LOW-IMPACT HYDROPOWER POWER INSTITUTE CERTIFICATION APPLICATION

LIHI CERTIFICATE #68

WORONOCO HYDROELECTRIC PROJECT

(FERC NO. 2631)

Prepared for:

Woronoco Hydro, LLC

Morristown, New Jersey

Prepared by:

Kleinschmidt

Portland, Oregon

www.KleinschmidtGroup.com

February 2020

LOW-IMPACT HYDROPOWER POWER INSTITUTE RECERTIFICATION APPLICATION

WORONOCO HYDROELECTRIC PROJECT (FERC NO. 2631)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PHOTOS

APPENDICES

LOW-IMPACT HYDROPOWER POWER INSTITUTE
CERTIFICATION APPLICATION

WORONOCO HYDROELECTRIC PROJECT
(FERC NO. 2631)

1.0 FACILITY DESCRIPTION

The Woronoco Hydroelectric Project (Woronoco Project or Project) is located in the town of Russell, southeastern Massachusetts, in Hampden County. The Project is located on the Westfield River, 18.5 miles upstream from its confluence with the Connecticut River in West Springfield (Figure 1-1). The Westfield River is approximately 78.1 miles long, from its headwaters in the Berkshires (i.e., the Green Mountains) in northwestern Massachusetts, to its confluence with the Connecticut River.

The Westfield River flows from a northwest to southeast direction, with a total contributing drainage area of 346 square miles. Major tributaries of the Westfield include the East, West and Middle Branches, all of which converge upstream of the Project to form the main branch of the Westfield River (Figure 1-3).

The Project is licensed to Woronoco Hydro, LLC (Woronoco Hydro or Licensee), a wholly owned indirect subsidiary of Eagle Creek Renewable Energy, LLC (hereinafter Eagle Creek), and was relicensed by the Federal Energy Regulatory Commission (FERC) (FERC No. 2631) on April 30, 2002 for a 40-year license expiring March 31, 2042. The original license for the Project was issued on June 2, 1981. The Project received a Clean Water Act Section 401 Water Quality Certificate (WQC) from the Massachusetts Department of Environmental Protection (MDEP) on August 30, 2000, which was amended on September 29, 2000.

The original dam built at the site of the existing Project was a timber-crib structure constructed in 1879. The existing hydro station was completed in 1913 to supply power to two paper mills, located along the banks of the Westfield River. The original timber crib dam was later replaced by the Project's two existing dams which were constructed in 1938 (North Dam) and 1950 (South Dam).

The upstream Knightville Dam, owned and operated by the U.S. Army Corps of Engineers, is located approximate 11.5 miles upstream of the Project (at approximately river mile 30 of the Westfield River) and operates as a flood control structure. Two additional dams are located between the Knightville Dam and the Woronoco Project – the Crescent Dam (FERC No. 2986), approximately 5.5 miles upstream from the Project), and the Indian River Dam (also known as the Russell Dam, FERC No. 12462, owned by Indian River Power Supply, LLC, a wholly owned indirect subsidiary of Eagle Creek), approximately 3 miles upstream from the Project. There is only one hydropower facility downstream of the Woronoco Project, on the Westfield River, the West Springfield Dam, located approximately 4.1 miles upstream from its confluence with the Connecticut River (Figure 1-2).

The Project's principal features consist of: (1) two non-contiguous 25-foot-tall concrete-gravity dam sections (a North Dam, 307 feet long; and a South Dam, 315 feet long) and a 655-foot-long earthen dike; (2) an intake area leading to a powerhouse, which contains three turbine/generator units with an installed capacity of 2.7 MW; (3) a downstream fish passage facility (with its discharge at the base of the south dam) and upstream eel passage facilities; (4) a 1.2-mile-long impoundment, with a normal pool elevation of 229.0 feet, and a surface area of 43 acres; (5) a bypassed reach with three channels, varying in length from 200 to 1,000 feet; and (6) appurtenant facilities.

FIGURE 1-1 GEOGRAPHIC OVERVIEW OF PROJECT AREA

FIGURE 1-2 UPSTREAM AND DOWNSTREAM DAMS ON WESTFIELD RIVER

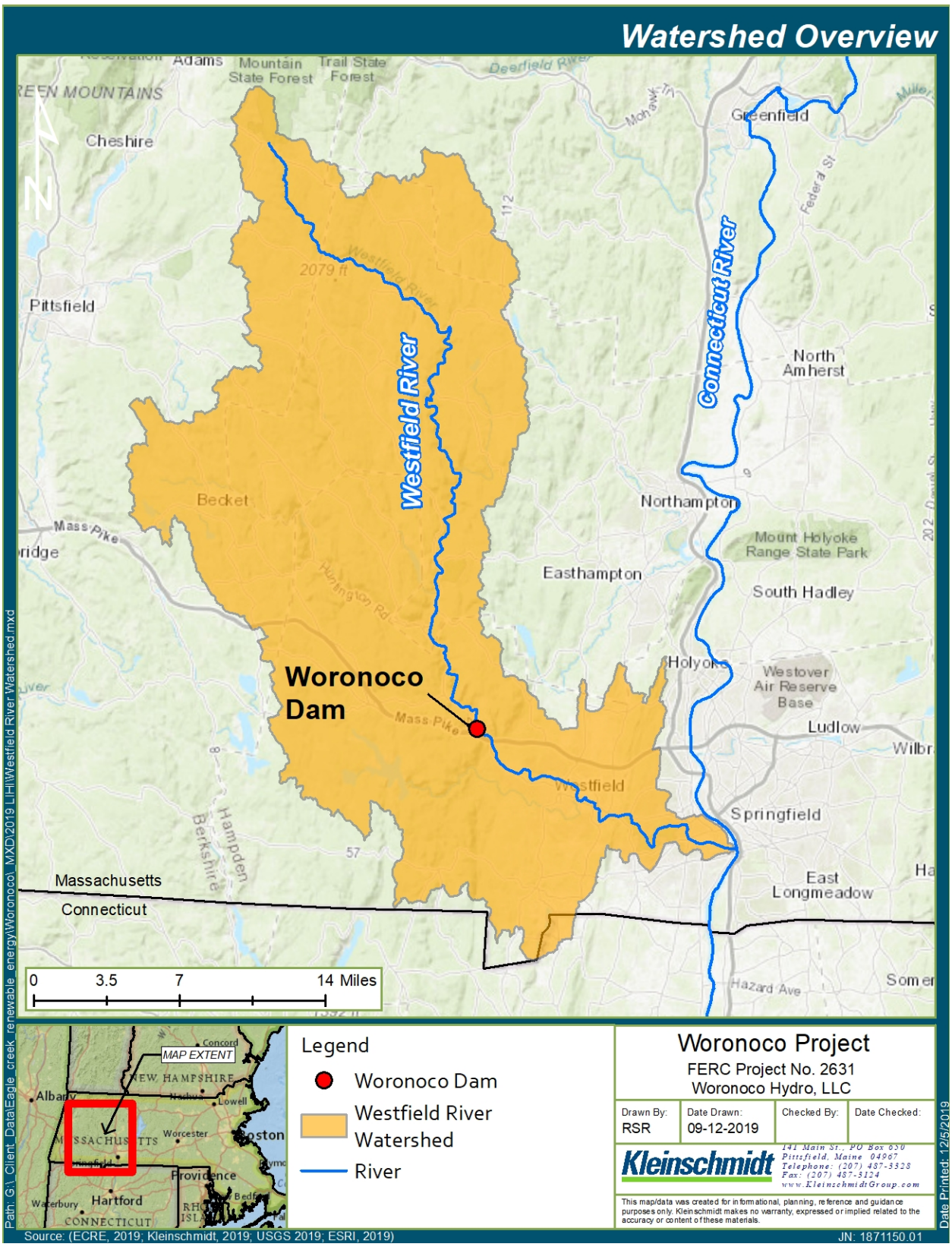


FIGURE 1-3 WESTFIELD RIVER BASIN

1.1 FACILITY DESCRIPTION INFORMATION FOR WORONOCO HYDROELECTRIC PROJECT (LIHI CERTIFICATE #68)

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
Name of the Facility		Woronoco Hydroelectric Project (FERC No. P-2631) referred to as the Project or Woronoco Project throughout this application.
Location	River name (U.S. Geologic Survey [USGS] proper name)	Westfield River
	River Mile:	RM 18.5 on the Westfield River (as measured from the confluence with the Connecticut River)
	River Basin:	Westfield River Basin (HUC: 01080206)
	Nearest town, county, and state:	Russell, Hampden County, Massachusetts
	River Mile of Dam above next major river:	The Woronoco Project dam is located at RM 18.5. The next dam upstream is located at RM 21.5 (Indian River Dam).
	Geographic latitude:	42°09’58.03”N
	Geographic longitude:	-72°49’44.40”W
Facility Owner	Application Contact Names	Ms. Susan Giansante Eagle Creek Renewable Energy, LLC 65 Madison Ave, Suite 500 Morristown, NJ 07960

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Facility owner (individual and company names):	Mr. Bob Gates Vice President Woronoco Hydro, LLC 65 Madison Ave, Suite 500 Morristown, NJ 07960 Since May 2015, Woronoco Hydro, LLC remains the owner and FERC licensee of the Project. The upstream ownership of Woronoco Hydro, LLC was acquired by Eagle Creek Swift River, Inc. in July 29, 2016.[1]
	Representative in LIHI certification	Susan Giansante, Eagle Creek Bob Gates, Woronoco Hydro, LLC Nuria Holmes, Kleinschmidt Associates
	FERC Licensee Company Name (if different from owner):	Woronoco Hydro LLC
Regulatory Status	FERC Project Number and Issuance and expiration dates	FERC Project No. P-2631 Term of License: 40 years Issued: April 30, 2002 Expires: March 31, 2042
	FERC license type or special classification (e.g., "qualified conduit")	Major License
	Water Quality Certificate identifier and issuance date, plus source agency name	The Project received a Clean Water Act Section 401 Water Quality Certificate (WQC) from the Massachusetts Department of Environmental Protection (MADEP) on August 30, 2000, which was amended on September 29, 2000.

[1] https://elibrary.ferc.gov/IDMWS/common/OpenNat.asp?fileID=14326075

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Hyperlinks to key electronic records on FERC e-library website (e.g., most recent Commission Orders, WQC, ESA documents, etc.)	• 2000 Water Quality Certificate • 2000 Amended Water Quality Certificate • 2002 Environmental Assessment • 2002 Woronoco License • 2003 Drawdown Management Plan (CEII) • 2003 Order Modifying & Approving Drawdown Management Plan • 2005 Recreation Enhancement Plan • 2010 Fish Passage Plan • 2010 Public Safety Plan • 2011 Order Approving Fish Passage O&M Plan • 2011 Order Approving 2010 Downstream Atlantic Salmon Smolt Passage and Recommendations for Future Downstream Smolt Passage under Article 404 • 2013 Environmental Inspection • 2013 Letter Acknowledging Receipt of Cancelling at Salmon Passage Effectiveness Testing • 2015 Form 80
Powerhouse	Date of Initial Operation (past or future for operational applications)	The Project was licensed by FERC in 2002 and 1981; the facility was originally commissioned in 1913.
	Total authorized capacity	2.7 MW[2]
	Average annual generation (MWh)	7,289.7 MWh (2017)[3] 4,930.1 MWh (2018)[4]

[2] 2002 Woronoco License
[3] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14969266
[4] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=15146137

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	On June 17, 2014, Woronoco Hydro's largest turbine (Unit 3, rated capacity of 1.9 MW) failed when the shaft broke in three places. The unit was replaced in 2015 with a new Norcan camelback Francis turbine and was placed in service on November 25, 2015. The new Unit 3 turbine has a rated capacity of 1.956 MW. Currently the Project powerhouse contains three Francis turbines and generating units. Units 1 & 2 each have a minimum and maximum hydraulic capacity of 15 cfs and 130 cfs, respectively, and Unit 3 has a minimum and maximum hydraulic capacity of 100 cfs and 549 cfs, respectively. Unit 3's previous maximum hydraulic capacity was 450 cfs. This increase lead to an increase in the station's total hydraulic capacity of 99 cfs (the previous total capacity was 710 cfs, and is now 809 cfs). The new Unit 3 turbine was placed online, 10 months after the last LIHI recertification, on January 28, 2015. The new Unit 3 did result in a minor maximum capacity increase available to the station; however, the authorized capacity of the facility did not increase, and therefore Woronoco Hydro is not required to file a capacity license amendment.[5] No structural changes were required to replace the equipment in-kind, and therefore, at the time of the replacement it was believed that no additional consultation or permitting was required. FERC identified the replacement in its December 15, 2016 inspection, and required no further follow-up activities.[6]

[5] FERC has specific guidelines that dictate when a capacity amendment must be filed, per 18 CFR §4.201. This section outlines that a capacity amendment would be required when additional capacity not previously authorized that would increase the actual or proposed total installed capacity, and would result in an increase in the maximum hydraulic capacity of the project to increase 15% of more, and would result in an increase in the installed name-plate capacity by 2 MW or more. These parameters exclude Woronoco Hydro from needing a capacity amendment for the turbine replacement.

[6] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14431764 (CEII protected)

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Modes of operation (run-of-river, peaking, pulsing, seasonal storage, etc.)	Run-of-river[7]. No change since the last certification.
	Trashrack Clearance and Spacing (inches) for each trashrack:	Fish Protection Panel: • ¾ -inch clearance • 1 ⅛-inch center to center spacing Winter Rack Panel: • 1 ¼-inch clearance • 1 ⅝-inch spacing
	Dates and types of major equipment upgrades	The wooden dam was replaced with a concrete dam in 1938 (North dam) and 1950 (South dam). An interim downstream fish passage facility was constructed in 1998, located immediately upstream of the trash racks in front of the intake structure. It discharges approximately 14 feet downstream of the South dam into a plunge pool. Permanent downstream fish passage was constructed in 2010. The discharge point remains the same. In January 2015, FERC allowed discontinuation of the downstream fish passage facility operation for salmon smolts after 2015.[8] The site continues to operate the downstream passage for eel and resident fish.
	Dates, purpose, and type of any recent operational changes	There have been no recent operational changes.
	Plans, authorization, and regulatory activities for any facility upgrades	There are no plans, authorizations, or regulatory activities for any facility upgrades currently planned.

[7] The LIHI 2nd Edition Handbook characterizes a "run-of-river" facility as one in which the outflow of the facility is within reasonable measurement accuracy (+/- 10%) of the inflow of the facility, measured on an hourly basis.
[8] https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13165085

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
Characteristics of Dam, Diversion of Conduit	Date of construction	Original construction: 1879 The dams were re-constructed shortly after the September 1938 floods. The present North Dam was constructed in 1938, the present South Dam was constructed in 1950.
	Dam height:	The North and South Dams are both 25 feet tall.
	Dam width:	The Project consists of a 315-feet-long South Dam that was replaced with concrete in 1950 and a 307-feet-long North dam, that was constructed after a hurricane flood in 1938.
	Dam or Diversion Structure Height including separately, the height of any flashboards, inflatable dams, etc.:	N/A – There are no flashboards installed. There are no spillways or crest control gates at the Project.
	Spillway elevation and hydraulic capacity	229 feet NVGD – Uncontrolled spillway width is 311 feet (South dam) and 307 feet (North dam).
	Tailwater (downstream water surface) elevation	Typical normal tailwater elevation: 174.0 feet NGVD
	Length and type of all penstocks and water conveyance structures between reservoir and powerhouse	One (1) 550-foot-long and 11-foot-diameter concrete-lined steel penstock connects the reservoir to the powerhouse.
	Dates and types of major, generation-related infrastructure improvements	The 1,900 kW Unit 3 was replaced in 2015 after a catastrophic failure.
	Designated facility purposes	Generation of Power
	Water Source	Westfield River

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Receiving Water and Location of Discharge	The Project discharges water from its powerhouse on river right, approximately 200 feet downstream of the South dam, and 1,000 feet downstream of the North dam.
Impoundment and Watershed	Authorized maximum and minimum water surface elevations:	The site is licensed as run-of-river, with a maximum pond elevation of 229 feet NGVD. The project is operated to minimize fluctuations to within one inch of its licensed elevation of 229.0 feet NGVD. There are no changes since the last certification.
	Surface area at full pool (Dam)	The surface area at full pool is 1,830 acre-feet.
	Maximum water surface elevation (ft. MSL)	229 feet NGVD.
	Maximum and minimum volume and water surface elevations for designated power pool, if available	Operated as run-of-river so no power pool available. No changes since last certification.
	Gross storage volume and surface area at full pool:	The impoundment has a gross storage capacity of 1,830-acre-feet and a surface area of 43 acres at the normal maximum pool elevation of 229 feet NGVD. No changes since last certification.
	Describe Requirements Related to Impoundment inflow, outflow, up/down ramping and refill rates:	The project is operated as a run-of-river facility where outflow generally equals inflow.

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Upstream dam(s) by name, ownership, FERC number (if applicable), and river mile. Indicate which upstream dams have downstream fish passage.	Major dams located on the Westfield River upstream of the Project include: • Indian River Dam (also known as the Russell Dam, FERC No. 12462 owned by Indian River Power Supply, LLC, a wholly owned indirect subsidiary of Eagle Creek) 3 miles upstream o Downstream passage for migrating eel (Sept. – Dec.): yes • Texon Hydro Dam (FERC No. 2986) 5.5 miles upstream is owned and operated by the Littleville Power Co, Inc. and is FERC exempt. o Downstream passage: yes
	Downstream dam(s) by name, ownership, FERC number (if applicable), and river mile. Indicate which downstream dams have upstream fish passage.	Major dams located on the Westfield River downstream of the Project include: • West Springfield Hydroelectricity Facility (approximately 4.1 miles upriver from its confluence with the Connecticut River) is owned and operated by A & D Hydro, Inc. o Upstream passage: yes
	Operating agreements with upstream or downstream reservoirs that affect water availability, if any, and facility operation	The Project does not operate under any agreements made with upstream or down facilities.
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control:	The area of land and water inside the FERC project boundary is approximately 55 acres.
Hydrologic Setting	Average annual flow at the dam (cfs):	The average annual flow as measured at the downstream at the USGS Gage 01183500 is 1,522 (1,065 adjusted for the flow at the Project dam) (2018).

<table>
<tr><th>INFORMATION TYPE</th><th>VARIABLE DESCRIPTION</th><th>FACILITY DESCRIPTION</th></tr>
<tr><td></td><td>Average monthly flows (cfs)</td><td>Average daily flows by month at the Project (Data from USGS Gage 01183500)[9,10] in cfs:

<table>
<tr><th>Month</th><th>Min. Daily</th><th>Mean Daily</th><th>Max Daily</th></tr>
<tr><td>January</td><td>155
(108)</td><td>919
(643)</td><td>2,635
(1,844)</td></tr>
<tr><td>February</td><td>215
(150)</td><td>914
(640)</td><td>2,663
(1,864)</td></tr>
<tr><td>March</td><td>587
(411)</td><td>1,670
(1,169)</td><td>5,064
(3,545)</td></tr>
<tr><td>April</td><td>586
(410)</td><td>2,270
(1,589)</td><td>5,225
(3,678)</td></tr>
<tr><td>May</td><td>393
(275)</td><td>1,200
(840)</td><td>2,630
(1,841)</td></tr>
<tr><td>June</td><td>186
(130)</td><td>782
(547)</td><td>2,947
(2,063)</td></tr>
<tr><td>July</td><td>87
(61)</td><td>421
(295)</td><td>1,738
(1,217)</td></tr>
<tr><td>August</td><td>91
(64)</td><td>404
(283)</td><td>3,237
(2,266)</td></tr>
<tr><td>September</td><td>85
(59)</td><td>438
(307)</td><td>3,550
(2,485)</td></tr>
<tr><td>October</td><td>97
(68)</td><td>595
(416)</td><td>4,587
(3,211)</td></tr>
<tr><td>November</td><td>140
(98)</td><td>854
(598)</td><td>3,344
(2,341)</td></tr>
<tr><td>December</td><td>206
(144)</td><td>978
(685)</td><td>2,623
(1,836)</td></tr>
<tr><td>Average:</td><td>235</td><td>953</td><td>3353</td></tr>
</table>
*Time period for data: 1914 to 2019</td></tr>
<tr><td></td><td>Location and name of relevant stream gauging stations above and below the facility</td><td>Above: The USGS Gage 01179500 (Westfield River at Knightville, MA), USGS Gage 01180500 (Middle Branch, Westfield River at Goss Heights, MA) and USGS Gage 01181000 (West Branch Westfield River at Huntington, MA) are both upstream of the Woronoco Project.

Below: The gage below the Project is USGS Gage 01183500 (Westfield River near Westfield, MA).</td></tr>
</table>

[9] Hampden County, Massachusetts; Hydrologic Unit Code 01080206; Latitude 42°06'24", Longitude 72°41'58" NAD27; Drainage area 497 square miles; Contributing drainage area 497 square miles; Gage datum 98.25 feet above NGVD29.

[10] The figures in parenthesis are the gage station's figures corrected to account for the flow at the Woronoco Dam.

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Watershed area at the dam	346 square miles
Designated Zones of Effect	Number of zones of effect	3
	Upstream and downstream locations by river miles	**Impoundment:** RM 19.7 to RM 18.7 **Bypass Reach**: RM 18.7 to RM 18.5 (as measured from the longest bypassed channel (approximately 1,000 feet). **Tailrace:** RM 18.5 to 18.3
	Type of waterbody (river, impoundment, by-passed reach, etc.)	The waters located within the Impoundment ZOE are classified as Lake (Classification code L1UBHb), and the Bypass and Tailrace are classified as Riverine (Classification code R2UDH) by the USFWS National Wetlands Inventory (USFWS 2016).
	Delimiting structures	Zone of Effect #1: **Impoundment** • The Project currently has a 1.2-mile-long impoundment with a surface area of 43 acres at normal pool elevation of 229 feet NGVD that extends from RM 19.7 to RM 18.7. Zone of Effect #2: **Bypass Reach** • The Project bypass reach with three channels varies in length from 200 feet from the downstream fish passage at the South Dam to the tailrace, to 1000 feet from the North Dam to the tailrace, which extends from RM 18.7 to RM 18.5 (as measured from the longest bypass channel; approx. 1,000 feet). Zone of Effect #3: **Tailrace** • The Project's 0.2-mile-long tailrace extends from the powerhouse at RM 18.5 downstream to RM 18.3.

INFORMATION TYPE	VARIABLE DESCRIPTION	FACILITY DESCRIPTION
	Designated uses by state water quality agency	MassDEP has designated the following uses for the Westfield River: Public/domestic water supply; Industrial water supply; Livestock watering; Wildlife and hunting; Boating; Aesthetic quality; Private/domestic water supply; Irrigation; Fish and aquatic life; Fishing; Water contact recreation; Hydropower.
Additional Contact Information:	Names, addresses, phone numbers, and e-mail for local state and federal resource agencies	See Section 4 for the Project Contacts Form.
	Names, addresses, phone numbers, and e-mail for local non-governmental stakeholders	See Section 4 for the Project Contacts Form.
Photographs of the Facility	Photographs of key features of the facility and each of the designated zones of effect	Please see Figure 1-4 for key Project features and Figure 2-1 for Project Zones of Effect. See Appendix A for photographs of key features of the facility.
	Maps, aerial photos, and/or plan view diagrams of facility area and river basin	

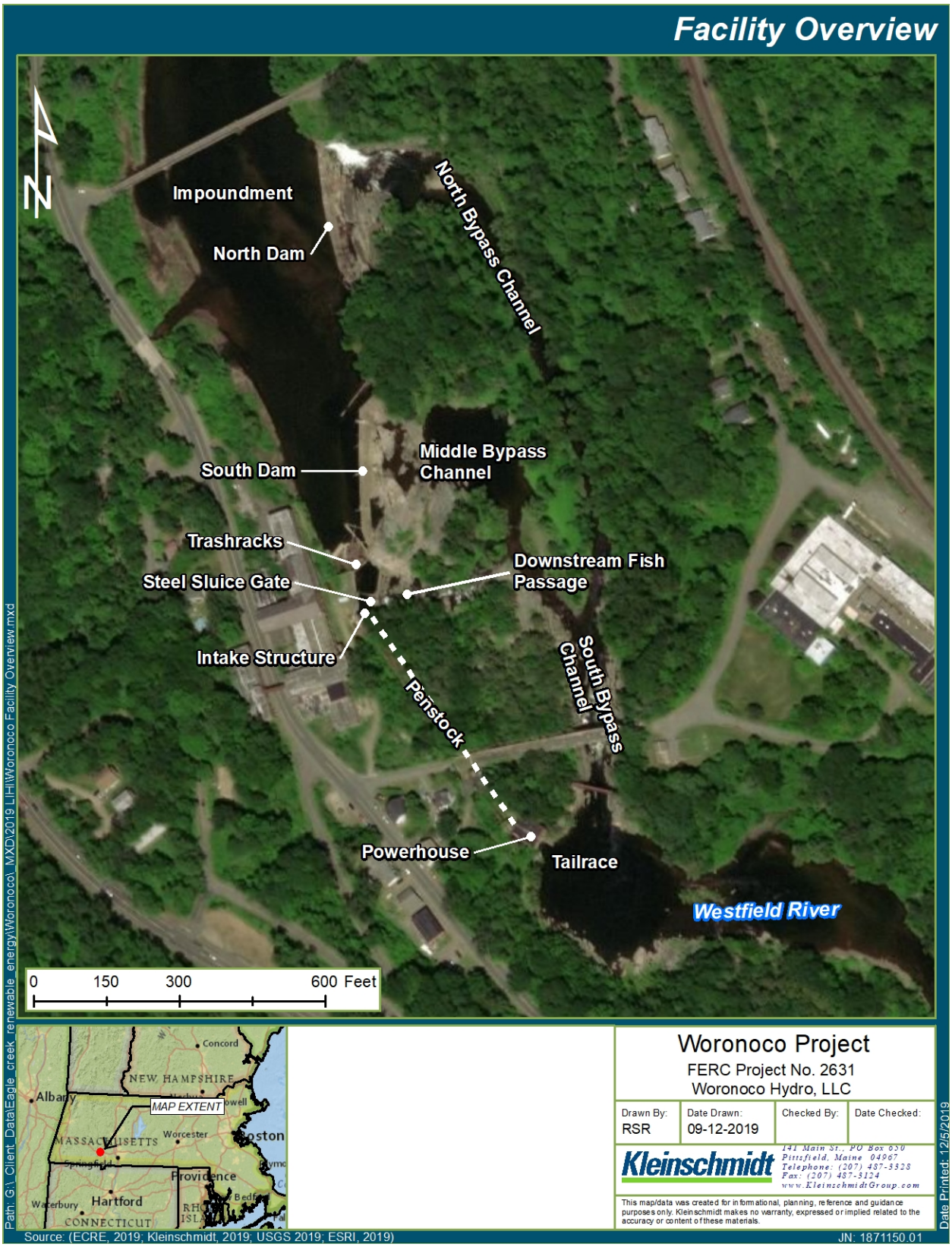


FIGURE 1-4 WORONOCO KEY PROJECT FEATURES

2.0 STANDARDS MATRICES

2.1 ZONE OF EFFECT: IMPOUNDMENT ZOE

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			

2.2 ZONE OF EFFECT: BYPASS REACH ZOE

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			

2.3 ZONE OF EFFECT: TAILRACE ZOE

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			

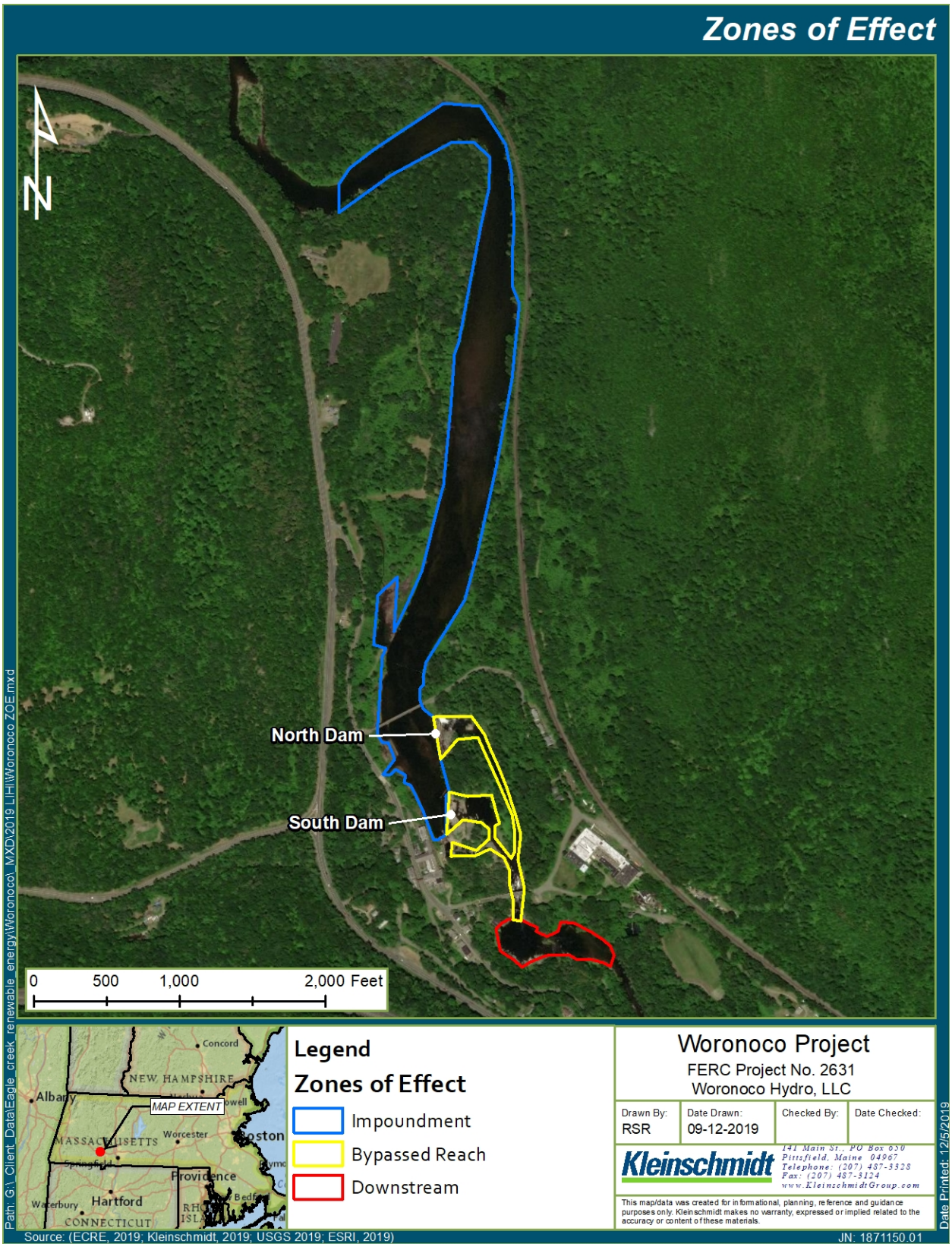


FIGURE 2-1 WORONOCO ZONES OF EFFECT (ZOE)

3.0 SUPPORTING INFORMATION

3.1 ECOLOGICAL FLOW STANDARDS

3.1.1 IMPOUNDMENT

CRITERION	STANDARD	INSTRUCTIONS
A	1	Not Applicable / De Minimis Effect: • Confirm the location of the powerhouse relative to dam/diversion structures and demonstrate that there are no bypassed reaches at the facility. • 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. • In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. • For impoundment zones only, explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed. *NOTE*: this is required information, but it will not be used to determine whether the Ecological Flows criterion has been satisfied. All impoundment zones can apply Criterion A-1 to pass this criterion

Article 401 of the FERC License, which is identical to those set in the WQC, requires the Licensee to operate the Project as a run-of-river facility, such that outflows from the project are approximately equal to the sum of the inflows to the project impoundment on an instantaneous basis. In addition, Article 401 requires that the Project is operated to minimize fluctuations to the impoundment water surface elevation, by maintaining impoundment elevations at 229.0 feet National Geodetic Vertical Datum (NGVD).

No deviations have been reported to FERC by the licensee during the current LIHI certification term.

Article 403 of the FERC License requires the Licensee to file a project operations monitoring plan to monitor run-of-river operations, as well as the minimum bypassed flow and downstream

fish passage flow. The plan provides a means to independently verify compliance with run-of-river operation. The project operations monitoring plan was submitted May 13, 2004[11] and approved by FERC on July 27, 2004.[12]

The Project is in compliance with all resource agency recommendations regarding flow conditions for fish and wildlife protection, mitigation and enhancement in the Impoundment at the Project.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. As of February 2020, responses regarding ecological flows have not been received, but will be provided to LIHI upon receipt.

[11] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10156074
[12] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10209712

3.1.2 BYPASS REACH

CRITERION	STANDARD	INSTRUCTIONS
A	2	<u>Agency Recommendation:</u> • 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 stringent). • 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).

Article 401 of the FERC License, which is identical to those set in the WQC, requires the Licensee to operate the Project as a run-of-river facility, such that outflows from the project are approximately equal to the sum of the inflows to the project impoundment on an instantaneous basis.

Article 402 of the License, which is also identical to those set in the WQC, requires the Licensee to release, from the Project (north and south dams) a minimum flow of 57 cubic feet per second (cfs), or inflow, whichever is less, as measured in the separate channels of the bypassed reach, for the protection and enhancement of water quality, fisheries, and aquatic resources in the bypassed section of the Westfield River. The 57-cfs minimum flow shall be released to the bypassed reach as follows: 35 cfs in the south channel, as measured immediately downstream from the confluence of the south dam channel and downstream fish bypass channel; and 22 cfs in the north channel, as measured immediately downstream from the north dam.

No minimum flow deviations or violations have been reported to FERC by the licensee during the current LIHI certification term.

Article 403 of the FERC License requires the licensee to file a project operations monitoring plan to monitor run-of-river operations, as well as the minimum bypassed flow and downstream fish passage flow, as required by Articles 401 and 402, respectively. The plan shall provide a means to independently verify compliance with run-of-river operation and the bypass minimum flow requirements of this license. The plan shall identify the monitoring methods and locations of monitoring devices necessary to ensure that the project is operated in a manner consistent with Article 401 and the bypass flow is released in a manner consistent with Article 402. The project

operations monitoring plan was submitted May 13, 2004[13] and approved by FERC on July 27, 2004.[14]

A minimum flow of 57 cfs, or inflow, if less, is released into the bypass reach. This consists of 22 cfs from the North Dam into the northern portion of the bypass channel and 35 cfs from the South Dam into the middle and south bypass channel (15 cfs from the northern end of the South Dam into the middle channel and 20 cfs from the southern end of the South dam (during the downstream fish passage season, from the downstream fish passage facility and for the remainder of the year, from a surface gate near the powerhouse). The upstream eel passage facility releases are considered negligible.

Recommendations from agencies that outline the scientific/technical basis of the minimum flows can be found in the Environmental Assessment.[15] According to the EA, "MDFW did not file 10(j) recommendations for the Project" (EA 2001, 87). The USFWS submitted the following 10(j) recommendations relevant to ecological flows: (1) operate the Project in run-of-river mode, (2) release continuous minimum flows (as outlined above), and (3) develop and implement a monitoring plan for run-of-river operations and minimum flows (EA 2001, 87-88). The Project is in compliance with all resource agency recommendations regarding flow conditions for fish and wildlife protection, mitigation and enhancement in the Bypass Reach at the Project. For further information, please review page 4 (Bypass Flows) of the U.S. Department of Interior letter responding to FERC's Notice of the EA.[16]

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. As of February 2020, responses regarding ecological flows have not been received, but will be forwarded to LIHI upon receipt.

[13] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10156074
[14] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10209712
[15] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=6012758
[16] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=8433192

3.1.3 TAILRACE

CRITERION	STANDARD	INSTRUCTIONS
A	2	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 stringent). • 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).

Article 401 of the FERC License, which is identical to those set in the WQC, requires the Licensee to operate the Project as a run-of-river facility, such that outflows from the project are approximately equal to the sum of the inflows to the project impoundment on an instantaneous basis.

Article 402 of the License, which is also identical to those set in the WQC, requires the Licensee to release, from the Project (north and south dams) a minimum flow of 57 cubic feet per second (cfs), or inflow, whichever is less, as measured in the separate channels of the bypassed reach, for the protection and enhancement of water quality, fisheries, and aquatic resources in the bypassed section of the Westfield River. The 57-cfs minimum flow shall be released to the bypassed reach as follows: 35 cfs in the south channel, as measured immediately downstream from the confluence of the south dam channel and downstream fish bypass channel; and 22 cfs in the north channel, as measured immediately downstream from the north dam.

The Project has had no flow deviations in their annual compliance reports to FERC, since license acquisition in April 2002.

Article 403 of the FERC License requires the Licensee to file a project operations monitoring plan to monitor run-of-river operations, as well as the minimum bypassed flow and downstream fish passage flow, as required by Articles 401 and 402, respectively. The plan shall provide a means to: independently verify compliance with run-of-river operation and the bypass minimum flow requirements of this license. The plan shall identify the monitoring methods and locations of monitoring devices necessary to ensure that the project is operated in a manner consistent with Article 401 and the bypass flow is released in a manner consistent with Article 402. The project

operations monitoring plan was submitted May 13, 2004[17] and approved by FERC on July 27, 2004.[18]

The Project is in compliance with all resource agency recommendations regarding flow conditions for fish and wildlife protection, mitigation and enhancement in the Tailrace at the Project.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. As of February 2020, responses regarding ecological flows have not been received, but will be forwarded to LIHI upon receipt.

[17] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10156074
[18] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10209712

3.2 WATER QUALITY STANDARDS

3.2.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
B	2	Agency Recommendation: • If facility is located on a Water Quality Limited river reach, 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, including the date of issuance. • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to the water quality related agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The Massachusetts Department of Environmental Protection (MDEP) issued a water quality certificate for the project on August 30, 2000,[19] and subsequently amended the water quality certificate on September 29, 2000.[20]

The Westfield River in the vicinity of the Project was classified by the Massachusetts Surface Water Quality Standards (314 CMR 4.00)[21] as Class B Warmwater Fishery and Recreation waters at the time of relicensing in 2002 and it remains as Class B waters today. Class B waters "are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."

Article 401 of the Project's 2002 FERC License, which is identical to those set in the WQC, requires the Licensee to operate the Project as a run-of-river facility, and to minimize fluctuations to the impoundment water surface elevation by maintaining impoundment elevations at 229.0 feet National Geodetic Vertical Datum (NGVD) for the protection and enhancement of water quality, fisheries, and aquatic resources in the Woronoco impoundment and the Westfield River downstream from the project.

Article 402 of the License, which is also identical to those set in the WQC, requires the Licensee to release, from the Project a minimum flow of 57 cfs, minimum flow for the protection and enhancement of water quality, fisheries, and aquatic resources in the bypassed section of the

[19] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8042025
[20] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=1054755
[21] https://www.mass.gov/files/documents/2017/10/18/314cmr4.pdf

Westfield River; 35 cfs shall be released in the south channel and 22 cfs shall be released in the north channel.

Article 403 of the FERC License requires the Licensee to file a project operations monitoring plan to monitor run-of-river operations, as well as the minimum bypassed flow and downstream fish passage flow, as required by Articles 401 and 402, respectively. The plan shall identify the monitoring methods and locations of monitoring devices necessary to ensure that the project is operated in a manner consistent with Article 401 and the bypass flow is released in a manner consistent with Article 402. The project operations monitoring plan was submitted May 13, 2004[22] and approved by FERC on July 27, 2004.[23]

The current MADEP, Division of Watershed Management, Massachusetts Year 2016 Integrated List of Waters, dated June 2017,[24] lists the following "impairment issues" for the following section near the Westfield River and the Project:

- The Potash Brook which sources at the outlet of Dunlap Pond, Blandford to the mouth at its confluence with the Westfield River, Village of Woronoco, Russell – just East of the Project Impoundment.: Category 5, "Waters requiring a TMDL," for Escherichia coli (E. coli).
- The Potash Brook is a tributary to the Westfield River entering the impoundment approximately 600' above the South Dam.

In addition, per the Westfield River Water Quality Monitoring Project dated June 21, 2010, prepared by the Pioneer Valley Planning Commission,[25] "Under a MassDEP FY08 604b grant to the Pioneer Valley Planning Commission (Project Number 604/2008-04), monthly water quality monitoring was performed at 21 locations in Windsor, Huntington, Russell, Westfield and West Springfield from April to November 2009.

- One site (WR20.1) was located above the Project boundary at the Westfield River rest area opposite of the former Whippernon Golf Course (no longer there).
- The second sight (WR8.3) was located downstream of the Project boundary at the Westfield River gage station near West Springfield.

Results of this study shows that the two sites closest to the Project were within the water quality standards for temperature for a Class B Warm Water Fishery (BWWF), but were lower than the desired alkalinity value of 100-200 mg/L (the desired alkalinity value that will sufficiently stabilize the pH in a stream). The study noted that the Project is not the cause of such alkalinity value as the Westfield River Basin is largely comprised of crystalline, sedimentary, and some carbonate rocks, which all result in the low alkalinity observed. Additionally, 12 sites were monitored for E. coli, and 11 of the 12 (92%) had E. coli values one or more times in excess of primary contact standards (235 MPN/100 mls, single sample). Of the 11 sites with single sample E. coli exceedances, 7 sites (64%) also exceeded the geometric mean (126 MPN/100 mls) for

[22] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10156074
[23] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10209712
[24] https://www.mass.gov/files/documents/2017/08/zu/16ilwplist.pdf
[25] http://www.westfieldriverwildscenic.org/documents/Wfld%20River%20604b%20Final%20Report%206%2023%2010.pdf

primary contact during the prime recreational season (June to October).” None of the E. Coli sites were within the Project boundary.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. As of February 2020, responses regarding water quality, and confirmation that the WQC terms and conditions remain valid and effect for the facility, have not been received, but will be forwarded to LIHI upon receipt.

3.3 UPSTREAM FISH PASSAGE STANDARDS

3.3.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
C	2	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 closest dam downstream of the Project is the West Springfield Hydroelectricity Facility (approximately 4.1 miles upstream from its confluence with the Connecticut River) which is owned and operated by A & D Hydro, Inc.). The listed anadromous species have access to the Westfield River only downstream of the Project based on the ledge immediately downstream of the dam. The ledge below the dam is a natural barrier for fish, but not for the movement of eel, however, Woronoco Hydro was unable to find historic documentation to support this.

- There is a trap and truck operation (Denil ladder) at the West Springfield facility downstream. The fishway for anadromous species (Atlantic salmon and American shad) were completed at the West Springfield facility in 1995 and for American eel in 2001. Downstream passage was also provided.
- The West Springfield license (Article 406) required the licensee to finalize upstream fish passage facilities. As of 2009,[26] the eel passage facility as well as the Denil fish ladder were in operable condition. The MDFW operates both the ladder and the fish trap.
- In April 2011, MDFW discovered that the downstream fish facility at the West Springfield Project was not yet in place. The Project was noted by MDFW as being "in violation of the Project's FERC license" due to the "one-inch racks not [being] installed, and the downstream bypass from the power canal [not being open].[27]
- In May 2011, FERC issued a violation to A & D Hydro, Inc. (with no recommended corrective measures).

To date, MDFW still passes fish upstream/downstream at the West Springfield Project. The 2019 Connecticut River Basin Fishway Passage Counts indicated that the West Springfield Project

[26] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12072870
[27] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=12617671

passed 4,064 American Shad, 5 Blueback Herring, and 495 Sea Lamprey.[28] It is unclear where these fish are released.

Per the Project's 2002 License, Articles 404 and 405 required development of a comprehensive fish passage plan, including provisions to install, operate, maintain, and evaluate effectiveness of upstream and downstream passage for Atlantic salmon and American Eel. The Fish Passage Plan was approved by FERC on June 3, 2011.[29] As outlined in the 2004 Comprehensive Fish Passage Plan,[30] and consistent with the License articles, Woronoco Hydro contributed to the Trap & Truck fund on an annual basis. As further defined by the Plan, funding was discontinued because as notified by MDFW, MDFW is no longer supporting the Atlantic Salmon restoration plan in the watershed (see Page 40 of 86 of the Plan's PDF document). As outlined in the March 31, 2015 letter to TransCanada, "in 2012 the U.S. Fish and Wildlife Service withdrew its support and resources from the Connecticut River Atlantic Salmon restoration program including its egg and fry production at the White River National Fish Hatchery and sea run broodstock operations at the Cronin National Salmon Station. These operations were critical components of the program and without them the Division feels that the Atlantic salmon restoration effort has no real chance of success moving forward. Therefore, after nearly four decades of effort, the Division has ended its efforts to restore Atlantic salmon to the Connecticut River and its tributaries in MA." [31] This process ended during the last LIHI recertification period of the Project.

Additionally, in 2013, Woronoco Hydro communicated to FERC indicating a cancelation of salmon fish passage effectiveness testing. Woronoco Hydro indicated that the 2013 downstream fish passage effectiveness testing for the upstream Indian River Power Supply, LLC (FERC No 12462). Woronoco Hydro had previously agreed to install follow-up monitoring devices below the Project to track smolt passage from the Indian River Project. However, Indian River subsequently received a waiver from the USFWS for the effectiveness testing in light of the canceling of the Connecticut River Salmon stocking program. An e-mail from Caleb Slater from 2013 can be found following the Woronoco Hydro submittal indicating these changes.[32]

The License and the WQC required the Project to install an upstream eel passage facility as well as to operate, monitor and evaluate the downstream fish passage for Atlantic Salmon and resident fish. Woronoco installed two upstream passage facilities for Juvenile American eels at the South Dam in 2008, and one at the North Dam in 2011. The Project installed the three eelways to accommodate upstream passage, a full-depth exclusionary trashrack, and integrated bypass at the forebay to accommodate safe outmigration past the dam. The two ladders on the South Dam typically pass a total of about 2000 eel annually, on average, during the upstream passage season from May to November. The third ladder, on the North Dam, has historically been difficult to maintain, vandalized, and damaged several times due to high water. The ladder on the North Dam has also produced the lowest counts of the three ladders. During the last years that it was monitored (2012, 2013 and a portion of 2014 prior to it being damaged during a high flow event), it passed a total of 3 eel. The north ladder was severely damaged in 2014 due to high flows resulting from a storm, and has not been operational since that time.

[28] https://www.fws.gov/r5crc/pdf/2019-counts/CT-River-Fishway-Count-Rpt-12_5_19.pdf
[29] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12672266
[30] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=11772169
[31] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=13823988
[32] https://elibrary-backup.ferc.gov/idmws/common/OpenNat.asp?fileID=13147448

Although the Project has no requirement to continue counting the upstream migrants, operators have maintained the practice of capturing, counting, and releasing the eels upstream. In communication with the Massachusetts Division of Fisheries and Wildlife (MDFW), the agency representative indicated that it is acceptable to continue to operate the existing two upstream eel passage ladders on the South Dam, and no longer maintain the third ladder at the North Dam. Operators will continue to capture and count eel at the two remaining locations, and forward the counts to Massachusetts Division of Fisheries and Wildlife at the end of the season. The Licensee has also reached out to the USFWS to follow up on the discussions with MDFW (response from MDFW can be seen in Appendix B).

A FERC letter issued September 13, 2012[33] documents the receipt of a 2011 upstream eel passage effectiveness study report, per Article 404. Woronoco has functional upstream passage for Juvenile American eels, as the two ladders at the South Dam are seeing reasonable eel passage numbers, whereas the North Dam ladder (damaged in 2014) saw only 3 eel over a 3-year span.

Resident Fish Community

There are several fish species that are commonly found in the Westfield River. The MDFW has periodically surveyed the fish fauna of the Westfield River since the 1940s, including surveys in 1942, 1952, and 1977. A total of 25 species were collected during these surveys, but the five most frequently encountered species during the surveys were:

- White sucker (*Catostomus commersonii*)
- Blacknose dace (*Rhinichthys atratulus*)
- Brook trout (*Salvelinus fontinalis*)
- Brown trout (*Salmo trutta*)
- Longnose dace (*Rhinichthys cataractae*)

Other less commonly found species can be found in FERC's 2002 Environmental Assessment.[34]

Anadromous and Catadromous

Several native migratory fishes, of particular ecological, economic, and social importance, occur in the Connecticut River basin, including in the Westfield River. These species include:

- Atlantic salmon (*Salmo salar*)
- American shad (*Alosa sapidissima*)
- Blueback herring (*A. aestivalis*)
- Alewife (*A. pseudoharengus*),
- Gizzard shad (*Dorosoma cepedianum*)
- Shortnose sturgeon (*Acipenser brevirostrum*)
- Atlantic sturgeon (*A. oxyrhynchus*)
- Striped bass (*Morone saxatilis*)

[33] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13064930
[34] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=3250697

- American eel (*Anguilla rostrata*), and
- Sea lamprey (*Petromyzon marinus*)

Runs of these anadromous and catadromous fish populations declined with the industrial development of the Connecticut River basin in the 1800s. Additional historical information and context on upstream and downstream passage can be found in FERC's 2002 Environmental Assessment of the Project.[35]

In addition, once above the Project Dam and in the impoundment, there is no facility barrier to upstream movement of fish.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. On December 30, 2019, Caleb Slater of MDFW, responded to this request. Mr. Slater stated that MDFW supports the recertification of the Woronoco Project, with the continued operation of the existing South Dam ladder, and will no longer require the third ladder at the North Dam (see Appendix B).

[35] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=6012972

3.4 DOWNSTREAM FISH PASSAGE AND PROTECTION STANDARDS

3.4.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
D	2	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 stringent). • 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.

Per the Project's 2002 License, Articles 404 and 405 required development of a Comprehensive Fish Passage Plan, including provisions to install, operate, maintain, and evaluate effectiveness of upstream and downstream passage for Atlantic salmon and American Eel. The Fish Passage Plan was approved by FERC on June 3, 2011.[36] See Upstream Fish Passage for information about functional upstream passage for Juvenile American eels.

The Project constructed downstream passage for Atlantic salmon smolt, eel and resident fish in 2010. Multiple effectiveness studies and modifications to the passage facility were performed. Effectiveness testing was completed in 2011 and approved by FERC November 15, 2012.[37] Further, in July 2012, the USFWS announced that it would end its involvement in efforts to restore Atlantic salmon to the Connecticut River and its tributaries. The Westfield River is a major tributary of the Connecticut River. As part of the restoration program, salmon smolts were stocked in the watershed upstream of the Project dam, at River Mile 18.5, through 2013. To accommodate outmigration of previously stocked salmon, the Project agreed to operate downstream passage through 2015 (FERC letter, January 30, 2013),[38] which they complied with. Additionally, the downstream fish passage facility continues to operate to pass resident fish and eel during the downstream migration season.

Per the June 18, 2013 Environmental Inspection Report,[39] the Project's downstream fish passage facilities were functional and there were no follow-up actions as a result of the inspection.

[36] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12672266
[37] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13111081
[38] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13165172
[39] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13310048

Additional historical information and context on resident and migratory fish can be found in FERC's 2002 Environmental Assessment of the Project[40] and above in Section 3.3.1.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. On December 30, 2019, Caleb Slater or MDFW, responded to this request. Mr. Slater stated that MDFW supports the recertification of the Woronoco Project, with the continued operation of the existing South Dam ladder, and will no longer require the third ladder at the North Dam (see Appendix B).

[40] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=6012972

3.5 SHORELINE AND WATERSHED PROTECTION STANDARDS

3.5.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
E	1	Not Applicable / De Minimis Effect: • 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 project boundary). • Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.

Per the Project License, there is no Shoreline Management Plan required for the Project. The land use and land cover within the project boundary and a 1-mile buffer outside of the Project Area is shown in Figure 3-1.

"There is no buffer zone around the impoundment. However, there are no residences within 200' of the impoundment, but there is a public road, bridge and railroad track in active use within 200' of the river, as well as a FERC approved public Recreation Plan (final plan approved March 3, 2005) and the Town of Russell has a park[41] and recreation area that uses the impoundment for fishing, boating and swimming. All of the activities around the shore of the impoundment are low impact and managed by the town or by the Project.

Shoreland protection is secured through compliance with the State issued 401 WQC for the project, conditions of which are designed to provide reasonable assurance that the Project or activity will be conducted in a manner which will not violate applicable water quality standards, and will minimize impact on waters and wetlands. Adherence to headpond level limits is particularly important to this assurance to ensure that emergent wetland areas are not stressed, as noted in the EA prepared by FERC in 2002. The project is operated to minimize fluctuations to within one inch of its licensed elevation of 229.0 feet NGVD.

In a 2016 FERC Dam Safety Inspection of the site, it was noted that "No debris was observed in the project impoundment or on the crest of the North and South dams during the inspection. No evidence of shoreline erosion or slope instability was visible in the immediately upstream of the project site. The boater safety barrier was installed in the impoundment."[42]

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. As

[41] Strathmore Park in Russell, which has since been turned over to the town for management.
[42] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14435734

of February 2020, responses regarding shoreline and watershed protections have not been received, but will be forwarded to LIHI upon receipt.

On January 16, 2020, Kleinschmidt Associates, on behalf of Woronoco Hydro, searched the MassGIS Online Mapping Tool (Oliver). Results showed that the area surrounding the Woronoco Project is considered a Priority Habitat of Rare Species (No. PH 1007). The Project is directly adjacent to the Tekoa Mountain Wildlife Management Area (WMA), a rock high point overlooking the Westfield River Gorge at the eastern edge of the Berkshire plateau. The mountain is the habitat of the New England cottontail (*Sylvilagus transitionalis*), a species of rabbit considered to be in decline in Massachusetts. Additionally, the USFWS has targeted Tekoa Mountain as a "high priority" ecosystem, as outlined in the Connecticut River Valley Land Protection Plan.[43] The WMA is often impacted by frequent fires, which has left the land barren and sparsely covered by trees. The intense reduction in thicket is likely the primary reason for the decline in numbers and range of cottontails, although there are various reasons for the New England cottontail decline, as outlined by the USFWS.[44]

On February 10, 2020, Kleinschmidt Associates, on behalf of Woronoco Hydro, initiated a Massachusetts Endangered Species Act (MESA) project review process (Appendix B). A MESA review could take 30-60 days. Woronoco Hydro will provide the results of the MESA review to LIHI once they are received. The submitted request can be seen in Appendix B.

Given resource agency comments that the intense reduction in thicket is likely the primary reasons for the cottontails, it appears that the Woronoco Project is not a contributor to the species decline. Additionally, Woronoco Hydro believes the Project is in compliance with resource agency recommendations and FERC license terms regarding shoreline and watershed protection standards.

[43] References throughout multiple searches, but no longer available online.
[44] https://www.fws.gov/northeast/pdf/necotton.fs.pdf

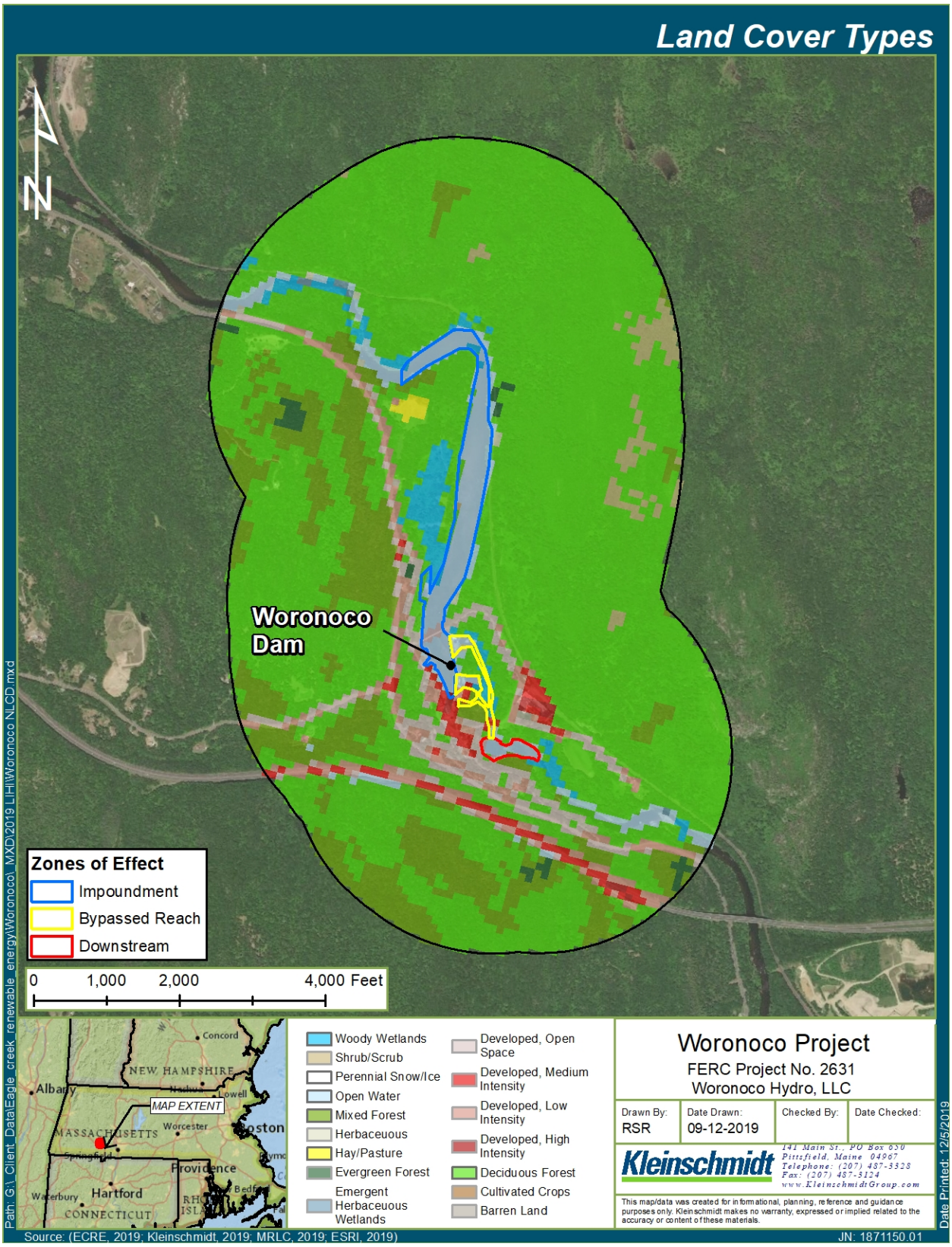


FIGURE 3-1 LAND COVER TYPES WITHIN 1-MILE BUFFER OF THE WORONOCO PROJECT

3.6 THREATENED AND ENDANGERED SPECIES STANDARDS

3.6.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
F	2	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 ZOE or is not impacted by facility operations.

At the time of the Project obtaining its license, and when the Environmental Assessment was completed, both in 2002, no federally listed species were known to occur in the Project vicinity.

Most recently, a recent Fish and Wildlife Service Information for Planning and Consultation (IPaC) report, was generated on November 8, 2019 to assess official species known to occur or potentially occur within the Project area. The IPaC report is attached as Appendix D. In addition, the State of Massachusetts Endangered Species Act (MESA) list of Endangered, Threatened and Special Concern species[45] was consulted on September 5, 2019. Below are the results of the IPaC report and MESA list of species.

Mammals

While 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 currently planned.

Birds

The USFWS has also listed the Bald Eagle (*Haliaeetus leucocephalus*) as well as the Golden Eagle (*Aquila chrysaetos*) as potentially being present and/or breeding in the project area. Bald Eagles are protected under both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Additionally, listed migratory birds in the IPaC report include the following Birds of Conservation Concern (BCC) (with their ranges being in the continental USA and Alaska):

- Black-billed Cuckoo (*Coccyzus erythropthalmus*)
- Bobolink (*Dolichonyx oryzivorus*)
- Canada Warbler (*Cardellina canadensis*)
- Cerulean Warbler (*Dendroica cerulea*)
- Eastern Whip-poor-will (*Antrostomus vociferus*)

[45] https://www.mass.gov/service-details/ma-endangered-species-act-mesa-overview

- Evening Grosbeak (*Coccothraustes vespertinus*)
- Prairie Warbler *Dendroica discolor*
- Rusty Blackbird *Euphagus carolinus*
- Wood Thrush *Hylocichla mustelina*

The MESA list also includes the historically extinct Upland Sandpiper (*Bartramia longicauda*), as well as the threatened Peregrine Falcon (*Falco peregrinus*).

The Woronoco Project has no activities or project operations that result in impacts to migratory birds, eagles, or their habitats.

Plants

There are no state or Federally threatened or endangered plants identified in the iPaC report. The State MESA list includes the extinct Houghton's Flatsedge (*Cyperus houghtoni*i) and Spiked False Oats (*Trisetum spicatum*), as well as the threatened American Bittersweet (*Celastrus scandens*) and, the Climbing Fumitory (*Adlumia fungosa*) and Smooth Rock-cress (*boechera laevigata*) as species of concern.

Other

Additional State MESA listed Species of Concern include:

- Mussel: Creeper (*Strophitus undulatus*)
- Fish: Bridle Shiner (*Notropis bifrenatus*)
- Butterfly/Moth: Orange Sallow Moth (*Pyrrhia aurantiago*)
- Reptile: Eastern Box Turtle (*Terrapene carolina*)

License Article 406 required a Drawdown Management Plan, to protect creeper mussels in the impoundment area, and the plan was issued December 4, 2003.[46] Further, as part of the Plan, the Licensee reported installation of a "stoplog" gate structure that allows work in the intake area without the need to lower the impoundment. If the impoundment does need to be lowered for repair work, the Licensee shall file, for Commission approval, a reservoir drawdown plan after consulting with the resource agencies, that will outline procedures to minimize effects on freshwater mussels (mussel recovery plan) and other aquatic life.

There are no threatened or endangered species, or their critical habitat listed under state or federal Endangered Species Acts present in the Facility area. Procedures exist to minimize impacts to state listed Species of Special Concern should lowering of the impoundment be necessary. As noted in the FERC EA (2002), the Woronoco project site has always formed a natural barrier to fish passage at the facility, and is likely not impacting the listed species. Woronoco Hydro is committed to collaboratively working with agencies to meet species management objectives should agencies request this action in the future.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. Their responses will be incorporated into Appendix B if they are received.

[46] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10004896

On February 10, 2020, Kleinschmidt Associates, on behalf of Woronoco Hydro, initiated a Massachusetts Endangered Species Act (MESA) project review process (Appendix B). A MESA review could take 30-60 days. Woronoco Hydro will provide the results of the MESA review to LIHI once they are received. The submitted request can be seen in Appendix B (NHESP tracking number 97-1771).

3.7 CULTURAL AND HISTORIC RESOURCES STANDARDS

3.7.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
G	2	Approved Plan: • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

The Project's FERC License and Environmental Assessment (February 21, 2002)[47] note the following history of the project site and cultural resources:

The village of Woronoco was established during the rise of the paper industry when the Woronoco dams and mills were built. The first dam at the site of the existing project was a timber-crib structure constructed in 1879. The existing hydro station was completed in 1913 to supply power to two paper mills, one on either side of the river.[48] The two existing dams were constructed in 1938 (North Dam) and 1950 (South Dam) to replace former structures.

The Project powerhouse and the Strathmore Mill complex are both eligible for inclusion in the National Register of Historic Places. Besides these two properties, no other archeological or historic resources are known to exist within the Project area.

Per the License, in letters dated May 2, 1997, and May 18, 1999, the Massachusetts State Historic Preservation Office (SHPO) concluded that "the proposed project would have no effect on the significant architectural and historical characteristics of the National Register eligible property."

Article 407 of the License outlines requirements that the licensee must comply with, in the event that archeological or historic sites are discovered during operation or maintenance of the project, or during any construction at the project. The licensee shall consult with the Massachusetts State Historic Preservation Officer (SHPO), and file for Commission approval, an Historic Properties Management Plan (HPMP), under any or all of the following circumstances:

(1) before starting any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in this license, including recreation facilities at the project;

[47] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8308735
[48] The Strathmore Paper Mill dates to 1857 when the Jessup and Laflin Company was organized. The principal mill buildings were constructed in 1873.

(2) before altering the project powerhouse and the Strathmore Mill complex, or any of its contributing elements, in such a way as may diminish its integrity of design, materials, workmanship, setting, location, feeling, or association; and
(3) if, while operating the project, the licensee discovers a previously unidentified Historic Property that may be affected by the operation of the project. In the event of such a discovery, the licensee shall make every reasonable effort to protect the property from any adverse effects and immediately consult with the SHPO.

As noted above, a new Unit 3 turbine was placed online 10 months after the last LIHI recertification on January 28, 2015. The new Unit 3 did result in a maximum capacity increase available to the station; however, the authorized capacity of the facility did not increase, and therefore Woronoco Hydro was not required to file a capacity license amendment.[49]

No structural changes were required to replace the equipment in-kind, and therefore, at the time of the replacement it was believed that no additional consultation or permitting was required. FERC identified the replacement in its December 15, 2016 inspection, and required no further follow-up activities.[50]

At the time, the Licensee did not believe SHPO consultation was necessary as it was the opinion of the Licensee that no changes were made to the powerhouse structure and there were no impacts to contributing elements of the powerhouse historical feature.

The Project is in compliance with all requirements regarding Cultural Resource protection, mitigation and enhancement included in the FERC license. No significant cultural resources were identified by the Massachusetts Department of Historic Preservation in a May 18, 1999 correspondence during project relicensing[51], and the Project doesn't operate under a Cultural Resources Management Plan or Historic Properties Management Plan.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. Their responses will be forwarded to LIHI upon receipt.

[49] FERC has specific guidelines that dictate when a capacity amendment must be filed, per 18 CFR §4.201. This section outlines that a capacity amendment would be required when additional capacity not previously authorized that would increase the actual or proposed total installed capacity, and would result in an increase in the maximum hydraulic capacity of the project to increase 15% of more, and would result in an increase in the installed name-plate capacity by 2 MW or more. These parameters exclude Woronoco Hydro from needing a capacity amendment for the turbine replacement.
[50] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14431764 (CEII protected)
[51] https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=8000898

3.8 RECREATIONAL RESOURCES STANDARDS

3.8.1 ALL ZOES

CRITERION	STANDARD	INSTRUCTIONS
H	2	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.

Article 408 of the 2002 FERC License requires the Licensee to develop a recreational enhancement plan and to install five specified facilities. Following distribution of a draft plan to the USFWS, Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife, Massachusetts Department of Conservation & Recreation; town of Russell, Massachusetts; Westfield River Watershed Association, Westfield River Wildwater Races; and Trout Unlimited; no comments were received from any of these entities, and the final recreation enhancement plan for the Project was approved by FERC on March 3, 2005.[52]

The five recreational facilities that have been installed by the Licensee are:

1. a put-in/take out for canoes and small boats on the southwest potion of the impoundment, including a 15-vehicle parking area;
2. a take-out area for canoes upstream of the project's two dams, on the southeast shoreline;
3. a canoe portage path, including rest stops, racks, and directional signs directing persons to the downstream put-in (Photo 5-7);
4. a put-in area along the east shoreline of the Westfield River, a short distance downstream from the project powerhouse, for canoeists and persons with hand-carried boats; and
5. a parking area located near Bridge Street for approximately 15 vehicles with an associated trail for persons with canoes and hand-carried boats who desire to access the Westfield River downstream of the project powerhouse.

Several FERC Environmental Inspections have been completed to date. The most recent, a June 18, 2013 Environmental Inspection[53] report stated that the Licensee "finalized the installation of recreational enhancements at the Project including the canoe takeout, rest stops, and trails with associated parking areas. The facilities were intact and built according to the approved plans. Signs in compliance with Part 8 section 8.2(a) were installed."

A FERC Form 80 was completed March 20, 2015,[54] indicating that several FERC approved recreation amenities were in use. FERC no longer requires the Form 80.

[52] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10432713
[53] https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=13309993
[54] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13810553

The above referenced reports indicate that the licensee is in compliance with all requirements regarding Recreation protection, mitigation or enhancements included in the FERC license. In addition, the licensee allows access to the reservoir and downstream reaches without fees or charges. The licensee is in compliance regarding Recreation Resource Standards.

On December 17, 2019, Kleinschmidt Associates, on behalf of Woronoco Hydro, consulted with state and federal agencies, requesting confirmation that the Woronoco Project is operated in compliance with the conditions set forth in the FERC license and operating plans/agreements. Their responses will be incorporated into Appendix B if they are received.

4.0 FACILITY CONTACTS FORM

1. All applications for LIHI Certification must include complete contact information to be reviewed.

Project Owner:	
Name and Title	Robert Gates, Vice President
Company	Woronoco Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Project Operator (if different from Owner):	
Name and Title	Robert Gates, Vice President
Company	Woronoco Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	Robert Gates, Vice President
Company	Woronoco Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Robert Gates, Vice President
Company	Woronoco Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960
Party responsible for accounts payable:	
Name and Title	Robert Gates, Vice President
Company	Woronoco Hydro, LLC
Phone	973-998-8403
Email Address	Bob.Gates@eaglecreekre.com
Mailing Address	65 Madison Avenue, Suite 500, Morristown, NJ 07960

2. Applicant must identify the most current and relevant state, federal, provincial, and tribal resource agency contacts (copy and repeat the following table as needed).

Agency Contact (Check area of responsibility: Flows☐, Water Quality ☐, Fish/Wildlife Resources ☒, Watersheds ☐, T/E Spp. ☒, Cultural/Historic Resources ☐, Recreation ☐):	
Agency Name	Natural Heritage Endangered Species Program (Massachusetts Division of Fisheries & Wildlife)
Name and Title	Misty Anne Marold; Senior Review Biologist
Phone	508-389-6356
Email address	misty-anne.marold@mass.gov
Mailing Address	1 Rabbit Hill Road Westborough, MA 01581

Agency Contact (Check area of responsibility: Flows☒, Water Quality ☒, Fish/Wildlife Resources ☐, Watersheds ☐, T/E Spp. ☐, Cultural/Historic Resources ☐, Recreation ☒):	
Agency Name	Department of Environmental Quality
Name and Title	Mr. Robert Kubit
Phone	508-767-2854
Email address	Robert.Kubit@state.ma.us
Mailing Address	Massachusetts Department of Environmental Protection Division of Water Quality 67 Main Street, 2nd Floor Worcester, MA 01608

Agency Contact (Check area of responsibility: Flows☐, Water Quality ☐, Fish/Wildlife Resources ☒, Watersheds ☐, T/E Spp. ☒, Cultural/Historic Resources ☐, Recreation ☐):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Melissa Grader
Phone	
Email address	Melissa_Grader@fws.gov
Mailing Address	U.S. Fish and Wildlife Service 113 East Plumtree Sunderland, MA 01375

Agency Contact (Check area of responsibility: Flows☐, Water Quality ☐, Fish/Wildlife Resources ☒, Watersheds ☐, T/E Spp. ☒, Cultural/Historic Resources ☐, Recreation ☐):	
Agency Name	Massachusetts Division of Fisheries and Wildlife
Name and Title	Caleb Slater, Ph.D.; Anadromous Fish Project Leader
Phone	508-389-7890
Email address	caleb.slater@state.ma.us
Mailing Address	100 Hartwell Street, Suite 230, West Boylston MA 01583

Agency Contact (Check area of responsibility: Flows☐, Water Quality ☐, Fish/Wildlife Resources ☐, Watersheds ☐, T/E Spp. ☐, Cultural/Historic Resources ☒, Recreation ☐):	
Agency Name	Massachusetts Historical Commission
Name and Title	Brona Simon; State Historic Preservation Officer
Phone	617-727-8470
Email address	Brona.Simon@state.ma.us
Mailing Address	220 Morrissey Boulevard Boston, MA 02125

Agency Contact (Check area of responsibility: Flows☒, Water Quality ☒, Fish/Wildlife Resources ☒, Watersheds ☒, T/E Spp. ☐, Cultural/Historic Resources ☐, Recreation ☐):	
Agency Name	NOAA Fisheries Service
Name and Title	Sean McDermott; Marine Habitat Resource Specialist
Phone	(978) 281-9113
Email address	sean.mcdermott@noaa.gov
Mailing Address	55 Great Republic Drive Gloucester, MA 01930

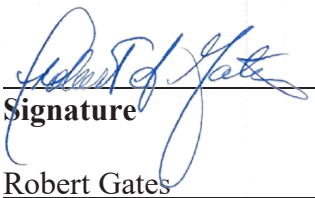
5.0 SWORN STATEMENT

As an Authorized Representative of Woronoco 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 is certification of the applying facility is issues, the LIHI Certification Mark License Agreement must be executed prior to marketing the electricity product as LIHI Certified.

The Undersigned Applicant 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.



Signature

Robert Gates

Name

Vice President

Title

Woronoco Hydro, LLC

Company

APPENDIX A

PROJECT PHOTOGRAPHS

PHOTO 5-1 NORTH DAM LOOKING WEST

PHOTO 5-2 SOUTH DAM LOOKING EAST AND UPSTREAM

PHOTO 5-3 VIEW OF IMPOUNDMENT

PHOTO 5-4 NORTH DAM LOOKING SOUTH FROM LEFT ABUTMENT GATE STRUCTURE

PHOTO 5-5 INTAKE STRUCTURE LOOKING DOWNSTREAM

PHOTO 5-6 VIEW OF THE ABOVE GROUND STEEL PENSTOCK LOOKING UPSTREAM FROM POWERHOUSE

PHOTO 5-7 CANOE PORTAGE AND REST STOP SIGNAGE

PHOTO 5-8 IMPOUNDMENT LOOKING DOWNSTREAM

PHOTO 5-9 VIEW OF INTAKE FROM WALKWAY

PHOTO 5-10 MINIMUM FLOW RELEASE THROUGH LOW LEVEL GATE AT NORTH DAM

PHOTO 5-11 VIEW OF UPSTREAM EEL PASSAGE AND HOLDING TANK

PHOTO 5-12 DOWNSTREAM FISH PASSAGE DISCHARGE PIPE

PHOTO 5-13 VIEW OF DISCHARGE PIPE AND PLUNGE POOL

PHOTO 5-14 ANGLER ACCESS IN THE TAILRACE

PHOTO 5-15 EARTH DIKE BETWEEN NORTH DAM AND ACCESS ROAD

PHOTO 5-16 POWERHOUSE INTERIOR SHOWING HORIZONTAL TURBINE-GENERATOR UNITS

APPENDIX B

AGENCY CONSULTATION

Nuria Holmes

From: Nuria Holmes
Sent: Monday, February 10, 2020 1:05 PM
To: natural.heritage@state.ma.us
Cc: Susan Giansante; Robert Gates; Andy Qua
Subject: MESA Project Review for Woronoco LIHI Recertification
Attachments: Woronoco MESA Review 2-5-2020 FINAL.pdf

Greetings,

Kleinschmidt Associates, on behalf of Woronoco Hydro, is submitting a MESA Project Review for the Low Impact Hydro Institute (LIHI) Re-certification of the Woronoco Hydroelectric Project (FERC No. 2631). We are requesting an expedited review, if possible.

Woronoco Hydro is in the process of finalizing their LIHI recertification, which requires an assessment of threatened and endangered species, and lands of ecological value with the Project vicinity outlined in Attachment A "Zones of Effect" figure. This outlined area represents the zones that are assessed during LIHI recertification, and generally depicts the FERC Project Boundary. The cover letter also includes an authorization for Kleinschmidt Associates to discuss the details of this MESA Project Review on behalf of Woronoco Hydro.

Please let me know if you require any further information. If so, please do not hesitate to call me at 971-266-5395 (Pacific Standard Time).

Nuria V. Holmes, M.S.
Regulatory & Licensing Project Manager
Office: 971.266.5395
Cell: 503.380.9888
Kleinschmidt
www.KleinschmidtGroup.com
*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment.*

Kleinschmidt

February 5, 2020

VIA E-MAIL TO NATURAL.HERITAGE@STATE.MA.US

Massachusetts Division of Fisheries & Wildlife
Natural Heritage & Endangered Species Program
1 Rabbit Hill Road
Westborough, MA 01581

Massachusetts Endangered Species Act (MESA) Project Review Authorization
Woronoco Hydroelectric Project (FERC Project No. 2631)
LIHI Recertification Application – Request for Expedited Review

To Whom It May Concern:

Kleinschmidt Associates (Kleinschmidt), on behalf of Woronoco Hydro, LLC (Woronoco Hydro) is assisting with the environmental review and resource agency consultation associated with the Low Impact Hydropower Institute Recertification (LIHI) of the Woronoco Hydroelectric Project (FERC No. 2631), located along the Westfield River in Massachusetts. As Woronoco Hydro is in the process of submitting their final application for LIHI recertification, we are requesting an expedited MESA Project Review be conducted. The applicant is not conducting or proposing any construction or ground-disturbing activities.

The Woronoco Hydroelectric Project (the "Project") is located in the town of Russell, southeastern Massachusetts, in Hampden County, 18.5 miles upstream from the Westfield River's confluence with the Connecticut River in West Springfield. The Westfield River is approximately 78.1 miles long from its headwaters in the Berkshires (i.e., the Green Mountains) in northwestern Massachusetts, to its confluence with the Connecticut River. The Westfield River flows from a northwest to southeast direction, with a total contributing drainage area of 346 square miles.

As described in Woronoco' s 2002 FERC License Order,[1] the Project's principal features consist of: (1) two non-contiguous 25-foot-tall concrete-gravity dam sections (a North Dam, 307 feet long; and a South Dam, 351 feet long) and a 655-foot-long earthen dike; (2) an intake area leading to a powerhouse, which contains three turbine/generator units with an installed capacity of 2.7 MW; (3) a downstream fish passage facility (with discharge at the base of the south dam); (4) a 1.2-mile-long impoundment, with a normal pool elevation of 229.0 feet, and a surface area of 43 acres; (5) a bypassed reach with three channels, varying in length from 200 to 1,000 feet; and (6) appurtenant facilities. Project Figures can be found in Attachment A (MESA Project Review Form).

[1] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13707326

The LIHI recertification process requires the applicant to conduct a MESA Project Review in order to assess endangered species and lands of ecological value within the Project vicinity. This area is shown in an appendix figure (see Figure entitled Zones of Effect which generally depicts the FERC Project Boundary), and is attached to the MESA Project Review Form. Woronoco Hydro is requesting a review of a 1000-foot buffer around all three of the identified LIHI Zones of Effect, which generally encompasses the FERC Project boundary.

As required by the Massachusetts Division of Fisheries & Wildlife, we are including the signature of the applicant as their authorization that Kleinschmidt Associates be allowed to submit this MESA Project Review Form on their behalf, and communicate on their behalf any information needs that may arise during the processing of this form.

We respectfully request your expedited review of within 30 days so that it may be included and considered in the recertification application to LIHI.

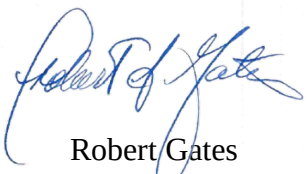
Thank you for your assistance in this matter. If you have questions about this request, please contact me at 971-266-5395 or Nuria.Holmes@KleinchmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Nuria Holmes
Regulatory Project Manager

WORONOCO HYDRO, LLC.



Robert Gates
Vice President

Attachment A: MESA Project Review Form

J:\1871\150\Docs\Woronoco\MESA Project Review\Woronoco MESA Review Authorization 2-5-2020 FINAL CLEAN.docx

ATTACHMENT A

MESA PROJECT REVIEW FORM

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

MESA Project Review Checklist

Massachusetts Endangered Species Act M.G.L. c.131A and Regulations (321 CMR 10.00)

1) Project Location:

331 Woronoco Road	Russell	01071
Street Address/Location	City/Town	Zip Code
Unknown (see Appendix A figure)	331 (LOTS H-1,H-2,H-3 316/22)	
Assessors Map/Plat Number	Parcel /Lot Number	

Property recorded at the Registry of Deeds for:

Hampden	Unknown
County	Certificate # (if registered land)
011683	0411
Book	Page Number

2) Applicant:

Robert	Gates	Woronoco Hydro, LLC.
First Name	Last Name	Company
65 Madison Avenue, Suite 500		
Mailing Address		
Morristown	NJ	07960
City/Town	State	Zip Code
973-998-8403		Bob.Gates@eaglecreekre.com
Phone Number	Fax Number	Email address

3) Property owner (if different from applicant):

First Name	Last Name	Company
Mailing Address		
City/Town	State	Zip Code
Phone Number	Fax Number	Email address

4) Representative (if any):

Kleinschmidt Associates		
Company		
Nuria	Holmes	
Contact Person First Name	Contact Person Last Name	
1500 NE Irving Street, Suite 550		
Mailing Address		
Portland	OR	97232
City/Town	State	Zip Code
971-266-5395		nuria.holmes@kleinschmidtgroup.com
Phone Number	Fax Number	Email address

Additional Information

1. Will this project require a filing with the Conservation Commission and/or DEP? ☑ No ☐ Yes

2. Has this project previously been issued a NHESP Tracking Number (either by previous NOI Submittal or MESA Information Request Form)? ☑ No ☐ Yes, if Yes -Tracking No._____

Project Description (attach separate sheet, as needed)

Please note, certain projects or activities are exempt from review, see 321 CMR 10.14. The MESA does not allow project segmentation. Your filing must reflect all anticipated work associated with the proposed project (CMR 321 10.16).

The Woronoco Hydroelectric facility is undergoing Low Impact Hydro Institute (LIHI) Re-certification. There are no construction activities anticipated at this project site. The LIHI has requested that NHESP review the project vicinity to establish whether there are any lands of ecological value, and/or whether there are any threatened or endangered species present/known in the project area. We have already initiated the initial review through the online viewer, however, LIHI is requesting a more formal review conducted by NHESP. As mentioned above, there is no specific project/activity being planned at this hydroelectric property site.

Include the Following Information:

ALL Applicants must submit: Available project maps are provided in Appendix A.

- USGS map (1:24,000 or 1:25,000) with property boundary clearly outlined
- Project plans for entire site (including wetland Resource Areas, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work)
- Assessor's map or right-of-way plan of site
- Statement/proof that applicant is the Record Owner or that applicant is a person authorized in writing by the record owner to submit this filing
- Photographs representative of the site

Projects altering 10 or more acres, must also submit:

- A vegetation cover type map of the site
- Project plans showing Priority Habitat boundaries

The NHESP may request additional information, such as, but not limited to, species and habitat surveys, wetland reports, soil map and reports, and stormwater management reports (321 CMR 10.16). The NHESP will notify the applicant within 30 days if the materials submitted do not satisfy requirements for a filing and request submission of any missing materials (321 CMR 10.18(1)).

Filing Fee, Payable to Comm. of MA - NHESP (see website for fee information)

a. Total MESA Fee Paid $300 b. Acreage of Disturbance 0 c. Total Site Acreage 13.8 acres

Required Signatures

I hereby certify under the penalties of perjury that the foregoing MESA filing and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

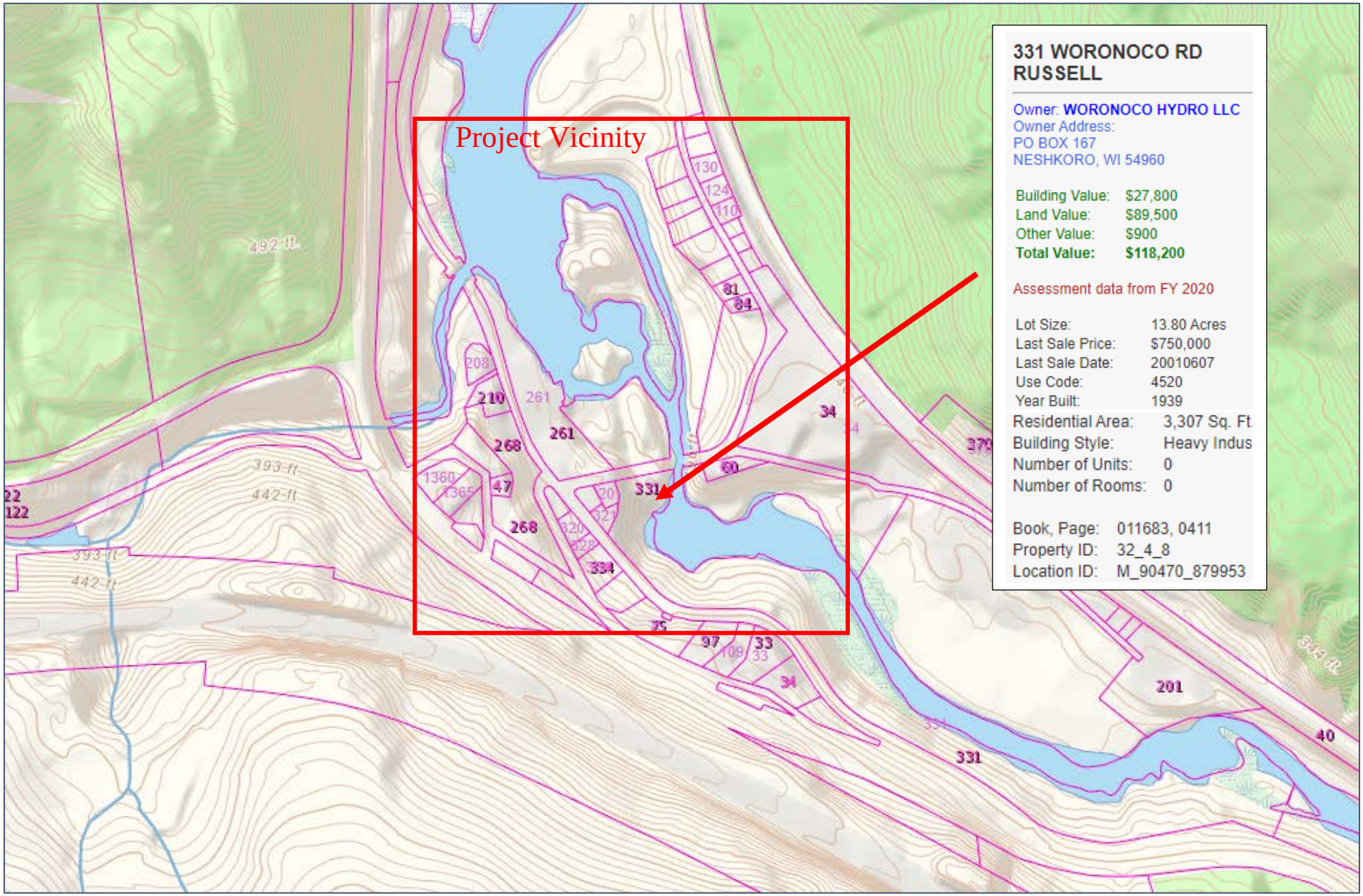
Feb. 5, 2020

Signature of Property Owner/Record Owner of Property — Date

Feb. 5, 2020

Signature of Applicant (if different from Owner) — Date

APPENDIX A – WORONOCO LAND/PARCEL INFORMATION



Facility Overview

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

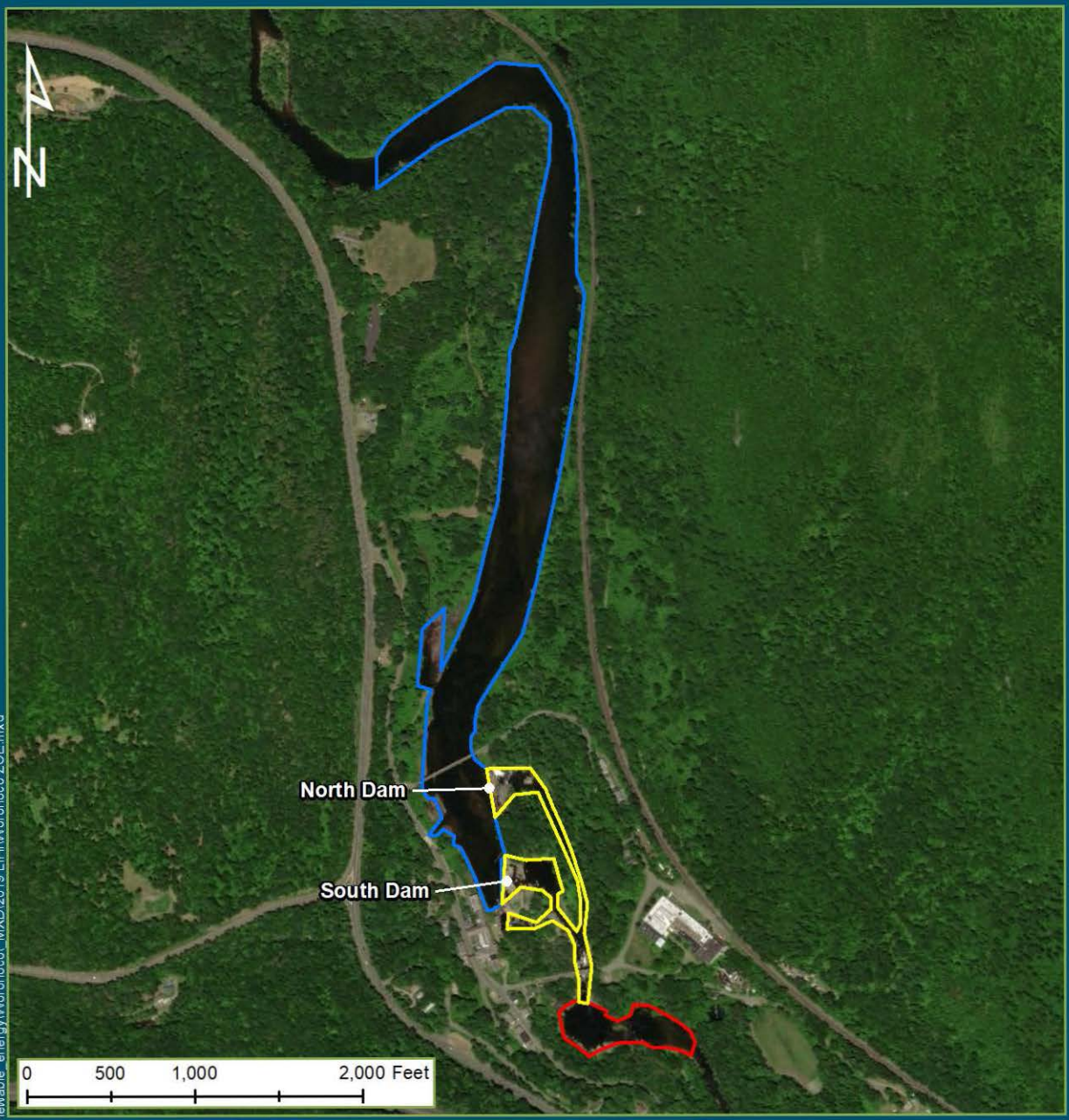
Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

JN: 1871150.01

Path: G:_Client_Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIHI\Woronoco Facility Overview.mxd

Date Printed: 12/5/2019

Zones of Effect



Legend

Zones of Effect

- Impoundment
- Bypassed Reach
- Downstream

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

Path: G:_Client_Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIHI\Woronoco ZOE.mxd

Date Printed: 12/5/2019

Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

JN: 1871150.01

December 17, 2019

VIA E-MAIL

Distribution List

Low Impact Hydropower Institute Recertification
Woronoco Hydroelectric Project LIHI #68 Recertification Application

Dear Resource Agency:

Kleinschmidt Associates (Kleinschmidt), on behalf of Woronoco Hydro, LLC (Woronoco Hydro), an indirect wholly owned subsidiary of Eagle Creek Renewable Energy, LLC,.is assisting with the environmental review and resource agency consultation associated with the Low Impact Hydropower Institute Recertification (LIHI) of the Woronoco Hydroelectric Project (FERC No. 2631), located along the Westfield River in Massachusetts.

The Woronoco Hydroelectric Project (the "Project") is located in the town of Russell, southeastern Massachusetts, in Hampden County, 18.5 miles upstream from the Westfield River's confluence with the Connecticut River in West Springfield. The Westfield River is approximately 78.1 miles long from its headwaters in the Berkshires (i.e., the Green Mountains) in northwestern Massachusetts, to its confluence with the Connecticut River. The Westfield River flows from a northwest to southeast direction, with a total contributing drainage area of 346 square miles.

As prescribed in FERC's 2002 License Order, the Project's principal features consist of: (1) two non-contiguous 25-foot-tall concrete-gravity dam sections (a North Dam, 307 feet long; and a South Dam, 351 feet long) and a 655-foot-long earthen dike; (2) an intake area leading to a powerhouse, which contains three turbine/generator units with an installed capacity of 2.7 MW; (3) a downstream fish passage facility (with discharge at the base of the south dam); (4) a 1.2-mile-long impoundment, with a normal pool elevation of 229.0 feet, and a surface area of 43 acres; (5) a bypassed reach with three channels, varying in length from 200 to 1,000 feet; and (6) appurtenant facilities. Project Figures can be found in Attachment A.

The Project was relicensed by the Federal Energy Regulatory Commission on April 30, 2002 for a 40-year license expiring March 31, 2042. The original license for the Project was issued on June 2, 1981. The Project received a Clean Water Act Section 401 Water Quality Certificate from the Massachusetts Department of Environmental Protection on August 30, 2000, which was amended on September 29, 2000.

The LIHI recertification process requires the applicant to consult with agencies and receive agency agreement that the continued use of the Project does not have a negative impact on

resources. Therefore, Woronoco Hydro is requesting confirmation that the Project is, to your knowledge, being operated consistent with the FERC license and Section 401 Water Quality Certificates (if applicable).

We respectfully request any additional information you may provide on the Project, and your confirmation of compliant operations within 30 days so that it may be included and considered in the recertification application to LIHI.

Thank you for your assistance in this matter. If you have questions, please contact me at 971-266-5395 or Nuria.Holmes@KleinchmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Nuria Holmes
Regulatory Project Manager

cc: Distribution List
Attachment A: Project Figures

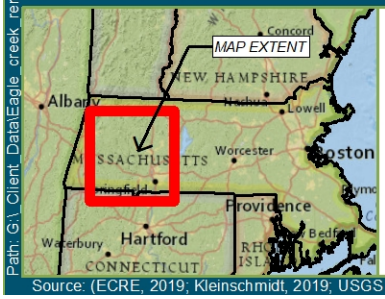
DISTRIBUTION LIST

Melissa Grader U.S. Fish and Wildlife Service 113 East Plumtree Sunderland, MA 01375 Melissa_Grader@fms.gov	Misty Anne Marold Senior Review Biologist Natural Heritage Endangered Species Program Massachusetts Division of Fisheries & Wildlife 1 Rabbit Hill Road Westborough, MA 01581 misty-anne.marold@mass.gov
Caleb Slater, Ph.D. Anadromous Fish Project Leader Massachusetts Division of Fisheries and Wildlife 100 Hartwell Street, Suite 230, West Boylston MA 01583 Caleb.Slater@state.ma.us 508-389-7890	Sean McDermott Marine Habitat Resource Specialist, Hydropower Coordinator NOAA Fisheries Service 55 Great Republic Drive Gloucester, MA 01930 sean.mcdermott@noaa.gov
Mr. Robert Kubit Massachusetts Department of Environmental Protection Division of Water Quality 67 Main Street, 2nd Floor Worcester, MA 01608 Robert.Kubit@state.ma.us 508-767-2854	Brona Simon State Historic Preservation Officer Massachusetts Historical Commission 220 Morrissey Boulevard Boston, MA 02125-3314 Brona.Simon@state.ma.us
Jim Montgomery, Interim Commissioner Massachusetts Department of Conservation and Recreation 251 Causeway Street, Suite 900 Boston, MA 02114-2104 mass.parks@mass.gov (617) 626-1250	

ATTACHMENT A

PROJECT FIGURES

Overview of Woronoco Project Area



Legend

- Woronoco Dam
- River

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

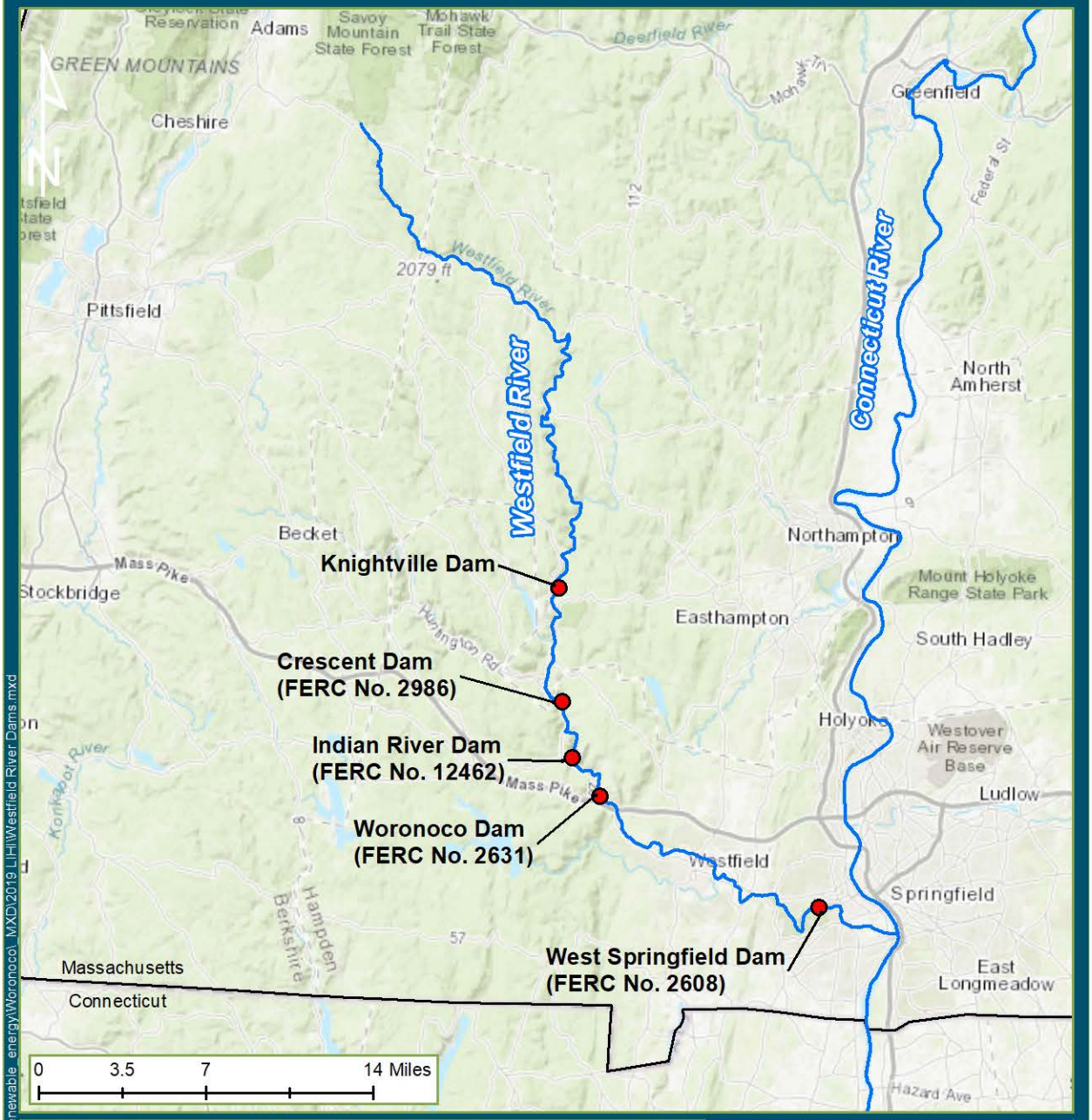
Path: G:_Client_Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIH\Woronoco Geographic Overview.mxd

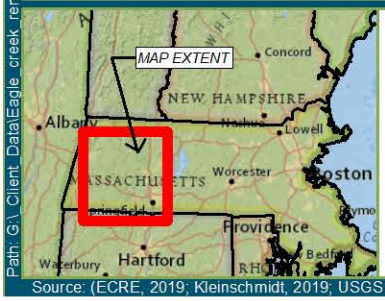
Date Printed: 12/5/2019

Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

JN: 1871150.01

Location of Dams on Westfield River





Legend

- Dams
- River

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

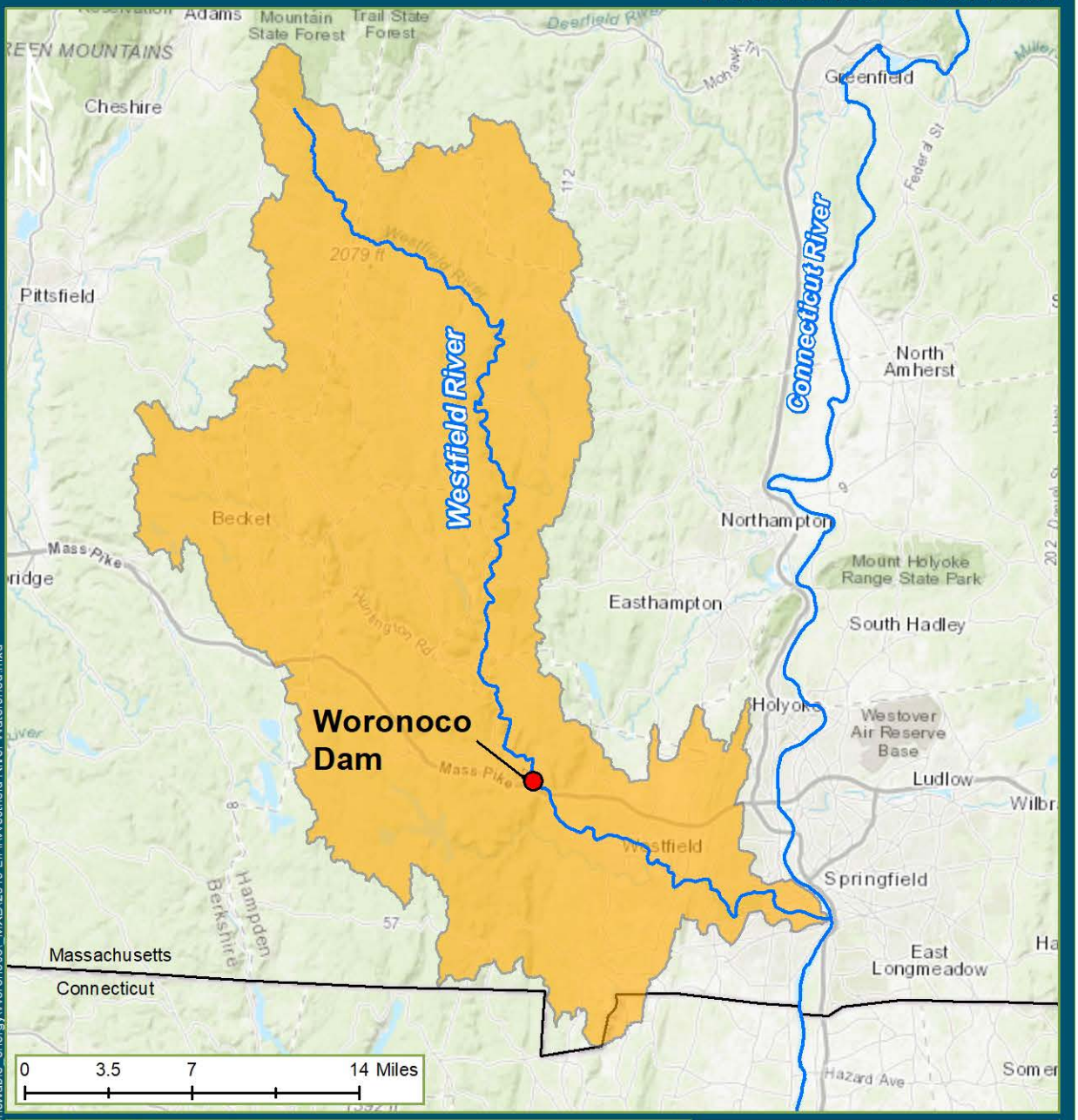
Path: G:\Client Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIHI\Westfield River Dams.mxd

Date Printed: 12/5/2019

Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

JN: 1871150.01

Watershed Overview



Legend

- Woronoco Dam
- Westfield River Watershed
- River

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

Date Printed: 12/5/2019

Path: G:_Client_Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIHI\Westfield River Watershed.mxd

Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

JN: 1871150.01

Facility Overview

Path: G:_Client_Data\Eagle_creek_renewable_energy\Woronoco_MXD\2019 LIHI\Woronoco Facility Overview.mxd

Source: (ECRE, 2019; Kleinschmidt, 2019; USGS 2019; ESRI, 2019)

Woronoco Project

FERC Project No. 2631
Woronoco Hydro, LLC

Drawn By:	Date Drawn:	Checked By:	Date Checked:
RSR	09-12-2019		

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtGroup.com

Date Printed: 12/5/2019

JN: 1871150.01

From: Bob Gates <bob.gates@eaglecreekre.com>
Sent: Tuesday, December 17, 2019 4:37 PM
To: Grader, Melissa <melissa_grader@fws.gov>
Cc: Caleb Slater <caleb.slater@state.ma.us>; Wayne Roberts <wayne.roberts@eaglecreekre.com>; Susan Giansante <susan.giansante@eaglecreekre.com>
Subject: RE: Woronoco

Hi Melissa,

Over the past several years we have taken over the responsibility for many hydro plants and learn more and more about them every day. It came to my attention that we have three eel ladders at Woronoco; two on the dam nearest the penstock gatehouse and one at the upper end of the northern most dam on river left.
Apparently this last and most upstream ladder has had years of repeated failures due to trash, flood flows, and vandalism. The ladder has reportedly had only 3 eels pass upstream of our dams; at least 3 eels counted over a multi-year period. This upper ladder is currently out of service (last couple of seasons).

I am asking if you could provide me with some history regarding the ladders at Woronoco; especially that of the upper most location so that I can evaluate the situation therein. I have heard from Wayne Roberts, the Regional Manager for this site, that Caleb Slater and he spoke about moving forward with only the two lower upstream ladders on the south dam. Based on the history of the upper most ladder and its passage rate, I feel that we should continue forward without this ladder. However, I am open to having discussions about this proposed change and I look forward to hearing your take on the situation and look to your support in helping me make the site meet the agencies' expectations. Eagle Creek and Woronoco Hydro are committed to being environmental partners with the agencies therefore I look forward to us reaching consensus on the next steps regarding the third fish ladder and other site aspects.

Please take a few moments to help me understand the situation at Woronoco.

Thank you.

Bob

From: Grader, Melissa <melissa_grader@fws.gov>
Sent: Friday, December 13, 2019 3:49 PM
To: Bob Gates <bob.gates@eaglecreekre.com>
Cc: Caleb Slater <caleb.slater@state.ma.us>
Subject: Woronoco

Hi Bob,

I got your voicemail about Woronoco. I am pretty swamped right now with FERC deadlines but would be happy to discuss the eel ramps at Woronoco with you maybe in the latter half of January if you can wait that long.

Have a great weekend,

Melissa Grader
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service - New England Field Office
103 East Plumtree Road
Sunderland, MA 01375
413-548-8002 x8124
melissa_grader@fws.gov

<*)))< <*)))< <*)))< <*)))<

From:	Susan Giansante
To:	Wayne Roberts
Cc:	Nuria Holmes; Andy Qua; Robert Gates
Subject:	FW: Woronoco - Follow up by Melissa Grader to Bob"s Phone Call
Date:	Monday, December 16, 2019 7:42:31 PM

Wayne-
Please note that Melissa copied Caleb on her response to Bob.

From: Bob Gates <bob.gates@eaglecreekre.com>
Sent: Friday, December 13, 2019 11:26 PM
To: Susan Giansante <susan.giansante@eaglecreekre.com>
Subject: RE: Woronoco

From: Grader, Melissa <melissa_grader@fws.gov>
Sent: Friday, December 13, 2019 3:49 PM
To: Bob Gates <bob.gates@eaglecreekre.com>
Cc: Caleb Slater <caleb.slater@state.ma.us>
Subject: Woronoco

Hi Bob,

I got your voicemail about Woronoco. I am pretty swamped right now with FERC deadlines but would be happy to discuss the eel ramps at Woronoco with you maybe in the latter half of January if you can wait that long.

Have a great weekend,

Melissa Grader
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service - New England Field Office
103 East Plumtree Road
Sunderland, MA 01375
413-548-8002 x8124
melissa_grader@fws.gov

<*)))< <*)))< <*)))< <*)))<

From: Susan Giansante
To: Andy Qua; Nuria Holmes
Subject: FW: Woronoco
Date: Tuesday, December 17, 2019 7:19:08 AM

---

fyi

From: Wayne Roberts <wayne.roberts@eaglecreekre.com>
Sent: Tuesday, December 17, 2019 10:11 AM
To: Slater, Caleb (FWE) <caleb.slater@state.ma.us>
Cc: Bob Gates <bob.gates@eaglecreekre.com>; melissa_grader@fws.gov; Susan Giansante <susan.giansante@eaglecreekre.com>
Subject: Woronoco

Hi Caleb,

Thank you for your time the last week to discuss the upstream eel ladders at Woronoco.

To confirm our discussion, Woronoco, located on the Westfield River in Russell, MA, includes a north and south dam, with lengths of 307 and 351 feet, respectively, that are separated by a bedrock outcropping. In 2008, Woronoco constructed two upstream eel ladders at the south dam and in 2011 another ladder was constructed at the north dam.

The two ladders on the south dam typically pass a total of about 2000 eel annually, on average, during the upstream passage season from May to November. The third ladder, on the north dam, has historically been difficult to maintain, vandalized, and damaged several times due to high water. The ladder on the north dam has also produced the lowest counts of the three ladders. During the last years that it was monitored (2012, 2013 and a portion of 2014 prior to a high flow event), it passed a total of 3 eels. Later in 2014, the north ladder was severely damaged due to high flows resulting from a storm and has not been operational since that time.

Although Woronoco has no requirement to continue counting the upstream migrating eels, we have maintained the practice of capturing, counting, and releasing the eels upstream. Our understanding is that it is acceptable to continue to operate the existing two upstream eel passage ladders on the south dam, and no longer maintain the third ladder at the north dam. Per your request, we will continue to capture and count eel at the two remaining locations and forward the counts to you at the end of the season.

If you are interested in visiting the site during the upstream passage season to observe the operation of the two ladders on the south dam, please let me know.

As I mentioned, we are applying for LIHI recertification for Woronoco and will be sending a consultation letter shortly. LIHI is seeking concurrence that the Project is operated in compliance

with agency recommendations and their FERC license. I hope that you will provide confirmation that the project is in compliance with fish passage requirements.

Should you need any further information, please contact me.

Thanks-
Wayne

Wayne Roberts
MA Regional Manager
Eagle Creek Renewable Energy, LLC
Mobile: 413-244-1274
E-Mail: Wayne.Roberts@eaglecreekre.com

From:	Nuria Holmes
To:	melissa_grader@fws.gov; misty-anne.marold@mass.gov; caleb.slater@state.ma.us; Sean.Mcdermott@noaa.gov; brona.simon@state.ma.us; robert.kubit@state.ma.us; mass.parks@mass.gov
Cc:	Susan Giansante; Wayne Roberts; Robert Gates; Andy Qua
Subject:	Woronoco Hydro LIHI recertification review [response requested]
Date:	Tuesday, December 17, 2019 4:41:00 PM
Attachments:	Woronoco Agency Recert Letter_2019-12-17.pdf

Good afternoon,

Kleinschmidt Associates, on behalf of Woronoco Hydro, LLC., is assisting with the environmental review and resource agency consultation associated with the recertification for the Low Impact Hydropower Institute of the Woronoco Hydroelectric Project (FERC No. 2631) (LIHI #68) located along the Westfield River in Massachusetts. The LIHI certification process requires the applicant to consult with agencies and receive agency agreement that the continued use of the Project does not have a negative impact on resources.

Please see the attached request for confirmation that the Project is, to your knowledge, being operated consistent with the FERC License and Section 401 Water Quality Certificate. We respectfully request your confirmation within 30 days so that it may be included into the application.

If you have any questions about this request, please do not hesitate to contact me.

Nuria V. Holmes, M.S.
Regulatory & Licensing Project Manager
Office: 971.266.5395
Cell: 503.380.9888
Kleinschmidt
www.KleinschmidtGroup.com
Providing practical solutions for complex problems affecting energy, water, and the environment.

APPENDIX C

401 WATER QUALITY CERTIFICATION
ISSUED AUGUST 30, 2000 AND AMENDED SEPTEMBER 29, 2000

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

David P. Boergers, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, D.C. 20426

August 30, 2000

RE: Woronoco Project
FERC No. 2631

Dear Mr. Boergers,

Attached is an original and eight (8) copies of the Massachusetts Department of Environmental Protection's Water Quality Certification for the Woronoco Project, pursuant to Section 401 of the federal Clean Water Act and the Massachusetts Surface Water Quality Standards at 314 CMR 4.00.

If you have any questions about the certification, please call Robert Kubit at 508/767-2854.

Sincerely,

Lawrence Golonka
Watershed Chief
Westfield River Basin

RJM:JM
Woronoco4012

Attachment

436 Dwight Street • Springfield, Massachusetts 01103 • FAX (413) 784-1149 • TDD (413) 746-6620 • Telephone (413) 784-1100

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

401 Water Quality Certification
Applicant: International Paper Company
BRPWW10

The Massachusetts Department of Environmental Protection (MADEP) has reviewed the application for Water Quality Certification, as referenced above. In accordance with the provisions of MGL c.21, §§ 26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. §1251 et seq.), it has been determined there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards.

The Woronoco Project is an automatically operated run-of-river project with an existing installed capacity of 2,300 kW. The project consists of two non-contiguous dam sections, an earthen dike with a sheet core, an intake structure, a 550 foot long penstock and a powerhouse containing three generating units with appurtenances. The project is proposed to be operated in a run-of-river mode with no alteration of the existing waterpower facility or new construction.

Based on information currently in the record, the MADEP grants a Water Quality Certification for this project subject to the following conditions to maintain water quality, to minimize impact on waters and wetlands, and to ensure compliance with appropriate state law:

1. The project shall be operated in accordance with the conditions contained in this certification and the provisions included in the FERC application and any modifications made thereto, to the extent such application provisions and modifications are consistent with this water quality certification. The operation of the hydrofacility shall be operated to maintain the designated uses of the Westfield River as outlined in the Massachusetts Surface Water Quality Standards (314 CMR 4.00) and the maintenance of an integrated and diverse biological community in the Westfield River.

2. All activities shall be conducted in compliance with the Massachusetts Wetlands Protection Act (including the Rivers Protection Act)(MGL Chapter 131, Section 40). An application for a Water Quality Certificate shall be submitted and approved by the MADEP prior to any activity that will cause a discharge subject to Section 404.

3. The applicant shall comply with Massachusetts General Laws Chapter 91.

4. All maintenance and repair activities, including disposal of debris and removal of sediments in impounded areas, shall be conducted in a manner so as not to impair water quality.

5. Any change to the project that would have a significant or material effect on the findings, conclusions, or conditions of this certification, including project operation, must be submitted to the MADEP for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.

6. The MADEP may request, at any time during which this certification is in effect, that the FERC reopen the license to make modifications necessary to maintain compliance with the Massachusetts Surface Water Quality Standards or other appropriate requirements of state law.

7. The MADEP reserves the right to add and alter terms and conditions of this certification when authorized by law and as appropriate to carry out its responsibilities during the life of the project with respect to water quality.

8. Flow must be maintained in a run-of-river mode.

9. The project will be operated to maintain the elevation of the impoundment at its current high water elevation of 229.0 feet. The applicant will develop and implement a mussel protection plan during maintenance drawdowns within one year of license issuance in consultation with the MADFW and approval by the MADEP.

10. The applicant will provide upstream eel passage. Fishway design and location need approval from the Massachusetts Division of Fisheries and Wildlife (MADFW).

11. The applicant will evaluate the effectiveness of the downstream fishway designed to pass Atlantic salmon smolts during the first passage season following issuance of a new license for the project. The plan of study will need review and approval from MADFW.

12. The bypass reach will be provided a total minimum flow of 57 cfs or inflow, whichever is less. The total flow will provide 35 cfs to the south channel and 22 cfs to the north channel. The applicant will consult with the MADFW regarding the location and design of notches.

SIGNED:

Lawrence Golonka
Watershed Chief
Westfield River Basin

8-30-00
Date

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

ROBERT W. GOLLEDGE JR.
Secretary

LAUREN A. LISS
Commissioner

David P. Boergers, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, D.C. 20426

September 29, 2000

RE: Woronoco Project
FERC No. 2631
Amended Water Quality Certificate

Dear Mr. Boergers,

Attached is an original and eight (8) copies of the Massachusetts Department of Environmental Protection's amended Water Quality Certification for the Woronoco Project, pursuant to Section 401 of the federal Clean Water Act and the Massachusetts Surface Water Quality Standards at 314 CMR 4.00.

If you have any questions about the certification, please call Robert Kubit at 508/767-2854.

Sincerely,

Lawrence Golonka
Watershed Chief
Westfield River Basin

Attachment

001023.0144.3

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

401 Water Quality Certification
AMENDMENT
Applicant: International Paper Company
Woronoco Project (FERC No. 2631)
BRPWW10

The Massachusetts Department of Environmental Protection (MADEP) has received additional information regarding the application for Water Quality Certification, as referenced above and hereby amends the water quality certificate issued to the International Paper Company on August 30, 2000.

In accordance with the provisions of MGL c.21, §§ 26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. §1251 et seq.), it has been determined there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards.

The Woronoco Project is an automatically operated run-of-river project with an existing installed capacity of 2,700 kW. The project consists of two non-contiguous dam sections, an earthen dike with a sheet core, an intake structure, a 550 foot long penstock and a powerhouse containing three generating units with appurtenances. The project is proposed to be operated in a run-of-river mode with no alteration of the existing waterpower facility or new construction. It is understood turbine upgrade may occur in the future.

Based on information currently in the record, the MADEP grants a Water Quality Certification for this project subject to the following conditions to maintain water quality, to minimize impact on waters and wetlands, and to ensure compliance with appropriate state law:

1. The project shall be operated in accordance with the conditions contained in this certification and the provisions included in the Federal Energy Regulatory Commission (FERC) application and any modifications made thereto, to the extent such application provisions and modifications are consistent with this water quality certification. The operation of the hydrofacility shall be operated to maintain the designated uses of the Westfield River as outlined in the Massachusetts Surface Water Quality Standards (314 CMR 4.00) and the maintenance of an integrated and diverse biological community in the Westfield River.

2. All activities shall be conducted in compliance with the Massachusetts Wetlands Protection Act (including the Rivers Protection Act)(MGL Chapter 131, Section 40).

An application for a Water Quality Certificate shall be submitted to and approved by the MADEP prior to any activity that will cause a discharge subject to Section 404.

3. The applicant shall comply with Massachusetts General Laws Chapter 91.

4. All maintenance and repair activities, including disposal of debris and removal of sediments in impounded areas, shall be conducted in a manner so as not to impair water quality.

5. Any change to the project that would have a significant or material effect on the findings, conclusions, or conditions of this certification, including project operation, must be submitted to the MADEP for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.

6. The MADEP may request, at any time during which this certification is in effect, that the FERC reopen the license to make modifications necessary to maintain compliance with the Massachusetts Surface Water Quality Standards or other appropriate requirements of state law.

7. The MADEP reserves the right to add and alter terms and conditions of this certification when authorized by law and as appropriate to carry out its responsibilities during the life of the project with respect to water quality.

8. A plan should be submitted for maintaining a run-of-river mode of operation in consultation with the Massachusetts Division of Fisheries & Wildlife (MADFW) and approved by the MADEP within six months of license issuance. The plan should address provisions for maintaining pond height at 229.0 feet, a means of recording (hourly) and reporting (yearly) pond elevation, and notification of the MADEP when the pond falls below 229.0 feet.

9. The project will be operated to maintain the elevation of the impoundment at its current high water elevation of 229.0 feet. The applicant will develop and implement a mussel and fish stranding protection plan during maintenance drawdowns within one year of license issuance in consultation with the MADFW and approval by the MADEP. The plan should address the possibility of performing maintenance without conducting a drawdown, limiting the number of drawdowns necessary and notification and justification to the MADEP when a drawdown is planned. No drawdown is permitted prior to the approval of the mussel and fish stranding protection plan without MADEP approval.

10. The applicant will provide upstream eel passage within one year of license issuance. Operation dates, fishway design and locations are to be determined in consultation with the MADFW and approved by the MADEP.

11. The applicant will evaluate the effectiveness of the downstream fishway designed to pass Atlantic salmon and resident fish during the first passage season following issuance of a new license for the project. The plan of study and study results need to be reviewed by the MADFW and approved by the MADEP.

12. Upon license issuance, the bypass reach will be provided a total minimum flow of 57 cfs or inflow, whichever is less. The total flow will provide 35 cfs to the south

channel and 22 cfs to the north channel. The bypass channel is to have a continuous flow from the downstream bypass gate. This flow and the south channel flow combine to 35 cfs. The applicant will consult with the MADFW and obtain approval from the MADEP regarding the timeframe, location and design of notches to be installed.

SIGNED:

Lawrence Golonka
Watershed Chief
Westfield River Basin

9-29-2000
Date

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

Mr. Ted Lewellyn, P.E.
International Paper Company
Paper Mill Road
Millers Falls MA 01349

September 29, 2000

RE: Water Quality Certification
AMENDMENT
BRPWW10
Major Project Certification
Transmittal No.116384

AT: Woronoco Project
FERC No. 2631

Dear Mr. Lewellyn,

Attached is the Department's amended Water Quality Certification for the Woronoco Project pursuant to Section 401 of the federal Clean Water Act and the Massachusetts Surface Water Quality Standards at 314 CMR 4.00.

Any person aggrieved by the Certification may request an adjudicatory hearing within 30 days of issuance, pursuant to 310 CMR 1.01.

If you have any questions about the certification, please call Robert Kubit, at 508/767-2854.

Sincerely,

Lawrence Golonka
Watershed Chief
Westfield River Basin

Attachment
Cc: Jon Christensen/Kleinschmidt Associates
Michael Chapman/International Paper Co.

APPENDIX D

USFWS IPAC REPORT

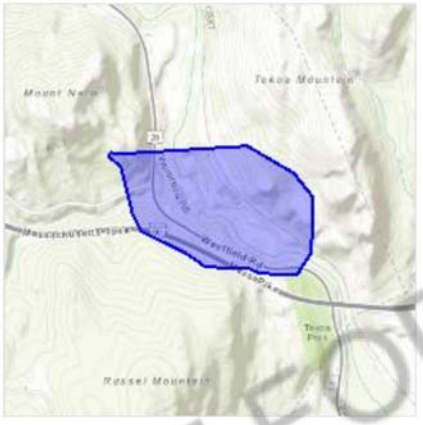
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Hampden County, Massachusetts



Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. 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.

The following species are potentially affected by activities in this location:

Mammals

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

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler *Dendroica cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 29 to Jul 20
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

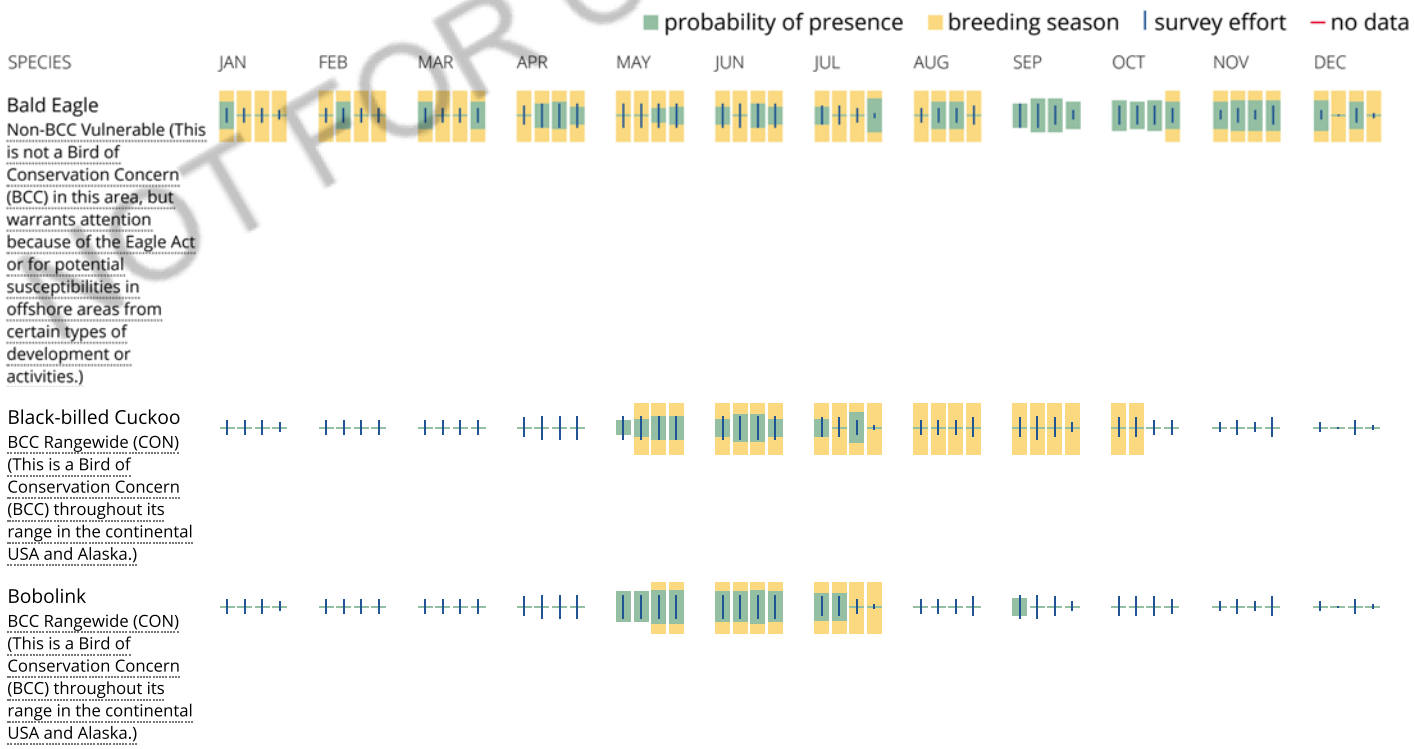
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

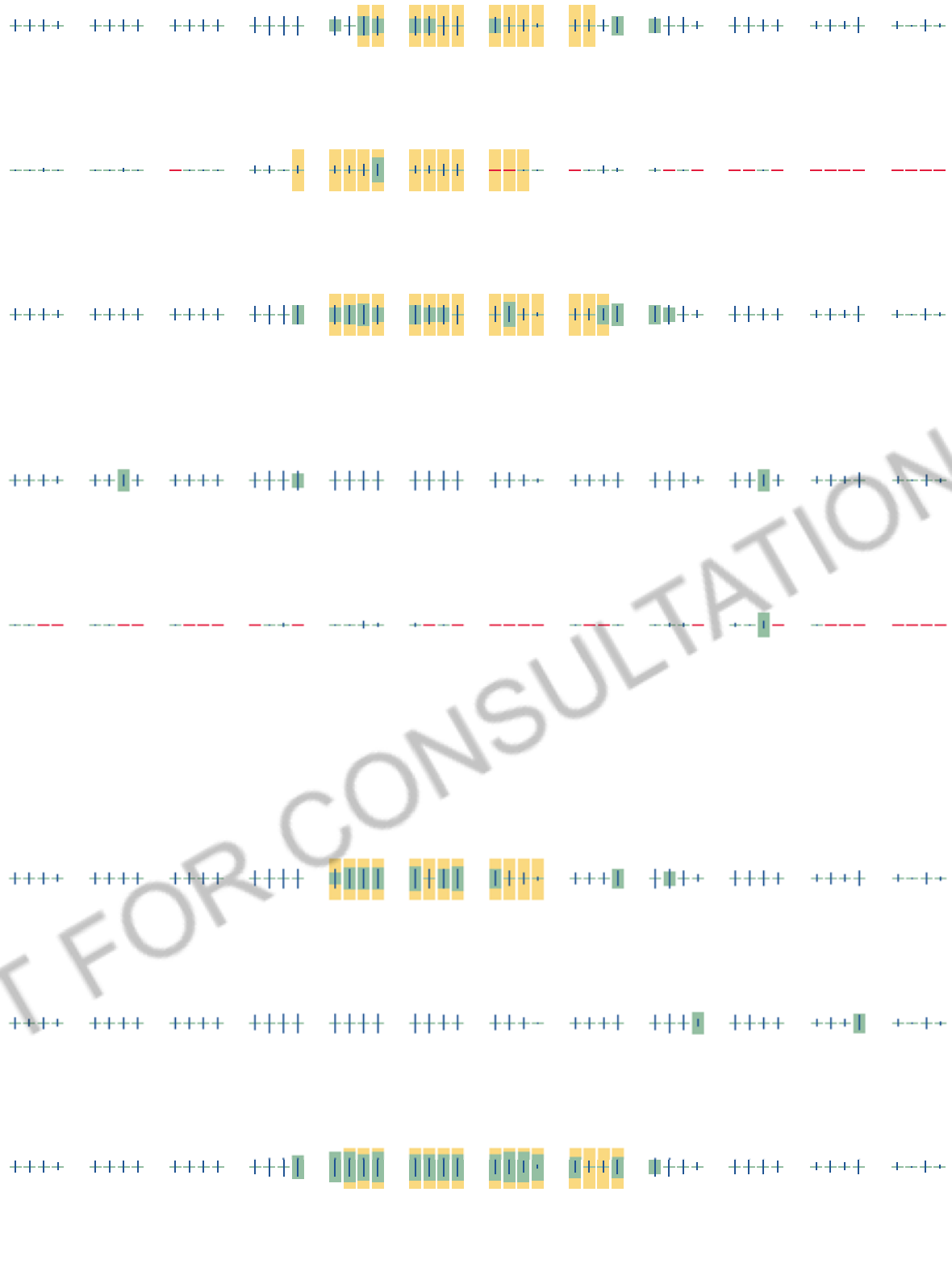
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PSS1A
- PFO1C

RIVERINE

- R3UBH
- R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.