Brookfield
Renewable

December 30, 2019

Cataract Project
FERC No. 2528

Ms. Shannon Ames, Executive Director
Low Impact Hydropower Institute
329 Massachusetts Avenue, Suite 2
Lexington, MA 02420

Subject: Low Impact Hydropower Institute Application for the Cataract Project

Dear Ms. Ames:

On behalf of the Licensee, Brookfield White Pine Hydro, LLC (BWPH), please find attached the Application for the Cataract Project on the Saco River in Maine. BWPH is requesting certification of the facilities of the Project.

The current application includes the following required submittals:

- Introduction
- LIHI Table B-1 Project Description
- List of hyperlinks to pertinent FERC and regulatory documents for the Project
- Zones of Effect delineated into upstream regulated Saco River (upstream of the Spring Island and Bradbury Dams); impounded reach upstream of the West Channel and East Channel Dams; bypass reach of the Cataract Project (known as the tailrace of the West Channel Dam); tailrace of the East Channel Dam; downstream regulated reach of the Saco River below the tailraces of the West and East Channel Dams.
- Matrix of Alternative Standards for each Zone of Effect identified evaluating the LIHI certification standards for each requisite criterion including water quality, fish passage and recreation
- Sworn Statement and Waiver Form
- Facility Contacts Form including pertinent NGOs, as appropriate.

Please call me at (207) 755-5606 or email me at Kelly.Maloney@brookfieldrenewable.com if you have any questions or need additional information regarding this submittal.

Sincerely,

Kelly Maloney

Kelly Maloney
Manager, Compliance - Northeast

Cc: J. Rancourt, N. Stevens, S. Michaud, M. Swett, J. Seyfried, M. LeBlanc, E. DeLuca

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LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

CATARACT PROJECT (FERC NO. 2528)

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LOW IMPACT HYDROPOWER INSTITUTE

CERTIFICATION APPLICATION FOR THE

CATARACT PROJECT (FERC NO. 2528)

1.0 PROJECT DESCRIPTION

1.1 PROJECT FACILITIES AND HISTORY

The Cataract Project (FERC No. 2528) consists of four developments including one hydroelectric development located in Saco and Biddeford and three in the towns of Dayton and Buxton, Maine. The four developments are located between river miles 6.0 and 6.3 on the Saco River and, listed from downstream to upstream, are: East Channel, West Channel, Spring Island and Bradbury. The reservoir formed by the Springs and Bradbury dams extends upriver about 9.3 miles to the Skelton Project (FERC No. 2527). Springs, Bradbury and West Channel dams pre-date the present East Channel power development which was developed in 1938. The project developments were originally constructed around the turn of the century to meet the hydromechanical and hydroelectric demands of the Saco River. The Project is owned and licensed by Brookfield White Pine Hydro, LLC (BWPH), and the four dams are operated to supply a single powerhouse having an authorized installed capacity of 6.65 MW.

This application is for the certification of the Cataract Project, consisting of four dams, two impoundments and a single-turbine generator powerhouse as described in greater detail below.

Spring Island Development:

Springs Dam consists of a natural like fishway approximately 100 feet wide by 230 feet long beginning at the East shore, an overflow section and two gate house sections. The overflow section is a concrete gravity structure with a fixed crest at elevation of 47.7 feet. It is topped with 18-inch pin-supported flashboards, extends 117.5 feet from the natural like fishway to the first gate section. The gate house has four gate openings with sills at an elevation of 39.2 feet. There are three Taintor gates, each 16 feet wide by 11 feet high. The most easterly of the openings is closed by timber stop logs and a slide gate operated manually with a chain hoist.

West of the gate section is a lock system for upstream fish passage. The lock system is approximately 41 feet long by 10 feet wide and contains an attraction flow flume, fish crowder, lock chamber, control gates, and exit way.

Bradbury Development:

Bradbury Dam consists of a concrete gravity overflow structure extending from the south shore, and one gate section. The spillway section is 141 feet long, has a fixed crest elevation of 47.7 feet with 20-inch-high pin-supported flashboards and abuts the gate section. The gate section contains a Tainter gate measuring 20.25 feet wide by 13.5 feet high with a sill elevation of 36.2 feet. North of the gate section is a lock system for upstream fish passage. The

lock system is approximately 41 feet long by 10 feet wide and contains an attraction flow flume, fish crowder, lock chamber, control gates, and exit way.

Spring Island and Bradbury Impoundment:

The impoundment created by Bradbury and Springs dams has a normal full pond elevation of 49.2 feet, an area of about 359 acres, and extends upstream approximately 9.3 miles to the Skelton Project. The useable storage capacity under the existing two-foot pond cycling is 31 million cubic feet.

West Channel Development:

The West Channel Dam consists of two overflow sections, a downstream fish passage weir, an upstream denil fish ladder, and a gate section. The first overflow section is a gravity structure of stone masonry and concrete construction with a concrete cap. It has a crest at elevation 40.5 feet. This section extends from the west bank 193 feet to an angle point and 44.5 feet from the angle point to the former fishway. This overflow section is equipped with a four-foot-high inflatable rubber bladder. The second overflow section extends from the gate section to the denil fish ladder and downstream fish sluice. This section is a concrete gravity structure, 24 feet long and has a crest at elevation 40.5 feet with four-foot-high pin-supported flashboards.

Upstream passage at the West Channel dam is by means of a denil fish ladder. There are also sorting facilities at this site. The denil ladder is four feet wide and approximately 550 feet long. The vertical rise is approximately 44 feet on a 1 vertical to 8 horizontal slope. The Exhibit F drawings show the facility details. The outdated notched weir and orifice fishway in the West Channel has been abandoned since 1991. Downstream passage consists of a gated flume.

East Channel Development:

The East Channel dam consists of an overflow section, a gate section, and an intake section. The overflow section is an 88-foot 8-inch-long concrete gravity structure with a fixed crest at elevation of 39.5 feet, topped by five-foot-high pneumatic crest gates. The crest gates are operated from a 10-foot-high by 12-foot-wide by 16-foot-long control building located above the powerhouse intake. The East Channel gate section contains a vertical lift Broome gate, 20 feet wide by 15 feet high. The sill of the gate is at an elevation of 29 feet. The powerhouse intake section is 49 feet 3 inches wide and is equipped with racks and two intake openings.

The powerhouse is located on Factory Island on the East Channel. The substructure, approximately 37 feet by 53 feet, houses a 9,000 HP Kaplan, S. Morgan Smith water wheel. The draft tube angles about 20 degrees to the intake and extends 30 feet downriver from the substructure where it discharges into tidewater. Two gates, each 15 feet wide by 12 feet 10 inches high are installed at the downstream end of the draft tube. The powerhouse superstructure is of structural steel and brick construction and houses a 6,650-kW generator (9,500 kVA at 0.7 P.F.) and associated equipment. A 60-ton capacity bridge crane is installed to service the unit.

Upstream passage is provided at the East Channel dam with a fish lift. The facilities include sorting and trap/truck provisions. The fish lift travels vertically approximately 44 feet from the tidal pool to the headpond. A 337-foot-long, 8-foot-wide flume extends upstream to the sorting facilities and the headpond. The sorting facilities include trap and trucking measures. Downstream passage consists of a gated flume.

West and East Channel Impoundment:

The pond created by East and West Channel dams has a normal full pond elevation of 44.0 feet, covers an area of about 13.7 acres and extends upstream approximately 0.3 miles to the Springs and Bradbury dams.

FIGURE 1A. PROJECT FACILITIES

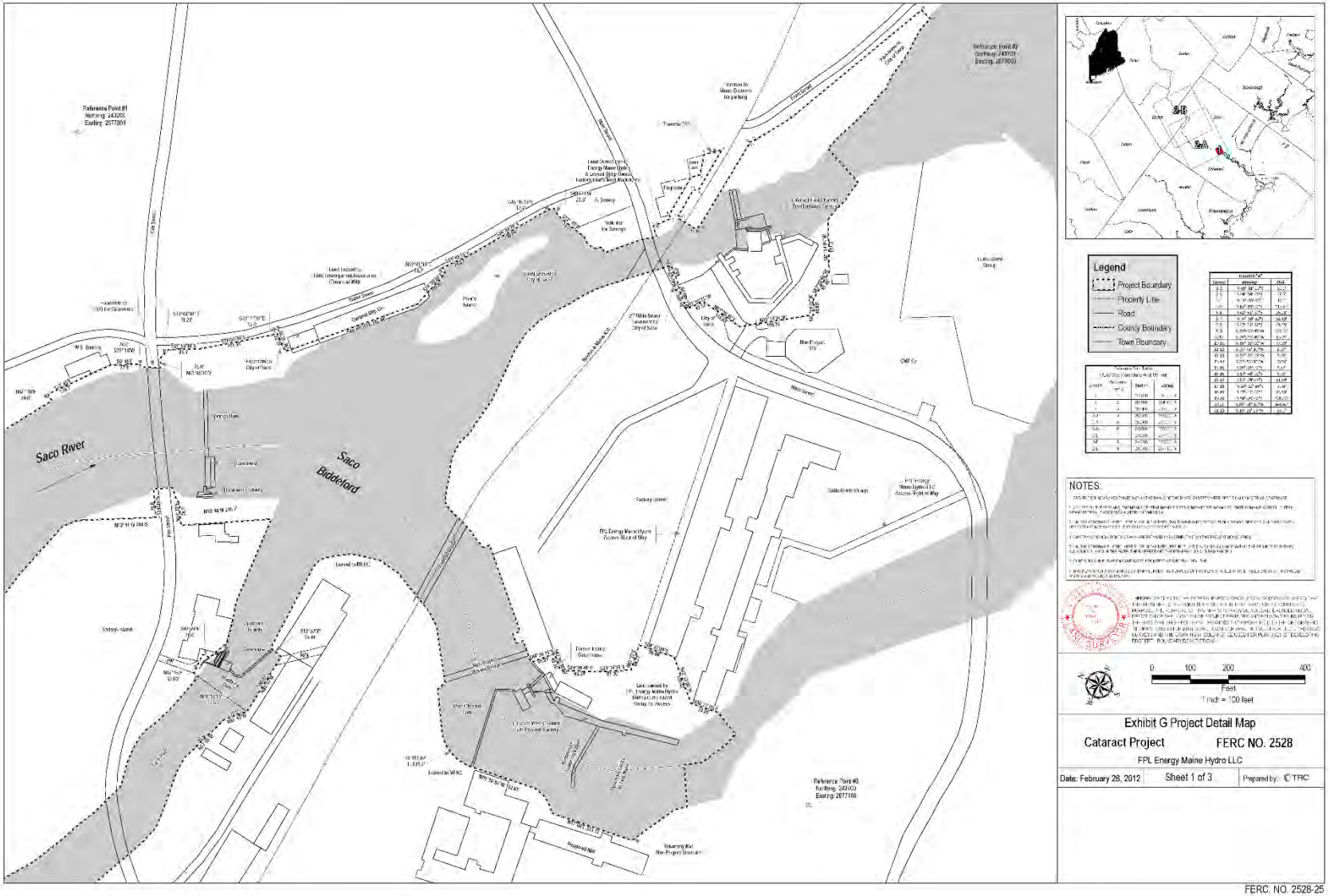
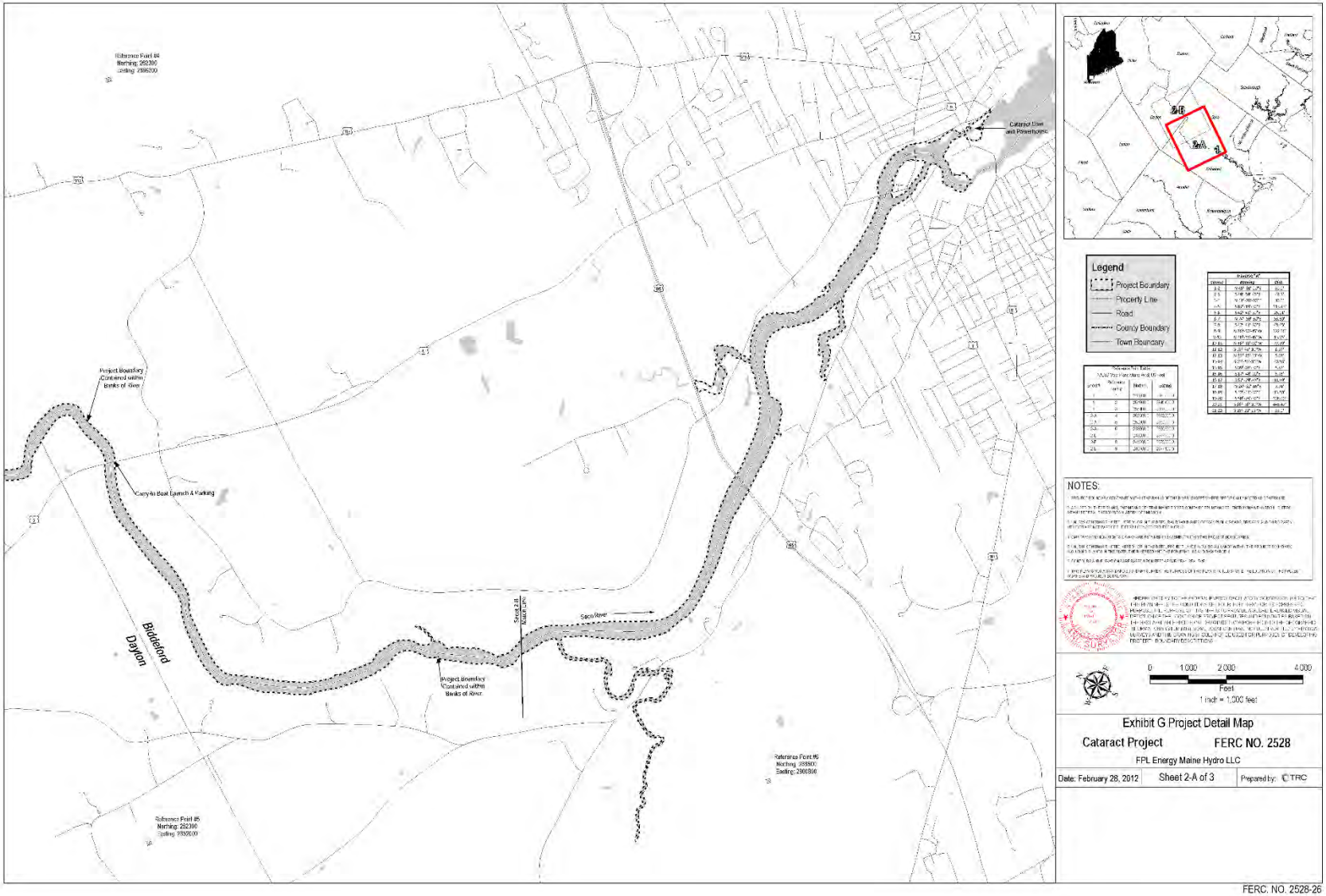
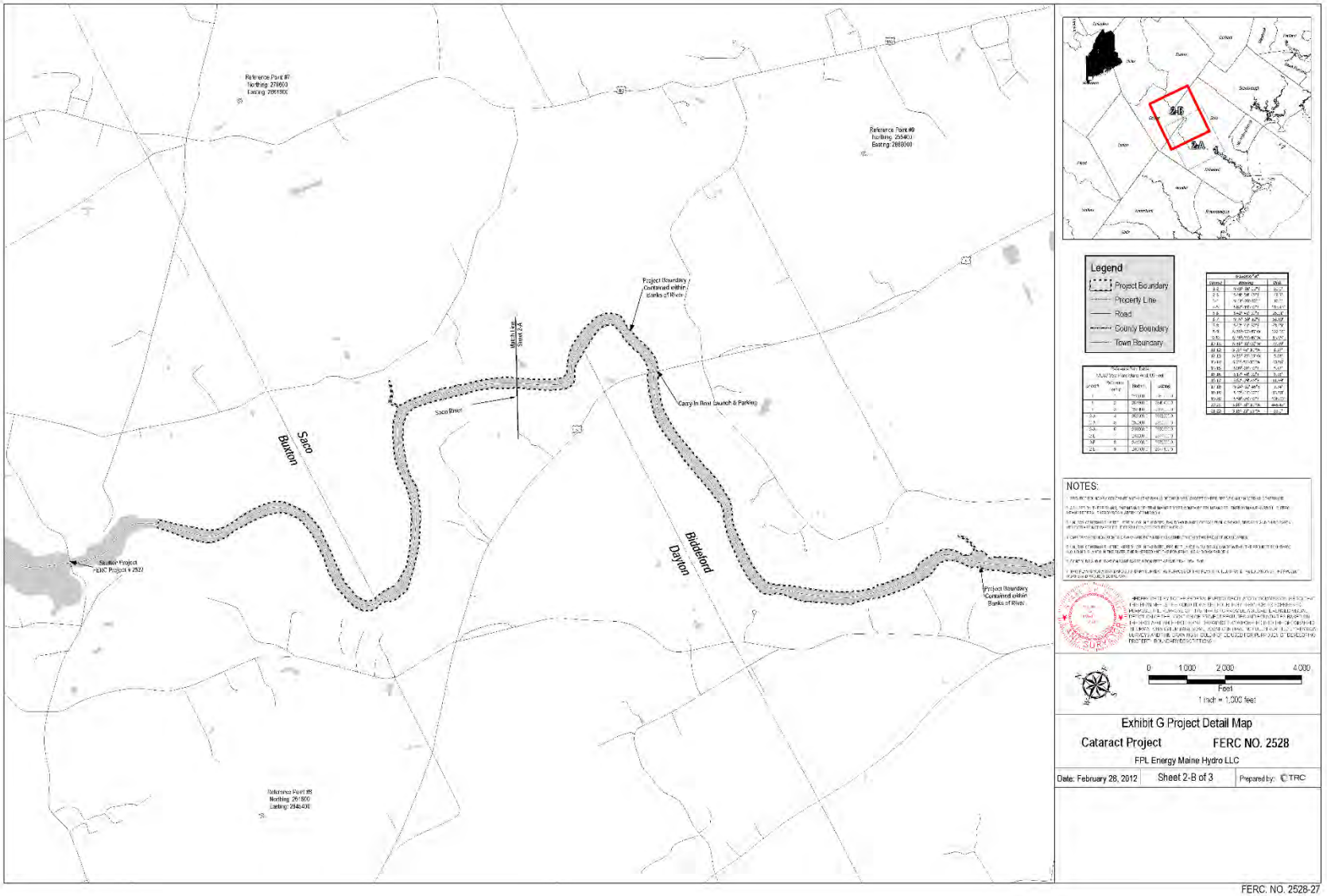


FIGURE 2B. PROJECT FACILITIES



FERC. NO. 2528-26

FIGURE 3C. PROJECT FACILITIES



FERC. NO. 2528-27

FIGURE 4. PROJECT FACILITIES – AERIAL VIEW

FIGURE 5. AERIAL OF PROJECT – SPRING ISLAND DAM

FIGURE 6. AERIAL OF PROJECT – BRADBURY DAM

FIGURE 7. AERIAL OF PROJECT – WEST CHANNEL DAM

FIGURE 8. AERIAL OF PROJECT – EAST CHANNEL DAM

1.2 PROJECT OPERATIONS

BWPH operates the Cataract Project to maintain a continuous minimum flow of 851 cfs downstream of the West Channel Dam and East Channel Dam. Operation of the project is managed in conjunction with the water flow and storage of upstream and projects in accordance with the 1997 Saco River Instream Flow Agreement.

Article 401 of the Cataract Project License requires the following:

"The licensee shall discharge from the Cataract Hydroelectric Project, a continuous minimum flow totaling 851 cubic feet per second, as measured immediately downstream from the project powerhouses in the Cataract and West channels of the Saco River, or inflow to the reservoir, whichever is less, for the protection and enhancement of fish and wildlife resources in the Saco River. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Maine Department of Environmental Protection (MDEP)."

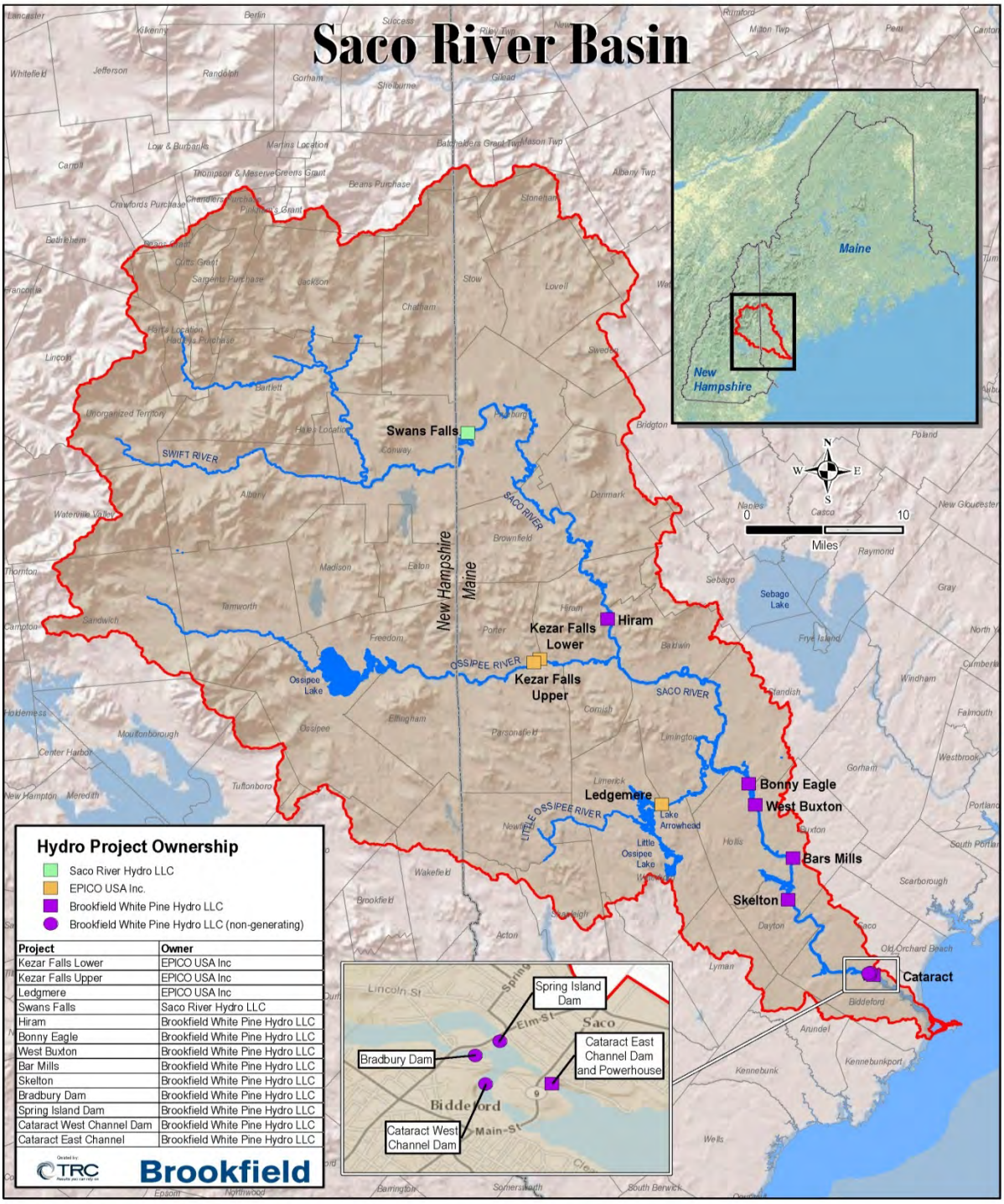
Operation of the Cataract Project is determined by releases from the upstream Skelton Project (FERC No. 2527). During periods of generation at the Cataract powerhouse, BWPH provides a total instantaneous minimum flow of 851 cubic feet per second (cfs) or inflow, whichever is less, as measured immediately downstream from the East Channel and West Channel dams. During periods of non-generation at the Cataract powerhouse, a minimum flow of 250 cfs is provided from the East and West Channel dams. Except as temporarily modified by approved maintenance activities, inflows to the Project area, or by operating emergencies beyond the Licensee's control, water levels in the Cataract impoundment are maintained at a normal surface elevation of 44-feet USGS.

1.3 PROJECT LOCATION

The Spring Island, Bradbury, West and East Channel Dams of the Cataract Project are located on the Saco River and are the lowermost dams on the river. The portion of the Saco River downstream of the West and East Channel Dams is tidally influenced. The next upstream dam from the Project is the Skelton Project, located approximately 9.3 miles upstream of the Spring Island Dam.

FIGURE 9. AERIAL OF PROJECT LOCATION – CATARACT PROJECT

FIGURE 10. OVERVIEW MAP OF THE SACO WATERSHED



Project	Owner
Kezar Falls Lower	EPICO USA Inc
Kezar Falls Upper	EPICO USA Inc
Ledgmere	EPICO USA Inc
Swans Falls	Saco River Hydro LLC
Hiram	Brookfield White Pine Hydro LLC
Bonny Eagle	Brookfield White Pine Hydro LLC
West Buxton	Brookfield White Pine Hydro LLC
Bar Mills	Brookfield White Pine Hydro LLC
Skelton	Brookfield White Pine Hydro LLC
Bradbury Dam	Brookfield White Pine Hydro LLC
Spring Island Dam	Brookfield White Pine Hydro LLC
Cataract West Channel Dam	Brookfield White Pine Hydro LLC
Cataract East Channel	Brookfield White Pine Hydro LLC

1.4 REGULATORY AND OTHER REQUIREMENTS

1.4.1 FERC LICENSE AND WATER QUALITY CERTIFICATION REQUIREMENTS

Operations: The Project is operated in a run-of-river mode, pursuant to Article 401 and Condition 5 of the Project's water quality certification, as described above with a total instantaneous minimum flow of 851 cubic feet per second (cfs)or inflow, whichever is less, as measured downstream of the West and East Channel Dams. In addition, Condition 4 of the water quality certification states: *Except as temporarily modified by approved maintenance activities or by inflows to the project area or by operating emergencies beyond the applicant's control, as defined below, water levels in the Cataract impoundment shall be maintained at the normal surface elevation of 44 ft USGS (flashboard crest elevation) and in the Spring/Bradbury impoundment shall be maintained between elevations 49.2 ft and 47.2 ft USFS (flashboard crest elevation to 2 feet below flashboard crest).*

Article 402 also requires flow monitoring at the Project. On January 4, 1990, the licensee filed with the Commission a minimum flow monitoring plan pursuant to license article 402 wherein the licensee proposed to use a computer controlled Supervisory Control and Data Acquisition system (SCADA) to monitor minimum flow and record hourly flow readings for the project. The Plan was approved by FERC order on May 9, 1990.

With one exception, the modifications to run-of-river operations, headpond elevations, and minimum flows that have occurred at the Cataract Project over the past 5 years have been permitted by the Cataract FERC license, i.e., they were either operating emergencies beyond the control of BWPH, or they were planned in consultation with resource agencies (see Section 6.0).

On June 2, 2016, a headpond excursion occurred at the Bradbury and Spring Island impoundment due to an error made by the system operator with low inflows exasperating the excursion which was not remedied for 9 hours and 49 minutes. On July 27, 2016, FERC determined that the excursion was a violation of Condition 4 of the water quality certification of the Cataract license. However, due to BWPH's follow-up actions, which included notification of the appropriate resource agencies and implementation of measures to prevent further such occurrences, no enforcement action was taken other than the notice of violation. The measures, which BWPH implemented in July 2016, included refresher alarm response training to the NSCC's entire system control staff, review license requirements with NSCC operators, and review of the training program for the operators (see Section 6.0 for minimum flow excursion report to FERC and FERC notice of violation).

Other license requirements for resource protection are as follows:

Article 403 - *The Licensee, within 1 year from the date of issuance of this license, shall file functional design drawings and a construction schedule to install, operate, and maintain fish passage facilities necessary to provide efficient upstream passage of Atlantic salmon, American shad, and alewife at the Cataract, West Channel, Springs, and Bradbury dams and downstream passage at the Cataract and West Channel dams of the Cataract Project. The fish passage facilities must be designed in cooperation with the U.S. Fish and Wildlife Service (FWS), the Maine Atlantic Sea Run Salmon Commission (MASRSC), the Maine Department of Marine Resources (MDMR), the Maine Department of Inland Fisheries and Wildlife (DlFW), and the*

National Marine Fisheries Service (NMFS). The comments and recommendations of these agencies on the adequacy of the fish passage facilities must be included in the filing. The licensee must file the functional design drawings for Commission approval, and the Commission reserves the right to modify the drawings and the schedule. The licensee must construct the facilities, as outlined in the construction schedule, and file as-built drawings pursuant to Article 303.

The licensee must also file a monitoring plan and a schedule to evaluate the effectiveness of the fish passage facilities within 1 year (from the date or issuance of this license). This monitoring plan must be designed in cooperation with the FWS, the MASRSC, the MDMR, the DIFW, and the NMFS. The licensee must file the monitoring plan, along with comments from the above-mentioned agencies, for Commission approval. The Commission reserves the right to modify the plan and schedule.

The results of the monitoring plan must be submitted to the Commission according to the approved schedule, along with comments from the consulted agencies on the results. If the monitoring results indicate that further measures are necessary to effectively pass Atlantic salmon, American shad, or alewife, the Licensee shall provide, for Commission approval, measures necessary to effectively pass migratory fish and a schedule for implementing these measures. These measures shall include structural and operational changes necessary to ensure that migratory fish effectively pass the project.

For the Cataract Project, the upstream and downstream fish passage facilities have been constructed and are operational. The licensee has been evaluating the effectiveness of the facilities, pursuant to the 1994 Agreement, according to the approved fish passage evaluation plan and schedule and have been filing annual reports to all State and Federal Fisheries Agencies annually.

Cataract East Channel Fishway (Operational in 1993)

The fishways at the Cataract East Channel Project are designed to operate up to river flows of 11,000 cubic feet per second (cfs). The fishway at the East Channel Dam consists of a lower entrance flume and crowding area, a 45-foot high fish lift or elevator, and an upper exit flume leading into the impoundment. Upper flume water flow is approximately 40 cfs with a velocity of 1 foot per second (fps). Total attraction water flow is approximately 80 cfs with an entrance velocity averaging 5 fps. In an effort to enhance fish passage in 1995, the East Channel fish lift attraction water system was reprogrammed to shut off water flow to the lower flume downstream attraction water diffuser and increase water flow to the upper diffuser. This change increased velocity in the lower flume and eliminated the upwelling flow from the lower diffuser. The modification proved successful in 1995 and has been continued since. (See 1995 Cataract Fishway study report section 4.4 for more detailed information on water flow modification and fish passage observations made at the East Channel fish lift.)

A counting window and sorting, trapping, and trucking facilities are located near the exit of the upper flume. Fish can be released to swim into the Cataract impoundment or can be transported to upstream locations (i.e. Springs and Bradbury impoundment for shad). Fish transport takes place in one of two stocking trucks assigned to the fishway. The trucks are

equipped with 990-gallon circular fiberglass insulated tanks with aeration systems utilizing bottled oxygen and water pumps that circulate water in the tanks.

Cataract West Channel Fishway (Operational in 1993)

The 550-foot-long Denil fishway at the West Channel is 4 feet wide with a 1-foot vertical by 8-foot horizontal slope. The minimum depth of water in the fishway is 2.5 feet with a minimum flow of 12 cfs. The maximum attraction water flow is 33 cfs with an entrance velocity of 2 to 6 fps. A counting window and associated trapping structures are located near the exit of the fishway and target species can swim freely into the Cataract impoundment. A floating trash boom was installed in front of the West Channel exit to help keep floating debris from entering the fishway.

Springs and Bradbury Fishways (Operational in 1997/2019)

The fish locks at Springs and Bradbury dams are designed to operate at river flows up to 11,000 cfs and consist of a 5.0-foot-wide by 28.0-foot-long lock chamber and a 5.0-foot-wide by 11.0-foot-long exit-way (Figure 4). The lock fluctuates water elevation allowing salmon, shad, and river herring to ascend the 5.0-ft elevation difference at the dams. A new Natural Like Fishway was constructed at the Springs Dam in 2019. The Natural Like Fishway is approximately 100' wide by 300' long and consists of large boulders placed on a solid based lightly sloped ramp. This provides river flows in a slow broken up manner for fish to ascend or descend volitionally year-round.

The locks have a minimum water depth of 5.0 ft and operate with a flow of approximately 80 cfs and a fishway entrance velocity of 4 to 6 fps. The 80 cfs attraction water attracts the fish through the downstream lock gate. The fish then swim through the crowder and remain in the lock chamber. During the cycling process, the downstream gate closes and the surface water elevation in the lock chamber rises from 44.0 ft to 49.2 ft. The upstream gate then opens and the crowder slowly moves toward the upstream gate guiding the fish into the upstream reservoir.

The upstream gate then closes and the crowder moves back to its original position (referred to as the fishing position). The discharge gate then opens, returning the surface water elevation in the lock chamber to 44.0 ft. and the downstream gate opens to complete the process.

On March 27, 2007, Licensee filed its 2000-2005 Saco River Fish Passage Assessment Report and recommendations, via part of a Settlement Offer for fish passage and fisheries management at the Skelton Project (FERC No. 2528-ME), Cataract Project (FERC No. 2528-ME), Bonny Eagle Project (FERC No. 2529-ME), Hiram Project (FERC No. 2530-ME), and the Bar Mills Project (FERC No. 2194-ME).

On July 17, 2007, the FERC issued an order modifying and approving the Saco River Fish Passage Assessment Report and recommendations for fish passage and fisheries management.

In addition, Amendment #2 to the Saco River Fisheries Assessment Agreement states that:

(a) Upon the completion of construction and improvements at Cataract East and West described in paragraph (c) below, the Springs Island nature-like fishway ("NLF") and Skelton are anticipated for no later than May 1, 2020. Licensee will conduct no less than two (2) years of upstream and downstream fish passage studies for adult and juvenile alewife and American shad (the "Study") beginning in the Spring of 2021 or the Spring following the completion of the NLF. Additional years may be needed depending on environmental conditions and Study results, but the Study period will not extend beyond a total of three (3) years for each applicable facility unless agreed upon by Licensee and the other Parties. The purpose of the Study is to assess the passage improvements made at Cataract East and West, the new NLF at Springs Island and Skelton. The Study will use standard telemetry techniques to determine near-field and far-field attraction, passage efficiencies, and downstream mortality. The design of the Study will be reviewed and approved by the Resource Agencies before filing with FERC. Annual Study results will be reviewed and used to inform subsequent studies. Upstream and downstream passage issues that may be identified based on Study results and specifically noted by the Resource Agencies will be addressed through minor structural, mechanical, operational or procedural adjustments by Licensee.

(b) Licensee will implement the USFWS/NMFS Engineering Recommendations for Saco River Projects ("Improvements"), identified within the USFWS memorandum dated July 26, 2017 ("Memo") and attached hereto as Attachment D, to resolve the issues related to fish passage at Cataract East and West and Skelton ("Issues") identified therein. These Improvements are intended to be structural in nature, however, it is recognized that alternative solutions may be adopted to address the Issues, provided that: (1) the Resource Agencies agree that such solutions are more effective than the Improvements; (2) such solutions are consistent with the 2017 FWS Fish Passage Engineering Design Criteria, or are otherwise approved by the Resource Agencies; and (3) such solutions are within a similar scope and cost to the Improvements. Construction will be completed no later than May 1, 2020 (the "Construction Completion Date") except that, if there is a deviation from the Design Schedule (as defined below) resulting from the actions of any signatory to this Agreement that is not the Licensee, the Construction Completion Date shall be extended by a period equal to the Design Schedule delay. Prior to implementing the Improvements, Licensee will undergo a complete design review process (30, 60, 90% designs) according to a design schedule ("Design Schedule") to be established by the Resource Agencies in consultation with Licensee. The Resource Agencies must approve such designs before construction is commenced. The Resource Agencies will review the existing O&M plans, including the Cataract East and West stranding protocol, and will provide feedback to Licensee to ensure they are sufficient to avoid stranding-associated mortality of fish species.

Article 405 of the Project license states:

The licensee, after consultation with the US. Fish and Wildlife service (FWS) and the Maine Department of Environmental Resources (MDEP), shall develop a plan and a schedule for performing annual maintenance cleaning at the Cataract and West Channel dams that provides for the protection of fish resources and water quality in the Saco River. The plan shall include alternatives to the present practice of drawdown of the Cataract headpond, including limiting

annual maintenance drawdown, if a drawdown is shown to be necessary, to the period from December l through April and to a maximum duration of 36 hours in order to protect the anadromous fishery in the Saco River. The licensee shall file the plan and schedule, along with comments and recommendations from the FWS and the MDEP, for Commission approval within l year from the issuance date of this license. The Commission reserves the right to modify the plan and schedule. Until such ·time of approval for the plan and schedule by the Commission, the licensee shall restrict any drawdown maintenance cleaning to the period December 1 through April 1.

BWPH has committed to maintaining minimum flows and headpond levels during these times by conducting work during low flow periods. If work is necessary, written approval by the USFWS, MDIFW, NMFS, and MDEP is required before conducting any work.

The Cataract Project also has FERC-required recreation monitoring requirements in place per Article 407 of the FERC License which states in part: *The licensee, after consultation with the United States Fish and Wildlife Service, the Maine Department of Conservation, the Maine Department of Inland Fisheries and Wildlife, the Saco Parks and Recreation Department and the Saco River Corridor Commission, shall monitor recreational use of the project area, above and below the project dams, to determine whether existing recreational facilities are meeting recreational needs. Monitoring studies shall begin within 5 years of the issuance of the license and shall consist, at a minimum, of annual recreation use data (using recreation days as the unit of measure) and meetings with the consulted agencies every 5 years.*

This article was amended on August 31, 1995; May 7, 1997; August 12, 2003; and June 28, 2004. These amendments are attached in section 6.8 and further discussed in Section 3.8.

Article 406 requires: *The licensee, before starting any ground-disturbing activities within project boundaries, shall consult with the Maine State Historic Preservation Office·(SHPO). If the licensee discovers previously unidentified archeological or historic properties while constructing or developing project facilities, the licensee shall stop all ground-disturbing activities near the properties and consult, with the SHPO. In either instance, the licensee shall file a cultural resource management plan for Commission approval.*

The management plan shall be prepared by a qualified cultural resource specialist and shall include: (1) a description of each discovered property indicating whether it is listed on or eligible for listing on ,the National Register of Historic Places; (2) a description of the potential adverse impacts on each discovered property; (3) proposed measures for avoiding or mitigating impacts; (4) a schedule for mitigating impacts and conducting additional studies; and (5) documentation of consultation with the SHPO.

The licensee shall not conduct ground-disturbing activities or resume such activities in the vicinity of a property discovered during construction; until the plan is approved by the Commission. The Commission may require changes to the plan.

To date, no ground-disturbing activities have been undertaken at the Project. Where modifications to project structures have been implemented, such as the construction of fish passage facilities or pneumatic crest gates, the Licensee has consulted with the Maine State Historic Preservation Office accordingly, which is also a necessary step for US Army Corps of Engineers permitting.

Documentation associated with the above referenced license and water quality certification condition compliance, such as resource management plans, are provided as hyperlinks in Section 6.0.

1.4.2 LIHI CERTIFICATION REQUIREMENTS

As this is an initial application for LIHI Certification, the Cataract Project is not currently subject to LIHI Certification Conditions.

TABLE 1. FACILITY INFORMATION

Item	*Information Requested*	*Response (include references to further details)*
Name of the Facility	Facility name (use FERC project name or other legal name)	Cataract Project (FERC No. 2528)
Location	River name (USGS proper name)	Saco River
	Watershed name (select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html)	01060002 - Saco
	Nearest town(s), county(ies), and state(s) to dam	Cities of Biddeford and Saco Towns of Dayton and Buxton York County Maine
	River mile of dam	East Channel: 6 West Channel: 6 Bradbury: 6.3 Spring Island: 6.3
	Geographic latitude of dam	East Channel: 43° 29’ 44.45”N West Channel: 43° 29’ 42.73”N Bradbury: 43° 29’ 51.10”N Spring Island: 43° 29’ 54.22”N
	Geographic longitude of dam	East Channel: 70° 26’ 48.34”W West Channel: 70° 27’ 8.86”W Bradbury: 70° 27’ 11.42”W Spring Island: 70° 27’ 4.85”W
Facility Owner	Application contact names (Complete the Contact Form in Section B-4 also):	Kelly Maloney, Compliance Manager, Northeast Region
	Facility owner company and authorized owner representative name. **For recertifications: If ownership has changed since last certification, provide the date of the change.**	Brookfield Renewable Partners LP Kelly Maloney, Compliance Manager, Northeast Region
	FERC licensee company name (if different from owner)	Brookfield White Pine Hydro, LLC
Regulatory Status	FERC Project Number (e.g., P-2528), issuance and expiration dates, or date of exemption	FERC No. 2528 Issued June 29, 1989 Expires November 30, 2029
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”)	Hydropower license for Major Project; Federal Power Act

Item	*Information Requested*	*Response (include references to further details)*
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	WQC #L-016084-33-B-Z, Issued August 12, 1992 by the Maine Department of Environmental Protection.
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	See Sections 6.0 and 7.0 for hyperlinks to or documentation of relevant records including FERC License and Amendment Orders; Section 401 Water Quality Certification; FERC and regulatory filings; and other key documents.
Powerhouse	Date of initial operation (past or future for pre-operational applications)	1938
	Total installed capacity (MW) **For recertifications: Indicate if installed capacity has changed since last certification**	6.65 MW
	Average annual generation (MWh) and period of record used **For recertifications: Indicate if average annual generation has changed since last certification**	30,868MWh (Period of Record: 2013 to 2018)
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) **For recertifications: Indicate if mode of operation has changed since last certification**	Run-of-river with minor fluctuations in headpond elevation and minimum flows of 851 cfs.
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	1 Turbine-Generators, Kaplan with a max hydraulic capacity of 2,600 cfs, a minimum hydraulic capacity of 1,300 cfs, and an installed generating capacity of 6.65 MW.
	Trashrack clear spacing (inches), for each trashrack	3.5 inches
	Dates and types of major equipment upgrades	New bearings in 2005
	Dates, purpose, and type of any recent operational changes	Run-of-river facilities since FERC license issued in 1989, only short-term operational changes for maintenance and inspections. There have been no license modifications pertaining to operational changes other than the installation of fish passage facilities requiring the provision of specific flow

Item	*Information Requested*	*Response (include references to further details)*
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	None
Dam or Diversion	Date of original construction and description and dates of subsequent dam or diversion structure modifications	East Channel: original 1938 West Channel: Rubber dam 2005 Bradbury: none Spring Island: 2019 Natural like fishway
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	East Channel: 39.5' fixed crest; 44.5' top of pneumatic crest gates. West Channel: 40.5' fixed crest; 44.5' top of inflatable rubber bladder. Bradbury: 47.7' fixed crest; 49.37 top of pin supported flashboards. Spring Island: 47.7' fixed crest; 49.2 top of pin supported flashboards.
	Spillway elevation and hydraulic capacity	East Channel: 39.5' fixed crest; 44.5' top of pneumatic crest gates; 3,375 cfs. West Channel: 40.5' fixed crest; 44.5' top of inflatable rubber bladder; 3,956 cfs. Bradbury: 47.7' fixed crest; 49.37 top of pin supported flashboards; 12,335 cfs. Spring Island: 47.7' fixed crest; 49.2 top of pin supported flashboards; 15,527 cfs.
	Tailwater elevation (provide normal range if available)	East Channel: Tidal West Channel: Tidal Bradbury: 44' Spring Island: 44'
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	No penstock
	Dates and types of major infrastructure	None
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power
	Source water	Saco River
	Receiving water and location of discharge	Saco River
Conduit	Date of conduit construction and primary purpose of conduit	N/A
Impoundment and Watershed	Authorized maximum and minimum water surface elevations **For recertifications: Indicate if these values have changed since last certification**	Bradbury/Spring Island Impoundment: 49.2' normal full; 47.2' minimum West Channel/East Channel Impoundment: 44.0' normal full; no minimum but managed as run of river

Item	*Information Requested*	*Response (include references to further details)*
	Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification**	Both impoundments are operated as run-of-river with stable headpond targets
	Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification**	<u>Bradbury/Spring Island Impoundment:</u> Gross Storage Volume: approximately 711 acre-ft Surface Area: 359 acres at normal full pond <u>West Channel/East Channel Impoundment:</u> Surface Area: 13.7 acres at normal full pond
	Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification**	<u>Bradbury/Spring Island Impoundment:</u> Negligible; run-of-river <u>West Channel/East Channel Impoundment:</u> Negligible; run-of-river
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	Operated in a run-of-river mode where inflow equals outflow with a minimum flow of 851 cfs measured downstream of the West and East Channel dams. Flows in excess of station hydraulic capacity of 2,600 cfs are spilled over West and East Channel dams.

Item	*Information Requested*	*Response (include references to further details)*
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Skelton Project, River mile 15.6 Brookfield White Pine Hydro, LLC; FERC No. 2527, upstream and downstream fish passage; upstream and downstream eel passage Bar Mills, River mile 20 Brookfield White Pine Hydro, LLC; FERC No. 2194, no upstream or downstream fish passage; upstream eel passage West Buxton, River mile 24 Brookfield White Pine Hydro, LLC; FERC No. 2531, no upstream or downstream fish passage; upstream eel passage Hiram Project, River mile 46 Brookfield White Pine Hydro, LLC FERC No. 2530, no upstream or downstream fish passage; upstream eel passage
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	None
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	None
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	Water: The pond created by the East and West Channel Dams covers an area of approximately 13.7 acres. The impoundment created by Springs and Bradbury Dams has an area of about 359 acres. Land: Undetermined; limited to lands encompassing project structures

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response (include references to further details)</th></tr>
<tr><td rowspan="4">Hydrologic Setting</td><td>Average annual flow at the dam, and period of record used</td><td>Period of Record 2010-2018
<table><tr><th>Year</th><th>Average Flow (cfs)</th></tr><tr><td>2010</td><td>3,337</td></tr><tr><td>2011</td><td>3,789</td></tr><tr><td>2012</td><td>2,924</td></tr><tr><td>2013</td><td>2,753</td></tr><tr><td>2014</td><td>2,954</td></tr><tr><td>2015</td><td>2,167</td></tr><tr><td>2016</td><td>2,152</td></tr><tr><td>2017</td><td>3,362</td></tr><tr><td>2018</td><td>2,920</td></tr><tr><td>Average</td><td>2,929</td></tr></table></td></tr>
<tr><td>Average monthly flows and period of record used</td><td>Period of Record 2010-2018
<table><tr><th>Month</th><th>Average Flow (cfs)</th></tr><tr><td>January</td><td>2,920</td></tr><tr><td>February</td><td>2,240</td></tr><tr><td>March</td><td>3,750</td></tr><tr><td>April</td><td>6,440</td></tr><tr><td>May</td><td>4,190</td></tr><tr><td>June</td><td>2,590</td></tr><tr><td>July</td><td>1,670</td></tr><tr><td>August</td><td>1,230</td></tr><tr><td>September</td><td>1,250</td></tr><tr><td>October</td><td>2,160</td></tr><tr><td>November</td><td>3,240</td></tr><tr><td>December</td><td>3,440</td></tr></table></td></tr>
<tr><td>Location and name of closest stream gauging stations above and below the facility</td><td>432742070225401 Saco River at Camp Ellis near Saco, Maine</td></tr>
<tr><td>Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.</td><td>1,703 sq. miles</td></tr>
<tr><td>Designated Zones of Effect</td><td>Number of zones of effect</td><td>5</td></tr>
</table>

Item	*Information Requested*	*Response (include references to further details)*
	Upstream and downstream locations by river miles	Zone 1: Bradbury/Spring Island Impoundment; RM 15.6 to 6.3 Zone 2: West Channel/East Channel Impoundment; RM 6.3 to RM 6.0 Zone 3: West Channel Tailrace/Project Bypass Reach; RM 6.0 to RM 5.8 Zone 4: East Channel Tailrace; RM 6.0 to 5.8 Zone 5: Regulated Downstream River Reach; RM 5.8 to 5.6
	Type of waterbody (river, impoundment, bypassed reach, etc.)	Zone 1: Bradbury/Spring Island Impoundment; impounded portion of the Saco River extending upstream of the Bradbury and Spring Island Dams to the base of the Skelton Project tailrace Zone 2: West Channel/East Channel Impoundment; impounded portion of the Saco River extending from the West and East Channel dams upstream to the base of the Bradbury and Spring Island dams Zone 3: West Channel Tailrace/Project Bypass Reach; regulated flow into the Saco River downstream of the West Channel dam, also serves as the bypass reach for the project powerhouse at the East Channel dam Zone 4: East Channel Tailrace; regulated flow into the Saco River downstream of the East Channel powerhouse and dam Zone 5: Regulated Downstream River Reach; regulated flow into the Saco River downstream of the confluence of the West and East Channel dams flow
	Delimiting structures or features	Zone 1 – Bradbury and Spring Island Dams Zone 2 – West Channel and East Channel Dams
	Designated uses by state water quality agency	Drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation; navigation; and as a habitat for fish and other aquatic life.
Pre-Operational Facilities		

Item	*Information Requested*	*Response (include references to further details)*
Expected operational date	Date generation is expected to begin	N/A
Dam, diversion structure or conduit modification	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	N/A
Change in water flow regime	Description of any change in impoundment levels, water flows or operations required for new generation	N/A

2.0 ZONES OF EFFECT

Zone 1 - River Miles 15.6-6.3: The impoundments of the Cataract Project include upstream of the Spring Island and Bradbury Dams and upstream of the West and East Channel dams. As discussed above, the Saco River is impounded to the base of the upstream Skelton Project by the Bradbury and Spring Island dams.

Zone 2 - River mile 6.3-6.0: Flow from these developments is discharged into a small impoundment formed by the West and East Channel Dams.

Zone 3 – River mile 6.0-5.8: The West Channel dam provides flows into a bypass reach to the west of Factory Island.

Zone 4 – River mile 6.0-5.8: Flows discharging from the East Channel Dam and powerhouse comprise the Project tailrace.

Zone 5 – River mile 5.8-5.6: Where the flows of the West and East Channel dams converge downstream of Factory Island is the regulated downstream river reach.

FIGURE 11. ZONES OF EFFECT – UPSTREAM IMPOUNDMENT (ZONE 1) AND DOWNSTREAM REGULATED REACH (ZONE 5)

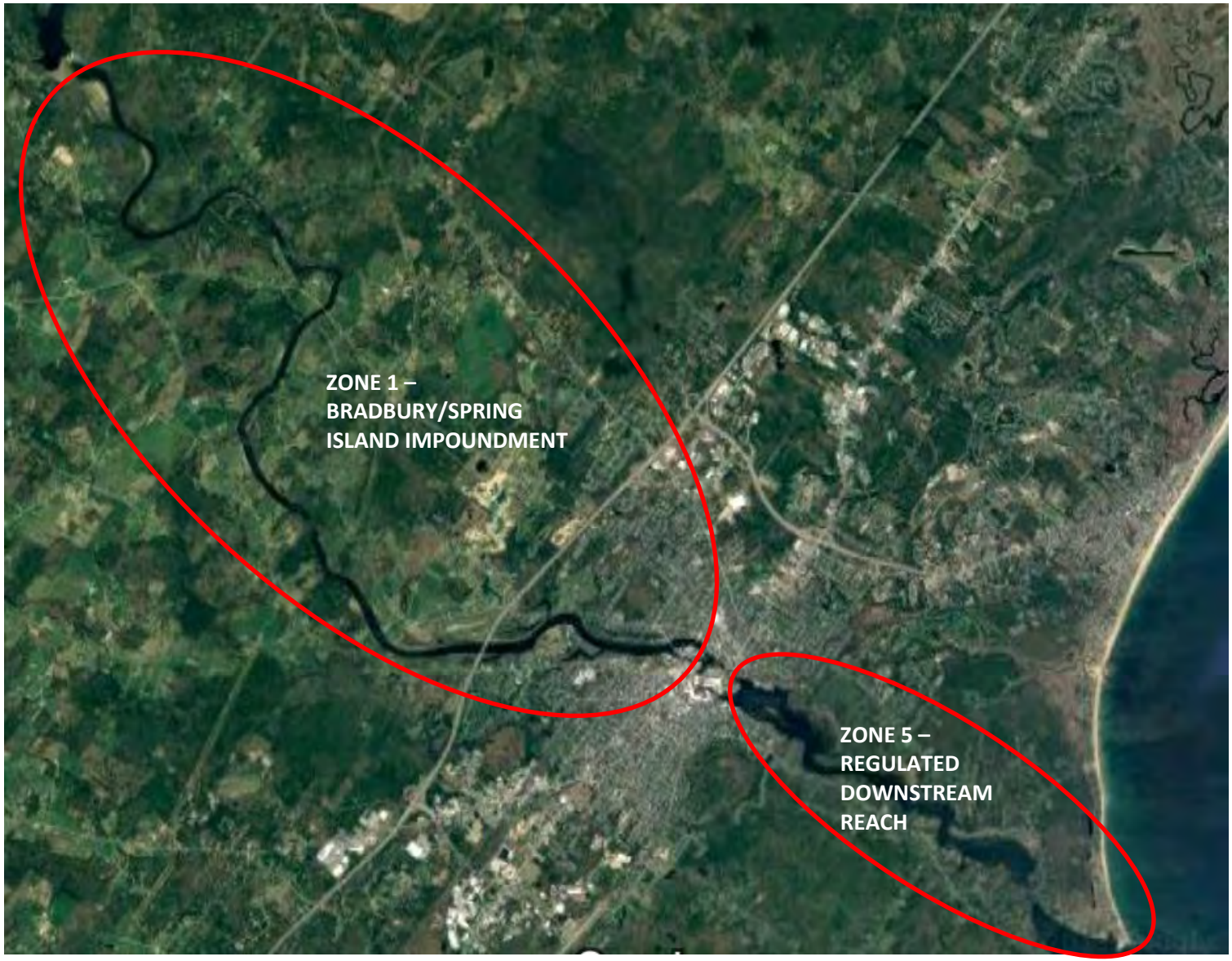
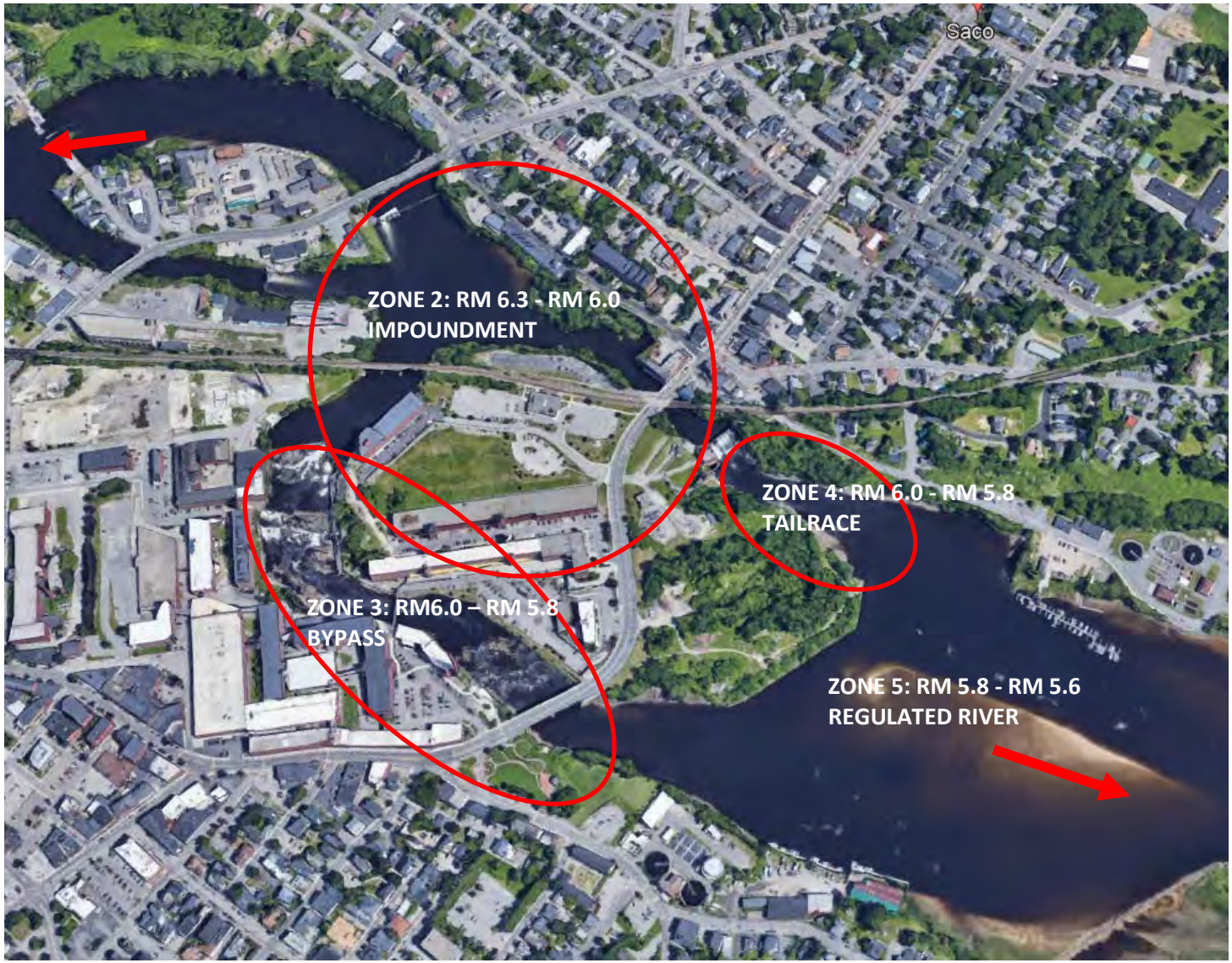


FIGURE 12. ZONES OF EFFECT –IMPOUNDMENT (ZONE 2), BYPASS REACH (ZONE 3) AND TAILRACE (ZONE 4)



2.1 ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

The impounded river reach upstream of the Bradbury and Spring Island Dams is identified as Zone of Effect #1 and located at River mile 15.6 to 6.3 of the Saco River.

FIGURE 13. ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

TABLE 2. ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cataract Project Zone of Effect: _1 – Bradbury/Spring Island 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***			
G	**Cultural and Historic Resources Protection**	***X***				
H	**Recreational Resources**		***X***			

Flows into Zone 1 are provided by the upstream Skelton Project, as the Bradbury and Spring Island Dams backwater to the tailrace of the Skelton Project. The Bradbury/Spring Island impoundment is operated as run-of-river with stable headpond management. The water quality of this reach is classified as Class A above the Interstate 95 bridge and Class B from the Interstate 95 bridge crossing to tidewater (which includes the lower portion of the Bradbury/Spring Island impoundment and the remaining Zones of Effect).

There are anadromous fish species in this section of the Saco River, that pass from downstream of the Project via the upstream and downstream fish passage facilities of the Cataract Project dams. As the Cataract Project operates to maintain a stable headpond, lands adjacent to this Zone of Effect are generally unaffected by project operations. Two species are listed as Threatened in the project area, Small whorled pogonia and Northern Long-Eared Bat, but they are not affected by routine project operations. Limited vegetation removal may occur within project lands surrounding the Saco River for maintenance purposes.

There are no prehistoric archaeological sites. There are no formal recreation facilities specifically within this Zone of Effect, though recreation does occur on the impoundment (day use fishing and canoeing). The impoundment is accessed for recreational activities via the Diamond Riverside boat launch approximately .5 miles upstream on the Saco side of the river of the Springs and Bradbury dams, and the Rotary Park boat launch located on the Biddeford side of the river approximately 1 mile upstream of Springs and Bradbury Dams.

2.2 ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

The impounded river reach upstream of the West Channel and East Channel Dams is identified as Zone of Effect #2 and located approximately at River mile 6.0 to 6.3 of the Saco River.

FIGURE 14. ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

TABLE 3. ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cataract Project **Zone of Effect: 2 – West/East Channel 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*			
G	Cultural and Historic Resources Protection	*X*				
H	Recreational Resources	*X*				

Flows into Zone 2 are provided by the upstream Bradbury and Spring Island Dams to which the West and East Channel Dams backwater to the tailraces. The West Channel/East Channel impoundment is as run-of-river with stable headpond management. The water quality of this reach is classified as Class B. There are anadromous fish species in this section of the Saco River, that pass via the upstream and downstream fish passage facilities of the Cataract Project dams. Specifically, fish pass the West and East Channel Dam fishways into the West/East Channel impoundment and continue past Zone 2 via the Spring Island and Bradbury Dam fish locks and the Spring Island Nature Like Fishway. As the Cataract Project, including the Zone 2 impoundment, is operated to maintain a stable headpond, lands adjacent to this Zone of Effect are generally unaffected by project operations. Two species are listed as Threatened in the project area, Small whorled pogonia and Northern Long-Eared Bat, but they are not affected by routine project operations. Limited vegetation removal may occur within project lands surrounding the Saco River for maintenance purposes. There are no prehistoric archaeological sites. There are no recreation facilities and no public access to this portion of the Project.

2.3 ZONE 3 – WEST CHANNEL TAILRACE/PROJECT BYPASS REACH

West Channel Tailrace/Project Bypass Reach is located between RM 6.0 to RM 5.8 of the of the Saco River.

FIGURE 15. ZONE 3 – WEST CHANNEL TAILRACE/PROJECT BYPASS REACH

TABLE 4. ZONE 3 –WEST CHANNEL TAILRACE/PROJECT BYPASS REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cataract Project Zone of Effect: 3 –West Channel Tailrace/Project 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*			
G	Cultural and Historic Resources Protection	*X*				
H	Recreational Resources		*X*			

The West Channel Dam provides flow into this portion of the Saco River which is also the bypass reach of the Project. Run of river operations provide flows into this reach once flows exceed the East Channel unit and gate output. Approximately 50 cfs is continually passed through the West Channel upstream fishway as well as 52 cfs through the downstream bypass. This water quality of this reach of the river is Class B. There are anadromous fish species in this section of the Saco River, which are passed upstream via the fish ladder and downstream via the downstream fish flume. There are no project recreation sites located within this Zone of Effect though the falls are a feature in the adjacent riverside pedestrian paths.

2.4 ZONE 4– EAST CHANNEL TAILRACE

The East Channel tailrace is located between RM 6.0 to RM 5.8 of the Saco River and is located immediately below the East Channel Dam extending to the point downstream where the flows from the West Channel Dam converge.

FIGURE 16. ZONE 4 – EAST CHANNEL TAILRACE

TABLE 5. ZONE 4 – EAST CHANNEL TAILRACE MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cataract Project **Zone of Effect: 4 – East Channel Tailrace**

	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***			
G	**Cultural and Historic Resources Protection**	***X***				
H	**Recreational Resources**		***X***			

Generation flows plus flows in excess of station capacity are discharged into this reach. This reach of the river is Class B. There are anadromous fish species in this section of the Saco River, which are passed upstream via the fish lift and downstream via the downstream fish flume. There are no project recreation sites located within this Zone of Effect though the City of Saco manages adjacent riverside pedestrian paths which provide access for fishing.

2.5 ZONE 5 –REGULATED DOWNSTREAM RIVER REACH

The powerhouse discharges to the Saco River just upstream of the confluence with West Channel Dam flows from the bypass reach. The Zone of Effect for this reach extends from RM 5.8 to RM 6.0 of the Saco River, the project boundary identified in Figure 1A demonstrates that the project boundary ends just below the East and West Channel Dams.

FIGURE 17. ZONE 5 –REGULATED DOWNSTREAM RIVER REACH

TABLE 6. ZONE 5 –REGULATED DOWNSTREAM RIVER REACH MATRIX OF ALTERNATIVE STANDARDS

Facility Name: Cataract Project Zone of Effect: 5– Regulated Downstream River 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*			
G	**Cultural and Historic Resources Protection**	*X*				
H	**Recreational Resources**		*X*			

As discussed above, the reach of the Saco River downstream of the West Channel Dam (bypassed reach) and the East Channel Dam and powerhouse receives a minimum flow of 851 cfs, provided as a combination of flows from both. Flows in excess of project capacity is released at either the West Channel Dam (Zone 3 – West Channel Tailrace/Project Bypass Reach) and/or East Channel Dam (Zone 4 – East Channel Tailrace). During periods of non-generation at the East Channel powerhouse, a minimum flow of 250 cfs is provided from the East and West Channel dams. Approximately 120 cfs is provided via the East Channel upstream fishway. This reach is Class B and is unaffected by run-of-river operations. Anadromous fish species in this section of the Saco River have egress to reaches upstream as there are no impediments to passage from the Project to the ocean and upstream and downstream fish passage facilities are in place at the Project.

Impoundment shoreline lands within the Cataract project boundary are limited to just those encompassing project features and the project boundary does not extend to portions of the Saco River within Zone 5. As with other Zones of Effect, two species are listed as Threatened in the project area, Small whorled pogonia and Northern Long-Eared Bat, but they are not affected by routine project operations. There are several formal recreation facilities in this Zone of Effect including Saco Yacht Club boat launch, Diamond Riverside boat Launch, and Camp Ellis boat launch but none are project recreation facilities.

3.0 LIHI CERTIFICATION CRITERION

The Project is operated as a run of the river facility with agency required minimum flows. Lands within the project boundary are limited to those required for project operations, project, and project recreation facilities. There are no documented endangered or threatened aquatic species in this reach of the Saco River. The Small Whorled Pogonia and the Northern Long Eared Bat range is identified in the vicinity of the Project, the Project has no effect on the species as there are no tree-clearing activities or corridor maintenance activities. Cultural sites are present within and adjacent to the project boundary, but project operations have no effect on these resources. The project has a FERC approved recreation monitoring plan in place.

3.1 ECOLOGICAL FLOWS

The stated Low Impact Hydropower Institute goal for Criterion A – Ecological Flow Regimes is "The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources." A discussion of the applicable standards by Zone of Effect is provided in the Sections below.

3.1.1 ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

Criterion	Standard	Supporting Information
A	**1** The facility operates in a true run-of-river operational mode and there are no bypassed reaches or water diversions associated with the facility	Not Applicable / De Minimis Effect: • For run-of-river facilities, provide details on operations and demonstrate that flows, water levels, and operation are monitored to ensure such an operational mode is maintained. If deviations from required flows have occurred, discuss them and the measures taken to minimize reoccurrence.

The Project is operated in a run-of-river mode with minimal impoundment fluctuations. Springs and Bradbury have a lower license limit of 47.7' and the top of the 18" flashboards is 49.2. With inflow from the Skelton Project approximately 9.6 miles upstream, which is discharged into Zone 1 – Bradbury/Spring Island Impoundment.

Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Cataract and Skelton projects and as discharged through dam structures continuously to maintain compliance with requirements for run-of-river operations and minimum flows. As discussed previously, maintenance of stable headpond elevations assures compliance with run-of-river obligations.

Any deviations from run-of-river operations or minimum flow requirements at the Development are reported to FERC, deviations are attached in section 6.6.

3.1.2 ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation: Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

The East and West Channel impoundment is operated in run of river mode with inflow from the Springs and Bradbury Projects, which is discharged into Zone 2 – East and West Channel Impoundment.

Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Springs/Bradbury projects as well as the Skelton Project continuously to maintain compliance with requirements for run-of-river operations and minimum flows. As discussed previously, maintenance of stable headpond elevations assures compliance with run-of-river obligations.

Any deviations from run-of-river operations or minimum flow requirements at the Development are reported to FERC, deviations are attached in section 6.6.

Instream flow Agreement for Hydroelectric projects on the Saco River April 30, 1997 excerpts included below and full report attached under separate cover as confidential report.

Following the signing of the *Saco River Fish Passage Agreement* (dated May 24, 1994) and its addendum entitled *Annex 1: Assessment Process and Criteria* (dated January 20, 1995), Central Maine Power Company invited the parties to the Saco River Fish Passage Agreement to enter into negotiations to decide instream flow requirements for hydroelectric generating projects owned by CMP on the Saco River. Swans Falls Corporation, owner of the Swans Falls project, also elected to participate in the negotiations. In May 1995, the parties met for the first time, and began a series of meetings that has resulted in this Agreement.

The parties met periodically from May 1995 through February 1997. During this period, CMP and other parties collected and presented field data, economic data, and conducted various computer simulations of flow regimes within the Saco River. The parties themselves conducted several field visits. The terms of this Agreement are based on facts, findings and other considerations specific to the Saco River projects.

The parties agree that the current FERC and MDEP license and water quality certification conditions at Cataract will not change, and that the instream flows at Cataract will be determined by the instream flows required at the Skelton Project

3.1.3 ZONE 3 – WEST CHANNEL TAILRACE/PROJECT BYPASS REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Flows through the West Channel bypass reach consist of flows not utilized by the East Channel gate and powerhouse as well as what is required to maintain headpond levels at both the East and West Channels to remain within license limits. A continuous flow of 52 cfs is passed through the West Channel downstream fishway from April 1 to December 31 of each year as conditions allow. An additional 50 cfs is passed through the West Channel via the upstream denil fishway. The area at the lower end of the West Channel bypass is fully tidal with a fluctuation of between 6 and 9 feet.

Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Springs/Bradbury projects as well as the Skelton Project continuously to maintain compliance with requirements for run-of-river operations and minimum flows. As discussed previously, maintenance of stable headpond elevations assures compliance with run-of-river obligations.

Any deviations from run-of-river operations or minimum flow requirements at the Development are reported to FERC, deviations are attached in section 6.6.

3.1.4 ZONE 4 – EAST CHANNEL TAILRACE

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation: Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

East Channel tailrace flows are regulated though the powerhouse, broome gate, and new rubber dam. The broome gate and rubber dam are utilized to provide flows in excess of unit capacity and operated to maintain minimum flows and headpond levels as required by license

Brookfield's NSCC monitors operations including impoundment elevations and flows through both the Springs/Bradbury projects as well as the Skelton Project continuously to maintain compliance with requirements for run-of-river operations and minimum flows. As discussed previously, maintenance of stable headpond elevations assures compliance with run-of-river obligations.

Any deviations from run-of-river operations or minimum flow requirements at the Development are reported to FERC, deviations are attached in section 6.6.

3.1.5 ZONE 5 – REGULATED DOWNSTREAM RIVER REACH

Criterion	Standard	Supporting Information
A	**2** The flow regime at the facility was developed in accordance with a, science-based agency recommendation	Agency Recommendation (see Appendix A for definitions): • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Explain how the recommendation relates to agency management goals and objectives for fish and wildlife. • Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

This reach receives run-of-river flows from the East and West Channel Dams. Minimum flow requirements are discussed above in each dam's corresponding Zone of Effect, Section 3.1.3 and Section 3.1.4. Zone of Effect 5 is outside of the project boundary and is entirely tidally influenced aside from run of river operations.

3.2 WATER QUALITY

The stated Low Impact Hydropower Institute goal for Criterion B – Water Quality is "Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions." The applicable standard applies to all Zones of Effect and is discussed collectively for all reaches.

Criterion	Standard	Supporting Information
B	**2** The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility. Such recommendations, whether based on a generally applicable water quality standard or one that was developed on a site-specific basis, must include consideration of all water quality components necessary to preserve healthy fish and wildlife populations, human uses and recreation.	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, provide a link to the state's most recent impaired waters list and indicate the page(s) therein that apply to facility waters. If possible, provide an agency letter stating that the facility is not a cause of such limitation. • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The Project is operated as a run-of-river facility with minimal fluctuations under FERC and agency approved operations and monitoring plans. The Project meets all water quality standards for Class B waters pursuant to the Projects Water Quality Certification issued in 1992 and amended March 15, 1993 and March 15, 1995. Water quality certification and amendments are linked in Section 6.2. While the uppermost reach of the Spring Island/Bradbury impoundment is classified as Class A, the hydrologic influence of the Project is attenuated as the impoundment extent continues upstream and the run of river operation does not negatively affect this reach.

The Saco River from the Spring Island Dam and Bradbury dams upstream to the Rt. 95 bridge (approximately 2 miles) is Class B 38 M.R.S.A. § 467 (12)(A) (11). Class B waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as unimpaired. 38 M.R.S.A. § 465(3)(A) The habitat characteristics and aquatic life criteria of Class B are deemed to be met in an existing impoundment classified B if the impounded waters achieve the aquatic life criteria of Class C, provided that any reasonable changes are implemented that do not significantly affect existing energy generation capability and would result in improvement in the habitat and aquatic life of the impounded waters, and further provided that, where the actual quality of the impounded waters attains any more stringent

habitat characteristic or aquatic life criteria than required under the assigned classification, the existing water quality must be maintained and protected. 38 M.R.S.A. § 464(10).

The dissolved oxygen content of Class B waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration shall not be less than 9.5 parts per. million and the 1-day minimum dissolved oxygen concentration shall not be less than 8.0 parts per million in identified fish spawning areas. 38 M.R.S.A. § 465(3)(B).

The Saco River within Zone of Effect 1 reaching upstream from the Rt. 95 bridge (Approximately 2 miles) upstream to the Skelton dam is Class A 38 M.R.S.A. 467 (12)(A)(9)(10)(11):

All surface waters lying within the boundaries of the State that are in river basins having a drainage area greater than 100 square miles that are not classified as lakes or ponds are classified in this section. [PL 1989, c. 764, §2 (AMD).]

12. Saco River Basin.

A. Saco River, main stem.

(9) From Skelton Dam to its confluence with the impoundment formed by the Cataract Project Dams – Class A

(10) From the confluence with the impoundment formed by the Cataract Project Dams to the Interstate 95 bridge, including all impoundments - Class A.

(11) From the Interstate 95 bridge to tidewater - Class B. [PL 2003, c. 317, §15 (AMD).]

Water quality studies conducted as part of relicensing indicate that the dissolved oxygen levels in the Bradbury impoundment meet Class B criteria. All designated uses were deemed to have been met as outlined in the 1993 Water Quality Certification. Specific to aquatic habitat, this designated use was deemed to be met though run-of-river operation (stable impoundment elevations). This section of the of the Saco River is not identified as impaired in MDEP's 2016 305(b) report.

3.3 UPSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion C – Upstream Fish Passage is "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."

There are currently anadromous fish species present in the Saco River, and there are upstream fish passage facilities at the Project and at projects upstream. The Saco River is managed for Atlantic Salmon and alosines (river herring; American shad) though these are not

historical species for the River as they could not traverse the impassable falls at the Cataract Project. Eels are present in good numbers in the lower portion of the Saco River.

The Project fishways were built to pass diadromous target species (Atlantic salmon, American shad, river herring, and American eel) as part of resource agency plans to restore these species to the Saco River. An annual report of the operations, fish numbers, status, and any other details of fish passage at these four sites is reported annually to state and federal agencies for review and a final report is filed with the FERC.

The fishway at the East Channel dam consists of a lower entrance flume and crowding area, a 45-foot high fish lift or elevator, and an upper exit flume leading into the impoundment. Upper flume water flow is approximately 40 cfs with a velocity of 1 foot per second (fps). Total attraction water flow is approximately 80 cfs with an entrance velocity averaging 5 fps.

A counting window and sorting, trapping, and trucking facilities are located near the exit of the upper flume. Fish can be released to swim into the Cataract impoundment or can be transported to upstream locations (i.e. Springs and Bradbury impoundment for shad, (see Figure 2). Fish transport takes place in one of two stocking trucks assigned to the fishway. The trucks are equipped with 1,000-gallon circular fiberglass insulated tanks with aeration systems utilizing bottled oxygen and water pumps that circulate water in the tanks.

3.3.1 ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

Criterion	Standard	Supporting Information
C	**2** Agency Recommendation: The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The Springs and Bradbury impoundment is utilized as a migratory pathway for diadromous species once they pass through the Springs and Bradbury fishways and pass towards the Skelton Project which also has fish passage.

3.3.2 ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

Criterion	Standard	Supporting Information
C	**2** Agency Recommendation: The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

The fish locks at Springs and Bradbury dams (at the head of the Cataract East and West Channel impoundment) are designed to operate at river flows up to 11,000 cfs and consist of a 5.0 foot wide by 28.0 foot long lock chamber and a 5.0 foot wide by 11.0 foot long exitway (Figure 3). The lock fluctuates water elevation allowing salmon, shad, and river herring to be lifted the 5.0-ft elevation difference at the dams.

The locks have a minimum water depth of 5.0 feet and operate with a flow of approximately 80 cfs. Fishway entrance velocities are 4 to 6 feet per second (fps). The 80 cfs attraction water attracts the fish through the downstream lock gate. The fish then swim through the crowder and remain in the lock chamber. During the cycling process, the downstream gate closes and the water elevation in the lock chamber rises from 44.0 to 49.2 feet. The upstream gate then opens and the crowder slowly moves toward the upstream gate and guides the fish into the upstream reservoir.

The Springs Dam also has a new Natural Like Fishway constructed in 2019. It is approximately 110 feet wide by 300 feet long extending into the upper part of the Cataract East and West impoundment.

3.3.3 ZONE 3 – WEST CHANNEL TAILRACE/BYPASS REACH

Criterion	Standard	Supporting Information
C	**2** Agency Recommendation: The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented..

The 550-foot-long Denil fishway at the West Channel is 4 feet wide with a 1-foot vertical by 8-foot horizontal slope. The minimum depth of water in the fishway is 2.5 feet with a minimum flow of 12 cfs. The maximum attraction water flow is 33 cfs with an entrance velocity of 2 to 6 feet per second (fps). A counting window and associated trapping structures are located near the exit of the fishway and target species can swim freely into the Cataract impoundment. A floating trash boom was installed in front of the West Channel exit to help keep floating debris from entering the fishway.

3.3.4 ZONE 4 – EAST CHANNEL TAILRACE

Criterion	Standard	Supporting Information
C	**2** Agency Recommendation: The facility is in compliance with science-based fish passage recommendations issued by appropriate resource agency(ies) for the facility and which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented..

The fishway at the East Channel dam consists of a lower entrance flume and crowding area, a 45-foot high fishlift or elevator, and an upper exit flume leading into the impoundment. Upper flume water flow is approximately 40 cfs with a velocity of 1 fps. Total attraction water flow is approximately 80 cfs with an entrance velocity averaging 5 fps.

A counting window and sorting, trapping, and trucking facilities are located near the exit of the upper flume. Fish can be released to swim into the Cataract impoundment or can be transported to upstream locations (i.e. Springs and Bradbury impoundment for shad, (see Figure 2). Fish transport takes place in one of two stocking trucks assigned to the fishway. The trucks are equipped with 1,000-gallon circular fiberglass insulated tanks with aeration systems utilizing bottled oxygen and water pumps that circulate water in the tanks.

3.3.5 ZONE 5 – REGULATED RIVER REACH DOWNSTREAM

Criterion	Standard	Supporting Information
C	**1** Not Applicable/De Minimis Effect: The facility does not create a barrier to upstream passage, or there are no migratory fish in the vicinity of the facility and the facility is not the cause of extirpation of species that were present historically	Agency Recommendation: Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is unimpeded access for anadromous fish species in the Saco River from the ocean to the Cataract Project, and there are upstream fish passage facilities at the East and West Channel Projects as well as at projects upstream.

3.4 DOWNSTREAM FISH PASSAGE

The stated Low Impact Hydropower Institute goal for Criterion D – Downstream Fish Passage is "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 can successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the facility."

3.4.1 ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

Criterion	Standard	Supporting Information
D	**2** The facility is in compliance with a science-based resource agency recommendation for downstream fish passage or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Since there is no generation at these stations, there is no requirement for specific downstream passage at the Springs and Bradbury dams. All flows are passed through open spill gates or over the dams and allow for fish migration.

3.4.2 ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

Criterion	Standard	Supporting Information
D	**2** The facility is in compliance with a science-based resource agency recommendation for downstream fish passage or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Downstream passage is provided by a sluice at the East Channel forebay area located between the spillgate and the unit intakes, and by a sluice in the West Channel next to the West Channel fishway exit. Both the East Channel and West Channel downstream bypasses pass approximately 52 cfs a piece at full pond.

3.4.3 ZONE 3 – WEST CHANNEL TAILRACE/BYPASS REACH

Criterion	Standard	Supporting Information
D	**2** The facility is in compliance with a science-based resource agency recommendation for downstream fish passage or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is unimpeded access for anadromous fish species in the Saco River from the ocean to the Cataract Project, and there are downstream fish passage facilities at the Project and at projects upstream.

3.4.4 ZONE 4 – EAST CHANNEL TAILRACE

Criterion	Standard	Supporting Information
D	**2** The facility is in compliance with a science-based resource agency recommendation for downstream fish passage or fish protection, which may include provisions for appropriate monitoring and effectiveness determinations	Agency Recommendation: • Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is unimpeded access for anadromous fish species in the Saco River from the ocean to the Cataract Project, and there are downstream fish passage facilities at the Project and at projects upstream.

3.4.5 ZONE 5 – REGULATED RIVER REACH DOWNSTREAM

Criterion	Standard	Supporting Information
D	**1** Not Applicable/De Minimis Effect: The facility does not create a barrier to downstream passage, or there are no migratory fish in the vicinity of the facility; if migratory fish were present historically, the facility did not contribute to the extirpation of such species; the facility does not contribute adversely to the sustainability of riverine fish populations or to their access to habitat necessary for the completion of their life cycles	• Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles. • Document available fish distribution data and the lack of migratory fish species in the vicinity. • If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There is unimpeded access for anadromous fish species in the Saco River from the ocean to the Cataract Project, and there are downstream fish passage facilities at the Project and at projects upstream.

3.5 SHORELINE AND WATERSHED PROTECTION

The stated Low Impact Hydropower Institute goal for Criterion E – Shoreline and Watershed Protection is "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." All Zones of Effect meet Standard E-1 and are discussed collectively.

Criterion	Standard	Supporting Information
E	**1** Not Applicable/De Minimis Effect: There are no lands associated with the facility where the facility owner has direct or indirect ownership or control over lands surrounding the facility and its riverine zones that have significant ecological value for protecting water quality, aesthetics, or low-impact recreation, and the facility is not subject to any Shoreline Management Plan (SMP) or similar protection plan	• If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

Lands within the Project boundary for all Zones of Effect are limited to those required for Project operations. The Project's run-of- river operation provides protection for the Project's shoreline areas. (See Exhibit G attached as Figures 1A, 1B, and 1C). The southerly area of Zone 1 is with the city of Saco and heavily developed with businesses and apartment buildings. Approximately two miles upriver it turns to forest and farmland. Lands within the Project boundary of Zone 2 and 3 are heavily developed within the city consisting of businesses and apartment buildings. Development is limited to those required for Project operations.

Lands within the Project boundary of Zone 4 located below the East Channel Dam remains heavily developed within the city consisting of businesses and apartment buildings. Development is limited to those required for Project operations. The Project's run-of- river operation protection for the Project's shoreline areas. (See Exhibit G).

3.6 THREATENED AND ENDANGERED SPECIES

The stated Low Impact Hydropower Institute goal for Criterion F – Threatened and Endangered Species Protection is "The facility does not negatively impact federal or state listed species".

Criterion	Standard	Supporting Information
F	**2** There are listed species in the area, but the facility has been found by an appropriate resource management agency to have no negative effect on them, or habitat for the species does not exist within the project's affected area or is not impacted by facility operations.	Finding of No Negative Effects: • Identify all federal and state listed species in the facility area based on current data from the appropriate state and federal natural resource management agencies. • Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the Zone of Effect or is not impacted by facility operations.

The Atlantic Salmon Gulf of Maine distinct population segment (DPS) is listed as endangered under the Federal Endangered Species Act (ESA) (NOAA Fisheries 2018). The Saco River is not identified as Critical Habitat for the Atlantic Salmon Gulf of Maine DPS and Saco River Atlantic salmon are not listed under the ESA.

The Atlantic sturgeon Gulf of Maine Distinct Population Segment (DPS) is listed as threatened under the ESA (the Atlantic sturgeon New York Bight DPS, Chesapeake Bay DPS, South Atlantic DPS, and Carolina DPS are listed as endangered under the ESA) and the shortnose sturgeon is listed as endangered under the ESA (NOAA Fisheries 2018). There is no critical habitat identified for Atlantic or shortnose sturgeon in the project area (NMFS 2017). Consistent with the consultation requirements of Section 7 of the Endangered Species Act, BWPH is consulting with NMFS to ensure that the project's proposed action and construction timeline appropriately address Atlantic and shortnose sturgeon needs.

One federally threatened wildlife species, the Northern long-eared bat is identified in the proposed project area by the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2018) (see Appendix A for a copy of the USFWS IPaC Report). The Northern long-eared bat is also identified as an endangered species by the State of Maine (MDIFW 2015). There is no USFWS designated critical habitat for the Northern long-eared bat in the proposed project area and the proposed project does not anticipate the need for tree removal (USFWS 2018). BWPH consulted with the USFWS on December 14, 2018 regarding known Northern long-eared bat hibernaculum and known maternity roost sites within ¼-mile and 150-feet of the Cataract dam, respectively (Appendix A). The USFWS does not identify any known hibernaculum or maternity roost sites within the project area. Given the urban nature of the project area, the proposed action is not anticipated to adversely affect the Northern long-eared bat.

The Maine Natural Areas Program (MNAP) reviewed the proposed project area on October 29, 2018 and identified that there are no rare botanical features identified within the proposed project area (Appendix A). See section 6.3 for referenced reports.

3.7 CULTURAL AND HISTORIC RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion G – Cultural and Historic Resource Protection is "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."

Criterion	Standard	Supporting Information
G	1 There are no cultural or historic resources present on facility lands that can be potentially threatened by construction or operations of the facility, or facility operations have not adversely affected those that are or were historically present.	Not Applicable / De Minimis Effect: • Document that there are no cultural or historic resources located on facility lands that can be affected by construction or operations of the facility. • Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands.

There are no cultural or historic resources present in the project lands.

3.8 RECREATIONAL RESOURCES

The stated Low Impact Hydropower Institute goal for Criterion H – Recreation Resources is "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."

Below is a description of existing recreation facilities in the vicinity of the Cataract Project.

1. The Diamond Riverside boat launch is located approximately .5 miles upstream of the Springs and Bradbury Dam on the Easterly side of the river in the city of Saco. It is a concrete plank ramp with parking available for approximately six vehicles with trailers along with parking spots for approximately four additional vehicles. Day use is low to moderate in the summertime. It is owned and operated by the city of Saco and free to the public. (Located in Zone of Effect 1)
2. Rotary Park beach is a city owned and operated beach area and is approximately one mile upriver from the Springs and Bradbury dams located on the Westerly side of the river in the city of Biddeford. A large parking lot is available for residents and a life guard is hired by the city for the busy summer months. (Located in Zone of Effect 1)
3. Rotary Park boat launch is approximately one mile upriver from the Springs and Bradbury dams (upstream but adjacent to the beach area) located on the Westerly side of the river in the city of Biddeford. It is a shallow concrete plank ramp and has parking available for 12 to 15 vehicles with trailers as well as parking for many other vehicles. It is owned and operated by the city of Biddeford and open to the public free of charge. (Located in Zone of Effect 1)
4. An unimproved trail is available to the public for East Channel Cataract fishing on the east side of the tailrace. The trail is located behind the Cataract fishway office or is accessed from the lower part of Factory Island. The area is lightly utilized for fishing in the spring and early summer for fishing. The end of the trail next to the river is within the Project boundary but the majority of the trail is owned by CMP and outside the project boundary. (Located in Zone of Effect 4)
5. A fishing trail is located on the Easterly side of the Cataract tailrace area and starts just below the dam and extends approximately 600 feet alongside the river. The trail is maintained by a private trail club and the city. The trail is used heavily for fishing during the

spring and summer. Access is provided by public parking in downtown Saco. (Located in Zone of Effect's 4 & 5)

6. The Rte. 5 carry-in access is approximately halfway between the Cataract and Skelton projects (4.5 miles upstream of Cataract). It is constructed using granite steps down approximately 15 feet down to the river's edge and was developed by the Maine DOT. The site gets moderate use during the spring summer and fall and provides parking for approximately 8 vehicles. There is no trailer access. (Located in Zone of Effect 1)
7. Poor's Island is a public recreation area located just above the Cataract East Channel dam and below the Springs dam on the East side of the river. A covered footbridge provides access to the small island for picnicking, and other day use activities. This island access is provided and maintained by the city of Saco. The covered footbridge is lockable and managed by the city. The is no boating, canoeing or on water recreation in this area. Parking is public in the Saco downtown area. (Located in Zone of Effect 2)
8. The boat launch on the east side of the river and below the East channel Dam next to the Saco Yacht club is an improved concrete plank ramp available free to the public. Although it can support large trailered boats, it is still completely tidally influenced and can be shallow at a low tide. It is owned and maintained by the city of Saco and outside of the Project boundary. Use is moderate in the spring summer and fall. Parking for about 8 trailered vehicles is available, along with roadside parking for others. (Located in Zone of Effect 5)

Article 407 requires the licensee to monitor recreational use. Specifically, and as discussed in Section 1.4.1, Article 407 states: *The licensee, after consultation with the United States Fish and Wildlife Service, the Maine Department of Conservation, the Maine Department of Inland Fisheries and Wildlife, the Saco Parks and Recreation Department~ and the Saco River Corridor Commission, shall monitor recreational use of the project area, above and below the project dams, to determine whether existing recreational facilities are meeting recreational needs. Monitoring studies shall begin within 5 years of the issuance of the license and shall consist, at a minimum, of annual recreation use data (using recreation days as the unit of measure) and meetings with the consulted agencies every 5 years.*

This report shall include:

1. Annual recreational use figures;
2. A discussion of the adequacy of the licensee's recreation facilities at the project site to meet recreation demand;
3. A discussion of the need for additional recreation facilities;
4. any recreation plans proposed by the licensee to accommodate recreational needs or concerns in the project area and
5. documentation of agency consultation and agency comments on the report.

Recreation Facility Monitoring Reports for the Project (provided as links in Section 6.5.) were filed in October 2002; April 2009; and April 2015. The next Recreation Facility Monitoring Report is due April 2021. Recreation use at the Bradbury Development, as reported in the 2015 Recreation Report was 410 daytime recreational use days and 0 nighttime use visits. Recreation use at the West Channel Development, as reported in the 2015 Recreation Report was 2,245 daytime recreational use days and 0 nighttime use visits.

The Cataract Project is also subject to the requirements of Part 8, including safety signage. Inspections of Part 8 signs are scheduled annually at the start of the recreation season and signs are replaced, as necessary.

FERC's most recent Environmental Inspection report was issued on December 28, 2016 for the Cataract Project and the inspection was conducted on September 8, 2016. A link of the report and follow up letter are provided in section 6.5. The inspection report identified the following requirements related to recreation resources within the project lands: a) the licensee was required to review the Form 80 report for the Spring Island Development and the West Channel Development to determine if the roadside parks are project facilities or not and b) the licensee was required to replace the Part 8 sign at the Spring Island boat ramp and repair the Bradbury Lake Boat Ramp. As outlined in FERC's letter dated December 28, 2016, the roadside parks were located during the inspection and were determined to be State of Maine Department of Transportation Rest Areas that are not Commission approved sites. The Part 8 sign for the Spring Island Boat Launch, outside of the project boundary for the Bradbury and West Channel Developments, was documented as deteriorated to the point of being illegible. The sign was replaced by December 31, 2016. Repairs to the Bradbury Lake Boat Ramp, also outside of the project boundary of the Bradbury and West Channel Developments, were completed on November 11, 2016. No follow up actions were identified for the Bradbury or West Channel Developments recreational facilities.

3.8.1 ZONE 1 – BRADBURY/SPRING ISLAND IMPOUNDMENT

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

Recreation on the Bradbury Spring Island Impoundment is limited to day use boating and fishing. Recreation access to this zone includes the Diamond Riverside boat launch, Rotary Park beach and the Rotary Park boat launch, and the Rte. 5 carry in access.

3.8.2 ZONE 2 – WEST CHANNEL/EAST CHANNEL IMPOUNDMENT

Criterion	Standard	Supporting Information
H	**1** Not Applicable/De Minimis Effect: The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact recreational opportunities in the vicinity of the facility.	• Document that the facility does not occupy lands or waters to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

There is no public access in this Zone of Effect. The Poor's Island recreation area is adjacent to this reach and views of this Zone of Effect are available from this recreation site.

3.8.3 ZONE 3 – WEST CHANNEL TAILRACE/PROJECT BYPASS REACH

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

There are no formal recreation facilities within this Zone of Effect. However, this reach of the project is a feature of the City of Saco's pedestrian way along the river.

3.8.4 ZONE 4 – EAST CHANNEL TAILRACE

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

There are no project-related recreation facilities in this reach however public access is available via the shoreline trail, maintained by the City of Saco. There is also an unimproved trail on the other side of the river. Light recreation use (fishing) is identified for this reach.

3.8.5 ZONE 5 – REGULATED DOWNSTREAM RIVER REACH

Criterion	Standard	Supporting Information
H	**2** The facility demonstrates compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.	Agency Recommendation: • Document any comprehensive resource agency recommendations and enforceable recreation plan that is in place for recreational access or accommodations. • Document that the facility is in compliance with all such recommendations and plans.

Access within this Zone of Effect is limited to the boat launch on the east side of the river and below the East channel Dam next to the Saco Yacht club. Use is moderate in the spring, summer and fall and is primarily related to boating in the harbor and fishing.

4.0 SWORN STATEMENT AND WAIVER FORM

All applications for LIHI Certification must include the following sworn statement before they can be reviewed by LIHI:

SWORN STATEMENT

As an Authorized Representative of Brookfield White Pine Hydro, LLC, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified®.

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

Company Name: Brookfield White Pine Hydro LLC.

Authorized Representative:

Name: Thomas Uncher

Title: VP, Operations

Authorized Signature: T J Uh

Date: 1/2/20

5.0 CONTACTS FORM

5.1 APPLICANT RELATED CONTACTS

Facility Owner: Brookfield White Pine Hydro LLC.	
Name and Title	Tom Uncher, Vice President
Company	Brookfield White Pine Hydro, LLC
Phone	518-743-2018
Email Address	Tom.Uncher@brookfieldrenewable.com
Mailing Address	150 Main St. Lewiston Maine 04240
Facility Operator (if different from Owner):	
Name and Title	Joel Rancourt, Senior Operations Manager
Company	Brookfield White Pine Hydro, LLC
Phone	207-458-6775
Email Address	Joel.Rancourt@brookfieldrenewable.com
Mailing Address	28 Weston St., Skowhegan Maine 04976
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Kelly Maloney; Manager, Compliance - Northeast
Company	Brookfield Renewable
Phone	(207) 755-5606
Email Address	Kelly.Maloney@brookfieldrenewable.com
Mailing Address	150 Main Street, Lewiston, Maine 04240
Party responsible for accounts payable:	
Name and Title	Judith Charette Manger, Accounts Payable, Finance & Accounting
Company	Brookfield Renewable
Phone	819-561-8099
Email Address	Judith.charette@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC, Canada J8X2A1

5.2 CURRENT AND RELEVANT STATE, FEDERAL, AND TRIBAL RESOURCE AGENCY CONTACTS WITH KNOWLEDGE OF THE FACILITY

Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _x_, Recreation __):	
Agency Name	Advisory Council on Historic Preservation
Name and Title	John M Fowler, Executive Director
Phone	202-517-0200
Email address	jfowler@achp.gov
Mailing Address	401 F Street N.W. Suite 308 Washington, DISTRICT OF COLUMBIA 20001-2637
Agency Contact (Check areas of responsibility: Flows__, Water Quality _x_, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Environmental Protection
Name and Title	Nick Livesay, Director
Phone	207530-0965
Email address	Nick.Livesay@maine.gov
Mailing Address	Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	National Marine Fisheries Service
Name and Title	Bjorn Lake
Phone	978-281-9252
Email address	Bjorn.Lake@noaa.gov
Mailing Address	15 Carlson Lane, Falmouth, MA 02540
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Environmental Protection
Name and Title	Kathy Davis Howatt, Hydropower Coordinator
Phone	207-446-2642
Email address	kathy.howatt@maine.gov
Mailing Address	Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Inland Fisheries and Wildlife
Name and Title	JJames Pellerin, Regional Fisheries Biologist
Phone	207-657-5765
Email address	James.pellerin@maine.gov
Mailing Address	15 Game Farm Rd.,Gray ME, 04039
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Dept. of Agriculture, Conservation & Forestry
Name and Title	Kathleen Leyden, Director
Phone	207-287-5254
Email address	Kathleen.Leyden@maine.gov
Mailing Address	93 State House Station, Augusta, Maine 04333-0038

Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	Maine Department of Marine Resources
Name and Title	Gail Wippelhauser, Marine Resources Scientist
Phone	207-624-6349
Email address	gail.wippelhauser@maine.gov
Mailing Address	21 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources _x_, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	NOAA
Name and Title	Sean P McDermott, Fisheries Biologist
Phone	(978) 281-9113
Email address	sean.mcdermott@noaa.gov
Mailing Address	55 Great Republic Drive, Gloucester, MASSACHUSETTS 01930-2237
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _x_, Recreation __):	
Agency Name	Maine Historic Preservation Commission
Name and Title	Kirk Mohney; Director
Phone	(207) 287-3811
Email address	Kirk.Mohney@maine.gov
Mailing Address	55 Capitol Street, 65 State House Station, Augusta, Maine 04333
Agency Contact (Check areas of responsibility: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds _x_, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Agency Name	U.S. National Park Service
Name and Title	Kevin Mendik, ESQ. NPS Hydro Program Coordinator
Phone	617-223-5299
Email address	kevin_mendik@NPS.gov
Mailing Address	15 State Street 10th floor, Boston, Massachusetts 02109

5.3 CURRENT STAKEHOLDER CONTACTS THAT ARE ACTIVELY ENGAGED WITH THE FACILITY

Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources _, Recreation __):	
Stakeholder Organization	Saco River Corridor Commission
Name and Title	Dalyn Houser
Phone	207-625-8123
Email address	dalyn@srcc-maine.org
Mailing Address	81 Maple Street, P.O. Box 283, Cornish, Maine 04020-0283
Stakeholder Contact (Check areas of interest: Flows__, Water Quality __, Fish/Wildlife Resources __, Watersheds __, T/E Spp. __, Cultural/Historic Resources __, Recreation __):	
Stakeholder Organization	Saco River Salmon Alliance
Name and Title	Garry Kasten, Treasurer
Phone	207-332-8037
Email address	gkasten42@gmail.com
Mailing Address	PO Box 115, Saco, ME 04072

6.0 FERC AND REGULATORY INFORMATION

6.1 FERC LICENSE AND AMENDMENT ORDERS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12797021 – June 29, 1989 - Order Issuing New License
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12797021 – August 31, 1995 – Order Amending License Article 407 to consolidate recreational reporting requirements
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=3084803 – June 19, 1997 – Order Amending License removing the NKL Powerhouse from the Project
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13317226 – July 29, 2013 – FERC Order Amending Licenses to transfer ownership
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15248847 – May 16, 2019 – FERC Order Amending License, Revising Project Description and Approving Revised Exhibits A and F

6.2 WATER QUALITY CERTIFICATION, AMENDMENTS, AND REPORTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10377857 - April 22, 1993 Water Quality Certification
- March 22, 1995 Amended Water Quality Certification for fish passage modifications – hyperlink unavailable; including in Section 7.0.
- https://www.maine.gov/dep/water/monitoring/classification/reclass/BEP_2018_ReclassProposals_ForBEP_Dec_final.pdf - 2016 Water Quality Monitoring Report for the State of Maine

6.3 SETTLEMENT AND OTHER AGREEMENTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11295611 – 2007 Fish Passage Assessment Report and Offer of Settlement
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15241947 – 2019 Amendment to the 2007 Fish Passage Settlement Agreement

6.4 PERMITS

- 2018 Maine Pollution Discharge Elimination System Permits for the Cataract Project - hyperlink unavailable; included in Section 7.0

6.5 COMPLIANCE PLANS AND MONITORING REPORTS

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11823488 – September 29, 2008 – Environnemental Inspection Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8903221 - FERC April 6, 2001 - Environmental Inspection Report

6.5.1 ECOLOGICAL FLOWS AND WATER QUALITY

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=3454581 - FERC Order Approving Water Level and Flow Management Plan
- https://www.maine.gov/dep/water/monitoring/classification/reclass/BEP_2018_ReclassProposals_ForBEP_Dec_final.pdf - 2016 Water Quality Monitoring Report for the State of Maine

6.5.2 FISH PASSAGE

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11400880 – July 18, 2007 – FERC Order modifying and approving Fish Passage Assessment Report and recommendations for Fish Passage and Fisheries Management
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11721224 – 2007 Downstream Passage of Juvenile Clupeids Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11799280 – FERC Order approving Juvenile Clupeid Downstream Passage Study Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11811130 – September 19, 2008 FERC letter order accepting the 2007 report on Downstream Passage of Juvenile Clupeids
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11846508 – October 31, 2008 FERC letter order accepting the 2007 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11982851 - 2008 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11982845 - 2009 Evaluation of Silver American Eel Downstream Passage
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12074221 – 2009 Saco River Kelt Passage Evaluation
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11998204 – April 20, 2009 FERC letter order accepting the 2008 Downstream Passage of Juvenile Clupeids Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12117252 – August 18, 2009 – FERC Order approving Kelt Passage evaluation
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12120605 – August 20, 2009 FERC letter order accepting 2008 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12123677 – August 25, 2009 – FERC letter order accepting 2008 Evaluation of Silver American Eel Downstream Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12288921 – March 8, 2010 FERC letter order accepting 2009 Evaluation of Silver American Eel Downstream Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12341516 – 2010 downstream passage of juvenile cludpeids report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12480344 – November 1, 2010 FERC letter order accepting the 2009 Saco River Fish Passage Report

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12594972 – 2011 Report on Saco Rivers Cataract East and West Channel, Springs and Bradbury, and Skelton Fishways
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12655291 – May 5, 2011 FERC letter order accepting 2010 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12874309 – 2012 Downstream passage of juvenile clupeids report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12926552 – 2012 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13215641 – 2013 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13274336 – June 4, 2013 FERC letter order accepting 2012 Saco River Kelt Passage Evaluation Update
- 2014 Saco River Fish Passage Report attached in section 7
- 2015 Saco River Fish Passage Report attached in section 7
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14541163 – 2016 Saco River Fish Passage Report
- 2017 Saco River Fish Passage Report attached in section 7
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15195061 – 2018 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15241947 – 2019 Saco River Fish Passage Report
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15310078 - Order Approving Revised Fish Passage Assessment and Fish Passage Installation Schedule

6.5.3 SHORELINE AND WATERSHED PROTECTION

- a https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13546178 – May 15, 2014 FERC Order Approving Temporary Impoundment Drawdown

6.5.4 THREATENED AND ENDANGERED SPECIES

- IPaC Report is attach in section 7.0
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14456866 - Biological Assessment and Handling and Protection Plan for Shortnose and Atlantic Sturgeon
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14673448 – NMFS Biological Opinion for the Sturgeon Protection and Handling Plan
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15074454 – October 17, 2018 FERC Order Approving Modified Shortnose and Atlantic Sturgeon Handling and Protection Plan

6.5.5 CULTURAL AND HISTORIC RESOURCES

- None

6.5.6 RECREATIONAL RESOURCES

- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=10178065 June 28, 2004 Order approving Recreation Monitoring Report and Modifying Recreation Plan
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=9791741 2003 Recreation Monitoring Report
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=9765525 FERC order article amendments August 12, 2003
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=3021513 FERC order amendment of Article 407 August 31,1995
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14003558 October 5, 2015 Recreation Monitoring Report
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=13820113 2014 Form 80 Report of BWPH for Cataract
- https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14057762 November 30, 2015 Letter acknowledging BWPH 10/5/15 filing of Recreation Monitoring Report.

6.6 LICENSE AND CERTIFICATION COMPLIANCE

- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14276442 - BWPH's June 14, 2016 headpond excursion report to FERC:
- https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14316735 –
- FERC's July 27, 2016 notice of violation

7.0 SUPPORTING DOCUMENTATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To:
Consultation Code: 05E1ME00-2020-SLI-0277
Event Code: 05E1ME00-2020-E-01029
Project Name: Cataract LIHI Certification

December 09, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at: http://www.towerkill.com; and at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Project Summary

Consultation Code: 05E1ME00-2020-SLI-0277

Event Code: 05E1ME00-2020-E-01029

Project Name: Cataract LIHI Certification

Project Type: DAM

Project Description: Cataract Project and waters downstream

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.51523943855827N70.51959237257982W

Counties: York, ME

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1890

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.