m^3/s at Bezhig and 10m^3/s at Niizh. The flows would instead be directed through the powerhouses and over the constructed walleye spawning habitat in the tailraces to enhance the use of this optimal habitat. No other modification to any other aspect of the operation of the Project is being proposed.

3. APPLICATION OF ADDENDUM PROVISIONS

The application of the addendum provisions includes two phases:

1. Determination of potential Impacts arising from the modification; and, if required
2. Preparation of an addendum to address any identified potentially negative impacts.

3.1 Determination of potential impacts

A determination was undertaken using the Criteria checklist as well as technical consultation (including discussions and a site visit with DFO) and review. The criteria checklist was completed based specifically on the proposed re-allocation of flows during the spawning/incubation period and does not refer to the entire project. It is therefore outside of the scope of this report to consider any other impacts identified in the original, approved PIP/ESR. The Screening Criteria checklist is presented in Appendix A. It was determined that impacts which could be perceived as negative may occur to surface water, due to the reduction of surface water flows through the bypass reach. No other checklist item was determined to be negative. Since a negative impact to a checklist item was identified, the need for an addendum was therefore confirmed and this document was prepared in accordance with the requirements.

3.2 Preparation of addendum

This addendum describes the proposed modification and the rationale for the modification.

Records of the consultation associated with the modification and supporting technical work undertaken in order to complete the addendum are also included. This document is an addendum to the **Gitchi Animki Hydroelectric Project Information Package(PIP)/Environmental Screening/Review Report** (ESRR) which was released for public review in 2010. Previous Addenda to the PIP/ESRR were released in May 2011 and March 2014. Familiarity with the PIP/ESRR and Addenda is assumed, and references will be made to those documents as required.

4. RATIONALE FOR PROPOSED MODIFICATION

The reason for the proposed modification is to promote the optimal utilization of the compensation habitat that was designed and constructed in accordance with the prescribed conditions of the original Authorizations and approvals, while also improving the beneficial use of the water resource for power generation. The following sections provide additional details on the rationale for the proposed modification.

4.1 Availability of spawning habitat

During the environmental assessment phase of the project, walleye was identified as a Valued Ecosystem Component (VEC) within the project area. Walleye spawning area preferences have been studied extensively. Walleye are known to prefer clean cobble substrate (between 7.5cm to 25cm diameter), though they are known to use a wide range of substrates, depending on availability. They tend to prefer water depths of 30cm to 100cm with velocities between 0.39m/s and 0.63m/s and are known to avoid velocities which are above 1m/s. As a condition of approval, 8,475m^2 of spawning habitat were constructed in the tailrace of the Bezhig plant and 8,859m^2 in the tailrace of the Niizh plant. The constructed habitat was designed to meet the known walleye spawning preferences.

Soon after construction the suitability of the constructed habitat was investigated by measuring velocity and depth over the cobble substrate that was placed in the area. At a flow of 45m^3/s, both tailrace areas were confirmed to each provide over 8,000m^2 of habitat that met the aforementioned conditions. With increase of flows up to the maximum generating flow (72m^3/s for Bezhig and 55m^3/s for Niizh), the suitable areas increase, reaching close to 100% of the constructed areas.

During the pre-construction surveys, some patches of substrate which were suitable for walleye spawning were identified along the bypass reaches of both the Upper (Bezhig) and Lower (Niizh)

sites. While no actual spawning was confirmed, it was agreed that these areas be considered potential spawning areas. It was estimated that flows of approximately 30m^3/s would be sufficient to keep the identified suitable spawning substrate wetted during the spawning and incubation period, typically between May 1 and June 15. Following construction, drone imagery in addition to ground truthing and substrate mapping were undertaken. This provided a means to verify the suitability of the substrate as well as the assumptions related to the wetted areas that had been made during the EA process. Mapping the substrate provided the most accurate estimate of potential spawning habitat.

At the Bezhig site, the majority of the substrate consisted of bedrock, boulders, fine sand and gravel, all of which were unsuitable for walleye spawning. Some cobble/rubble was present, though not all of it was considered suitable. Total area of cobble/rubble was estimated to be approximately 700m^2. While some of this substrate is suitable for spawning, there are sections which had depths and/or velocities that did not favor spawning. Even if all the cobble/rubble substrate were to be considered as spawning area, the bypass reach would only provide small patches of areas which together total approximately 700m^2 when a flow of 30m^3/s is passed through it. If this is reduced to 3m^3/s, only approximately 243m^2 of this cobble/rubble substrate would be dewatered. This is in comparison to the more than 8,000m^2 of optimal spawning area that would be enhanced in the tailrace.

In the Niizh bypass reach, similar patches of cobble/rubble exists, some of which are used for spawning. A reduction of the flows from 30m^3/s to 10m^3/s reduces wetted cobble/rubble by only 98m^2, while the diverted flows would support over 8,000m^2 of optimal spawning area. This reduction in wetted area is very small when compared to the optimal habitat which will be enhanced.

4.2 Comparative use of walleye spawning habitat

As noted in Section 2 above, PMHI constructed walleye spawning habitat in the tailraces of the two plants to compensate for habitat lost to the plant infrastructure. This constructed habitat was designed and constructed based on the documented spawning preferences of walleye, with detailed hydrotechnical modeling and selection of substrate material being key elements. A condition of authorization was the monitoring of these constructed spawning areas as well as the existing spawning areas along the bypass reach to obtain information on their comparative utilization.

The first spawning season for which the compensation habitat was in place was 2017. Monitoring was undertaken by Northern Bioscience personnel in the compensation areas and the bypass reaches each spawning season between then and 2020. In accordance with the conditions of approval, a report documenting the results of the monitoring exercise was submitted by PMHI to the DFO and other regulatory authorities each year.

Walleye spawning activity was assessed using nocturnal visual surveys, scap nets and egg traps. Visual surveys after dark were done with 2-person teams to detect the distinctive, reflective membrane (tapetum lucidum) of walleye eyes using spotlights. Egg deposition collection was conducted by kick-sweeping suitable coarse substrate using a 500 µm mesh scap net (D-net) the day following nocturnal surveys for spawning adults. Egg deposition was also assessed by using egg traps. Egg traps (spawning plates) were based on a USGS design with furnace filter cable-tied to a re-bar frame. Egg traps were checked during kick-sweep surveys by wading out traps or retrieving by pulling on the cord. Traps were visually inspected, any eggs counted and removed, and traps rinsed clean before re-deploying. Walleye typically spawn at 6-11°C, with a peak at 7-8°C, and have usually ceased when water temperatures reach 10-11°C. The timing of surveys were based on water temperature changes, which was found to be more reliable than using set dates, as was originally stipulated. Monitoring was typically undertaken over a 2 to 3 week period.

Table 1 summarizes the results of the surveys (observations of walleye and collection of eggs) for the years 2017 to 2020. The results indicate a preference for use of the constructed spawning habitat in the tailrace areas over the bypass reaches in each of the monitoring years. This preference is more marked in the case of the Upper (Bezhig) site.

Table 1: Results of spawning monitoring

Year	Bezhig		Niizh	
	Tailrace	Bypass	Tailrace	Bypass
2017	30+ walleye 150+ eggs	0 walleye 10 eggs	5+ walleye 10+ eggs	0 walleye 0 eggs
2018	~235 walleye 150+ eggs	15 walleye 1 egg	~25 walleye ~20 eggs	0 walleye 26 eggs
2019	~237 walleye 243+ eggs	3 walleye 0 eggs	0 walleye 24 eggs	1 walleye 0 eggs
2020	~179 walleye 20+eggs	0 walleye 0 eggs	5 walleye 2 eggs	8 walleye 4 eggs

4.3 Flows during spawning and incubation

4.3.1 Bezhig

The Bezhig generating station (GS) uses a maximum generating flow of 72m^3/s, while 30m^3/s is required through the bypass reach during the spawning and incubation period. Maximum flow through the GS provides optimal flows over the constructed habitat. Actual spawning lasts approximately 2 weeks (typically the first 2 weeks of May), with incubation typically lasting 21 days, though it can range from 12 to 31 days. Based on the historical flow data for the river, for

approximately 78% of the time during the first two weeks of May, there is sufficient flow (at least 102m^3/s) to operate the GS at maximum capacity (i.e. passing 72m^3/s) while passing at least 30m^3/s through the bypass. This means that the remaining 22% of the time, flow would need to be diverted from the GS in order to maintain the 30m^3/s through the bypass reach during the spawning period. The flow over the constructed habitat would consequently be reduced, impacting the velocity of the preferred habitat. A reduction in the minimum bypass reach flow to 3m^3/s as is being proposed would lead to a scenario where there is sufficient flow to provide maximum generating flow and stable flow through the tailrace while providing the required bypass reach flow 86% of the time during the spawning period. This would mean that stable flow through the turbines and over the preferred spawning areas would only be reduced 14% of the time, significantly improving the times when the walleye would have access to maximum optimal habitat for use.

When the first week of June (during incubation period) is considered, the historical flow data indicates that sufficient flow to pass maximum flows through the Bezhig GS while maintaining 30m^3/s through the bypass is only available 50% of the time. For the second week of June (considered last week of incubation) sufficient flows to maintain the 30m^3/s through the bypass and pass maximum flow through the GS are available only 30% of the time. This means that in the first and second weeks of June, the current approval conditions force the diversion of water from the highly suitable constructed habitat to the bypass reach which has less suitable habitat that has limited use 50% and 70% of the time, respectively. A reduction in the minimum bypass reach flow to 3m^3/s would decrease the need for this diversion to 24% and 42% respectively. Figure 1 displays the historical flow curve and the Bezhig plant flows.

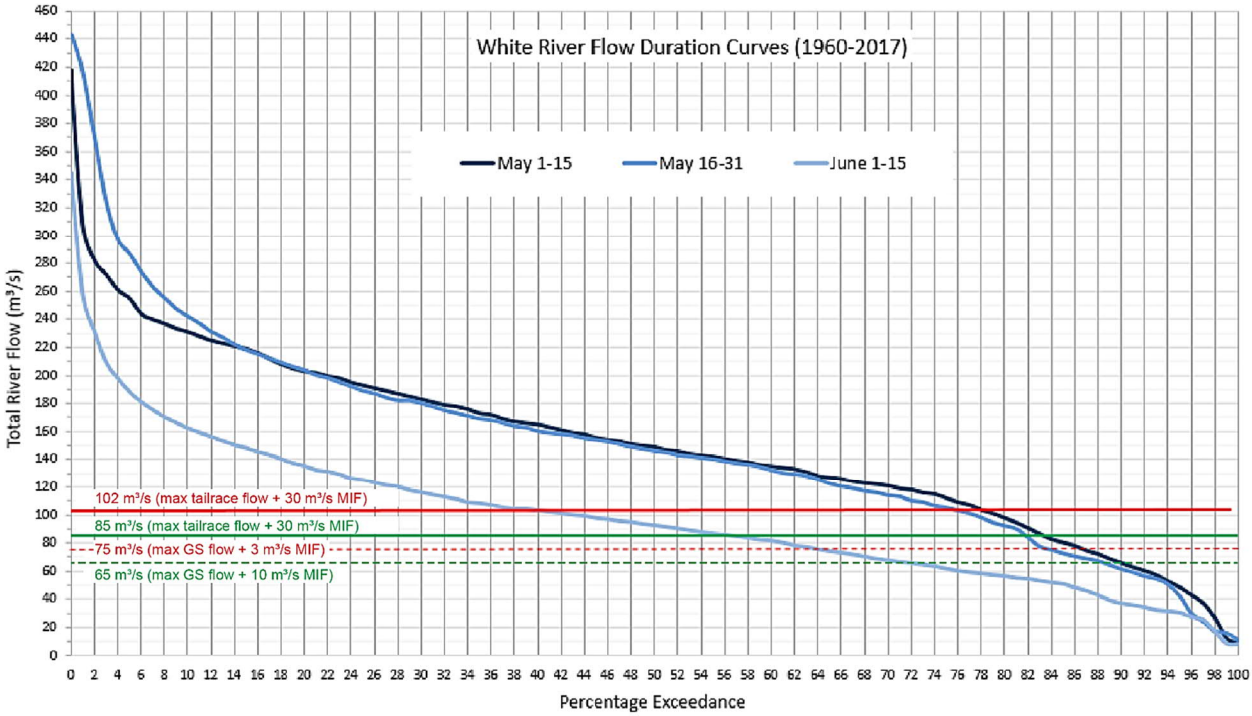

Figure 1: Flow duration curves for spawning and incubation period[1]

4.3.2 Niizh

The Niizh GS has a maximum generating flow of 55m^3/s. Based on the historical flow data for the river, for approximately 84% of the time during the first two weeks of May, there is sufficient flow (at least 85m^3/s) to operate the GS at maximum capacity (i.e. passing 55m^3/s through the plant) while passing at least 30m^3/s through the bypass. This means that the remaining 16% of the time, flow would need to be diverted from the GS in order to maintain the 30m^3/s through the bypass reach during the spawning period. The flow over the constructed habitat would consequently be reduced, depriving walleye of the use of some of the preferred habitat. A reduction in the minimum bypass reach flow to 10m^3/s as is being proposed would lead to a scenario where there is sufficient flow to provide maximum generating flow and stable flow through the tailrace while providing the required bypass reach flow 91% of the time during the spawning period. This would mean that stable flow through the turbines and over the preferred spawning areas would only be

[1] *Bezhig flows are shown in red and Niizh flows in green.*

reduced 9% of the time, significantly improving the times when the walleye would have access to maximum optimal habitat for use.

When the two first weeks of June (during incubation period) are considered, the historical flow data indicates that sufficient flow to pass maximum flows through the Niizh GS while maintaining 30m^3/s through the bypass is only available 56% of the time. This means that in the first two weeks of June, the current approval conditions force the diversion of water from the highly suitable constructed habitat to the bypass reach approximately 44% of the time. A reduction in the minimum bypass reach flow to 10m^3/s would decrease the times when this diversion is needed to only 30%. Figure 1 also displays the historical flow curve and the Niizh plant flows.

4.4 Variability in bypass reach flows

Flows along the river will naturally decrease from a peak in the spring freshet (which coincides with spawning period) to a decline in late spring to early summer. All flow in excess of the maximum generating flow for each plant is passed through the bypass reaches. These flows through the bypass fluctuate widely during the spawning season due to the natural variations. This leads to a scenario where areas may be wetted, used for spawning and then dewatered, resulting in eggs being stranded. This variability reduces the chances of spawning success within the bypass reaches.

This extreme flow variability in the bypass reaches is in contrast to flows through the plant and over the constructed spawning habitat in the tail race areas. As flow through the plant can be finely controlled, flows through the tailrace can be maintained at fairly stable levels, eliminating the uncontrolled fluctuations that the bypass reaches are subject to. This stable flow environment in addition to the presence of other optimal conditions make the constructed habitat in the tail race areas significantly better in terns of spawning success, when compared to the bypass reaches. Redirection of flow to improve the stability of the tail race areas even further will be of benefit to the walleye population of the White River.

4.5 Improved revenue

Any flow that is currently passed through the bypass reaches of the Project does not go through the generating station and thus does not generate any power. Flow which is directed over the optimal habitat in the tailrace area must pass through the generating station. The additional revenue gained from the additional flow and generation over the spawning and incubation period will be of benefit to PMHI, particularly for Pic Mobert First Nation. Additional revenue will improve the ability to continue to pay down the financing debt associated with the project and assist in the various social programs which are a critical components of the community.

4.6 Summary

In summary, there are clear benefits associated with the reduction of the minimum bypass reach flows from 30m^3/s to 3 and 10 at Bezhig and Niizh, respectively. The redirection of these flows through the generating station an over the constructed spawning will achieve the following:

- Enhance flows and spawning conditions over an area of 8,475m^2 of highly suitable spawning habitat constructed in the tailrace of the Bezhig plant;
- Enhance flows and spawning conditions over an area of 8,859m^2 of highly suitable spawning habitat constructed in the tailrace of the Niizh plant;
- Redirect flows that are currently passing through bypass reach while providing very little value to walleye spawning or power generation;
- Provide a significantly more stable flow regime in the tail race areas, thus improving chances of spawning success by the reduction/elimination of potential stranding of eggs;
- Provide attractant flow and maintain optimal conditions in the tailrace areas where there is more readily available and accessible spawning habitat;
- Lower risk of negative impacts to spawning that may occur as a result of the high flow variability that occurs along the bypass reaches during spring/early summer;
- Improve the revenues from the project, with positive impacts to PMHI and the Pic Mobert First Nation community.

5. CONSULTATION

As is recommended in the Addendum Provisions section of the Guide to Environmental Assessment Requirements for Electricity Projects (MOE, 2011) the key regulatory agency and affected Indigenous communities were consulted in order to assist in the identification of and concerns and/or potential impacts arising from the proposed modification.

5.1 Department of Fisheries and Oceans Canada

Protection of fish and fish habitat fall under the responsibility of the federal Department of Fisheries and Oceans Canada (DFO). A Fisheries Act Authorization (FAA) was issued for the Project following the EA process. The construction of the compensation habitat in the tail races and the requirement to pass the minimum 30ms/s through the bypass reaches were conditions of the original FAA. Discussions with DFO related to the proposed modification commenced in 2017, when there were the first indications of preferential use of the spawning areas in the tailraces of the plants. As the results of additional spawning monitoring each year added additional support to the early observations, further discussions continued with DFO. Various presentations, report submissions and meetings related to the proposed modification occurred in the ensuing years.

DFO personnel also visited the Project to confirm site conditions during their review. During the course of the review of these applications the key technical issue raised in relation to the proposed modifications was the potential for the spawning habitat in the tail races to be dewatered after being used and eggs stranded and desiccated.

A loss of flow from the powerhouse would occur if the turbines were to be shut off for any reason, including planned maintenance, turbine breakdown or involuntary shutoff in response to transmission line outages. A planned shutdown would be initiated by the owner in order to facilitate activities such as maintenance. As the spawning period coincides with the times of highest generation, shutdowns would not be planned during this period. While turbine breakdown may occur, the chances of this happening to both turbines simultaneously are quite low. Also, the redundancy provided by two units at each site allows repairs to be completed on the affected turbine without loss of flow through the tailrace via the operational turbine.

Emergency shutoffs due to transmission line outages are generally less predictable and beyond the control of the owner and thus pose the least manageable risk related to loss of flow from the powerhouse. Transmission line outages may be planned by Hydro One or be unplanned due to failure or damage. Planned Hydro One transmission outages are typically limited to 4 hours, so for any facility shutdown resulting from a planned transmission outage, it is expected that the facility would not be offline for more than approximately four hours. The durations of unplanned transmission outages vary based on the specific issues. However, it should also be noted that any unplanned transmission line outage would be considered as high priority by Hydro One and attempts to rectify the issue would be virtually immediate, thus limiting the duration of any such occurrence. When the turbines are both shut down, all flow will be directed through the spill gates and through the bypass reach of each facility.

For the Bezhig (upper site), there is no scenario under which the compensation habitat would be at risk of being dewatered and impacting the walleye spawning or incubation. The compensation habitat located in the tailrace of this facility is always submerged and is never dewatered, even if that facility is offline. This is because the tailrace of the upper site is within the headpond of the lower site, being always submerged.

For the lower site, the downstream water levels are subject to some fluctuation depending on the prevailing flows. The compensation habitat is not constantly submerged as in the case of Bezhig. However, with the turbines offline and all the flow directed through the bypass reach, the significant backwater effect at Niizh will maintain submergence of the majority of the compensation habitat, thus limiting the impacts of the absence of flow from the powerhouse.

It was noted that In the unlikely event of a plant shutdown at the lower site, all flows would be directed through the spill gates and down the bypass channel, allowing the backwater to maintain the compensation habitat. When the plant is shut down, flow cannot be passively passed through the turbines without fear of damage to the units.

Following the provision of multi-year data, which was reviewed and discussed in detail, formal applications for amendments to the FAAs (one for each GS) to allow the proposed flow modifications were made in January 2020. DFO did not identify any Harmful Alteration, Disruption or Destruction (HADD) of fish habitat associated with the proposed modification. The need to satisfy indigenous engagement requirements was identified and is discussed further in the sections below.

The permission to implement the proposed modifications (lowering of the minimum flows through the bypass reaches from 30m^3/s to 3m^3/s at Bezhig and 10m^3/s at Niizh) was granted in amended Fisheries Act Authorizations issued in March 2021. Implementation is dependent on any other related regulatory requirements being met.

5.2 Pic Mobert First Nation

Consultation was undertaken with Pic Mobert First Nation both in the capacity as an owning partner of the project as well as an identified affected Indigenous community. Presentations were made to representatives of the community. No objections were raised and a letter supporting the proposed modification was provided by Pic Mobert First Nation.

5.3 Biigtigong Nishnaabeg (Pic River First Nation)

Consultation was undertaken with Biigtigong Nishnaabeg First Nation in the capacity as an identified affected Indigenous community. Biigtigong Nishnaabeg is also a part owner of the Umbata Hydroelectric plant on the White River downstream of the Gitchi Animki Project. No objections were raised and a letter supporting the proposed modification was provided by Biigtigong Nishnaabeg.

5.4 Metis Nation of Ontario (MNO)

Consultation was undertaken with the Metis Nation of Ontario (MNO) in their capacity as an identified affected Indigenous community. Consultation included a presentation to members of the MNO. No objections to the proposed modification were raised and a letter confirming the completion of satisfactory engagement was provided by MNO.

6. IMPACT ASSESSMENT

Impacts associated with the proposed modification are limited to those resulting from reallocation of flows from the bypass reaches to the tailraces via the GS.

6.1 Impacts to surface and groundwater

6.1.1 Surface water quality, quantity or flows

The Criteria Checklist Item 1.1 requires the confirmation as to whether the modification will have a negative on surface water quality, quantities or flow. The modification involves the reduction of flows through the bypass. The reduction may be perceived as a negative effect. The effects of the lowering of flows in the bypass reach were detailed in the original ESR. The proposed reallocation of flows does not offer any additional impacts, nor does it lead to the creation of a HADD. The lowering of the flows was the only 'negative' effect associated with the modification. As the redirected flows lead to an overall benefit to spawning, no mitigation is required, beyond ensuring that the new minimum flow requirements are met.

6.2 Impacts to fish and fish habitat

A positive effect on fish and fish habitat is anticipated from the modification. The proposed modification is expected to provide more stable flows in the areas where optimal, preferred habitat exists. There will be an increased chances of spawning success, as the modifications will reduce negative impacts that arise from the current variability in flows through the bypass reaches as well as reduce the possibility of eggs in the tail race areas becoming stranded due to reduction of flows.

6.3 Impacts to First Nations and Aboriginal communities

The proposed modifications will have a positive impact on the Pic Mobert First Nation, a partner in the development team. The additional revenue that will be derived from the proposed modification will positively impact debt repayments, interest rates and other financial metrics.

The Project was, from the outset, undertaken by the First Nation primarily as a wealth creation project, to create a long term source of non-government revenues, that will support investments in community needs and priorities not funded or sufficiently funded by government, or affected by government cut-backs, such as health and healing programs, education, community development, housing, community infrastructure and economic development.

6.4 Conclusion

Based on the review of information, studies completed and consultation during the assessment of potential effects arising from the proposed modification, it is concluded that the prosed reallocation of flows will have a positive effect on the walleye spawning and consequently on the fish population itself. The proposed modification will support increased operating revenues that will

improve the long-term financial benefits of the project to the Pic Mobert First Nation. The decrease in flow through the bypass reaches, though technically a 'negative impact' in the context of the Criteria checklist is minimal to the extent of being negligible. Monitoring of spawning activity in the bypass reaches and in the constructed habitat will continue following the implementation of the modification.

7. REFERENCES

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Appendix A: Screening criteria checklist

SCREENING CRITERIA CHECKLIST

Each criterion is based on a question which is prefaced with the phrase: "Will the project…"

1. Surface and Ground Water

Criterion	Yes	No	Additional Information
1.1 have negative effects on surface water quality, quantities or flow?	X		There will be a reduction of flows through bypass reach
1.2 have negative effects on ground water quality, quantity or movement?		X	
1.3 cause significant sedimentation, soil erosion or shoreline or riverbank erosion on or off-site?		X	
1.4 cause potential negative effects on surface or ground water from accidental spills or releases to the environment?		X	

2. Land

Criterion	Yes	No	Additional Information
2.1 have negative effects on residential, commercial or institutional land uses within 500 metres of the site?		X	
2.2 be inconsistent with the Provincial Policy Statement, provincial land use or resource management plans?		X	
2.3 be inconsistent with municipal land use policies, plans and zoning bylaws?		X	
2.4 use hazard lands or unstable lands subject to erosion?		X	
2.5 have potential negative effects related to the remediation of contaminated land?		X	

3. Air and Noise

Criterion	Yes	No	Additional Information
3.1 have negative effects on air quality due to emissions of nitrogen dioxide, sulphur dioxide, suspended particulates, or other pollutants?		X	
3.2 cause negative effects from the emission of greenhouse gases (CO_2, methane)?		X	
3.3 cause negative effects from the emission of dust or odour?		X	
3.4 cause negative effects from the emission of noise?		X	

4. Natural Environment

Criterion	Yes	No	Additional Information
4.1 cause negative effects on rare, threatened or endangered species of flora or fauna or their habitat?		X	
4.2 cause negative effects on protected natural areas such as ANSIs, ESAs or other significant natural areas?		X	
4.3 cause negative effects on wetlands?		X	
4.4 have negative effects on wildlife habitat, populations, corridors or movement?			
4.5 have negative effects on fish or their habitat, spawning, movement or environmental conditions e.g., water temperature, turbidity, etc.)?		X	The proposed changes are anticipated to enhance walleye spawning through the improvement of flow over the constructed spawning habitat in the tailrace areas of both sites.

5. Resources

Criterion	Yes	No	Additional Information
5.1 result in inefficient (below 40%) use of a non-renewable resource (efficiency is defined as the ratio of output energy to input energy, where output energy includes electricity produced plus useful heat captured)?		X	
5.2 have negative effects on the use of Canada Land Inventory Class 1-3, specialty crop or locally significant agricultural lands?		X	
5.3 have negative effects on existing agricultural production?		X	
5.4 have negative effects on the availability of mineral, aggregate or petroleum resources?		X	
5.5 have negative effects on the availability of forest resources?		X	
5.6 have negative effects on game and fishery resources, including negative effects caused by creating access to previously inaccessible areas?		X	

6. Socio-economic

Criterion	Yes	No	Additional Information
6.1 have negative effects on neighbourhood or community character?		X	
6.2 have negative effects on local businesses, institutions or public facilities?		X	
6.3 have negative effects on recreation, cottaging or tourism?		X	
6.4 have negative effects related to increases in the demands on community services and infrastructure?		X	
6.5 have negative effects on the economic base of a municipality or community?		X	
6.6 have negative effects on local employment and labour supply?		X	
6.7 have negative effects related to traffic?		X	
6.8 cause public concerns related to public health and safety?		X	

7. Heritage and Culture

Criterion	Yes	No	Additional Information
7.1 have negative effects on heritage buildings, structures or sites, archaeological resources, or cultural heritage landscapes?		X	
7.2 have negative effects on scenic or aesthetically pleasing landscapes or views?		X	

8. Aboriginal

Criterion	Yes	No	Additional Information
8.1 cause negative effects on First Nations or other Aboriginal communities?		X	The modifications will result in improved revenues from the Project, of which the Pic Mobert First Nation is an owner. The effect will be a long-term positive one.

9. Other

Criterion	Yes	No	Additional Information
9.1 result in the creation of waste materials requiring disposal?		X	
9.2 cause any other negative environmental effects not covered by the criteria outlined above?		X	

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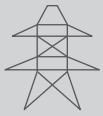

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