

REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE HAILESBORO 3, 4, & 6 PROJECTS

Prepared by Stephen Byrne
April 17, 2023

I. INTRODUCTION

This report summarizes the review findings of the application submitted by Hydro Development Group Acquisition, LLC (HDGA), a subsidiary of Patriot Hydro, LLC (Applicant or licensee) to the Low Impact Hydropower Institute (LIHI) for certification of the Hailesboro No. 6 Hydroelectric Project (FERC No. 3181, exempt), the Hailesboro No. 4 Hydroelectric Project (FERC No. 6058, licensed), and the Hailesboro No. 3 Hydroelectric Project (FERC No. 5633, exempt). The Hailesboro No. 6 Project is a 900-kW facility that operates in a run-of-river mode and is located the Oswegatchie River at river mile 68 in St. Lawrence County, New York. The Hailesboro No. 4 Project is a 1.9-MW facility that also operates in a run-of-river mode and is located just downstream of the Hailesboro No 6 Project. The Hailesboro No. 3 Project is a 1.0-MW facility that also operates in a run-of-river mode and is located downstream of the Hailesboro No. 4 Project, at river mile 67. On February 3, 2023, LIHI received a complete application package for certification of the three Projects. This current review was conducted using the 2nd Edition LIHI Certification Handbook.

II. PROJECT'S GEOGRAPHIC LOCATION

The Hailesboro Projects are located on the 132-mile-long Oswegatchie River in St. Lawrence County, New York (Figure 1). The Hailesboro No. 3 Project dam is the 6th dam on the Oswegatchie River upstream of the river mouth and 5 dams are also upstream of the Hailesboro No. 6 Project, including [Emeryville, LIHI #144](#), some developments of the [Oswegatchie Project, LIHI #161](#) (two developments are located downstream of the Hailesboro Projects), and [Newton Falls, LIHI #32](#). The Hailesboro Projects are located in a remote area surrounded by undeveloped, privately owned land with some farmland in the vicinity but not directly adjacent to the Project boundaries. The headwaters of the Oswegatchie River are in the Adirondack Mountains and the river flows generally to the west and then north before flowing into the St. Lawrence River in Ogdensburg, New York. The river is split into three branches upstream (Island Branch) and between the Projects that recombine downstream of Hailesboro No. 3.

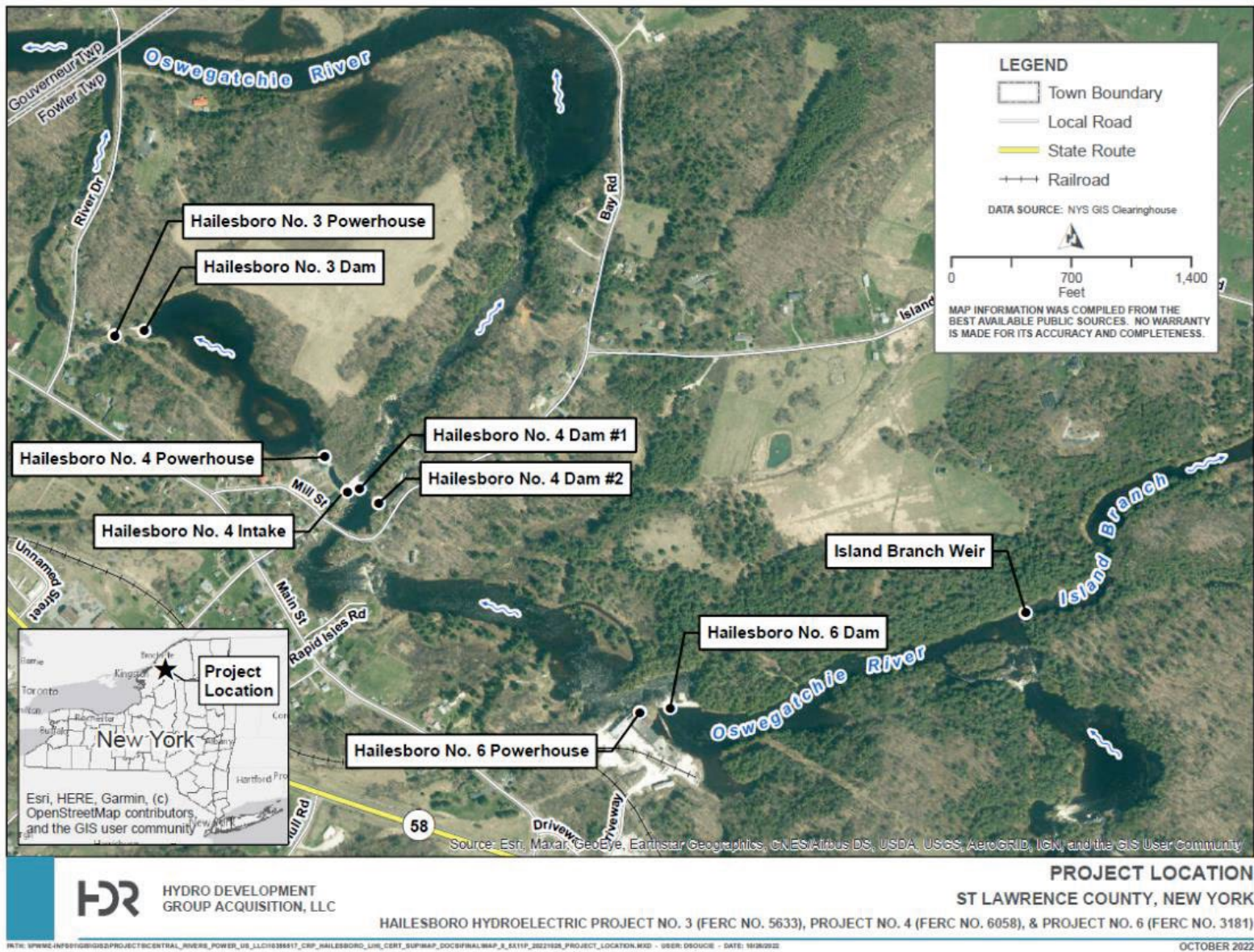


Figure 1. – Hailesboro Projects Locations

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Hailesboro No. 6 dam was originally constructed around 1930. The Project consists of (1) a 10-foot-high and 150-foot-long reinforced concrete gravity overflow-type dam with a crest elevation of 487 feet National Geodetic Vertical Datum (NGVD); (2) a reservoir with a surface area of 4 acres and negligible storage capacity at normal surface elevation of 487 feet NGVD; (3) a 40-foot-wide and 70-foot-long intake structure with gates and trashracks along the south (left) bank; (4) a powerhouse containing two horizontal double runner turbines rated at 800 horsepower and 500 horsepower, connected to two generators rated at 550 kilowatts (kW) and 350 kW, respectively, at a head of 19 feet and at a flow of 700 cubic feet per second (cfs); (5) a short tailrace; (6) electrical switchgear; (7) a 75-foot-long 2.3 kilovolt (kV) transmission line; and (8) appurtenant facilities (Figures 2-3).

The Hailesboro No. 4 dams were built around 1936. The Project consists of (1) a concrete gravity-type dam comprised of: (i) the 105-foot-long, 14-foot-high dam #1 surmounted by a 2-foot-high pneumatic crest gate; and (ii) the 58-foot-long, 5-foot-high dam #2 surmounted by 2-foot-high wooden flashboards; (2) a reservoir with a surface area of 2 acres and a gross storage volume of 20 acre-feet at normal water surface elevation 461 feet NGVD; (3) a gated intake structure with steel trashracks which have 1.75-inch clear spacing; (4) a 170-foot-long concrete-lined forebay canal with a sluice gate; (5) a reinforced concrete and concrete masonry powerhouse containing two horizontally mounted, double runner, Francis-type turbine units; one 900-kW generating unit and one 1,000-kW generating unit for a total installed capacity of 1,900 kW; (6) a 2.4/23-kV substation, and a 50-foot-long, 23-kV transmission line; (7) appurtenant facilities; and (8) a 73-foot-long by 3-foot-high concrete gravity diversion dam (Island Branch Weir), topped with 1-foot-high wooden flashboards, located at the entrance of the Island Branch of the Oswegatchie River, notched to provide a 30 cfs minimum flow into the bypassed reach (Figures 4-5).

The Hailesboro No. 3 dam was originally constructed around 1910. The Project consists of (1) a 16-foot-high, 68-foot-long reinforced concrete dam having a 24-foot-long spillway section with crest elevation 427.2 feet NGVD and having an intake section at the left (south) abutment and a gated sluiceway section at the right abutment; (2) a reservoir with a surface area of 6.5 acres and negligible storage capacity at normal surface elevation of 427.2 feet NGVD; (3) a timber gate intake structure, a 90-foot-long, 9-foot-diameter penstock, a 95-foot-long, 8.5-foot-diameter penstock, and a concrete intake box containing two turbine units; (4) a powerhouse containing two horizontal S. Morgan Smith 500 kW generating units; (5) a tailrace; (5) a substation; (6) appurtenant facilities; and (7) a 0.25-mile-long 2.3-kV transmission line (Figures 6-7).



Figure 2. – Photograph of Hailesboro No. 6 Project (aerial) showing the Impoundment, Log Boom, Boat Barrier, Dam, Bypassed Reach, Intake Structure, Powerhouse, and Tailrace.



Figure 3. – Photograph of Hailesboro No. 6 Project (aerial) looking downstream to Hailesboro 4 Project.



Figure 4. – Photograph of Hailesboro No. 4 Project (aerial looking downstream) showing Dam #1 (on left), Dam #2 (on right), Bypassed Reach, Forebay Canal, Powerhouse, and Downstream Area (on left of photo).



Figure 5. – Photograph of Island Branch Weir.



Figure 6. - Photograph of Hailesboro No. 3 Project (aerial looking upstream) showing Impoundment, Headgate, Powerhouse and Intake Concrete Box, and Transmission Line.



Figure 7. - Photograph of Hailesboro No. 3 Project (looking upstream) showing Headgate, Bypassed Reach, Concrete Intake Box, Powerhouse, Tailrace, and Transmission Line.

IV. **ZONES OF EFFECT AND STANDARDS SELECTED**

A total of eight Zones of Effect (ZOE) were designated by the Applicant across the three Projects and were determined to be appropriate (Figure 8). Zone 1 includes the Island Branch of the Oswegatchie River from the Island Branch Weir downstream to the confluence with the Oswegatchie River and the Gouverneur Project (FERC P-14635) impoundment located downstream of Hailesboro No. 3. Zone 2 includes the Hailesboro No. 6 impoundment. Zone 3 includes the Hailesboro No. 6 bypassed reach. Zone 4 includes the Hailesboro No 6 tailrace area and the Hailesboro No. 4 Impoundment. Zone 5 includes the Hailesboro No. 4 bypassed reach from the two project dams downstream to the Gouverneur Project impoundment. Zone 6 includes the Hailesboro No. 4 tailrace area and the Hailesboro No. 3 impoundment. Zone 7 includes the Hailesboro No. 3 bypassed reach and Zone 8 includes the Hailesboro No. 3 tailrace area. Table 1 shows the Standards selected for each criterion for the eight ZOE. Where applicable, reviewer recommendations for alternate standards are shown in **red**.

Table 1. Standards Matrix for the Hailesboro Projects

Zone No., Zone Name, and Standard Selected (including PLUS if selected)	River Mile at upper and lower extent of Zone	CRITERION							
		A	B	C	D	E	F	G	H
		Ecological Flows	Water Quality	Upstream Fish Passage	Downstream Fish Passage	Shoreline and Watershed Protection	Threatened and Endangered Species	Cultural and Historic Resources	Recreational Resources
1. Island Branch	4 miles	2	1	1	1, 2	1, 2	2	1	1
2. Hailesboro No. 6 impoundment	68.5 – 68.2	1	1	1	1	1	2	1	1
3. Hailesboro No. 6 bypassed reach	68.2 – 68.1	2, 1	1	1	1	1	2	1	1
4. Hailesboro No. 6 tailrace Hailesboro No. 4 impoundment	68.1 – 67.7	1, 2	1	1	1, 2	1, 2	2	1	2
5. Hailesboro No. 4 bypassed reach	0.4 miles	2	1	1	1, 2	1, 2	2	1	1
6. Hailesboro No. 4 tailrace Hailesboro no. 3 impoundment	67.7 – 67.5	1	1	1	1	1, 2	2	1	2
7. Hailesboro No. 3 bypassed reach	67.5 – 67.45	2	1	1	1, 2	1	2	1	1
8. Hailesboro No. 3 tailrace	67.45 – 67.1	1	1	1	1	1	2	1	1

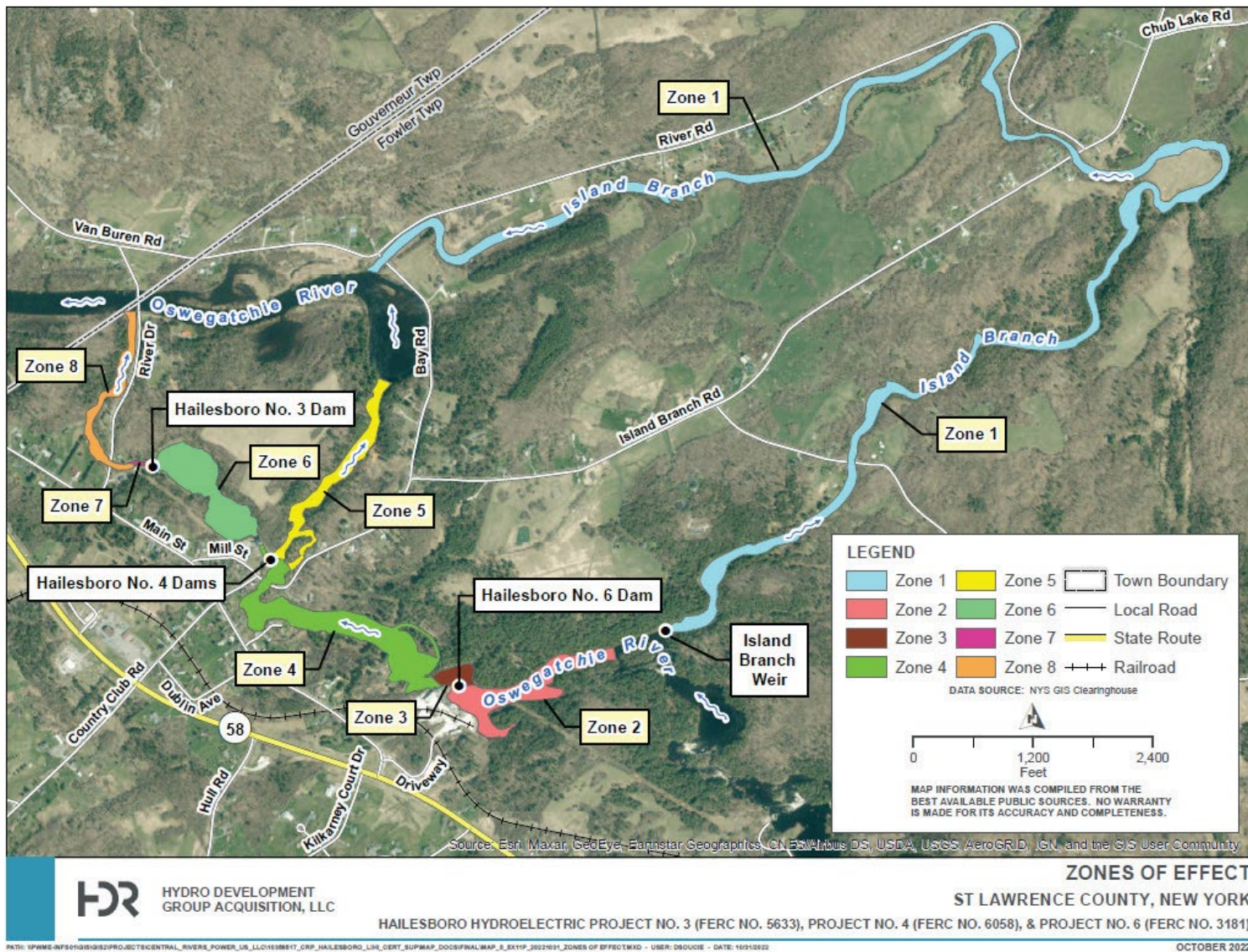


Figure 8 – Hailesboro Projects Zones of Effect.

V. REGULATORY AND COMPLIANCE STATUS

The Hailesboro No. 3 Project was issued an [Exemption Order from FERC](#) on July 14, 1982 and an [Exemption Amendment Order](#) on June 11, 1998. The Hailesboro No. 3 Project does not have a Section 401 Water Quality Certificate. The Hailesboro No. 4 Project was issued a [License Order from FERC](#) on October 30, 2002 and a Section 401 Water Quality Certificate from the New York State Department of Environmental Conservation (NYSDEC) on December 21, 2001. The Hailesboro No. 6 Project was issued an [Exemption Order from FERC](#) on September 17, 1981 and does not have a Section 401 Water Quality Certificate.¹

VI. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI

The application was posted for public comment on February 7, 2023, and the notice was forwarded to agencies and stakeholders listed in the application. The deadline for submission of comments was April 8, 2023. No comments were received. Outreach was made to NYSDEC on March 15, 2023 regarding NY State-listed species, and the Applicant later provided the requested information (Appendices A and B).

VII. 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 Zones 2, 4, 6, and 8, and Standard A-2, Agency Recommendation for Zones 1, 3, 5, and 7. For reasons discussed below, this review finds that Standard A-1 is more appropriate for Zone 3 and Standard A-2 is more appropriate for Zone 4.

Two upstream USGS gages ([USGS Gage No. 04262500](#) – West Branch Oswegatchie River near Harrisville, NY and [USGS Gage No. 04262000](#) – Oswegatchie River near Oswegatchie, NY) were used by the Applicant to estimate flow data.² The drainage area at the Projects is about 680 square miles and the average annual flow is 1,534 cubic feet per second (cfs).

¹ Attachment C of the LIHI application includes an April 4, 1994 letter from NYSDEC stating that WQCs were issued for all HDGA projects but there are no FERC elibrary records reflecting site-specific WQCs for Hailesboro No. 3 or No. 6.

² The closest downstream gage is [USGS Gage No. 04263000](#) - Oswegatchie River Near Heuvelton NY

Hailesboro No. 6

Zone 1 is the Island Branch reach that extends from the Island Branch Weir upstream of the Hailesboro No. 6 impoundment downstream 4 miles to the confluence with the Oswegatchie River in the Gouverneur Project impoundment. Flows into this reach are controlled by the weir that is 73 feet long, 3 feet high, and topped with 1-foot flashboards with a notch that allows a continuous minimum flow of 30 cfs. This minimum flow was recommended by FWS during relicensing, as required by FERC License Article 403 for the Hailesboro No. 4 Project, to adequately maintain fish habitat. Compliance with this minimum flow requirement is implemented via the Applicant's Flow Monitoring Plan discussed below for Hailesboro No. 4.

The Hailesboro No. 6 impoundment (Zone 2) has a storage volume of 37 acre-feet, and is approximately 1,600 feet long, extending from the Island Branch Weir to Hailesboro No. 6 Dam. The impoundment receives flow from the upstream FERC-licensed Fowler No. 7 Project (P-6059) and impoundment water levels are measured by a transducer located at the intake. The Project operates in a run-of-river mode with inflow approximating outflow and minimal fluctuations in impoundment water surface elevation. Impoundment water spills into the approximately 420-foot-long Hailesboro No. 6 bypassed reach under most normal operating conditions via a notch in the dam (Figure 9).

There are no recommendations or requirements for a minimum flow in the Hailesboro No. 6 bypassed reach (Zone 3), which is short and bedrock-based with little aquatic habitat. As such, this review finds that Standard A-1 is more appropriate for Zone 3. Flow in excess of 700 cfs (i.e., the maximum hydraulic capacity of the Project powerhouse) results in spills into the bypassed reach and occur approximately 73 percent of the time annually. The Hailesboro No. 6 tailrace discharges into the Hailesboro No. 4 impoundment (collectively, Zone 4).



Figure 9 – Hailesboro No. 6 Dam Notch.

Hailesboro No. 4

The Hailesboro No. 4 impoundment (Zone 4) has a storage volume of 20 acre-feet, and is approximately 2,100 feet long, extending from the Hailesboro No. 6 tailrace to Hailesboro No. 4 Dam. Article 401 of the Project's 2002 FERC License and WQC Condition 4 require the Project to operate in a run-of-river mode which limits impoundment fluctuations. In addition, FERC Article 402 and WQC Condition 8 restrict impoundment drawdowns to no more than 3 inches below the top of the dam flashboards or the dam crest if flashboards are not in place. Run-of-river operations and impoundment water surface elevations are monitored in accordance with the Flow Monitoring Plan required by FERC Article 404 and WQC Condition 7. The Flow Monitoring Plan was filed with FERC on July 9, 2003³ and approved on May 25, 2004⁴. Run-of-river operations are maintained by passing all inflows through the Project's turbines while maintaining a stable headpond level, or through the spillways (Dam #1 and #2) when the units are offline, or via both turbines and spillways when inflow exceeds the hydraulic capacity of the operating turbines.

Compliance with run-of-river operations is monitored by documenting the headpond levels with an electronic headpond gage. Documentation of hourly water levels and generation status is recorded. A staff gage is also located at the headworks, and is visible to operating staff, agency staff, or the public. WQC Condition 13 requires that any impoundment drawdowns for construction or maintenance shall not exceed a rate greater than 1 foot per hour and that 50 percent of inflow shall be used to refill the impoundment with 50 percent passed downstream. The run-of-river operations and impoundment drawdown restrictions support habitat and other conditions suitable for healthy fish and wildlife resources. Because of these requirements, this review finds that Standard A-2 is more appropriate for Zone 4.

Zone 5 is the approximately 0.4-mile-long bypassed reach downstream of Hailesboro No. 4 Dams #1 and #2. In accordance with FERC Article 403 and WQC Condition 5, the Project releases minimum flows of 20 cfs at Dam #1 and 8 cfs from Dam #2. The 20-cfs minimum flow below Dam #1 is provided via a stoplog bay in the intake wall, adjacent to the downstream end of the trashracks. This spill and flow also provide for safe downstream fish passage. The 8-cfs minimum flow released at Dam #2 is satisfied by normal leakage flow. The combined flow of 28 cfs was determined to benefit aquatic macroinvertebrates and in turn foraging opportunities for fish via a flow demonstration study performed during Project relicensing and in consultation with the U.S. Fish and Wildlife Service (FWS) and the New York State Department of Environmental Conservation (NYSDEC). FERC Article 403 and WQC Condition 5 also specify that a total minimum flow of 105 cfs must be released below the two dams during the walleye spawning season. The walleye spawning season is temperature-dependent and the Applicant

³ [20030711-0223](#)

⁴ [20040525-3032](#)

monitors water temperature to make sure it releases the necessary flows during the appropriate time period. This seasonal walleye flow was also determined by the flow demonstration study during Project relicensing. Compliance with these minimum flow requirements is implemented via the Applicant’s Flow Monitoring Plan mentioned previously.

Hailesboro No. 3

The Hailesboro No. 4 powerhouse discharges into the Hailesboro No. 3 impoundment and collectively makes up Zone 6. As with the upstream Projects, the Hailesboro No. 3 Project operates in a run-of-river mode. The Hailesboro No. 3 impoundment has a storage volume of 35 acre-feet, and is approximately 1,050 feet long, extending from the Hailesboro No. 4 tailrace to Hailesboro No. 3 Dam. The run-of-river mode minimizes fluctuations in impoundment water surface elevation and supports habitat and other conditions suitable for healthy fish and wildlife resources.

Zone 7 is the Hailesboro No. 3 bypassed reach which is approximately 200 feet long and receives a minimum flow of 3 cfs. Similar to the Hailesboro No. 6 Project, this Project operates under a FERC Exemption Order, and while exempted from the requirements of Part I of the Federal Power Act, the Project is subject to mandatory terms and conditions set by federal and state fish and wildlife agencies and by FERC. During the license exemption process, NYSDEC recommended the minimum flow of 3 cfs. Although no scientific basis for that flow was identified. This flow level was likely intended to keep the boulder-filled bypassed reach wetted at all times.

Zone 8 is the Hailesboro No. 3 tailrace and downstream reach and extends approximately 1,850 feet from the powerhouse to the confluence with the mainstem of the Oswegatchie River. There is no minimum base flow requirement but as a run-of-river project, all inflow is discharged downstream either via the powerhouse or the bypassed reach.

A review of the FERC eLibrary record indicated that no violations of the minimum flows or run-of-river operations have occurred in the last 10 years. Based on my review of the application, supporting documentation, and publicly available information, the Projects are operated in a manner such that they do not adversely affect fish and wildlife resources under the limited flow regime. As such, the Projects satisfy the Ecological Flow Regimes criterion.

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 selected Standard B-1, Not Applicable/De

Minimis Effect for all Zones.

The Oswegatchie River in the vicinity of all three Projects is designated as Class A water. The best usages of Class A waters are as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The waters shall be suitable for fish, shellfish and wildlife propagation and survival⁵. Water quality standards for Class A waters include pH between 6.5 and 8.5 standard units, dissolved oxygen (DO) concentrations no less than 5 milligrams per liter (mg/L) (daily average) and never less than 4 mg/L, and dissolved solids, odor, color, and turbidity concentrations that do not adversely affect the waters for their best usage. No reaches of the Oswegatchie River within the Projects' reaches are listed in NYSDEC's current EPA-approved 303(d)⁶ or 305(b)⁷ lists.

The Oswegatchie River has several dams and industrial facilities upstream of the Projects. FERC notes in its 2002 Environmental Assessment (EA) for the relicensing of the Hailesboro No. 4 Project that water quality problems in the basin at the time were dominated by either contamination as evident by fish consumption advisories or atmospheric deposition/acid precipitation, and that since the 1970's water quality has improved due to the reduced point-source discharges into the river from industrial origins and construction of pollution control facilities.

Hailesboro No. 6 and No. 3

The run-of-river operations minimize the potential for impoundment water quality to degrade. The lack of impoundment water level fluctuation minimizes erosion potential, and the lack of active reservoir storage volume minimizes the potential for water stagnation and maximizes turnover opportunities. The run-of-river operations also ensure that water quality in downstream areas is not affected.

Hailesboro No. 4

FERC's 2002 EA found that the Project's shallow impoundment likely reduces the potential for oxygen depletion during low-flow, high-temperature periods as even at the minimum recorded flow at the Project, the impoundment turns over more than four times in one day. Therefore, water has little time to stagnate and for its quality to degrade. The FERC License Order and 2001 NYSDEC Water Quality Certificate include several requirements that protect water quality. The run-of-river operations required by FERC Article 401 and WQC Condition 4 limit the opportunity for stagnant water and changes in water surface elevation that could promote

⁵ [6 CRR-NY 701.6 NY-CRR](#)

⁶ [2018 NYSDEC 303\(d\) List](#)

⁷ [2018 NYSDEC 305\(b\) List](#)

shoreline erosion. The erosion potential and associated impacts to water quality are further minimized by the 3-inch operational limit in impoundment water surface elevation required by FERC Article 402 and WQC Condition 8. Article 406 requires an erosion and sediment control plan to be filed for any earth-disturbing project activities. Similarly, WQC Condition 15 requires turbidity monitoring at a point immediately upstream and no more than 100 feet downstream of any work area of maintenance or construction work. These requirements protect the impoundment water quality and help the water support the best usages for Class A waters. Because of these requirements, this review finds that Standard B-2 is more appropriate for Zone 4 than Standard B-1.

The erosion and sediment plan and turbidity monitoring conditions discussed above also apply to the Hailesboro No. 4 bypassed reach. Additionally, FERC Article 403 and WQC Condition 5 require a permanent minimum flow of 28 cfs with 105 cfs during the walleye spawning season. FERC also notes in its 2002 EA that the numerous gorges, falls, boulders, and cobble riffles also ensure adequate aeration throughout the river reaches. As part of the NYSDEC Rotating Integrated Basin Studies, macroinvertebrate sampling (09-GTCH-66.3) was completed on September 11, 2019 in Middle Branch just downstream of Dam #1 of the Hailesboro No. 4 Project. A Biological Assessment Profile (BAP) score is calculated for each stream site which indicates how severe the water quality is impacted. Based on the NYSDEC studies, in 2019, water quality was only slightly impacted (BAP score of 7.35). BAP scores less than 5 are considered biologically impaired and scores above 7.5 are considered non-impacted⁸.

Based on my review of the application, supporting documentation, and publicly available information, the Projects do not adversely affect water quality and satisfy the Water Quality criterion.

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 populations in areas affected by the facility.

Assessment of Criterion Passage: The Applicant appropriately selected Standard C-1, Not Applicable/De Minimis Effect for all zones.

⁸ https://www.dec.ny.gov/docs/water_pdf/bapnarrative18.pdf

Hailesboro Nos. 3, 4, and 6

The Project waters support a mix of coldwater and warmwater fish species. The Applicant presents a list of fishes in the Project area in Section 3.4 of its [LIHI application](#) and there are no obligatory anadromous species in this list. No requirements related to upstream fish passage were included in the FERC License for the Hailesboro No. 4 Project or the NYSDEC 2001 Water Quality Certification. License Article 408 reserves the authority to prescribe fishways. To date, the U.S. Department of Interior (Interior) has not exercised this authority.

No recommendations were filed by resource agencies related to upstream fish passage during the Exemption process of the No. 3 and No. 6 Projects; however, both exemptions contain Standard Article 2 requiring compliance with any resource agency terms and conditions related to fish and wildlife resources, none of which have been made.

Upstream passage to the Oswegatchie River is currently blocked by several dams and natural falls located downstream of the Projects, including the Ogdensburg Dam (first dam on the river), Natural Dam, and Gouverneur Dam. The Eel Weir Dam and Heuvelton Dam (part of the Oswegatchie Project, LIHI #161) located downstream and between Natural Dam and Ogdensburg Dam do have upstream passage, however. The Gouverneur Hydroelectric Project (P-14635) is the next dam downstream of the Hailesboro Projects and was recently (July 28, 2022) issued an original license by FERC⁹. As part of the licensing process, the Licensee (The Village of Gouverneur) filed an Offer of Settlement¹⁰ on behalf of itself, Interior, and NYSDEC in which the parties agreed that no upstream passage was necessary.

Based on my review of the application, supporting documentation, and publicly available information, the Projects do not adversely impact migratory fish species thus satisfy the Upstream Fish Passage criterion.

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. Migratory species are able to successfully complete their life cycles and maintain healthy populations in the areas affected by the Facility.

Assessment of Criterion Passage: The Applicant selected Standard D-1, Not Applicable/De Minimis Effect for all Zones. For reasons discussed below this review finds that Standard D-2, Agency Recommendation is more appropriate for Zone 1 – Island Branch, Zone 4 – Hailesboro

⁹ [20220728-3094](#)

¹⁰ [20210113-5200](#)

No. 6 Tailrace/Hailesboro 4 Impoundment, Zone 5 – Hailesboro No. 4 Bypassed Reach, and Zone 7 – Hailesboro No. 3 Bypassed Reach.

Standard D-1, Not Applicable/De Minimis Effect is appropriate Zones 2 and 6 (Hailesboro No. 6 Impoundment and Hailesboro No. 4 Tailrace/Hailesboro No. 3 Impoundment) because the powerhouse intakes at each Project have relatively slow approach velocities (1.6 feet per second at Hailesboro No. 6 and 0.66 feet per second at Hailesboro No. 3) that most fish in the Project Areas can outswim (Bell, 1986¹¹). Similarly, FERC notes in its 2021 Environmental Assessment for the downstream Gouverneur Project¹², that the majority of fish species (which are almost entirely the same species listed in Section 3.4 of the [LIHI application](#)) would be able to outswim the 1.4 feet per second approach velocity at the Gouverneur Project intake. In addition, many of the small minnow species that might not be able to outswim the approach velocities are often small enough to avoid turbine blade strikes and pass through a powerhouse unharmed.

Standard D-1 is appropriate for Zone 8 – Hailesboro No. 3 tailrace and downstream area because once in this zone there are no additional facility-related barriers to downstream movement.

Standard D-2, Agency Recommendation is appropriate for Zones 1 and 7 (Island Branch and Hailesboro No. 3 Bypassed Reach respectively) because Article 403 of the Hailesboro No. 4 FERC License requires a 30-cfs minimum flow to the Island Branch which was recommended by FWS during relicensing, and the Project releases 3 cfs into the Hailesboro No. 3 bypassed reach as recommended by NYSDEC in support of the Project's Exemption. These minimum flows facilitate downstream movement in Zones 1 and 7.

Standard D-2 is also appropriate for Zones 4 and 5 (Hailesboro No. 6 Tailrace/Hailesboro NO. 4 Impoundment and Hailesboro No. 4 Bypassed Reach) because Article 403 of the Project's FERC License and WQC Condition 5 require a continuous combined minimum flow of 28 cfs (20 cfs below Dam #1 and 8 cfs below Dam #2) and a seasonal minimum flow of 105 cfs into the bypassed reach during the walleye spawning season. These flows were developed in consultation with FWS and NYSDEC and facilitate downstream fish passage in Zones 4 and 5.

Additionally, License Article 407 required the following downstream fish protection measures: (1) modification of the outflow of the sluice gate to minimize injury to any fish passing downstream via the 20-cfs minimum flow at Dam #1; (2) provision of an adequate plunge pool (at least 1 foot of depth for every 4 feet of drop), a smooth surface in the bypass sluice, and adequate dispersal of flow through the sluice to provide sufficient depths for safe fish movement; and (3) consultation with Interior and NYSDEC regarding the need for trashracks with a

¹¹ Bell, M.C. 1986. Fisheries Handbook of Engineering Requirements and Biological Criteria. US. Army Corps of Engineers, Fish Passage Development and Evaluation Program. 257p.

¹² [20210908-3017](#)

maximum clear spacing of 1 inch when the existing trashracks need replacement, which has not yet occurred. On November 15, 2005, the Applicant filed Exhibit F drawings that depicted the recently installed minimum flow sluiceway at the Project’s intake canal¹³. FERC approved the Exhibit drawings on January 25, 2006.¹⁴

For the reasons above, and based on my review of the application, supporting documentation, and publicly available information, the Projects do not appear to adversely affect downstream moving fish and have negligible if any loss of riverine fish from the Project impoundments and upstream reaches, and thus the Projects satisfy the Downstream Fish Passage and Protection criterion.

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 selected Standard E-1, Not Applicable/De Minimis Effect for all Zones. For reasons discussed below, this review finds that Standard E-2, Agency Recommendation, is more appropriate for Zone 1 – Island Branch, Zone 4 – Hailesboro No. 6 Tailrace/Hailesboro No. 4 Impoundment, Zone 5 – Hailesboro No. 4 Bypassed Reach, and Zone 6 – Hailesboro No. 4 Tailrace/Hailesboro No. 3 Impoundment.

Because of their Exemption status the Hailesboro No. 6 and No. 3 Projects do not have established FERC Project boundaries. Hailesboro No. 6 encompasses about 4 acres for the impoundment and a negligible amount of land while Hailesboro No. 3 encompasses about 6.5 acres for the impoundment and about 0.5 acres of land. The Hailesboro No. 4 FERC Project boundary covers approximately 2 acres for the impoundment and about 0.5 acres of land.

The topography of the Oswegatchie River basin is characterized by mountains to the east and areas of small hills with exposed bedrock to the west as elevations decrease toward the St. Lawrence River. The Projects are located in a remote area surrounded by undeveloped, privately owned land. Access to the river is limited, except for a few private roads.

Land cover within the Projects’ areas is dominated by open water, deciduous forest, evergreen forest, woody wetlands, and grassland, followed by developed land (mostly low intensity developed land and developed open space), mixed forest, emergent herbaceous wetlands, pasture, and scrub/shrub (See Table 3-2 of the [LIHI application](#)). Pasture and hay as well as

¹³ [20051118-0254](#)

¹⁴ [20060125-3006](#)

cultivated croplands are located adjacent to some Project lands. The forested areas within the Projects border the river near the impoundments, which can help provide bank stability and reduce erosion.

Limited wetlands exist in the immediate vicinity of the Hailesboro Projects (See Table 3-3 of the [LIHI application](#)). Besides riverine and freshwater pond areas, there is one freshwater forested/shrub wetland in Zone 1 (PFO/SS1A). This wetland is characterized as a palustrine/scrub-shrub forested wetland with broad-leaved deciduous trees which is temporarily flooded. In addition, the Hailesboro No. 3 impoundment is characterized as a freshwater pond (PUBHh), a palustrine system with an unconsolidated bottom that is impounded and permanently flooded. The Hailesboro No. 4 and No. 6 impoundments are characterized as riverine. The permanently flooded riverine areas include lower (low gradient; R2UBH), upper (high gradient, R3UBH), and unknown perennial (unknown gradient, R5UBH) systems.

There are no Shoreline Management Plans for any of the Projects and there are no river segments listed on the Nationwide River Inventory or the Wild and Scenic Rivers Act. There are no lands of ecological significance and no critical habitats located in the vicinity of the Project. The run-of-river operations at all three Projects limit fluctuations in impoundment water surface elevations that otherwise could contribute to shoreline erosion.

Hailesboro No. 4

For Zones associated with the Hailesboro No. 4 Project (Zones 1, 4, 5, and 6) FERC Article 406 requires that the licensee file with the NYSDEC an erosion and sediment control plan at least 60 days prior to any earth disturbing maintenance or construction activities. WQC Condition 11 provides for specific erosion and sediment control measures the licensee must adhere to during routine maintenance or construction. The WQC also contains additional conditions (such as 9, 10, 13, 14, and 15) related to watershed protection, including measures to reduce turbidity during dredging, analyzing sediment for contaminants prior to disposal, construction drawdown guidance, and downstream river flow maintenance and turbidity monitoring during construction or maintenance activities. In addition to the run-of-river operations, the Hailesboro No. 4 impoundment elevation is also relatively stable due to FERC Article 402 and WQC Condition 8 that restrict impoundment drawdowns to no more than 3 inches below the top of the dam flashboards or the dam crest if flashboards are not in place. Article 409 of the Hailesboro No. 4 Project FERC License required the development of a Woody Debris Management Plan in consultation with the FWS and NYSDEC for the management of large woody debris that collects near the intake. According to the plan filed with FERC on May 1, 2003¹⁵, on at least an annual basis, the licensee monitors the impoundment shoreline for the presence of dead trees which could fall into the water and become a hazard to navigation or Project operations. The licensee

¹⁵ [20030507-0092](#)

removes such trees to the extent possible within the constraints of personnel safety, property rights, landowner permissions, and local ordinances.

A review of the FERC eLibrary indicated that no issues related to shoreline and watershed protection have occurred during the current FERC licensing period.

Based on my review of the application, supporting documentation, and publicly available information, the Projects' operations sufficiently protect the minimal shoreline and watershed lands under the Applicant's control. Therefore, the Projects satisfy the Shoreline and Watershed Protection criterion.

F. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The facility does not negatively impact federal or state listed species.

Assessment of Criterion Passage: The Applicant appropriately selected Standard F-2, Finding of No Negative Effect, for all Zones.

A FWS IPaC report generated by the Applicant on October 14, 2022, included the northern long-eared bat as a federally listed species (now federally endangered¹⁶) that may potentially occur in the Project area. No critical habitat is listed in the IPaC report. The LIHI application states that no hibernacula or northern long-eared bats have been documented in the Project area. While the possibility of bats cannot be ruled out entirely, the lack of any proposed tree cutting at any of the Hailesboro Projects (except those overhanging the No. 4 impoundment) and the small land footprint at each Project minimizes the potential impact of the Projects on northern long-eared bats.

Several migratory birds may be present in the Project areas and include belted kingfisher, black-billed cuckoo, chimney swift, golden-winged warbler, and wood thrush. As with the northern long-eared bat, small Project footprints and lack of need to cut trees minimize impacts to migratory birds. Additionally, the Projects do not have significant recreation opportunities, particularly hunting areas that could disturb migratory birds that temporarily occupy the Project areas.

No federal or state-listed fish species are present within the Project Areas. According to NYSDEC Environmental Resource Mapper, a rare plant or animal is present in the vicinity of the Hailesboro No. 3 Project (Figure 10). Based on a report of rare or state-listed animals and plants provided to the Applicant by NYSDEC on December 22, 2022 (Appendix B), the state-

¹⁶ USFWS reclassified Northern long-eared bat from threatened to endangered on November 29, 2022; 22 days after HDGA completed its Application.

threatened rough pennyroyal plant has been documented within 0.5 miles west of Hailesboro No. 3. Rough pennyroyal inhabits dry open areas including mowed lawns and mowed roadside/pathway areas¹⁷. The Hailesboro No. 3 Project is located in a remote area, and as discussed below in section H – Recreational Resources, does not experience high recreational use that could result in any rough pennyroyal being routinely walked on. Additionally, periodic mowing around the powerhouse and dam likely represents one of the most common routine maintenance activities at the Project, and given the species habitat preferences, this would likely support the species.

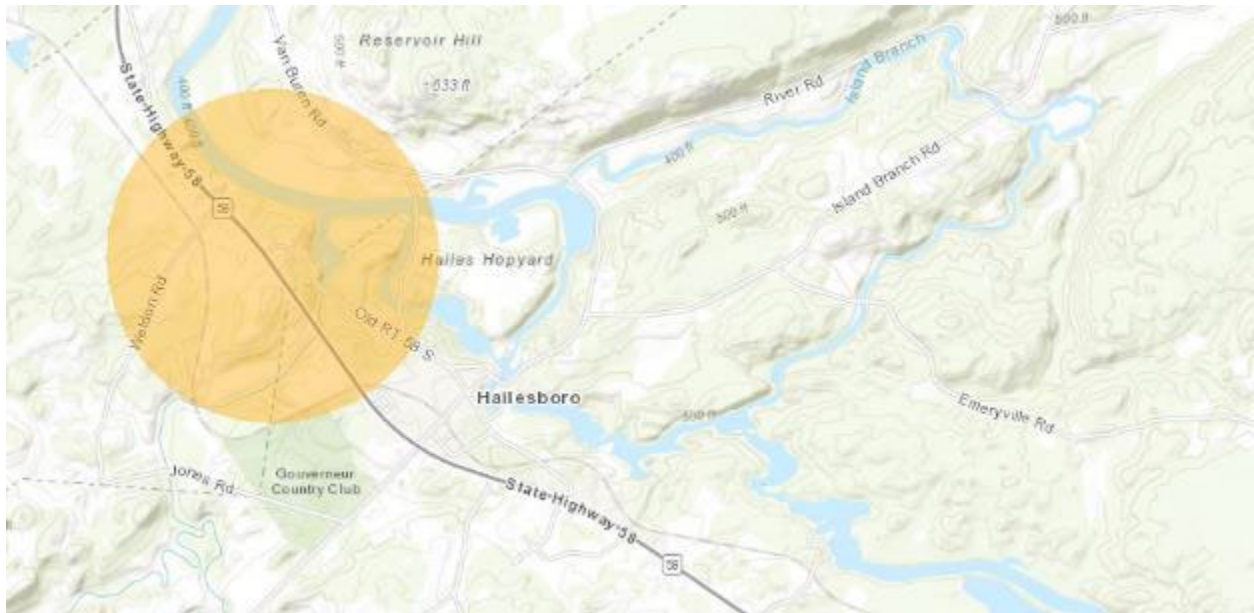


Figure 10 - Presence of a New York State listed rare plant or animal in the vicinity of the Hailesboro 3 Project according to the NYSDEC Environmental Resource Mapper tool.

Based on my review of the application, supporting documentation, and publicly available information, the Projects are unlikely to impact listed species if present, and therefore satisfy the Threatened and Endangered Species criterion.

G. CULTURAL AND HISTORIC RESOURCE PROTECTION

Goal: The facility does not unnecessarily 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 appropriately selected Standard G-1, Not Applicable/De Minimis Effect, for all Zones.

¹⁷ [Rough Pennyroyal Guide - New York Natural Heritage Program \(nynhp.org\)](http://nynhp.org)

There are no known aboveground or archaeological resources listed in or eligible for listing in the National Register of Historic Places in the Projects' areas. No traditional cultural properties have been identified. However, due to the age of the dams, it is possible that they could be eligible for listing, subject to determination of historical relevance.

During relicensing of the Hailesboro No. 4 Project, the State Historic Preservation Officer (SHPO) reviewed the proposed action and determined that relicensing would have no effect on the cultural resources in or eligible for listing in the National Register of Historical Places. In the event any archaeological or historic sites are found during operation and maintenance of the Hailesboro No. 4 Project, License Article 411 requires the licensee to consult with the SHPO and prepare a cultural resources management plan.

Based on a review of the application, supporting documentation, and publicly available information, the Projects do not appear to adversely affect cultural or historic resources and satisfy the Cultural and Historic Resource Protection criterion. However, I recommend a condition to ensure that any unknown archeological or historic sites discovered at the Hailesboro No 3 and No. 6 Projects are brought to the attention of the SHPO through consultation as is done for Hailesboro No. 4.

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 appropriately selected Standard H-1, Not Applicable/De Minimis Effect, for Zone 1 – Island Branch, Zone 2 – Hailesboro No. 6 Impoundment, Zone 3 – Hailesboro No. 6 Bypassed Reach, Zone 5 – Hailesboro No. 4 Bypassed Reach, Zone 7 – Hailesboro No. 3 Bypassed Reach, and Zone 8 – Hailesboro No. 3 Tailrace; and Standard H-2, Agency Recommendations for Zone 4 – Hailesboro No. 6 Tailrace/Hailesboro No. 4 Impoundment, and Zone 6 – Hailesboro No. 4 Tailrace/Hailesboro 3 Impoundment.

No Project recreational facilities or public access locations are located along the Island Branch reach. The majority of the area surrounding Island Branch is forested private property which prohibits public access. Portage around the Island Branch Weir is considered dangerous based on the surrounding topography, and Island Branch includes an approximately 12-foot-high waterfall around which there is also no safe portage route. There are no recreation facilities or public access locations at the Hailesboro No. 6 impoundment. The Hailesboro No. 6 bypassed reach is approximately 420 feet long and contains no recreation facilities or access locations, as the area is surrounded by forested private property limiting access.

The Hailesboro No. 4 bypassed reach consists of two branches that join after approximately 300 feet below Dam #1 and Dam #2, and further downstream converges with Island Branch. The 600-foot-long bypassed reach below Dam #2 contains a steep 10-foot drop and passes under a natural bridge before joining with the bypassed reach below Dam #1. The bypassed reach below Dam #1 is a narrow channel and access to this reach would require crossing the intake canal to gain access to a steep put in. In the 2002 FERC EA for the Hailesboro No. 4 Project, FERC concluded that access to the channel below Dam #2 is not advisable due to the undercut rocks and natural bridge that would have varying levels of clearance below it depending on water level. Access to the channel below Dam #1 requires crossing the Hailesboro No. 4 intake canal, which is gated and locked to prevent unauthorized access. FERC determined that such access provisions would provide limited benefit, because the length of the entire bypassed reach is approximately 1,000 feet and, therefore, FERC concluded that access below the Hailesboro No. 4 dams is not reasonable.

The Hailesboro No. 3 bypassed reach is less than 200 feet long and has no recreation facilities or access locations. During the FERC Exemption process the Applicant reached an agreement with the NYSDEC and FWS to provide a canoe put-in facility downstream of the Hailesboro No. 3 Project in order to complete a portage route around the entire Fowler-Hailesboro dam complex. However, the Applicant reported in its Recreation Plan¹⁸ filed pursuant to Article 410 for the Hailesboro No. 4 FERC License that safe public access downstream of the Hailesboro No. 3 Project could not be provided on its current property due to the existence of road culverts underneath the River Street bridge, some 200 feet downstream of the powerhouse that block or would be dangerous for boats to pass through under low flows. The Plan also states that the Applicant was at that time continuing to seek the property rights necessary to provide access downstream of Hailesboro No. 3 and would update the Plan to include the put-in when and if such rights are gained.

FERC's subsequent order modifying and approving the Plan¹⁹ required the exemptee to file a report on the status of the property negotiations every 6 months until it has secured the necessary rights and provided the required put-in below Hailesboro No 3. In the event the exemptee does not secure such rights within 18 months, FERC reserves the right to require changes to the recreation plan to address the continued portage along the Fowler and Hailesboro Projects. Resolution of this issue remains unclear (see condition recommendation below).

Article 410 of the Hailesboro No. 4 FERC License required a car-top boat access point, located upstream of the Project's two dams and shoreline access for fishermen. In its July 20, 2004 Recreation Plan, the Applicant stated that it was not possible to provide safe boat access to the Hailesboro No. 4 Impoundment on Project-owned or public land. In its subsequent approval order

¹⁸ [20040720-0294](#)

¹⁹ [20060223-4001](#)

on February 23, 2006 FERC required filing of an updated Recreation Plan that would include provisions for acquiring the land needed to provide access and a schedule for providing access. In its Revised Recreation Plan²⁰ the Applicant stated that it would provide public parking on its existing property at the Hailesboro No. 4 powerhouse. Recreationists wishing to access the impoundment will portage their boats from the Hailesboro No. 4 parking area along Mill Street and cross the Chub Lake Road bridge to the boat launch area within the Chub Lake Road right-of-way. FERC approved the Revised Recreation Plan on September 26, 2006²¹

During Hailesboro No. 4 Project relicensing, the town of Fowler requested access and an associated area with picnic tables between the Hailesboro No. 3 Project and the village of Gouverneur as well as between the Hailesboro No. 4 and No. 3 Projects.

While not required by License Article 410, the Applicant provides the following recreation facilities at the Hailesboro No. 3 Project: (1) a canoe launch/take-out located on the shore of the Hailesboro No. 3 impoundment upstream of the existing boat barrier (north of the intake structure); (2) a parking area to accommodate 4 vehicles; (3) a canoe launch access trail leading from the parking area along the site access road, crossing over the Project's intake structure, to the canoe launch site; (4) safety fencing along the intake structure to prevent the public from accessing the trashracks and other potentially dangerous areas; (5) a picnic area on the lawn north of the intake structure; and (6) appropriate signage.

Based on my review of the application, supporting documentation, and publicly available information, the Projects satisfy the Recreational Resources criterion. However, I am recommending a condition to facilitate resolution of the status of the portage put-in downstream of Hailesboro No. 3 Project.

VIII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review, I believe that all three Projects satisfy all of the LIHI criteria and recommend that they each be certified for a period of 10 years with the following conditions:

Condition 1 (Hailesboro No. 3 and No. 6). In the event any archaeological or historic resources are found during operation and maintenance of the Hailesboro No. 3 or Hailesboro No. 6 Projects, the facility Owner shall consult with the SHPO to ensure continued Project operation and maintenance activities will not have an adverse effect on the documented sites. In its annual compliance submittals to LIHI, the Owner shall inform LIHI of any agency consultation that has occurred and report on any issues or concerns raised by the SHPO.

²⁰ [20060817-0029](#)

²¹ [20060926-3008](#)

Condition 2 (Hailesboro No. 3 and No. 4). In annual compliance submittals to LIHI, the facility Owner shall provide updates on the status of the portage put-in downstream of the Hailesboro No. 3 Project, including outreach made to FERC and landowners regarding acquiring land adjacent to the Hailesboro No. 3 tailrace necessary to construct the portage put-in; or the Owner shall provide documentation of closure of the issue with FERC under Article 410(2) of the Hailesboro No. 4 license if a put-in at Hailesboro No. 3 is no longer relevant or necessary.

Appendix A – Stakeholder Outreach

Byrne, Stephen

From: Byrne, Stephen
Sent: Wednesday, March 15, 2023 12:12 PM
To: Christopher.Balk@dec.ny.gov
Cc: mfischer@lowimpacthydro.org
Subject: FW: Pending Application: Hailesboro No. 3, 4, 6 Project, NY
Hello Mr. Balk,

I am currently evaluating Hydro Development Group Acquisition's LIHI Application and wanted to reach out to you to see if you or our agency has any concerns regarding any potential effects of the three Projects on state-listed species? Based on a search of the Project areas on NYSDEC's Environmental Resource Mapper application it appears some rare plants or animals may be in the vicinity of at least the lower (Hailesboro No. 3) Project. For your reference the latitude and longitude coordinate of the three projects' dams are provide below and more information about the facilities and their operations can be found in the LIHI Application located on LIHI's website: <https://lowimpacthydro.org/hailesboro-no-3-4-6-project/>

Hailesboro No. 6 Dam: 44.30780, -75.43702
Hailesboro No. 4 Dam1: 44.31123, -75.44421; Dam2: 44.31100, -75.44379
Hailesboro No. 3 Dam: 44.31377, -75.44905

Thank you,
Stephen Byrne

**Appendix B – New York State Department of Environmental Conservation’s Report on
Rare and State-listed Plants and Animals**

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

December 22, 2022

Michelle Dufault
HDR
970 Baxter Blvd Ste 301
Portland, ME 04103

Re: Hailesboro Project Nos. 3, 4, and 6 LIHI Consultation
County: St Lawrence Town/City: Fowler

Dear Michelle Dufault:

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.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review. 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 6 Office, Division of Environmental Permits, at dep.r6@dec.ny.gov.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

New York Natural Heritage Program



Report on Rare Animals, Rare Plants, and
Significant Natural Communities

**The following rare plants, rare animals, and significant natural communities
have been documented at your project site, or in its vicinity.**

We recommend that potential impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQRA. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following plant is listed as Threatened by New York State, and is a vulnerable natural resource of conservation concern.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	HERITAGE CONSERVATION STATUS
Vascular Plants			
Rough Pennyroyal	<i>Hedeoma pinnatifida</i>	Threatened	Imperiled in NYS

Documented within 1/2 mile west of the Hailesboro No. 3 project site. 2020-10-07.

17270

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. 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.

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 rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org.