

# **REVIEW OF APPLICATION FOR RE-CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE HOOSIC RIVER HYDROELECTRIC FACILITY, LIHI #13**

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November 8, 2019

## **I. INTRODUCTION**

This report summarizes the review findings of the application submitted by Brookfield Renewable Energy Group, (Brookfield or Applicant)<sup>1</sup> to the Low Impact Hydropower Institute (LIHI) for re-certification of the Hoosic River Hydroelectric Project FERC P-2616, LIHI #13 (Hoosic River or Project). This Project consists of two developments: the upstream Johnsonville development and the Schaghticoke development. The Project was initially certified by LIHI as Low Impact for a five-year term, effective 2004, and re-certified for a second five-year term in 2009, and a third term effective February 20, 2015, expiring July 9, 2019. The current certification term was extended to November 30, 2019. This re-certification review was conducted in compliance with LIHI's Handbook, 2nd Edition, Revision 2.03: December 20, 2018. This is the first LIHI certification review of the Project conducted since the criteria have been updated.

The Project's 2015 re-certification had one condition, that was identified due to impoundment excursions that occurred at the Schaghticoke development during a period of extreme cold temperatures in 2014:

*The facility owner shall develop a proactive procedure that can be followed during the winter season to prevent ice buildup problems at their facilities and to reduce the occurrence of water level or flow violations that have been evident in the past. A final report documenting the improved operating procedures will be provided to LIHI along with the first annual compliance letter following recertification. If similar violations of water level or flow requirements occur in future years, they shall be reported in the annual compliance letters to LIHI. These annual reports shall contain copies of any pertinent correspondence and documents, as well as a description of any corrective actions taken.*

Based on the annual compliance report submitted to LIHI on July 26, 2018, LIHI staff deemed that the condition was satisfied. That report noted that the problem was remedied by installing a pressure transducer (in addition to the existing sonic-type instrumentation). The new instrumentation was commissioned in March 2016. While one excursion did occur in January 2016, no headpond level excursions have occurred since March 2016. However, as discussed under Ecological Flows, three headpond deviations occurred in 2017 at the Johnsonville development due to other causes.

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<sup>1</sup> The project is licensed to Erie Boulevard Hydro, L.P.(EBH), which is a subsidiary of Brookfield. However, Brookfield, not EBH, is noted as the Applicant for LIHI certification.

## **II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW**

Under the 2016 LIHI Handbook, reviews are a two-phase process starting with a limited review of a completed LIHI application, focused on three questions:

- (1) Is there any missing information from the application?
- (2) Has there been a material change in the operation of the certified facility since the previous certificate term?
- (3) Has there been a change in LIHI criteria since the Certificate was issued?

In accordance with the Recertification Standards, if the only issue is that there is some missing information, a Stage II review may not be required. These standards also state that "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. If the answer to either question (2) or (3) is "Yes", a more thorough review of the application using the LIHI criteria in effect at the time of the recertification application, and development of a complete Stage II Report, is required. As a result, all Projects currently applying for renewal must go through a full review unless their most recent certification was completed using the 2016 Handbook.

A review of the initial application, dated June 17, 2019, resulted in a Stage I or Intake Report, dated July 15, 2019. This Stage I assessment indicated there was missing information and that it appears a "material change" at the Project had occurred given the removal of flashboards at Johnsonville Development (see Section VI below). The response to the Stage I Report was provided in the form of an updated application dated August 2019 which was posted for comment on September 4, 2019. The updated application stated that the decision to permanently remove the flashboards is not a final decision and is still under review.

This Stage II assessment included review of the updated application package, follow-up communication with the Applicant on clarification of information provided, public records in FERC's eLibrary since LIHI certification in 2015, outreach to stakeholders and the annual compliance statements received by LIHI during the past term of Certification.

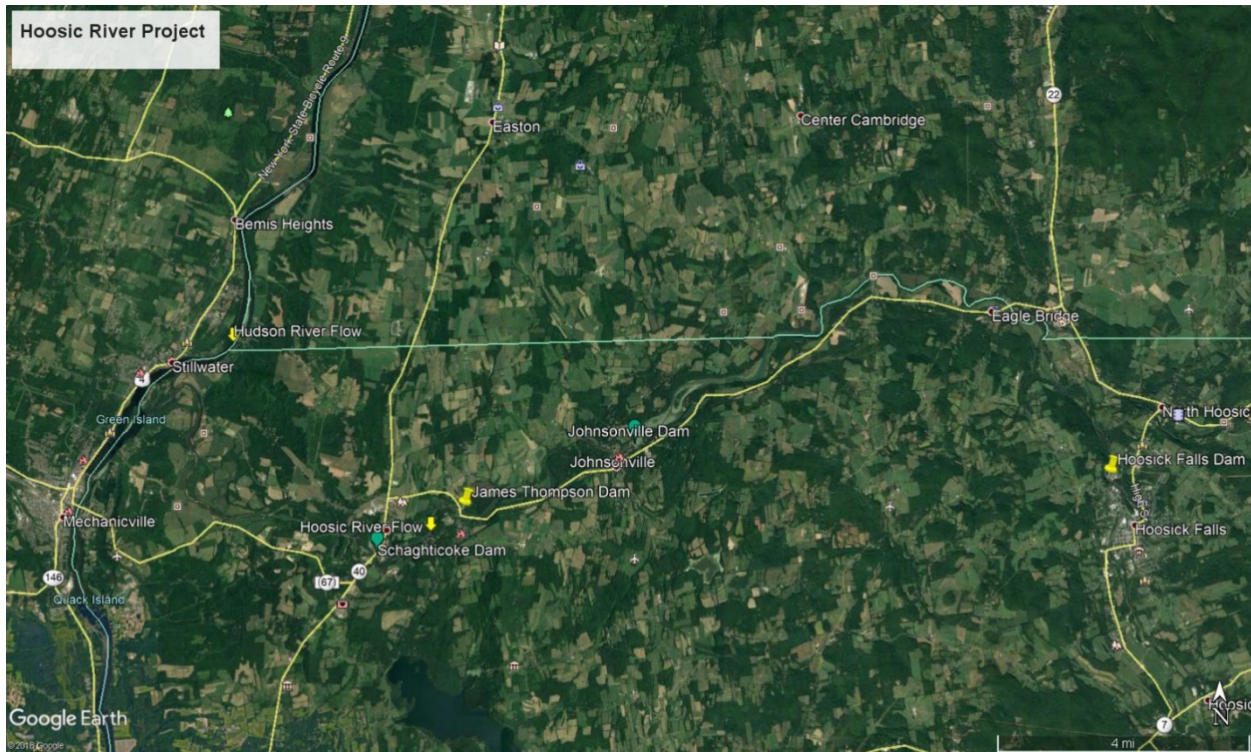
## **III. PROJECT'S GEOGRAPHIC LOCATION**

The Hoosic River originates in northwestern Massachusetts, flows northwest through Vermont, and west into New York. Within New York, the river flows west for approximately 34 miles before converging with the Hudson River near Stillwater. Approximately 48 percent of the watershed is within New York State. The major tributaries to the Hoosic River are the Owl Kill, the Walloomsac, and the Little Hoosic rivers, resulting in a cumulative drainage area of 730 square miles. The river's average gradient is 14 feet per mile, but its steepest section drops 150 feet over the 2-mile Schaghticoke gorge.

The Hoosic Project consists of two developments on the Hoosic River east of its confluence with the Hudson River, the Johnsonville Development at River Mile (RM) 13.3 and the Schaghticoke Development at RM 7.1, located in Johnsonville and Schaghticoke, Rensselaer County, New York, respectively. The Valley Falls Dam, also called the James Thompson Dam, is located between these two developments at RM 9.3. The Valley Falls Dam, FERC No. P-6411, is licensed by Valley

Falls Associates, Mercer Construction, LLC, and was installed in 1992. Outflows from the Valley Falls Dam immediately enter the head pond of the Schaghticoke development. Flow below Schaghticoke is to the east towards its confluence with the Hudson River some fourteen miles north and upstream of Troy, NY.

There is one dam upstream of the Hoosic River Project, the Hoosick Falls dam (Hoosick Falls Project) owned by Hydro Power Inc., FERC No. P-2487 at RM 25. There are no downstream dams on the Hoosic River below Schaghticoke before it merges with the Hudson River.



**Figure 1 – Dams on the Hoosic River Near the Hoosic River Project**

#### IV. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

##### Johnsonville Development

The Johnsonville development (Latitude: 42° 55' 11.0414" - Longitude: -73° 30' 28.5049") has a total catchment of 606 square miles and consists of:

- a 39-foot-high, 529-foot-long concrete gravity dam. In the past and potentially in the future, the dam was/will be topped with 2.5-foot-high wooden flashboards;
- a reservoir with a 450-acre surface area and gross storage of 6,430 acre-feet (with flashboards);
- a sluice gate and forebay structure;
- an intake structure equipped with 1-inch clear-spaced vertical trashracks; and
- A powerhouse immediately adjacent to the dam containing two turbine generators with a total installed capacity of 2.1 megawatts (MW);
- an upstream eel ramp along the retaining wall at the south abutment of the dam.

Figure 2 shows the Johnsonville development layout while Figures 3 and 4 show the dam and impoundment.



**Figure 2 – Johnsonville Development Layout**



**Figure 3 – Johnsonville Dam with Flashboards**



**Figure 4 – Johnsonville Development Impoundment**

## Schaghticoke Development

The Schaghticoke development (Latitude: 42° 53' - Longitude: -73° 35' 17.4249") has a total catchment of 619 square miles and consists of:

- a 28-foot-high, 700-foot-long concrete gravity dam topped with 2.5-foot-high pneumatic flashboards along the straight spillway and 2.5-foot-high wooden flashboards on the curved spillway;
- a reservoir with a 150-acre surface area and gross storage of 1,150 acre-feet;
- a 2,300-foot-long open canal;
- a forebay and set of forebay intake gates;
- a pipeline intake equipped with 1.0-inch clear-spaced vertical trashracks;
- an 820-foot-long, 12.5-foot-diameter steel pipeline. This pipeline directs water from the forebay downward to the bypassed reach. It passes over the bypassed reach by means of a support bridge, then heads up the other side of the river overbank to a surge tank;
- four penstocks directing water from the surge tank to the powerhouse<sup>2</sup>;
- a powerhouse containing four turbine generators with a total installed capacity of 16.4 MW. The canal, forebay, pipeline, and penstocks create a two-mile bypassed reach between the dam and the powerhouse;
- an upstream eel ramp mounted on the east abutment of the dam.

Figure 5 show the site layout, while Figures 6 through 8 show the dam and impoundment.



**Figure 5 - Schaghticoke Development Layout**

<sup>2</sup> Per follow-up communications with the Applicant on November 4, 2019, the fifth penstock listed in the FERC license was likely a now abandoned/concrete-filled penstock that fed a water-driven exciter.



**Figure 6 - Schaghticoke Development Dam Section with Pneumatic Flashboards**



**Figure 7 - Schaghticoke Development Dam Section with Wooden Flashboards**



Figure 8 - Schaghticoke Development Impoundment

V. ZONES OF EFFECT AND STANDARDS SELECTED

Five Zones of Effect (ZOE) were designated and are illustrated on Figures 9 and 10.

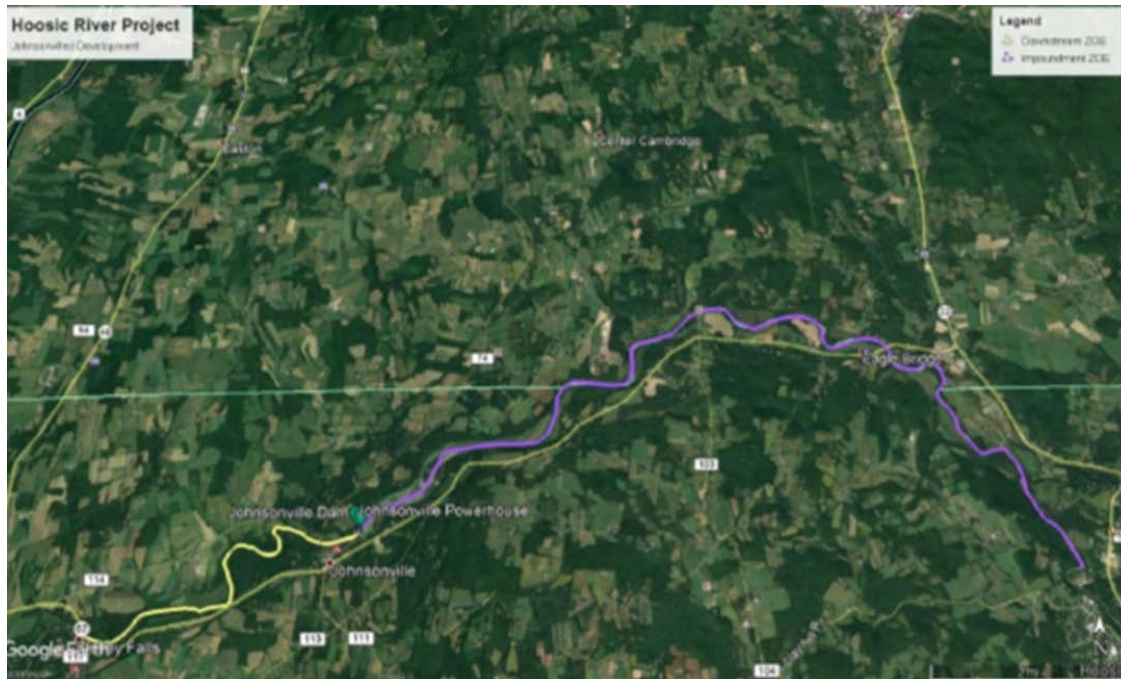
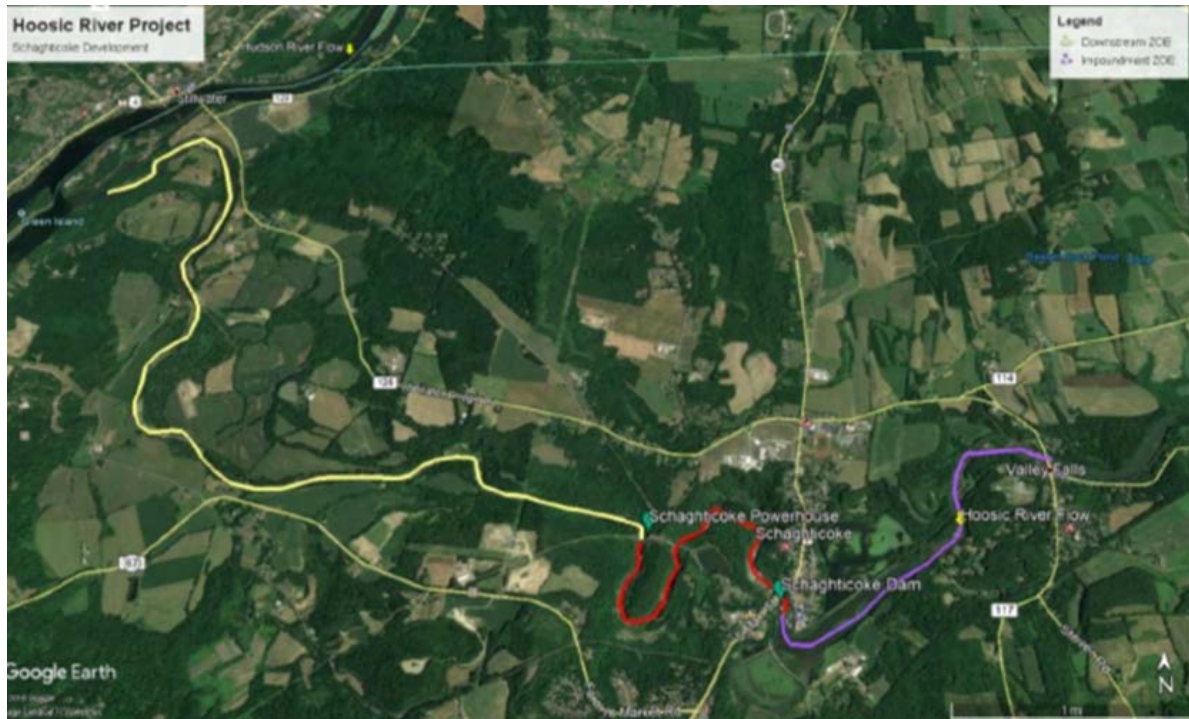


Figure 9 – Johnsonville ZOE (Purple = ZOE #1 (Impoundment); Yellow = ZOE #2 (Downstream Reach))





**Figure 10 – Schaghticoke ZOEs (Purple = ZOE #3 (Impoundment); Red = ZOE #4 (Bypass Reach); Yellow = ZOE #5 (Downstream Reach))**

The following Tables show the selected Standards, which I believe are appropriate except for Threatened and Endangered Species Protection. I believe Standard F-2 is more appropriate as only bald eagle has currently been identified as likely occurring onsite and no impacts to this species from Project operations is expected.

Details of compliance with all criteria are presented in Section IX.

**ZOE #1 – Johnsonville Impoundment**

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes	X				
B	Water Quality		X			
C	Upstream Fish Passage	X				
D	Downstream Fish Passage		X			
E	Watershed and Shoreline Protection		X			
F	Threatened and Endangered Species Protection		X	X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

**ZOE #2 – Johnsonville Downstream Reach**

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes		X			
B	Water Quality		X			
C	Upstream Fish Passage		X			
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X	X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

**ZOE #3 – Schaghticoke Impoundment**

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes	X				
B	Water Quality		X			
C	Upstream Fish Passage	X				
D	Downstream Fish Passage		X			
E	Watershed and Shoreline Protection		X			
F	Threatened and Endangered Species Protection		X	X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

**ZOE #4 – Schaghticoke Bypass Reach**

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes		X			
B	Water Quality		X			
C	Upstream Fish Passage		X			
D	Downstream Fish Passage		X			
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X	X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

**ZOE #5 – Schaghticoke Downstream Reach**

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes		X			
B	Water Quality		X			
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection		X	X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

**VI. REGULATORY AND COMPLIANCE STATUS**

The original Federal Energy Regulatory Commission (FERC) license issued to Niagara Mohawk expired in 1993 and the Project operated under an annual license in the interim period until the settlement negotiations were completed and the new license was issued on November 6, 2002. During this period, in 1999, the Hoosic River Project was transferred to Erie Boulevard Hydro, L.P. (EBH). FERC issued a draft environmental assessment (EA) on October 25, 1996, and following comments by several parties, a final EA was issued on June 30, 2000<sup>3</sup>, noting that the water quality certification appeal was ongoing.

A Hoosic River Project Settlement Offer (HRPSO) was collaboratively developed to provide for the continued operation of the Project with appropriate long-term environmental protection measures to meet diverse objectives for maintaining a balance of non-power and power values in the Hoosic River Basin. The HRPSO was signed in June 2002 by EBH, the Adirondack Mountain Club (ADK), American Rivers (AR), American Whitewater (AW), New York Rivers United (NYRU), New York State Conservation Council (NYSCC), New York Department of Environmental Conservation (NYSDEC), Rensselaer County Conservation Alliance (RCCA), Town of Schaghticoke (TOS), Trout Unlimited (TU), US Fish & Wildlife Service (USFWS), US National Park Service (USNPS) and the Village of Schaghticoke (VOC).

The HRPSO was filed with FERC on August 16, 2002<sup>4</sup>, with the majority of requirements incorporated into a new 40-year FERC license issued on November 6, 2002.<sup>5</sup> It does not appear any license amendments have been issued.

A Water Quality Certificate (WQC) (WQ-4-0103-00027/0001) was issued by the NYSDEC on October 10, 2006.<sup>6</sup> Brookfield reports that no changes to this WQC have been issued.

<sup>3</sup> <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8056035>

<sup>4</sup> <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10701472>

<sup>5</sup> <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9589353>

<sup>6</sup> <https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=10684751>

A review of the FERC database from February 2015 through November 1, 2019 found one impoundment level deviation each in 2016 and 2019, and three in 2017. None were determined to be license violations by FERC. These are discussed under *Ecological Flow Regime*.

Also, in a letter dated February 8, 2018, FERC required Brookfield to remove and not re-install the flashboards at the Johnsonville Development until FERC has approved their design and until inoperable deep gates are repaired. This direction was issued for public safety reasons since during a high-water event on January 16, 2018, less than 20-percent of the spillway flashboards failed when all flashboards should have failed. The event resulted in flooding of a nearby roadway and private property. Correspondence in 2019 between Brookfield and FERC indicated that Brookfield no longer intended to use flashboards at Johnsonville dam and planned to operate the impoundment at the lower elevation. However, the updated application to LIHI states that this decision is not final pending further evaluation. Thus, at this time, this change will not be considered a material change in the facility operation. However, a condition is recommended to address this matter.

## **VII. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI**

The deadline for submission of comments on the LIHI certification application was November 3, 2019. One comment letter from the Hoosic River Watershed Association (HRWA) was received directly by LIHI and is contained in Appendix A. Concerns are associated with the lower impoundment water levels since the flashboards have been removed. These are addressed under *Ecological Flow Regime* and *Recreational Resources*.

To ensure conformance with requirements, I made inquiries to the following agencies and stakeholders on the noted topics. Responses are discussed under the applicable criteria and a copy of the email response is contained in Appendix A. Those who responded by phone or email are noted in italics.

- Chris VanMaaren, Regional Fisheries Manager, NYSDEC – Fish passage
- *Steve Patch, U.S. Fish and Wildlife Service – Fish passage*
- *Robert Nasdor, American Whitewater – Waterwater flows and river access*
- Christopher M. Hogan, Chief, Major Project Management Unit, Division of Environmental Permits, NYSDEC – Water quality

## **VIII. DETAILED CRITERIA REVIEW**

### **A. ECOLOGICAL FLOW REGIMES**

**Goal:** The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.

#### **Assessment of Criterion Passage**

The Applicant selected **Standard A-1, Not Applicable/De Minimis Effect** for the two Impoundments and **Standard A-2, Agency Recommendation** for the two Downstream Reaches and the Schaghticoke Bypass Reach. Standard A-1 is appropriate for the impoundments as noted

on Table B-2 of the 2016 LIHI Handbook, even though there are headpond limits at the Project. There have been no changes in requirements or in the mode of operation of the Facility since it was last re-certified by LIHI.

The Project is licensed to operate as a peaking facility, with specified reservoir fluctuation limits. Although the Johnsonville dam flashboards were removed in January 2018, when the 2.5-foot flashboards failed during a high-water event, this development is still operated as a peaking facility, with fluctuations measured from the dam crest rather than the top of the flashboards.

### Impoundments

Article 403 of the FERC License and section 3.1 of the HRPOS, requires Brookfield to maintain a daily maximum reservoir fluctuation at the Johnsonville development of not more than 0.25 feet from June 1 through September 30, and 0.5 feet from October 1 through May 31; and a daily maximum reservoir fluctuation of not more than 0.5 feet at the Schaghticoke development. The WQC also requires that the reservoirs are not drawn down or refilled at a rate faster than 1 foot per hour.

The problem of erroneous headpond level readings during extreme cold weather, as experienced in 2014 at Schaghticoke, was the trigger for the 2015 LIHI certification condition. The sonic transducer again froze in February 2016, providing erroneous readings and ultimately resulting in another low pond level excursion at Schaghticoke. The problem was ultimately remedied by the installation of pressure transducers at this dam in March 2016. No excursions due to this problem have occurred since the installation.

Three impoundment excursion events occurred in 2017 at the Johnsonville development (August 31 thru September 4, September 12, and November 12 thru 19). Brookfield informed FERC that the excursion events were due to a broken gate caused by debris and that Brookfield would repair the broken gate and install a rack system to block debris from entering the sluice gates in the future. By letter dated March 5th 2018, FERC stated the deviations would not be considered a license violation. On April 12, 2018, Brookfield submitted its plan and schedule to repair all out-of-service sluice gates and submitted trash rack design, which FERC accepted by letter dated June 5, 2018. The trash rack system was subsequently installed in 2018. As of September 21, 2019, all gates have been repaired and are fully operational. No further deviations have occurred since.

As noted in their comment letter (see Appendix A), HRWA raised general concerns about impacts to aquatic wildlife due to the approximate 2.5 feet lower depth of the impoundment since the flashboards were removed in January 2018. While such effects may be occurring, the level and significance of them is unknown but are a consequence of the overriding public safety concerns about flooding that required flashboard removal. A condition has been recommended to factor in these potential impacts into the final decision concerning future use of the flashboards.

Based on review of FERC eLibrary, it appears that appropriate notifications, and drawdown and refill rates required for planned impoundment drawdowns in May 2018 and in 2019 were implemented.

### Schaghticoke Bypass Reach

In accordance with Article 402 of the FERC License and section 3.2 of the HRPOS, Brookfield is required to maintain a year-round minimum streamflow of 60 cubic feet per second (cfs) or inflow (whichever is less) into the Schaghticoke bypass reach. The application notes that the minimum bypass flow was agreed to by the FERC, USFWS and NYSDEC at the November 30, 1999, Section 10(j) meeting and was assessed in the FERC's EA. A minimum bypass flow of 60 cfs was determined to result in an increase in habitat for nearly all fish species and life stages. Aquatic insect production would also be expected to increase, and the reach would be better suited as nursery and adult habitat for all forage and game fish. Flows to the bypassed reach in excess of the minimum flow would still occur when inflow to the Project exceeds the hydraulic capacity of the turbines, which routinely occurs in the spring and occasionally from June through October. The relatively stable flow regime during this period (June through October) would coincide with the period when most young fish would be least mobile and should enhance their chances of survival (less energy would be required to find food, and they would not be as likely to be displaced downstream by high flows).

Required minimum flows to the Schaghticoke bypass reach is normally provided via an orifice in the flashboards. However, these flows are maintained during headpond excursion events by raising the low-level gates. In 2015 and 2016, there was one headpond excursion event in each year, and minimum flows were maintained by raising the low-level gates. There were no headpond excursion events at the Schaghticoke development in 2017 through November 1, 2019

In accordance with Article 406 of the new license and Section 3.5.1 (e) of the HRPOS, whitewater releases are also required in the Schaghticoke bypass reach. The releases are provided via the low-level waste gates located adjacent to the power canal intake structure at the north/west end of the Schaghticoke dam. Discharge relationships for these gates (relating gate opening, impoundment levels, and discharge) are used to monitor the magnitude of the whitewater release and up/down ramp components. These flows are discussed further under Recreational Resources.

### Downstream Reaches

Section 3.2 of the HRPSO, requires a year-round base flow of 220 cfs or inflow (whichever is less) immediately downstream of Johnsonville powerhouse and 240 cfs or inflow (whichever is less) immediately downstream of Schaghticoke powerhouse. The agreed upon base instream flows were intended to enhance the Hoosic River aquatic habitat during moderate to low flow periods in downstream reaches that were historically periodically dewatered due to hydropower operations. The base flows enhance potential habitat for most life stages of game fish such as brown trout, smallmouth bass, and walleye; forage fish (longnose dace, fallfish, and white sucker); and benthic invertebrates (mayfly, stonefly, and caddisfly). The instream base flow also enhances fishing opportunity and fish movement.

Base flows are determined using discharge-rating curves for the generating units at each development based on available efficiency data and headpond elevations and the kW output. On July 17, 2019, there was a baseflow excursion event due to a lightning strike on the National Grid line that tripped the Schaghticoke powerhouse unit offline for almost four hours. While flow did

eventually begin to spill over the dam into the bypass, the excursion occurred during the approximate one hour it took the headpond to fill and begin spilling. Via a letter dated October 30, 2019, FERC determined this base flow deviation was not a violation of the FERC license.

Based on consideration of issues reviewed, I believe the Project conditionally continues to satisfy this criterion. A condition is recommended to consider all appropriate factors into the final decision concerning reinstallation of flashboards at the Johnsonville impoundment.

*This Project Conditionally Passes Criterion A – Ecological Flow Regimes*

**B. WATER QUALITY**

**Goal:** Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.

**Assessment of Criterion Passage**

The Applicant appropriately selected **Standard B-2, Agency Recommendation** to pass this criterion for all ZOE's.

An email dated August 14, 2019 was provided in the application in which the Chief of the Major Project Management Unit of the NYSDEC indicated that the WQC issued in 2002 is still valid. No changes have been issued to the WQC and no water quality concerns appear to have been raised regarding the Project's operations.

The upper, middle and lower sections of the Hoosic River, which would include the Johnsonville and Schaghticoke development ZOE's are listed in the 2016 State of New York 303(d) List of Impaired Waters. A fish consumption advisory is in effect due to contaminated sediments as a source of PCBs. Based on past LIHI reports, the contaminated sediments are noted to legacy pollutants from past industrial discharges into the river upstream of the Project, and the FERC EA indicates that NYSDEC has not attributed this contamination to the Hoosic Project, thus, the Project is not a cause of the violation. Two inquiries were made to Chris Hogan, Chief, Major Project Management Unit NYSDEC, Division of Environmental Permit to confirm if this assessment is still accurate. Unfortunately, no response was received.

Based on this information, I believe the Project has demonstrated compliance with, and continues to satisfy this criterion.

*This Project Passes Criterion B – Water Quality*

**C. UPSTREAM FISH PASSAGE**

**Goal:** The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility.

## **Assessment of Criterion Passage**

The Applicant has appropriately selected **Standard C-1, Not Applicable/De Minimis Effect** for both Impoundments and the Schaghticoke Downstream Reach and **Standard C-2, Agency Recommendation** for the Johnsonville Downstream Reach and the Schaghticoke Bypass Reach. Due to the location of the Schaghticoke powerhouse outfall immediately at the terminus of the Bypass Reach, I believe this Standard selection is correct.

Historically, the falls at Schaghticoke limited upstream movements for most anadromous fish species in the river; however, USFWS indicated that there are sufficient ledges, cracks and flumes in the falls to likely allow American eel to ascend them. In general, the Hoosic River in the Project area supports both warm and coldwater fish species, but the fish community is dominated by warmwater species. Common species include shiner, spottail shiner, golden shiner, fallfish, carp, white sucker, rainbow and brown trout, northern pike, largemouth and smallmouth bass, rock bass, black crappie, pumpkinseed, bluegill, and yellow perch.

As identified in the 2014 LIHI recertification report, USFWS prescribed upstream and downstream passage for American eel at Schaghticoke and reserved authority for same at Johnsonville in a letter dated May 24, 1996. However, by letter dated August 28, 2002, the USFWS indicated that the HRPOS (signed in July 2002) superseded the 1996 terms and conditions, and that their 1996 Section 18 prescription should be considered modified to conform to specifications contained in the HRPOS. The FERC license and HRPSO require the phased installation of upstream eel conveyance and downstream fish movement systems at both Johnsonville and Schaghticoke. Article 408 of the license also includes reservation of authority to require the licensee to construct, operate, and maintain, or to provide for construction, operation, and maintenance of, such fish passage facilities as may be prescribed by the Secretaries of the Interior or Commerce under Section 18 of the Federal Power Act.

Upstream eel conveyance systems at both Johnsonville and Schaghticoke were completed in 2006. Since power is not available at Schaghticoke ramp location, a gravity siphon pump regulator system was installed to provide the operation flow while a ramp pump is used at Johnsonville. Due to ongoing difficulties with the Johnsonville ramp pump, an extension to get the system operational was approved by FERC in January 2008, with support from both the USFWS and the NYSDEC. Continuing problems resulted in replacement of the pump in 2009 with a solar-powered pump. Following a demonstration to the agencies on October, 28, 2009, on May 6, 2010, FERC accepted and approved the eel conveyance system and the operational flow.

Both eel ladders are operational between June 15th and September 15th. Under the HRPSO, Brookfield is not required to (1) test the effectiveness of any, or all, components of existing and future protection or passage measures and/or structures, (2) make qualitative or quantitative determinations of fish entrainment and/or mortality, or (3) provide compensation for any fish entrainment and/or mortality. (Entrainment is discussed below under Downstream Fish Passage and Protection.)

There have been no changes with the upstream eel passage ladders or their operation since last certified by LIHI. No effectiveness testing has been conducted to prove “safe and effective passage” as no testing is required. No passage issues have been identified by the USFWS per an



email received from Steve Patch of the USFWS. Appendix A contains this email which was copied to the NYSDEC. NYSDEC however did not respond. Therefore, I believe the Project continues to satisfy this criterion at this time.

*This Project Passes Criterion C – Upstream Fish Passage*

**D. DOWNSTREAM FISH PASSAGE AND PROTECTION**

**Goal:** The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. All migratory species are able to successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the Facility.

**Assessment of Criterion Passage**

The Applicant has appropriately selected with **Standard D-1, Not Applicable/De Minimis Effect** for both Downstream Reaches as there are no barriers once fish reach these ZOE's and **Standard D-2, Agency Recommendation** for the two Impoundments and the Schaghticoke Bypass Reach. Since a plunge pool needed to be developed in the Bypass Reach, it appears suitable to apply Standard D-2.

The FERC license and HRPOS require an alternate route of downstream fish movement. At Johnsonville, this is provided via the 20-cfs bypass flow implemented via a 1.33-foot-wide by 2.5-foot-high gated orifice constructed within an existing sluice gate located adjacent to the powerhouse trashrack structure on the northern end of the dam. The size of the opening exceeds the 1.0-foot minimum height typically recommended by the resource agencies. The plunge pool has a depth of at least 25 percent of the height of the free fall. At Schaghticoke, this is provided via the 60-cfs bypass flow implemented through a notch in the wooden flashboard system. The 60-cfs release is considered the minimum allowable flow to be released from the notch. The HRPOS and license limit normal impoundment fluctuations to 0.5 feet. As such, the orifice has been sized to pass 60 cfs when impoundment levels are at the bottom of the normal fluctuation, or -0.5 feet below crest of wooden flashboards (elevation 266.85 feet).

While the HRPOS required use of 1.5-inch diameter perforated plate overlays, Brookfield instead installed permanent trashracks with 1-inch clear spacing at both Johnsonville and Schaghticoke in 2006 and 2004, respectively. Such measures should prevent downstream migrant American eels, as well as many adults of other species from entering the turbines. These alternatives were approved by FERC, USFWS, and NYSDEC. As noted above, the HRPOS does not require any entrainment/mortality assessment of, or compensation for, loss of fish due to entrainment. It does not appear any assessments have been made.

There have been no changes to these downstream measures since last certified by LIHI. No downstream passage issues were identified by the USFWS when they were consulted. Thus, I believe the Project continues to satisfy this criterion.

*The Project Passes Criterion D – Downstream Fish Passage and Protection*

## E. SHORELINE AND WATERSHED PROTECTION

**Goal:** The Facility has demonstrated that sufficient action has been taken to protect, mitigate and enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.

### Assessment of Criterion Passage

The Applicant has appropriately selected **Standard E-2, Agency Recommendation** for both Impoundments and **Standard E-1, Not Applicable/De Minimis Effect** for the Bypass and Downstream Reach ZOE's.

There are no requirements for a Shoreline Management Protection Plan in the FERC license. However, the license and WQC contain requirements that offer protection of shoreline resources that include limited impoundment fluctuations, and development/implementation of erosion/sediment control plans for any new construction on the Project. There have been no changes to these requirements since last certified by LIHI. With the exception of a limited number of headpond level deviations at Johnsonville, the Project has been in compliance with these requirements. The HRWA comment letter suggested that there are shoreline impacts from exposure of typically submerged habitats to light and air due to the lowered impoundment since the flashboards were removed. As noted in the ecological flows section above, while such effects may be occurring, the level and significance of them are unknown and are a consequence of the overriding public safety concerns that led to flashboard removal.

Based on the Project boundary maps provided in the application, the Johnsonville development contains about 696.3 acres (450 acres being the impoundment) and 370.0 acres at the Schaghticoke development (150 acres being the impoundment). At the Johnsonville development, the Project boundary at the upper and middle sections along the Hoosic River above the dam includes licensee-owned lands along both sides of the river, much of which is forested, low-intensity development, or open space development (e.g. lawn, recreational development, etc.) However, closer to the dam, and along the short stretch of river downstream of the dam, the Project boundary is immediately along the river banks.

At the Schaghticoke development, the tailrace/downstream reach and about 75% of the southern boundary along the bypass reach appear to contain only flowage rights. The licensee-owned lands at this development are primarily around the northern section of the bypass reach, which contains the power facilities (e.g. powerhouse, surge tank, etc.) and forested areas. Electric Lake and forested lands surrounding it, also owned by Brookfield, are immediately upstream of the dam on the northern side.

It does not appear that any critical habitat for state endangered or threatened species (see discussion below) has been mapped in the Project vicinity, and therefore, the Project does not appear to contain areas of significant ecological value. Based on this review, I believe the Project continues to satisfy this criterion.

*The Project Passes Criterion E – Shoreline and Watershed Protection*

**F. THREATENED AND ENDANGERED SPECIES PROTECTION**

**Goal:** The Facility does not negatively impact federal or state-listed species.

**Assessment of Criterion Passage**

**Standard F-3, Recovery Planning and Action** was selected for all ZOE's although I believe that **Standard F-2, Finding of No Negative Effect**, is more appropriate, as only the Bald Eagle has been identified as occurring onsite and project operational impacts have been noted to not likely cause negative effects on this species.

Article 409 of the FERC License Order required the licensee to file an endangered species management plan and schedule to conduct surveys for the Karner blue butterfly or its obligate host species the blue lupine. During the two surveys conducted in 2003 for blue lupine and Karner blue butterfly, neither species was found. The application noted that the USFWS concurred with the finding that the Hoosic River Project is not likely to adversely affect the Karner blue butterfly.

The application noted that the NYSDEC's Environmental Resource Mapper and the Environmental Assessment Form Mapper tools were used to identify the potential occurrences of state-listed species in the Project vicinity, and that the following was found:

- Bald eagle was the only state-listed (threatened) species listed within the vicinity of the Johnsonville Development. FERC concluded in its 2002 License Order for the Hoosic River Project that bald eagles overwinter within the Project area and feed primarily on waterfowl and fish, and that the operational and recreational measures would not substantially affect the distribution and abundance of prey species and no effects on bald eagles are expected.
- The provancher's fleabane was the only state-listed species listed within the vicinity of the Schaghticoke Development. The provancher's fleabane is a biennial vascular plant that grows along cliffs along the Hudson River and on seasonally exposed and scoured calcareous bedrock of large rivers, specifically in rocky crevices along rivers and streams where it can receive splashed water. Based on these habitat conditions, the provancher's fleabane would most likely exist in the bypass reach if it is present within the Project at all.

A response from the NYSDEC, New York Natural Heritage Program, dated September 6, 2019, was provided to LIHI after the final application was submitted. It only identified the presence of bald eagle in the Project vicinity, and not provancher's fleabane (see Appendix A). It did note that the species may be breeding in the area. As significant construction-related activities would require review from agencies including NYSDEC, it is assumed that assessment of possible impacts to this, and other state-protected species that may be found onsite, would be made at that time. No planned project upgrades were noted in the application.

Based on the above information, I believe the Project can be considered to continue to pass this criterion.

***The Project Passes Criterion F – Threatened and Endangered Species Protection***

## G. CULTURAL AND HISTORIC RESOURCE PROTECTION

**Goal:** The Facility does not inappropriately impact cultural or historic resources that are associated with the Facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.

### Assessment of Criterion Passage

The Applicant has appropriately selected **Standard G-2, Agency Recommendation** to pass the Cultural and Historic Resource Protection criterion for the Project for all ZOE's.

During relicensing, the New York State Office of Parks, Recreation, and Historic Preservation (SHPO) determined that the Schaghticoke development meets criteria A and C for inclusion in the National Register of Historic Places as an intact example of an early 20th century hydroelectric-generating facility. Several features, including the Francis turbine and General Electric generators, ogee concrete gravity dam, gates, and powerhouse, were found to have retained their integrity and significance.

The FERC license incorporates a Programmatic Agreement (PA) and Cultural Resource Management Plan (CRMP) prepared in consultation with the New York State (SHPO) for addressing the historic character of this Project. The CRMP submitted to FERC (privileged document) was approved on January 31, 2006. In that 2006 approval order, FERC noted that *"In an earlier letter, dated May 1, 1991, in a response to the project's license application, the SHPO concluded that "the project will have No Adverse Effect upon cultural resources in or eligible for inclusion in the National Register of Historic Places."*

A requirement of the CRMP is the filing of an annual report on activities conducted at the Hoosic River Project that may affect cultural resources. The CRMP also provides measures to be taken for undiscovered historic or archaeological resources prior to and during any ground-disturbing activities.

Based on review of reports files under these requirements for 2014 through 2018, there has been no land disturbance in the Project area, thus no unidentified resources have been discovered. The reports for 2017 and 2018 were combined in one report dated May 8, 2019, but given no activities were conducted, a delay of the 2017 report is not significant. Therefore, I believe the Project continues to satisfy this criterion.

### *The Project Passes Criterion G - Cultural and Historic Resource Protection*

## H. RECREATIONAL RESOURCES

**Goal:** The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.

## Assessment of Criterion Passage

The Applicant has selected and demonstrated compliance with **Standard H-2, Agency Recommendation** for all ZOE's.

There have been no changes to the recreational facility requirements for this Project, specified by the HRPOS or license, since last certified by LIHI.

Article 406 of the license required development and approval of a Recreational Plan. This plan detailed the specifics for the first three facilities listed below and outlines the program for scheduled whitewater releases addressed in item #4. This plan was issued in May 2004<sup>7</sup> and amended by FERC in an order dated April 7, 2005. The FERC amendment added the requirements for access to Electric Lake (item #5). The HRPOS, but not the license, requires items 6 and 7.

1. Access along Washington County Route 59 - Off-road parking for up to 5 cars and some minimal signage directing users to a fishing and river access point.
2. Access at the Johnsonville dam - A parking area for up to 5 cars, a car-top boat launch and a canoe portage route with put-in/take-out locations upstream and downstream of the dam on the south side of the river.
3. River access at the Schaghticoke powerhouse - An access point designated in the vicinity of the Schaghticoke powerhouse with parking for up to five cars. Signage strictly enforcing parking limitations to this location so as to not impede normal Project operation and emergency actions.
4. Scheduled whitewater releases and access at the Schaghticoke bypass. Release frequency is based on availability of appropriate flows, the number of people boating the release in the previous year, and other criteria spelled out in the HRPOS. Twenty-five or more boaters in one year would increase the next year's releases by one event. Attendance by less than ten boaters would reduce the number of releases by one. A minimum of one release per year is required. Currently, only one release per year is provided with the release occurring on Saturday or Wednesday evening on alternate years. Also, every five years, Brookfield and American Whitewater will reevaluate, at a minimum, the following aspects of the scheduled whitewater release events to determine whether to modify annual releases and the release schedule for the succeeding five year period including: 1) amount of whitewater usage and trends; 2) timing/schedule of releases; 3) boater conduct; 4) types of craft used; 5) put-in used.
5. Access to Electric Lake just upstream of the Schaghticoke dam, however no facilities, signage or other improvements are required.
6. Development of a Fisherman's Lane fishing and boat access facility at the Schaghticoke impoundment, including signage, a car-top boat launch, and an Americans with Disabilities Act compliant fishing platform that was conveyed to the Town of Schaghticoke for future

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<sup>7</sup> <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10159726>

maintenance. Shoreline fishing and general access to the river and the Schaghticoke impoundment are provided at this location.

7. Ensure access to the Schaghticoke powerhouse recreational facilities across land not owned by the licensee. Access is limited to daylight hours only from March 15 through November 30.

Also, the HRPOS specifically states:

*“The Licensee shall allow free public access to all lands within the FERC project boundary associated with each development covered by this Settlement Offer, with the exception of those lands and facilities specifically related to hydroelectric generation where public safety would be a concern. Lands and facilities where public access will be precluded may include, but are not necessarily limited to, dams, dikes, gates, intake structures, water conveyance structures, powerhouses, substations, transmission lines, and certain access roads leading to such facilities.”*

The application and the 2014 LIHI certification report state that all facilities have been developed. A FERC Environmental Inspection Report from 2012 notes that the recreational facilities appeared to be in good condition and well maintained. Past Form 80 Reports indicate recreational use of the facilities is not extensive. It also appears that the Project waterways are inundated with water chestnut, an invasive species, found throughout the waters of both developments. In their 2012 report, FERC noted that this nuisance species is visually unsightly, clogs the trashracks, and impedes boating, swimming, and fishing.

Based on New York Invasive Species Clearinghouse information *“These mats create a hazard for boaters and other water recreators. The density of the mats can severely limit light penetration into the water and reduce or eliminate the growth of native aquatic plants beneath the canopy. The reduced plant growth combined with the decomposition of the water chestnut plants which die back each year can result in reduced levels of dissolved oxygen in the water, impact other aquatic organisms, and potentially lead to fish kills. The rapid and abundant growth of water chestnut can also out-compete both submerged and emergent native aquatic vegetation.”*<sup>8</sup> Review of available information suggests that if the invasive species was established prior to implementation of the final part 575 regulations dealing with invasive species in New York (adopted in July 2014 and became effective on March 10, 2015), then the owner of the property does not have the obligation under state law to manage the species.<sup>9</sup>

The Applicant stated that no agency has required Brookfield to implement any measures to combat this invasive plant problem. Based on follow-up communications with the Applicant, it appears that Brookfield made past financial contributions to the Rensselaer Land Trust (RLT) to help support their program which, in cooperation with the HRWA, and Johnsonville Fire Department, have for several years cut a pathway through the water chestnut mats at the Johnsonville impoundment so that boaters can navigate access to/from the water and the Project’s boat launch on River Road.

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<sup>8</sup> [http://nyis.info/invasive\\_species/water-chestnut/#Ecological](http://nyis.info/invasive_species/water-chestnut/#Ecological)

<sup>9</sup> [https://www.dec.ny.gov/docs/lands\\_forests\\_pdf/islist.pdf](https://www.dec.ny.gov/docs/lands_forests_pdf/islist.pdf)

The HRWA comment letter states that the 2019 water chestnut pull was cancelled as low water conditions, due in part to the elimination of flashboards, prohibited floating of canoes or kayaks for the work. Thus, it appears that the Project's FERC mandated public boat facility is now unusable under certain conditions. A condition is recommended regarding this public use concern, which is exacerbated by the presence of the water chestnut.

Discussion with Bob Nasdor of American Whitewater on October 25, 2019, indicated a perceived lack of compliance with the HRPOS in the past including:

- lack of access at the Schaghticoke bypass as a result of fencing and a locked gate installed within the past five years;
- required whitewater releases were not provided from 2012 through 2016<sup>10</sup>, with resumption of one release event a year in 2018 (Saturday) and 2019 (Wednesday evening);
- no meetings were held to review the whitewater release program in the past ten years.

Mr. Nasdor stated that American Whitewater initiated a dispute resolution process allowed under the HRPOS in 2017. According to the Applicant, releases were suspended due to lack of interest by the boating community and Brookfield reached out to American Whitewater to discuss the issue which resulted in negotiations.

A copy of the agreement reached is contained in Appendix A. As a result, the single release per year was started again in 2018, and a procedure has been established for boaters to contact Brookfield to gain access through the gate when flow conditions meet specific criteria. However, the agreement does not address resumption of five-year program review meetings, and a meeting to evaluate the program has not yet been held. Mr. Nasdor stated that no sign providing a contact number to have the gate opened has been installed, so the general public is not aware of this opportunity except via the American Whitewater website. The agreement between Brookfield and American Whitewater does not address how the notification procedure would be made available to the public. He noted that the number of boaters using the bypass release is limited (less than 25 boaters each in 2018 and 2019) in part due to the difficulty of the beginning of the bypass reach which goes over the Schaghticoke falls. While easier stretches exist downstream of the falls, it requires a few miles of portage of the boats to reach that area. Due to the steepness of the river banks, another access point is not feasible.

It should be noted that license article 406 (subsection 6) requires Brookfield to report to FERC the schedule and number of releases, number of boaters, and any changes to the program that result from the 5-year meetings/reviews. No such submittals were found in the FERC eLibrary.

While it appears that the releases have been re-started and some bypass access provisions have been provided, I have recommended a condition to address two other improvements in this whitewater release program.

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<sup>10</sup> Dates of the whitewater releases were obtained from the American Whitewater website: In 2011 a release was conducted after several postponements and no boaters showed up. As a result, Brookfield Renewable stopped conducting releases until 2017. In 2017 a release was scheduled for Saturday April 22 and fewer than 25 boaters came out.

Based on my review, I believe the Project will continue to meet the requirements of this criterion, provided the recommended conditions addressing recreational access and use at both the Johnsonville impoundment and Schaghticoke bypass are satisfied.

*The Project Conditionally Passes Criterion H – Recreational Resources*

**IX. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION**

Based on my review, I believe that this Project conditionally meets the requirements of a Low Impact facility and recommend it be re-certified for a five-year period with the conditions noted below.

**Condition 1:** Within one year from the effective date of this re-certification, the Owner shall notify LIHI of their final decision about whether or not the Johnsonville flashboards will be replaced. Consideration must be given to the environmental and recreational impacts associated with continued absence of the flashboards, especially the use of the public boat launch site required by the FERC license. If it is determined that the flashboards will be replaced, the notification shall include a copy of the notification to FERC, the Owner’s schedule for submission of the flashboard failure design for FERC approval and the schedule for reinstallation. If the decision is to not replace the flashboards, the notification shall include an assessment of the effects of this “material change” in Project operations on applicable LIHI criteria and how access will be accommodated at the Johnsonville boat launch. LIHI reserves the right to modify the Project certification pending results of the assessment.

**Condition 2:** The Owner shall post a sign by April 1, 2020, at the access area used by whitewater boaters at the Schaghticoke bypass providing, at a minimum: the phone number to call for access, that access is allowed between sunrise and two hours before sunset, and the required flow conditions for access (flow of at least 1,920 cfs at USGS river gage at Eagle Bridge (gage no. 01334500)). A meeting with American Whitewater to discuss the release program shall be conducted by April 1, 2020, with a commitment to hold such meetings every-five years thereafter in accordance with the Settlement Agreement. Annual reporting to FERC required under license article 406 shall also be resumed. Copies of all correspondence, meeting notes, and confirmation of sign installation shall be submitted to LIHI in the next annual compliance submittal due in July 2020, and copies of future meeting notes and FERC filings shall be submitted in annual compliance statements thereafter.



**Appendix A**  
**Documents Referenced in This Report**



## Hoosic River Watershed Association

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November 2, 2019

Maryalice Fischer  
Certification Program Director  
Low Impact Hydropower Institute  
329 Massachusetts Ave, Suite 6  
Lexington, MA 02420

RE: Hoosic River LIHI Certification 13, FERC project 2616

Dear Ms. Fischer:

As the President of the Hoosic River Watershed Association (aka HoorWA), an organization that has existed for 33+ years protecting and advocating for the Hoosic River Watershed, I feel compelled to comment upon Brookfield's application for LIHI certification. As you may have learned from other communications with Kristina Younger of the Rensselaer Land Trust, our organization (HoorWA) annually works with the Rensselaer Land Trust ([renstrust.org](http://renstrust.org)) on several projects including the removal of water chestnuts at the Johnsonville dam. The removal of water chestnuts is necessary to create a narrow path through these invasive species to the shoreline. Unfortunately however, this past year the project was cancelled due to low water conditions and the inability to float a kayak or canoe into the boat take-out area to remove the water chestnuts near the dam. Later research determined the 2.5 feet high flashboards on the dam were not being used, thus contributing to the low water conditions. As an advocate for the Hoosic River to maintain and/or improve recreational opportunities, this is not a desirable situation. HoorWA's webpage (see [HoorWA.org](http://HoorWA.org)) now includes a low water warning message to avoid that area. Admittedly, sedimentation is also contributing to the problem of low water levels however by not having the added water depth in that area, the recreational use (relative to boating) has vanished! Therefore, if I understand your criteria for LIHI certification, three criteria are **NOT satisfied** at this time.

The low water conditions:

Affect the **Ecological Flow Regimes** in a negative way – by reducing the historical water levels for the aquatic wildlife.

Affect the **Watershed and Shoreline protection** in a negative way - by increasing the air and light exposure of the former aquatic conditions normally submerged.

Affect the **Recreational resource** in a negative way – by removing the opportunity of individuals to canoe/kayak this area.

Thus in your certification process, please consider compelling the applicant to re-utilize the 2.5 flash boards or find some other method to return this area into a recreational resource.

Sincerely,

A handwritten signature in black ink that reads "Andrew Kawczak". The signature is written in a cursive style with a large, sweeping initial 'A'.

Andrew Kawczak

Email: [akawczak@yahoo.com](mailto:akawczak@yahoo.com)

President, Hoosic River Watershed Association

P.O. Box 669

Williamstown, MA 01267

From: "Patch, Stephen" <stephen\_patch@fws.gov>  
To: PBMwork@maine.rr.com  
Cc: "chris.vanmaaren@dec.ny.gov" <chris.vanmaaren@dec.ny.gov>  
Bcc:  
Priority: Normal  
Date: Thursday October 24 2019 3:06:51PM  
Re: [EXTERNAL] Fish passage at the Hoosic River Project

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To the best of my knowledge, the licensee is in full compliance with all license conditions which were agreed upon as part of a comprehensive offer of settlement signed by the licensee, resource agencies, and other stakeholders. We are not aware of any problems with either the eel ladders or the downstream passage facilities. No effectiveness testing has been conducted at these facilities, but they were designed in consultation with the Service's fishway engineers.

On Thu, Oct 24, 2019 at 2:48 PM <[PBMwork@maine.rr.com](mailto:PBMwork@maine.rr.com)> wrote:

Hi

I am the independent reviewer for the Low Impact Hydropower Institute who is evaluating the application for recertification submitted by Brookfield Renewable for the Hoosic River Project (FERC P-2616) on the Hoosic River. I was wondering if you would provide me input on your knowledge on:

- 1) how the upstream passage for American eel is performing. I am aware that no effectiveness testing was required, but I didn't know if you are aware of any issues or concerns on these two eel ladders.
- 2) whether or not there have been any issues associated with the downstream passage measures at these two dams. I understand that downstream passage at Schaghticoke Dam is via a year round 60-cfs instream flow, or inflow, through an orifice constructed with the 2.5-foot-high wooden flashboard section of the Schaghticoke Dam near the vicinity of the east end of the dam and at Johnsonville Dam, its via the 20 cfs bypass flow implemented via a 1.33-foot-wide by 2.5-foot-high gated orifice constructed within an existing sluice gate located adjacent to the powerhouse trashrack structure on the northern end of the dam.

Also, if there are any comments in general you would like to share with me regarding your interface with Brookfield (or Erie Boulevard) at this Project, please feel free to do so. If you prefer to respond verbally, please tell me when it would be best for me to call you.

Thanks for your time.

Pat McIlvaine

--

Steve Patch  
Fish & Wildlife Biologist  
U.S. Fish & Wildlife Service  
New York Field Office (Region 5)  
3817 Luker Rd.  
Cortland, NY 13045  
(607) 753-9334 (voice)  
(607) 753-9699 (fax)  
<http://nyfo.fws.gov> (web)  
[stephen\\_patch@fws.gov](mailto:stephen_patch@fws.gov) (email)

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program  
625 Broadway, Fifth Floor, Albany, NY 12233-4757  
P: (518) 402-8935 | F: (518) 402-8925  
[www.dec.ny.gov](http://www.dec.ny.gov)

September 6, 2019

Stephen Byrne  
WSP USA  
117 Kendrick Street, Suite 400  
Needham, MA 02494

Re: Hoosic River Hydroelectric Project -- Johnsonville and Schaghticoke Developments  
(FERC No. 2616)  
County: Rensselaer Town/City: Pittstown, Schaghticoke

Dear Mr. Byrne:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

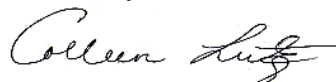
Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

Our database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 4 Office, Division of Environmental Permits, as listed at [www.dec.ny.gov/about/39381.html](http://www.dec.ny.gov/about/39381.html).

Sincerely,



Colleen Lutz

Assistant Biologist

New York Natural Heritage Program

1048



**The following state-listed animals have been documented at the project site.**

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

**For information about any permit considerations for the project, contact the NYSDEC Region 4 Office, Division of Environmental Permits, at [dep.r4@dec.ny.gov](mailto:dep.r4@dec.ny.gov).**

A listing of Regional Offices is at <http://www.dec.ny.gov/about/558.html>.

**The following species have been documented at the Johnsonville area of the project site. Individual animals may travel 1 miles from documented locations.**

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>FEDERAL LISTING</i>
<b>Bald Eagle</b> <i>Breeding</i>	<i>Haliaeetus leucocephalus</i>	Threatened	

12656

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage’s Conservation Guides at [www.guides.nynhp.org](http://www.guides.nynhp.org), and from NYSDEC at [www.dec.ny.gov/animals/7494.html](http://www.dec.ny.gov/animals/7494.html).

November 22, 2017

P-2616-NY, Hoosic River  
Schaghticoke Development  
Erie Boulevard Hydropower, LP

Mr. Bob Nasdor  
Northeast Stewardship Director  
American Whitewater  
365 Boston Post Road, Suite 250  
Sudbury, MA 01776

Dear Mr. Nasdor,

On April 12, 2017, representatives from Erie Boulevard Hydropower, L.P. ("Erie"), American Whitewater, New York State Department of Environmental Conservation, New York State Conservation Council, United States Fish and Wildlife Service, and the Village of Schaghticoke, all signatories to the Hoosic River Settlement Agreement, convened a meeting at Brookfield's Queensbury office. The meeting was organized by Erie at the request of American Whitewater and was initiated through the Dispute Resolution Process as outlined in the Settlement Agreement. The purpose of the meeting was for American Whitewater to air their grievances as it related to 1) previously missed whitewater releases and 2) the installation of a fence by Erie which restricted access to the bypass reach. At the conclusion of the meeting Erie and American Whitewater agreed that to address the first grievance, Erie would resume whitewater releases in accordance the Settlement Agreement and Whitewater Recreation Plan. Erie also agreed to evaluate options for providing access to the bypass reach for the specific purpose of whitewater recreation. Erie committed to a follow-up meeting with the signatories in which the options would be discussed.

On May 31, 2017, a second meeting was convened at Brookfield's Queensbury office. All the signatories were invited to attend however the only participants were American Whitewater and Erie. Following such meeting, Erie had evaluated several options to address American Whitewater's second grievance, including providing a means of alternate access. Alternate access routes were deemed infeasible due to limited property ownership and/or incredibly steep terrain that did not lend itself to foot traffic. Erie determined the most feasible method for providing access was to develop an access procedure by which a boater would contact Erie, and so long as some minimum requirements were met, the boater would be given access to the bypass reach via the locked gate in the fence along Mill Street. This approach was discussed with American Whitewater and was found to be agreeable. The meeting concluded with Erie committing to further developing the access procedure.

Erie has developed an internal procedure for providing access to boaters interested in accessing the Schaghticoke bypass reach for the purposes of whitewater kayaking. A summary of that procedure, and how a whitewater boater will interact with Brookfield follows:

To initiate the procedure, the flow in the bypass reach must be at least 800 cubic feet per second (cfs). To determine if the flow in the Hoosic River has met the minimum flow requirement the interested boater should view the USGS river gage at Eagle Bridge (gage no. 01334500). If the flow measured at the gage exceeds 1,920 cfs then the minimum flow requirement for an unscheduled release has been met. The boater will also need to consider the time of day. The gate will be opened for a boater anytime between sunrise and two hours before sunset. So long as the flow and time of day requirement have been met, the interested boater should then contact Brookfield's North American System Control Center (NASCC) at (877) 856-7466 and request the Shift Supervisor. The boater will inform the Shift Supervisor that they are a boater interested in gaining access to the Schaghticoke bypass reach for the purposes of whitewater boating. The NASCC will verify that the flow requirement has been met, and if so, will dispatch a local Operator to unlock the gate. The gate will remain open throughout the course of the day so long as flows in the bypass reach remain above the 800 cfs minimum. In the interest of both the safety of the public and Brookfield's employees the gate will be closed two hours before sunset. Boaters are expected to utilize appropriate watercrafts. Helmets and personal flotation devices are required. Rafts, tubes, and non-appropriate watercraft are not allowed. Only properly equipped boaters will be provided access through the gate. Boaters that are not properly equipped can be denied access or asked to leave the river. Brookfield requests that boaters enter their name on a sign-in log for purposes of tracking the boater usage during unscheduled releases.

Brookfield appreciates American Whitewater's cooperation with this effort. Brookfield has a strong commitment to the safety of the public and their employees but also understands the River is a shared resource and that American Whitewater understands the inherent risks associated with whitewater boating. In connection therewith, we trust that American Whitewater will advise its members that access to the river from Erie's property will be done so at their own personal risk and peril. Should you have any questions regarding the procedure, please contact Mr. Daniel Maguire, the New York Region Compliance Manager ([danny.maguire@brookfieldrenewable.com](mailto:danny.maguire@brookfieldrenewable.com)).



Sincerely,

A handwritten signature in black ink, appearing to read 'IAB', with a long horizontal flourish underneath.

Ian Borlang  
Asset Manager  
Atlantic Region  
Brookfield Renewable

Cc: J. Elmer (Brookfield)  
R. Shantie (Brookfield)  
M. Johnson (Brookfield)  
D. Maguire (Brookfield)  
B. Zakrajsek (Brookfield)  
P. Averell (Brookfield)