



**REVIEW OF APPLICATION FOR LIHI RECERTIFICATION OF THE
BYRON WESTON NO. 2 HYDROELECTRIC PROJECT, LIHI #133**

**FERC Project No. 13583, exempt
East Branch, Housatonic River
Dalton, MA**



**April 11, 2022
Maryalice Fischer, Certification Program Director**

TABLE OF CONTENTS

I. INTRODUCTION 1

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW 1

III. PROJECT LOCATION AND SITE CHARACTERISTICS..... 1

IV. REGULATORY AND COMPLIANCE STATUS 4

V. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI 5

VI. ZONES OF EFFECT 5

VII. DETAILED CRITERIA REVIEW 6

 A: Ecological Flow Regimes 6

 B: Water Quality..... 7

 C: Upstream Fish Passage 8

 D: Downstream Fish Passage 8

 E: Shoreline and Watershed Protection 9

 F: Threatened and Endangered Species 10

 G: Cultural and Historic Resources Protection 11

 H: Recreational Resources 12

VIII. CERTIFICATION RECOMMENDATION 12

**FINAL REVIEW OF APPLICATION FOR LIHI RECERTIFICATION
OF THE BYRON WESTON NO. 2 HYDROELECTRIC PROJECT, LIHI #133**

I. INTRODUCTION

This report provides final review findings and recommendations for the recertification application submitted to the Low Impact Hydropower Institute (LIHI) by Crane & Company (Applicant) for recertification of the Byron Weston No. 2 Hydroelectric Project, LIHI #133 (Project). The Project is a 0.25 MW facility located on the East Branch of the Housatonic River in Dalton, Massachusetts.

The Project was first certified by LIHI with an effective date of December 29, 2016 for a 5-year term which expired on December 29, 2021. The term was extended to April 30, 2022 to allow time to complete the recertification process. The Project is subject to review under the 2nd Edition LIHI Handbook.

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW

Under the 2nd Edition LIHI Handbook, reviews are a two-phase process starting with a limited review of the LIHI application, and 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 certification 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 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 completion of a 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 2nd Edition Handbook.

A review of the initial application submitted December 23, 2021 resulted in a Stage I report dated January 24, 2022. The Stage I assessment found no material changes at the Project and determined that no additional information was needed to conduct the review. The final recertification application package including the application fee was filed on February 3, 2022.

III. PROJECT LOCATION AND SITE CHARACTERISTICS

The Project is located at river mile (RM) 7.97 on the East Branch of the Housatonic River in Dalton, Berkshire County, MA. The East Branch headwaters begin at the outlet of Muddy Pond near Washington, MA. The East Branch flows approximately 17 miles, dropping 480 feet in

elevation to its confluence with the mainstem Housatonic River in Pittsfield, MA (Figure 1).

The Applicant is a manufacturer of various types of fine quality paper, including paper supplied to the US Bureau of Printing and Engraving for use in printing US currency, and owns five dams and associated mill buildings along the East Branch of the Housatonic River, all of which were originally used in the manufacture of paper, supplying power, process water, or both, taking advantage of the elevation change in the river. The dam was originally constructed in 1887. During the early 1900s, it was retrofitted with generators and produced hydroelectric energy until at least 1942. The project resumed operation in 2013 after repowering.

Bryon Weston Dam No. 1 is located approximately 700 feet upstream of the Project. Downstream are the breached Old Berkshire Mill Dam, Upper Pioneer Dam, Bay State Pond Dam, and the Government Dam. None of the surrounding dams currently include hydropower (Figure 1).

The Project consists of a 30-foot-high, 90-foot-long, stone-masonry dam which includes a 23-foot-high, 75-foot-long spillway (Figure 2). The impoundment extends 700 feet upriver to the Byron Weston No.1 dam. The impoundment has a surface area of 0.94 acres with gross storage of 3.1 acre-feet. The intake structure is equipped with 1-inch spaced trashracks and a headgate. Water passes through the headgate to a 50-foot-long, 9.5-foot-wide headrace canal located inside the Defiance Mill building and conveys flow to a 15-foot-long, 4.4-foot-diameter penstock leading to the 250-kW turbine-generating unit within the Defiance Mill building. The unit is a vertical double regulated Kaplan turbine and operates from 20 cfs to 170 cfs of flow. A 12-inch low-level outlet pipe diverts flow from the headrace when the turbine is out of service.

Water is discharged through a stone masonry arched opening at the base of the Defiance Mill building immediately downstream of the dam into the tailrace (Figure 3). The bypassed reach is approximately 35 feet long and configured to create a backwater at the toe of the spillway. The remains of a pre-cursor timber crib dam are buried within the sediment immediately upstream of the masonry dam.

The Project operates in an instantaneous run-of-river mode. The Project is connected to the regional grid, but it supplies energy primarily for on-site use to partially offset the electricity demands of the currency manufacturing facilities.

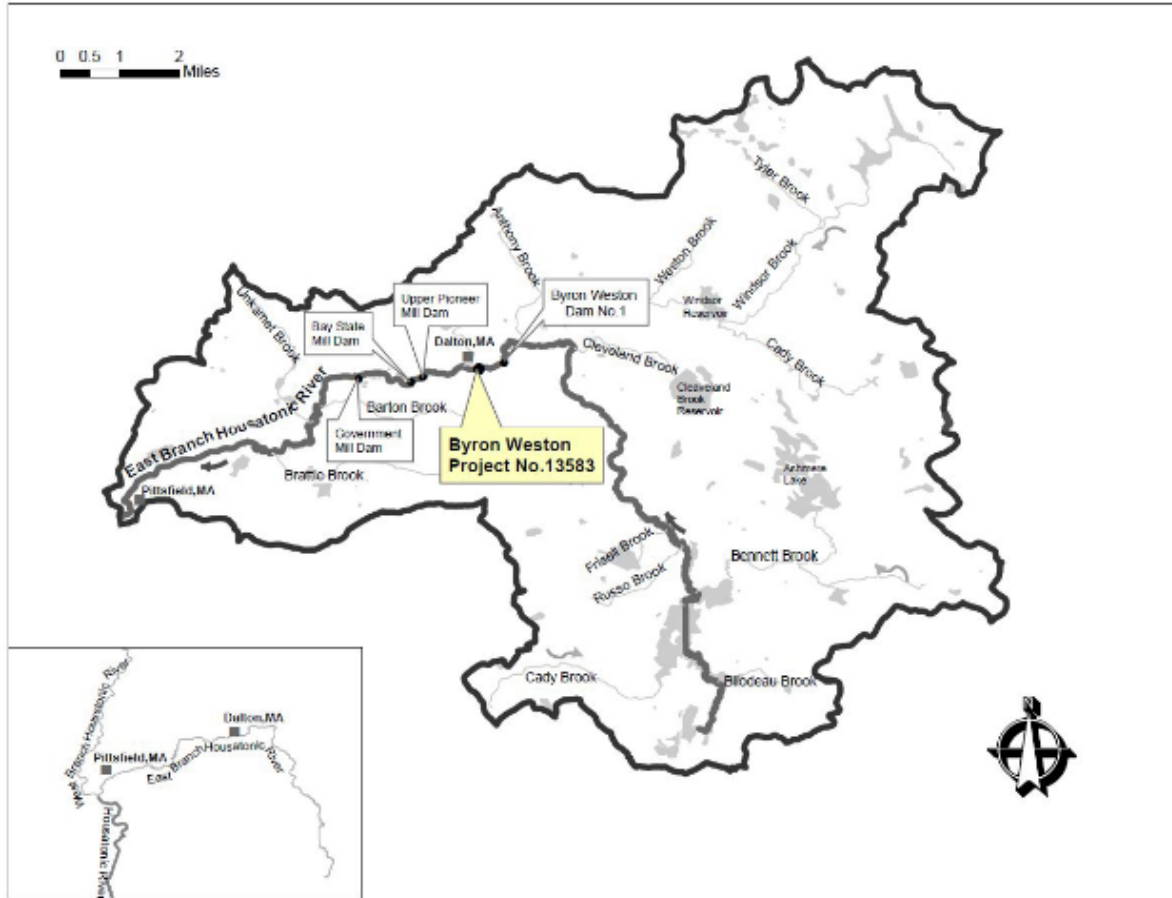


Figure 1. Project Location, Surrounding Dams, and Watershed



Figure 2. Project Dam and Spillway



Figure 3. Stone Arch Discharge

IV. REGULATORY AND COMPLIANCE STATUS

FERC issued a license exemption (P-13583) and environmental assessment for the repowered Project on February 29, 2012.¹ In addition to Project-specific and standard FERC conditions, the license incorporates conditions issued by the Massachusetts Division of Fisheries and Wildlife (MDFW) and the US Department of Interior, US Fish and Wildlife Service (USFWS) under section 30(c) of the Federal Power Act. The license also incorporates a water quality certificate (WQC) issued by the State of Massachusetts on September 23, 2011.² A review of the FERC eLibrary from January 1, 2017 to present identified only dam safety filings.

The 2016 LIHI Certificate included the following condition:

Condition 1. The owner shall complete the Wheel Turbine Relocation Plan and notice FERC and LIHI of that action within 90 days after LIHI certification.

¹ https://elibrary.ferc.gov/elibrary/filelist?accession_number=20120229-3040&optimized=false

² https://elibrary.ferc.gov/elibrary/filelist?accession_number=20110923-5068&optimized=false

The condition was satisfied in 2017 with submittal of completion documentation to FERC and LIHI.

V. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI

The application was publicly noticed on February 4, 2022 and notice of the application was forwarded to resource agency and stakeholder representatives listed in the application. No public comments were received during the 60-day comment period which ended on April 5, 2022. Based on the completeness of the application, no direct outreach to resource agencies or other stakeholders was conducted as part of this review. This Stage II assessment included review of the recertification application package, the FERC eLibrary, other publicly available information, and annual compliance statements submitted during the past term of Certification.

VI. ZONES OF EFFECT

The Applicant delineated the Project into two Zones of Effect (ZoEs) as shown in Figure 4.

- Zone 1: The impoundment extending from the base of Byron Weston No. 1 dam 700 feet to Byron Weston No. 2 dam (RM 8.04 - 7.97)
- Zone 2: The de minimis (35-foot-long) bypassed reach and tailrace/downstream zone extending from the dam downstream 1.1 miles to the Upper Pioneer dam (RM 7.97 – 6.87)

The Applicant selected the standards shown in the table below. The Reviewer agrees with the selected Standards.

Zone:		1: Impoundment	2 and 3. De minimis bypassed reach, tailrace, downstream reach
River Mile Extent:		RM 8.04 – 7.97	RM 7.97 – 6.87
Criterion		Standard Selected	
A	Ecological Flows	1	1
B	Water Quality	3	3
C	Upstream Fish Passage	1	1
D	Downstream Fish Passage	2	1
E	Shoreline and Watershed Protection	1	1
F	Threatened and Endangered Species	2	2
G	Cultural and Historic Resources	2	2
H	Recreational Resources	1	1

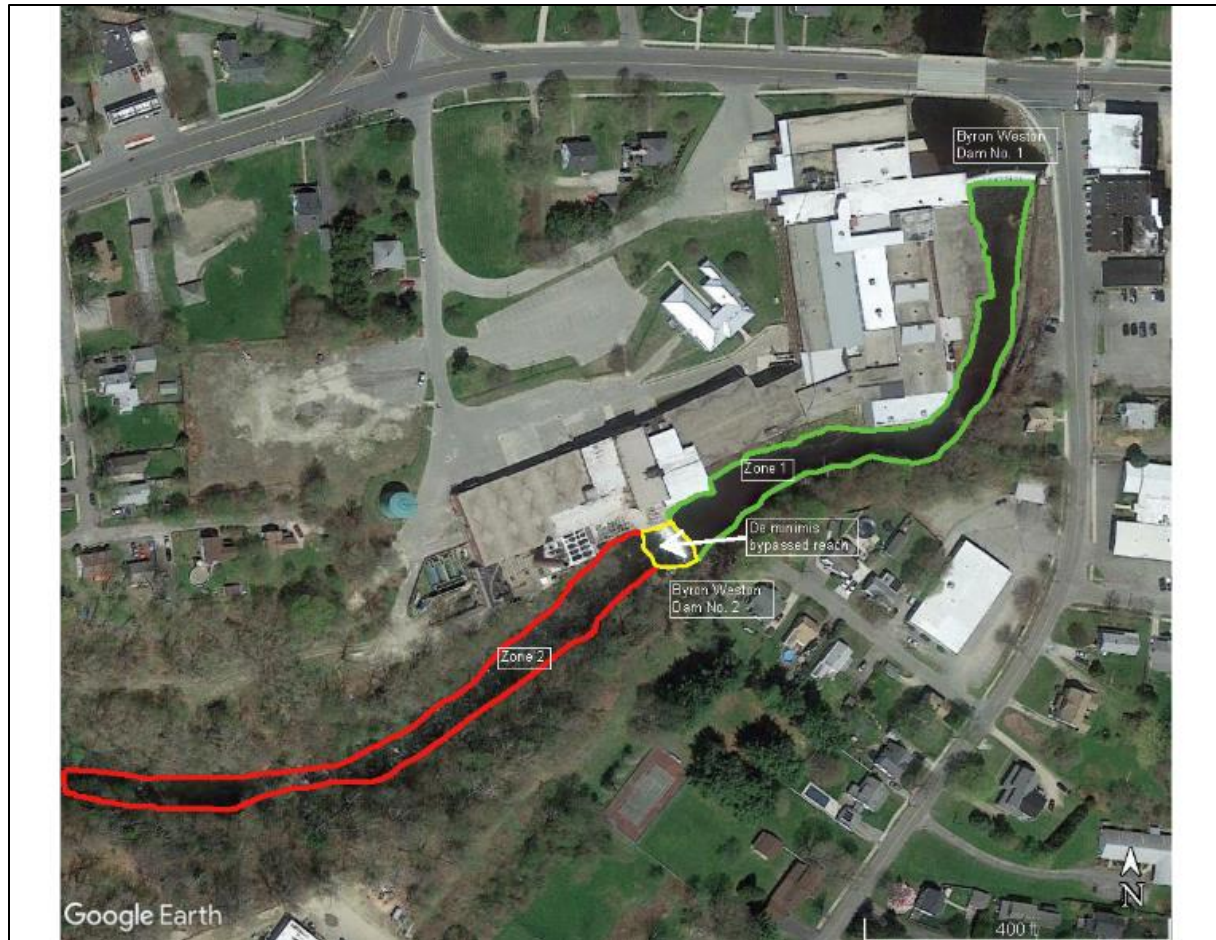


Figure 4. Zones of Effect

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: The Applicant selected Standard A-1, Not Applicable/De Minimis Effect for both Zones.

Discussion: The Project is operated in an instantaneous run-of-river mode. While there is a very short 35-foot-long bypassed reach, the powerhouse tailwater backwaters to the base of the dam keeping the bypass wetted. There were no agency recommendations during the FERC exemption proceedings related to minimum flows into that reach nor for conservation flows into the tailrace.

The impoundment level is maintained at a consistent elevation at the spillway crest elevation of

1116.7 feet msl. The impoundment is monitored by a Programmable Logic Controller that adjusts the turbine wicket gates to modulate flows through the powerhouse in response to inflow. FERC exemption article 18 and related resource agency conditions require run-of-river operation and a Run-of-River Operation Maintenance, and Monitoring Plan that was developed in 2012 and approved by agencies and FERC. In the event of an impoundment drawdown for dam inspection or emergency purposes, the Project is required to refill the impoundment at a rate of inflow using 10% to refill the impoundment and 90% allocated to bypass flows.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project does not have an adverse effect on flows or aquatic habitat and thus continues to satisfy the ecological flows 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: The Applicant selected Standard B-3, Site-Specific Studies for both Zones.

Discussion: Waters in the Project reach are considered Class B warmwater fisheries by the State of Massachusetts. Class B designated uses include habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, for primary and secondary contact recreation, and where specifically designated, as a source of public water supply with appropriate treatment. Class B waters are also suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters should have consistently good aesthetic value.

The Massachusetts 2018/2020 Integrated Waters List (finalized since the original LIHI application was submitted) indicates that the East Branch of the Housatonic River in the Project reach (segment MA21-02) as “Water Requiring a TMDL” for PCBs in fish tissue, e coli and fecal coliform. The cause of e coli and coliform bacteria is likely due to runoff and/or combined sewer overflows. Appendix 16 of the state report³ designates this river segment as “fully supporting fish, other aquatic life and wildlife use” but with an alert based on some fathead minnow survival estimates made between 2008 and 2016.

The Applicant conducted post-construction monitoring of water temperature and dissolved oxygen (DO) in 2015 during a low flow, high temperature period. The data showed both parameters to be well within the state numerical standards for temperature less than 83 degrees F and DO at least 5.0 mg/l (Appendix A of the recertification application). Pre-construction monitoring in 2010 had showed a limited number of occasions when DO readings

³ p. 34 in <https://www.mass.gov/doc/20182020-integrated-list-of-waters-appendix-16-housatonic-river-watershed-assessment-and-listing-decision-summary/download>

fell below the standard. Since Project operations have not changed since the post-construction monitoring was conducted it is unlikely that it adversely affects water quality.

Based on the application, supporting and publicly available documentation, and FERC eLibrary documents, this review finds that the Project is unlikely to impact water quality given run-of-river operations and the nature of the impairments, and thus continues to 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: The Applicant selected Standard C-1, Not Applicable/De Minimis Effect for both Zones.

Discussion: There are no migratory fish species present in the project vicinity. Numerous dams downstream on the 149-mile-long mainstem Housatonic River block passage into the East Branch and the three intact downstream dams on the East Branch block passage to the Project. The earliest dam on the mainstem was apparently built in 1870, predating the Project dam.⁴

In the Connecticut section of the mainstem, there is a migratory fish restoration program targeting American eel, American shad, and river herring but it has not been extended to the Massachusetts portion of the river at this time. FERC exemption standard Article 2 and related resource agency conditions, including in the WQC, require construction, operation, and evaluation of upstream and downstream fish passage facilities when notified by USFWS and/or MDFW that such fishways are needed. No notification has been received to date. Additional USFWS and MDFW conditions reserve the authority of each agency to add to or alter terms and conditions as appropriate to carry out agency responsibilities with respect to fish and wildlife resources. No new terms and conditions have been imposed to date.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project does not impact upstream passage and continues to satisfy this criterion.

D: Downstream Fish Passage

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 can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.*

⁴ <https://hvatoday.org/human-history-river/>

Assessment of Criterion: The Applicant selected Standard D-2, Agency Recommendation for Zone 1, and Standard D-1, Not Applicable/De Minimis Effect for Zone 2 which is appropriate for that zone since once fish have passed below the dam there is no further Project-related barrier to continued passage.

Discussion: The Project area is a warm water fishery hosting common species including pumpkinseed, bluegill, largemouth and smallmouth bass, white sucker, chain pickerel, yellow perch, brown and black bullhead, fallfish, longnose dace, northern pike, common carp, and brook, brown and rainbow trout. None of these species require passage to complete their life cycles.

All river flow other than that withdrawn for hydropower production passes over the spillway and drops vertically approximately 20-23 feet. The area at the toe of the dam consists of a shallow pool over bedrock and exposed bedrock.

As noted above, FERC standard article 2 and resource agency terms and conditions including in the WQC require fish passage when notified by the agencies. Other agency conditions required full-depth trashracks with no more than 1-inch spacing and an intake approach velocity no more than 2 ft/second. The required trash racks were installed, and the maximum approach velocity is estimated to be less than 1.1 ft/second.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project does not impact downstream migrating fish even if they were present, and continues to satisfy the downstream passage and protection criterion.

E: Shoreline and Watershed Protection

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

Assessment of Criterion: The Applicant selected Standard E-1, Not Applicable/De Minimis Effect for both Zones.

Discussion: The Project occupies only 1.7 acres of land within a developed area of Dalton. There are no lands of significant ecological value or critical habitats for threatened and endangered species. No shoreline management plan or similar plan is required under the FERC exemption.

The western edge of the impoundment and river immediately downstream of the dam consist of vertical bedrock escarpments and the foundations and retaining walls of the surrounding mill buildings. The eastern shoreline of the impoundment consists of a steep wooded slope and a

30- to 80-foot-wide corridor between the river and residential structures, parking areas, and roads in the Town of Dalton. The steep wooded slope continues immediately downstream of the dam which separates the river from the adjacent residential area. The industrial and residential development and steep slopes along the river limit vegetation and wetlands. With the mill complex encompassing the western edge of the Project area, vegetative cover is primarily located along the eastern edge of the river.

FERC exemption article 18 and WQC Condition 9 required submittal of a construction-related erosion and sediment plan. WQC Condition 10 required the Project to dispose of construction debris and remove sediments without impairment to water quality, and Condition 8 required any construction work to comply with the Massachusetts Wetlands Protection Act. The state determined that while the proposed construction work was within an area subject to protection under the Act, the work did not involve removing, filling, dredging, or altering the area.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project, with run-of-river operation and small footprint does not adversely impact the shoreline or watershed, and thus continues to satisfy the shoreline and watershed protection criterion.

F: Threatened and Endangered Species

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

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

Discussion: The Applicant conducted a USFWS IPaC online data check as part of the LIHI recertification application that showed only Northern long-eared bat (federally threatened and state endangered) may be present near the Project. There is no critical habitat designated for the species. The monarch butterfly, a federal candidate species could also be present, as could a variety of migratory birds including bald eagle. No bird species are state-listed.

A review of the Massachusetts Natural Heritage and Endangered Species Program online tool⁵ shows “Estimated” or “Priority” habitat areas mapped within the Project area of the river and adjacent lands. Habitat areas extend along the entire river in Dalton and into Pittsfield. Species information is not publicly available from that online tool, so the Applicant reviewed the Town of Dalton “BioMap2” report⁶ which indicates the Project area includes an “Aquatic Core” with one dragonfly species of conservation concern, the ocellated damer, and the state-endangered American bittern bird potentially present along with the unlisted zebra clubtail and smooth green snake.

⁵ <https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html>

⁶ <http://maps.massgis.state.ma.us/dfg/biomap2.htm>

Due to the developed nature of the Project area, it is unlikely that Northern long-eared bat would be present at the Project. Project operations do not include tree cutting so it is unlikely that these activities would adversely impact habitat for the species. Run-of-river operations are also unlikely to impact the dragonfly species, snake, or bittern even if they are present.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that given the very small Project footprint and developed location, there are unlikely to be any impacts to threatened or endangered species, and the Project continues to satisfy the threatened and endangered species criterion.

G: Cultural and Historic Resources 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: The Applicant selected Standard G-2, Approved Plan for both Zones.

Discussion: At the time of Project repowering, the State Historic Preservation Office (SHPO) indicated that Byron Weston Defiance Mill building was likely to be eligible for listing on the National Register of Historic Places. SHPO comments indicated that the Project has no significant effect on cultural resources although no formal determination was made by the SHPO since it did not respond to FERC's no effect finding letter to the SHPO.

The Defiance Mill building is not listed on the National Register although the Crane Museum and the entire Cranesville Historic District are listed.⁷ The museum is located in what was the rag room of Crane's Old Stone Mill, dating back to 1844. The Crane Paper Mill - Old Berkshire Paper Mill and the Centennial Paper Mill Office (both at 800 Main Street) are listed in the online Massachusetts inventory⁸ but not on the National Register.

FERC exemption article 25 required consultation with the SHPO prior to conducting any maintenance activities, land-clearing or land-disturbing activities, or changes to the Project operation or facilities that do not require FERC approval but could still affect cultural resources. Article 26 requires work to stop and consultation with the SHPO if previously unidentified cultural resources are discovered during Project construction activities or during operation.

Article 27 of the FERC exemption required a Wheel Turbine Relocation Plan to be developed for the relocation and refurbishment of the old McCormick Hercules wheel turbine that the new turbine replaced. The plan was approved, and the wheel turbine was relocated and placed on display at the Crane Museum of Papermaking⁹ in August 2017.

⁷ <https://www.nps.gov/subjects/nationalregister/database-research.htm>

⁸ <https://maps.mhc-macris.net/>

⁹ <https://cranemuseum.org/>

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project's current operations do not adversely affect cultural or historic resources and thus continues to satisfy the cultural and historic resources protection criterion.

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 selected Standard H-1, Not Applicable/De Minimis Effect for both Zones.

Discussion: The FERC exemption does not include any recreation requirements. The steep shoreline slopes, adjacent manufacturing facilities, and small impoundment size make the impoundment an unsafe location for recreation and there is no public access to it.

There are no formal recreation facilities at the Project. According to the Applicant there is no history of any significant recreational use of the impoundment or immediate downstream areas. The Appalachian National Scenic Trail (AT), a 2,181-mile long public footpath that follows the Appalachian Mountains from Georgia to Maine, passes through Dalton in the immediate Project vicinity. The trail passes along Depot Street on river-left of the impoundment and continues onto Main Street where it crosses the river upstream of the impoundment. The impoundment is visible from the trail. Boating is allowed nearby in the East Branch upstream of the Byron Weston No. 1 Dam, and a paddling guide was created by the Housatonic Valley Association.¹⁰

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project cannot reasonably provide safe recreational opportunities and thus continues to satisfy the recreational resources criterion.

VIII. CERTIFICATION RECOMMENDATION

This review included evaluation of the application, a review of the FERC eLibrary during the current LIHI term, other publicly available information, and annual LIHI compliance submittals. Based on this evaluation, the Reviewer recommends that the Byron Weston No. 2 Project be recertified for a term of ten (10) years with no conditions.

¹⁰

https://www.townoflenox.com/sites/g/files/vyhliif3341/f/uploads/a_paddling_guide_to_the_housatonic_river_in_berkshire_county.pdf