

Feeder Dam Hydroelectric Project

Certification Application to the Low Impact Hydropower Institute

FERC Project No. 2554



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TABLE OF CONTENTS

INTRODUCTION

PART I. FACILITY DESCRIPTION

PART II. STANDARDS SELECTION

PART III. SUPPORTING INFORMATION

PART IV. SWORN STATEMENT AND WAIVER

PART V. CONTACTS

APPENDICES

APPENDIX A – FEEDER DAM PROJECT ZONES OF EFFECT

APPENDIX B – PHOTOS OF KEY PROJECT FEATURES

APPENDIX C – PROJECT MAPS AND AERIALS

**APPENDIX D – CONSULTATION REGARDING 401 WATER QUALITY
CERTIFICATE**

**APPENDIX E – AGENCY CONSULTATION REGARDING RARE, THREATENED
AND ENDANGERED SPECIES**

Feeder Dam Project Certification Application

INTRODUCTION

Erie Boulevard Hydropower, L.P. (Erie), a wholly owned subsidiary of Brookfield Renewable, is providing this application to the Low Impact Hydropower Institute (LIHI) for certification of the Feeder Dam Project. The Feeder Dam Hydroelectric Project on the Hudson River in Saratoga and Warren Counties, New York. This facility is licensed with the Federal Energy Regulatory Commission (FERC) as the Feeder Dam Hydroelectric Project (FERC No. 2554) (Feeder Dan Project).

Feeder Dam Project Certification Application

PART I. FACILITY DESCRIPTION

The key features of the Feeder Dam Project are described in Table 1.

Table I-1. Facility Description Information for the Feeder Dam Project.

<i>Item</i>	<i>Information Requests</i>	<i>Response (and references to further details)</i>
Name of the Facility	Facility name (use FERC project name if possible)	Feeder Dam Project (FERC No. 2554)
Location	River name (USGS proper name)	Hudson River
	Watershed name	Hudson River Basin HUC-02020003
	Nearest town(s), county(ies), and state(s) to dam	Town of Moreau, Saratoga County, NY Town of Queensbury, Warren County, NY
	River mile of dam above next major river	203
	Geographic latitude of dam	43.291
	Geographic longitude of dam	-73.666
Facility Owner	Application contact names	See Part V of LIHI certification application for more information
	Facility owner company and authorized owner representative name.	Erie Boulevard Hydropower, L.P. Daniel J. Maguire
	FERC licensee company name (if different from owner)	Same as above
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	FERC Project Number 2554 New license issued September 25, 2002 The Feeder Dam Project Settlement Offer was dated March 27, 2000 and filed with FERC on April 12, 2000. License expires on August 31, 2042.
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	License for a Major Project
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	The Section 401 Water Quality Certificate was issued by the New York State Department of Environmental (NYSDEC) on February 5, 2002 and adopted into the FERC license. The NYSDEC DEC I.D. 5-5234-00467/00001.

Feeder Dam Project Certification Application

	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories	<p>September 25, 2002 Order Issuing License: https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9567347</p> <p>March 27, 2000 Settlement Offer: https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157</p> <p>The February 5, 2002 Water Quality Certificate: https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8306864</p> <p>The December 23, 2013 Environmental Inspection Report: https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13422685</p>
Powerhouse	Date of initial operation (past or future for pre-operational applications)	The Feeder Dam was constructed in 1828, and modified for hydroelectric generation in 1924.
	Total installed capacity (MW)	6.0 MW
	Average annual generation (MWh) and period of record used	Actual annual generation is filed with FERC each year. The average generation from 2013 to 2018 is 25,173 MWh.
	Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)	Erie currently operates the project in a pulsing mode as a reregulating project with seasonal fluctuations.
	Number, type, and size of turbines, including maximum and minimum hydraulic capacity of each unit	<p>Generating Units: 5</p> <p>Type: Vertical Propeller turbines</p> <p>Description: Five identical generating units with fixed blade propellers and a design capacity of 1,500 HP at design head of 15.5 feet and a speed of 120 rpm</p> <p>Maximum Capacity: 1,020 cfs (each)</p> <p>Minimum Capacity: 355 cfs (each)</p>
	Trashrack clear spacing (inches), for each trashrack	1.0 inch clear spacing

Feeder Dam Project Certification Application

	Dates and types of major equipment upgrades	There have been no major equipment upgrades.
	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 or license or exemption amendments	There have been no regulatory facility upgrades.
<i>Dam or Diversion</i>	Date of original construction and description and dates of subsequent dam or diversion structure modifications	1828 – original construction 1843 -1845 - The Feeder Canal and dam were enlarged.
	Dam or diversion structure height including separately, the height of any flashboards, inflatable dams, etc.	Dam Height: 21 feet Flashboards: 3 feet
	Spillway elevation and hydraulic capacity	Spillway elevation: 281.1 ft (USGS Datum) Hydraulic capacity: 69,100 cfs at 289.5 feet (crest of right abutment)
	Tailwater elevation (provide normal range if available)	269.1 feet (USGS Datum) (normal)
	Length and type of all penstocks and water conveyance structures between the impoundment and powerhouse	Water is conveyed from the headwater pond through headgates and into the 250-foot-long forebay, then through a closed flume to the units.
	Dates and types of major infrastructure changes	The major infrastructure improvements are as follows: 1843 -1845 - The Feeder Canal and dam were enlarged. 1923-1924 - Hydroelectric generation capability was added to the dam by construction of the existing powerhouse. 1987 - The bulkheads and spillways were rehabilitated. This involved concrete overlays and the installation of post-tensioned anchors. 2003 - The 3.0-foot-high sacrificial wooden flashboards were replaced with pneumatic flashboard system of equal height.
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	The purpose of the project is for power generation.
	Source water	Hudson River

Feeder Dam Project Certification Application

	Receiving water and location of discharge	Hudson River at RM 203.0
Conduit	Date of conduit construction and primary purpose of conduit	Constructed in 1923-1924 to convey water to the powerhouse.
Impoundment and Watershed	Authorized maximum and minimum water surface elevations	284.1 ft maximum; 280.6 ft minimum
	Normal operating elevations and normal fluctuation range	284.1 ft maximum; 282.1 ft minimum
	Gross storage volume and surface area at full pool	Gross volume: 10,000 acre-feet Surface area: 717 acres
	Usable storage volume and surface area	Usable Volume: 10,000 acre-feet Surface Area: 717 acres
	Describe requirements related to impoundment inflow, outflow, up/down ramping and refill rate restrictions.	The Feeder Dam Project operates with a 2.0-foot impoundment fluctuation limit while river flows are within the operating range of the turbines. The impoundment fluctuation limit is reduced to 1-foot from April 1 to June 15. A minimum average daily flow of 1,760 cfs below Feeder Dam with an instantaneous base flow of requirement of 1,500 cfs
	Upstream dams by name, ownership and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Warren Curtis, Curtis Palmer Hydroelectric Company, P-2609, RM 218 Palmer Falls, Curtis Palmer Hydroelectric Company, P-2609, RM 217 Spier Falls Development, Erie Boulevard Hydropower, LLC, P-2482, RM 212 Sherman Island Development, Erie Boulevard Hydropower, P-2482, RM 209 * No upstream dams provide downstream fish passage.
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Glens Falls Project/South Glens Falls Project, FH OPCO LLC/Boralex Operations, Inc., P-2385/P-5461, RM 201 Hudson Falls, Boralex Operations, Inc. P-5276, RM 198

Feeder Dam Project Certification Application

		<p>Thompson Island, Albany Engineering Corporation , P-12741, RM 133</p> <p>Fort Miller, Fort Miller Associates,P-4226, RM 180</p> <p>Northumberland, Northumberland Hydro Partners L.P., P-4244, RM 175</p> <p>Stillwater, Stillwater Hydro Partners, P-4684, RM 165</p> <p>Upper Mechanicville, NYSEG, P-2934, RM 160</p> <p>Mechanicville, Albany Engineering Corporation, P-6032, RM 163</p> <p>Waterford, Albany Engineering Corporation, P-10648</p> <p>Green Island, Green Island Power Authority, P-13, RM 149</p> <p>* No downstream dams provide upstream fish passage.</p>
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	<p>Great Sacandaga Lake (FERC P-12252) controls 1,055 square miles of the drainage area that contributes to the hydroelectric projects on the Hudson River, including the Feeder Dam Project. Discharges from the reservoir are regulated by the Hudson River Black River Regulating District (HRBRDD).</p> <p>In addition, 200 cfs from the Hudson River are reserved for the Champlain Feeder Canal, which is utilized during the navigation period of May to November</p>
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control.	The FERC project boundary covers 720 acres (3 acres of land and 717 acres of water).
Hydrologic Setting	Average annual flow at the dam, and period of record used	The approximately average annual flow at the Feeder Dam Project based on flow data through 1977 through 2018 at the USGS gage 01327750 Hudson River at Fort Edward, NY is 5,190 cfs.

Feeder Dam Project Certification Application

	Average annual flow at the dam, and period of record used	<p>The approximate average monthly flows at the Feeder Dam Project based on flow data through 1977 through 2018 at the USGS gage 01327750 Hudson River at Fort Edward, NY are as follows:</p> <p>January – 5,271cfs February – 5,168 cfs March – 6,033 cfs April – 10,004 cfs May – 7,488 cfs June – 4,251 cfs July – 2,900 cfs August – 2,883 cfs September – 3,056 cfs October – 4,064 cfs November – 5,334 cfs December – 5,423 cfs</p>
	Location and name of closest stream gauging stations above and below the facility	<p>Downstream: USGS Gage No. 01327750 Hudson River at Fort Edward, NY (located downstream of the Hudson Falls Hydroelectric Project), RM 196</p> <p>Upstream: USGS Gage No 01318500 Hudson River at Hadley, NY (located immediately upstream of the Sacandaga River confluence with the Hudson River), RM 224</p>
	Watershed area at the dam (in square miles). Identify if this value is prorated and provide the basis for proration.	<p>2,800 square miles</p> <p>Daily mean flow data for the Feeder Dam Project was estimated by a linear proration of data from USGS Gage No. 01327750 Hudson River at Fort Edward, NY.¹</p>
Designated Zones of Effect	Number of zones of effect	There are two zones of effect at the Feeder Dam Project (See Appendix A).
	Upstream and downstream locations by river miles	<p>Zone 1: 203.0 to 208.5 Zone 2: 202.8 to 203.0</p>
	Type of waterbody (river, impoundment, by-passed reach, etc.)	<p>Zone 1: Impoundment Zone 2: Downstream</p>

¹ Ries, K.G. and Friesz, P.J. 2000. Methods for Estimating Low-Flow Statistics for Massachusetts Streams. Water Resources Investigations Report 00-4135. U.S. Department of Interior. U.S. Geological Survey.

Feeder Dam Project Certification Application

	Delimiting structures or features	<p>Zone 1: From the head of the impoundment, downstream approximately 5.5 miles to the dam.</p> <p>Zone 2: From the spillway, downstream approximately 0.2 miles to Glens Falls Hydroelectric Project impoundment.</p>
	Designated uses by state water quality agency	<p>The NYSDEC has classified the portion of the Hudson River upstream and downstream of the Feeder Dam Project as Class B waters.</p> <p>Link to NYSDEC Classification Codes: https://govt.westlaw.com/nycrr/Browse/Home/NewYork/NewYorkCodesRulesandRegulations?guid=I06849fe0b5a111dda0a4e17826ebc834&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)</p>

Feeder Dam Project Certification Application

PART II. STANDARD MATRICES

The Feeder Dam Project has a total of two zones of effect that are defined as: (1) Zone one, which extends from the head of the Feeder Dam impoundment at Sherman Island Hydroelectric Project tailrace, downstream approximately 5.5 miles to the Feeder Dam spillway, (2) Zone two, which extends from the Feeder Dam spillway, downstream approximately 0.2 miles to the Glens Falls Hydroelectric Project / South Glens Falls Hydroelectric Project impoundment.

The standards selected to satisfy the LIHI certification criteria in each of these zones are identified in the following tables.

Table II-1. LIHI Standards Selected for Zone of Effect No. 1
for the Feeder Dam Project

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				X
F	Threatened and Endangered Species Protection			X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

Table II-2. LIHI Standards Selected for Zone of Effect No. 2
for the Feeder Dam Project

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				X
F	Threatened and Endangered Species Protection			X		
G	Cultural and Historic Resources Protection		X			
H	Recreational Resources		X			

PART III. SUPPORTING INFORMATION

This section contains information that explains and justifies the standards selected to pass the LIHI certification criteria (see Part II for selections).

FEEDER DAM DEVELOPMENT

Information Required to Support Ecological Flows Standards.

III.A.1 Ecological Flows: Feeder Dam Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none">• 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.

Zone 1 of the Feeder Dam Project is the Feeder Dam impoundment. As required by the Settlement Offer and License Article 403, the Feeder Dam Project operates with a one foot daily impoundment fluctuation limit from April 1 to June 15 to facilitate fish spawning. During the remainder of the year, daily impoundment fluctuations are to be limited to two feet while river flows are within the operating range of the turbines.

License Article 403 also required Erie to install pneumatic flashboards on a portion of the spillway section (536 feet) of the Feeder Dam to facilitate pond level control. As part of this upgrade, Erie replaced all wooden flashboards with pneumatic flashboards (612 feet). On November 5, 2003 FERC issued a letter approving the change and allowing construction.

FERC Letter Approving Pneumatic Flashboards Installation:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9987711>

Feeder Dam Project Certification Application

According to the FERC Environmental Impact Statement (EIS), the seasonal impoundment fluctuation would facilitate fish spawning, and reduce the amount of exposed shoreline the remainder of the year. As stated in the EIS, impoundment fluctuation studies found that the fluctuation limits provided substantial benefits for aquatic resources, including enhanced reproduction of fish species. The maximum two foot drawdown limit exposed around 72 acres of shoreline, but the majority of fish species were expected to spawn in deeper water.

Environmental Impact Statement:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8315170>

Great Sacandaga Lake (FERC P-12252) controls 1,055 square miles of the drainage area that contributes to the hydroelectric projects on the Hudson River, including the Feeder Dam Project. Discharges from the reservoir are regulated by the HRBRRD. The HRBRRD allocated sufficient daily water volume releases from the Great Sacandaga Lake to meet minimum average daily flow requirements on the Hudson River and help meet the 1,500 cfs instantaneous based flow requirement below Feeder Dam. Typically, the reservoir is lowered in the fall and filled in the spring.

The Feeder Dam Project is in compliance with resource agency conditions issued regarding flow conditions. The FERC license, Settlement Offer, and Section 401 Water Quality Certificate (WQC) include the requirements for flow releases and water level control recommended by the NYSDEC and United States Fish and Wildlife Service (USFWS).

Article 401 of the license requires a Stream Flow and Water Level Monitoring Plan (SFWLMP), be developed to ensure compliance with impoundment fluctuations, and fish movement/bypass flows. The licensee filed a SFWLMP on July 14, 2003, which was approved by the Commission on July 13, 2004. The licensee modified the Plan to include new information on staff gages, stream flow monitoring, and the feasibility of Internet-type posting of elevation and flow records. The Final SFWLMP was filed with FERC on May 2, 2005. On July 12, 2005 FERC issued an Order Modifying and Approving SFWLMP pursuant to Article 401 of the FERC license. As part of the SFWLMP, the licensee is required to monitor headpond elevations. The licensee installed and maintains Milltronics hydro-acoustic sensors to monitor the impoundment.

License Article 401 Compliance Stream Flow and Water Level Monitoring Plan:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10629173>

July 12, 2005 Order Approving Stream Flow and Water Level Monitoring Plan

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10661561>

Erie remains in compliance with the established flow conditions and impoundment levels and maintains records of these conditions at the Project. In the event of a deviation from established minimum flows or impoundment levels, Erie files documentation with FERC detailing the reasons for the deviation.

Feeder Dam Project Certification Application

III.A.2 Ecological Flows: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
A	2	<p><u>Agency Recommendation (see Appendix A for definitions):</u></p> <ul style="list-style-type: none">• Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.• Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.• Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

Zone 2 of the Feeder Dam Project is the area downstream of the Feeder Dam. The Feeder Dam Project is in compliance with resource agency conditions issued regarding base flow conditions. The FERC license, Settlement Offer, and Section 401 WQC include the requirements for flow releases and water level control recommended by the NYSDEC and USFWS.

License Article 405 and the Settlement Offer require Erie to maintain a minimum average daily flow of 1,760 cfs below Feeder Dam. The flow may be adjusted for flow augmentation purposes if low lake elevation conditions occur on Great Sacandaga Lake (FERC P-12252). An instantaneous base flow of 1,500 cfs is also to be provided below Feeder Dam. Project flow reserved for the Champlain Feeder Canal is about 200 cfs, which is utilized during the navigation period of May to November. The License called for installation of "generation on" lights for each of the Feeder Dam generating units to verify that the 1,500 cfs flow is being provided.

Article 401 of the license requires a SFWLMP be developed to ensure compliance with impoundment fluctuations, and fish movement/bypass flows. The licensee filed a SFWLMP on July 14, 2003, which was approved by the Commission on July 13, 2004. The licensee modified the Plan, and the Final SFWLMP was filed with FERC on May 2, 2005. On July 12, 2005 FERC issued an Order Modifying and Approving the SFWLMP.

The licensee is required to monitor and maintain tailwater elevations, with base flow releases from the project. The licensee installed Milltronics hydro-acoustic sensors to monitor the tailwater elevations.

License Article 401 Compliance Stream Flow and Water Level Monitoring Plan:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10629173>

Feeder Dam Project Certification Application

July 12, 2005 Order Approving Stream Flow and Water Level Monitoring Plan

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10661561>

Erie remains in compliance with the established flow conditions and impoundment levels and maintains records of these conditions at the Project. In the event of a deviation from established minimum flows or impoundment levels, Erie files documentation with FERC detailing the reasons for the deviation.

Information Required to Support Water Quality Standards.

III.B.1 Water Quality: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none">• Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.• Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.• Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

The portion of the Hudson River from Sherman Island Dam to Glens Falls Dam is listed as an impaired in the November 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy for PCB contaminated sediments. Listing is here: <http://www.dec.ny.gov/chemical/31290.html>. The cause of this impairment is not related to the Feeder Dam Project. A copy of the November 2016 Section 303(d) list for New York State can be viewed at https://www.dec.ny.gov/docs/water_pdf/303dListfinal2016.pdf.

The Hudson River in the vicinity of the Feeder Dam Project is classified by NYSDEC as Class B. The best usage of Class B waters is primary and secondary contact recreation and fishing, and they are also suitable for fish propagation and survival.

The Feeder Dam Project is in compliance with all conditions issued pursuant to a Clean Water Act – Section 401 WQC. The Section 401 WQC is conditioned on compliance with the terms of the Settlement Offer. The WQC for the Project was issued February 5, 2002 (<https://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=8306864>). On-going water quality monitoring at the Project is not required as part of the WQC or FERC license.

Feeder Dam Project Certification Application

Generally, any changes to the original WQC are necessitated by significant changes in or to the Project environment affecting the Conditions of the original WQC, which culminates in an amendment of the original WQC. This situation has not occurred for the Feeder Dam Project WQC, and the original WQC, issued on February 5, 2002 is still in effect.

Additionally, the Applicant contacted the NYSDEC on January 3, 2019, regarding the current WQC status for the Project. By letter dated January 9, 2019, the NYSDEC indicated that the current 401 WQC is still valid for the Feeder Dam Project. The consultation documentation regarding the 401 WQC is included in Appendix D.

III.B.2 Water Quality: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none">• Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.• Explain how the recommendation relates to agency management goals and objectives for fish and wildlife.• Explain how the recommendation provides fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations).

See above response for Zone 1.

Information Required to Support Upstream Fish Passage Standards.

III.C.1 Upstream Fish Passage: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none">• Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement.• Document available fish distribution data and the lack of migratory fish species in the vicinity.• If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

Feeder Dam Project Certification Application

There are no upstream fish passage barriers or migratory fish management issues in Zone 1 because it is an impoundment. There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Department of the Interior (Interior) did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 408 of the 2002 FERC license.

According to background information included in Appendix A of the Settlement Offer, the Hudson River in the Feeder Dam vicinity primarily supports a warmwater fishery, although both coldwater (trout) and coolwater (walleye) species are found in the area. Yellow perch and smallmouth bass are the dominant game species in the impoundment, followed by chain pickerel and largemouth bass. Panfish are represented by pumpkinseed, rock bass and redbreast sunfish. Walleye, brook trout and brown trout have been sampled in the Sherman Island bypass upstream of the Feeder Dam impoundment. No anadromous fish species are known to occur at the project. Two American eels, a catadromous fish, were sampled in the project impoundment during a 1984 fishery survey.

III.C.2 Upstream Fish Passage: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none">• 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.

There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Department of the Interior (Interior) did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 408 of the 2002 FERC license.

According to background information included in Appendix A of the Settlement Offer, the Hudson River in the Feeder Dam vicinity primarily supports a warmwater fishery, although both coldwater (trout) and coolwater (walleye) species are found in the area. Yellow perch and smallmouth bass are the dominant game species in the impoundment, followed by chain pickerel and largemouth bass. Panfish are represented by pumpkinseed, rock bass and redbreast sunfish. Walleye, brook trout and brown trout have been sampled in the Sherman Island bypass upstream of the Feeder Dam impoundment. No anadromous fish species are known to occur at the project.

Feeder Dam Project Certification Application

Two American eels, a catadromous fish, were sampled in the project impoundment during a 1984 fishery survey.

Settlement Offer:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157>

According to the Environmental Assessment for the Glens Falls Hydroelectric Project (FERC No. 2385), based on data reported in 1932, historically American eels were “moderately common” upstream of the Glens Falls Project. Finch, Pruyn, & Company, Inc., did not collect any anadromous fish species during its fishery surveys at the Glens Falls Project. The American eel was infrequently collected in the project area. The Interior noted that, although American eels are relatively rare in this portion of the Hudson River because upstream access is limited by numerous downstream dams and natural barriers such as Hudson Falls and Glens Falls, some eels are able to migrate this far via the Feeder Canal. The Environmental Assessment for the Glens Falls Hydroelectric Project concluded that although the Feeder Canal could provide an avenue of upstream and downstream passage for anadromous fish, this currently does not seem to be occurring.

Glens Falls Hydroelectric Project Environmental Assessment

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6005334>

Section 8 of the Settlement Offer requires Erie to contribute to the Fisheries Enhancement Fund. Erie contributes \$5,000 annually (or escalated at the rate of inflation) to the Fisheries Enhancement Fund, which may be used for any fishery related projects throughout New York State.

Annual Report of Fisheries Enhancement Fund:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14855685>

Information Required to Support Downstream Fish Passage Standards.

III.D.1 Downstream Fish Passage: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none">• 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 part of a Settlement Agreement or not.• Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented.

Feeder Dam Project Certification Application

The Interior requested reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which was granted in Article 408 of the license. There are no agency requirements for fish passage monitoring in the license.

According to background information included in Appendix A of the Settlement Offer, the Hudson River in the Feeder Dam vicinity primarily supports a warmwater fishery, although both coldwater (trout) and coolwater (walleye) species are found in the area. Yellow perch and smallmouth bass are the dominant game species in the impoundment, followed by chain pickerel and largemouth bass. Panfish are represented by pumpkinseed, rock bass and redbreast sunfish. Walleye, brook trout and brown trout have been sampled in the Sherman Island bypass upstream of the Feeder Dam impoundment. No anadromous fish species are known to occur at the project. Two American eels, a catadromous fish, were sampled in the project impoundment during a 1984 fishery survey.

Settlement Offer:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157>

Environmental Impact Statement:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8315170>

As referenced in the EIS, an entrainment study conducted in 1993 and 1994 found that entrainment rates for various species ranged from 1-50%, and the most common entrained taxa were sunfish, rock bass, and pumpkinseed. The EIS stated that installation of one-inch trash rack overlays would sufficiently reduce the entrainment of large fish.

Fish Entrainment Study:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14242658>

To facilitate the downstream passage of fish, Article 404 of the 2002 License required the licensee to install full trash racks overlays with maximum clear spacing of one inch by December 31, 2004. To afford a route of downstream movement for fish, the licensee discharges a continuous flow of 25 cfs through modifications to the existing trash sluice, beginning at the time the trash rack overlays were installed in 2005. In addition, the licensee implemented fish protection measures such as, reduce roughness of the sluice spillway faces, and constructed plunge pools at the toe of the spillways. On February 1, 2006 FERC issued an Order Approving As-Builts to approve the completed installation of the trashrack overlays and other measures.

Order Approving As-builts:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10941855>

Feeder Dam Project Certification Application

Section 8 of the Settlement Offer requires Erie to contribute to the Fisheries Enhancement Fund. Erie contribute \$5,000 annually (or escalated at the rate of inflation) to the Fisheries Enhancement Fund, which may be used for any fishery related projects throughout New York State.

Settlement Offer:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157>

Annual Report of Fisheries Enhancement Fund:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14855685>

III.D.2 Downstream Fish Passage: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none">• Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective and timely downstream migration.• For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the sustainability of these populations or to their access to habitat necessary for successful completion of their life cycles.• Document available fish distribution data and the lack of migratory fish species in the vicinity.• If migratory fish species have been extirpated from the area, explain why the facility is or was not the cause of this.

There are no downstream fish passage barriers or migratory fish management issues in Zone 2. There are no mandatory prescriptions (section 18 or similar) for the passage of riverine fish at the Project. In the Settlement Offer, the Interior did request reservation of its authority to prescribe upstream and downstream fish passage devices in the future, which is provided in Article 408 of the 2002 FERC license.

According to the Environmental Assessment for the Glens Falls Hydroelectric Project (FERC No. 2385), the three most abundant fish species in the Glens Falls impoundment, immediately downstream of Feeder Dam, in the 1985 and 1993 surveys were rock bass, spottail shiner, and fallfish. Crappie (black and white) and northern pike were collected during the 1993-1994 entrainment study at the Feeder Dam Project, as were an additional seven fish species, including

Feeder Dam Project Certification Application

rainbow and brook trout, rainbow smelt, channel catfish, blacknose dace, and northern hogsucker. Based on data reported in 1932, historically American eels were “moderately common” upstream of the Glens Falls Project. Finch, Pruyn, & Company, Inc., did not collect any anadromous fish species during its fishery surveys at the Glens Falls Project. The American eel was infrequently collected in the project area.

Glens Falls Hydroelectric Project Environmental Assessment

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=6005334>

Information Required to Support Shoreline and Watershed Protection Standards.

III.E.1 Shoreline and Watershed Protection: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none">• If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary).• Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.
E	PLUS	<u>Bonus Activities:</u> <ul style="list-style-type: none">• Provide documentation that the facility has a formal conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline that the facility owns around its reservoirs and river corridors.• In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around undeveloped shoreline.

The project is located in the towns of Moreau and Queensbury, outside of the Adirondack State Park boundary. The Project is two river miles upstream from the City of Glens Falls. Land use along the shoreline of the Feeder Dam impoundment is generally undeveloped with areas of residential development. According to the EIS, FERC’s review of the Project in relation to land use in the project affected areas concluded that there would be minimal or no change in land use. Properties owned by the Licensee along the reservoir are being maintained as an undeveloped buffer zone. In addition, the FERC EIS for the Project concluded that the limited impoundment fluctuation levels required by the license limits erosion. There is no evidence that Project operation has contributed to existing shoreline erosion. There is no shoreline management plan required for the Project.

Environmental Impact Statement:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8315170>

Feeder Dam Project Certification Application

Section 8 of the Settlement Offer requires Erie to contribute \$10,000 annually (escalated at the rate of inflation) to the Hudson/Sacandaga River Enhancement Fund. The Sacandaga/Hudson River Enhancement Fund may be used within the Hudson River as defined from the confluence of the Sacandaga River downstream to Feeder Dam for ecosystem restoration, fish stocking, stewardship, or recreational resources. As reporting in the 2015 Enhancement Fund Report, the Sacandaga/Hudson River Enhancement Fund manager requested advance funding for years 2015 through 2020 to match a grant received through First Wilderness Heritage Trail.

2015 Annual Report of the Sacandaga/Hudson River Enhancement Fund:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13822513>

Settlement Offer:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13624157>

Article 410 of the Feeder Dam Project license requires the licensee to file an annual report with FERC of contributions to the Sacandaga/Hudson River Enhancement Fund.

Annual Report of the Sacandaga/Hudson River Enhancement Fund:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14855685>

III.E.2 Shoreline and Watershed Protection: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none">• If there are no lands with significant ecological value associated with the facility, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary).• Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.
E	PLUS	<u>Bonus Activities:</u> <ul style="list-style-type: none">• Provide documentation that the facility has a formal conservation plan protecting a buffer zone of 50% or more of the undeveloped shoreline that the facility owns around its reservoirs and river corridors.• In lieu of a formal conservation plan, provide documentation that the facility has established a watershed enhancement fund for ecological land management that will achieve the equivalent land protection value of an ecologically effective buffer zone of 50% or more around undeveloped shoreline.

See response above for Zone 1.

Feeder Dam Project Certification Application

Information Required to Support Threatened and Endangered Species Standards.

III.F.1 Threatened and Endangered Species: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
F	3	<p><u>Recovery Planning and Action:</u></p> <ul style="list-style-type: none">• If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents.• Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the area.

Based on information received from the USFWS's New York Field Office on January 31, 2019, regarding a request for information on rare, threatened or endangered (RTE) species it appears that the northern long-eared bat (*Myotis septentrionalis*), Indiana Bat (*Myotis sodalis*), and Karner blue butterfly (*Lycaeides melissa samuelis*) may potentially occur within the Project area. There are no critical habitats located within the Feeder Dam Project area.

During preparation of this application, Erie also consulted with NYSDEC's Natural Heritage Program for an updated list of threatened and endangered species that may occur in the vicinity of the Feeder Dam Project. By letter dated January 30, 2019, the NYSDEC indicated that the Karner blue butterfly, which is state-listed as endangered, and Frosted flin (*Callophrys irus*), which is state-listed as threatened has been documented within 0.5 miles of the Feeder Dam Project.

The USFWS has adopted the following recovery plan for the Indiana bat that may be present in the vicinity of the Feeder Dam Project:

U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

Recovery actions identified in USFWS's Indiana Bat Draft Recovery Plan include hibernacula related recovery actions and summer habitat management. No Indiana bat hibernacula, which typically include caves and mines, are known to exist in the immediate vicinity of Feeder Dam Project. Transient individuals, presumably in association with summer habitat, may however exist in the Project area. Operations of the Feeder Dam Project, especially with regard to preservation of woodland buffer areas, are consistent with this draft recovery plan.

The USFWS has not adopted a formal recovery plan for the northern long-eared bat. On January 14, 2016, the USFWS published the final 4(d) rule identifying prohibitions for the protection of northern long-eared bats. Operations of the Feeder Dam Project, especially with regard to tree clearing from June 1 through July 31, adhere to the prohibitions outlined in the final 4(d) rule.

Feeder Dam Project Certification Application

The USFWS has adopted the following recovery plan for the Karner blue butterfly that may be present in the vicinity of the Feeder Dam Project:

U.S. Fish and Wildlife Service. 2003. Final Recovery Plan for the Karner Blue Butterfly (*Lycaeides melissa samuelis*). U.S. Fish and Wildlife Service, Fort Snelling, Minnesota. 273 pp.

Recovery actions identified in USFWS's Karner blue butterfly Recovery Plan include identification and monitoring of viable metapopulation. The Karner blue butterfly is known to be dependent on blue lupine (*Lupinus perennis*), its only known larval food plant. As required by Article 407, in 2003 the licensee conducted surveys for the presence of the endangered Karner blue butterfly (*Lycaeides melissa samuelis*) and blue lupine (*Lupinus perennis*). Blue lupine and Karner blue butterfly were not observed in the Project area.

Final Karner Blue Butterfly/Blue Lupine Survey Results

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10076058>

The NYSDEC has not adopted a formal recovery plan for the Karner blue butterfly or the Frosted elfin.

There are no specific additional requirements for threatened or endangered species protection in the FERC license or WQC for the Feeder Dam Project.

The record of RTE consultation is included in Appendix E.

III.F.2 Threatened and Endangered Species: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
F	3	<u>Recovery Planning and Action:</u> <ul style="list-style-type: none">• If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents.• Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the area.

See response above for Zone 1.

Feeder Dam Project Certification Application

Information Required to Support Cultural and Historic Resources Standards.

III.G.1 Cultural and Historic Resources: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
G	2	<u>Approved Plan:</u> <ul style="list-style-type: none">• 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.

In 1996, the Licensee entered into a Programmatic Agreement (executed July 19, 1996), including but not limited to the Cultural Resources Management Plan for the project. The Feeder Canal is located within the project boundary, which provides water from the Hudson River to the Champlain Canal (a division of the New York State Barge Canal System). As part of the Canal System, the Feeder Canal provided transportation for people and goods to and from New York City until it was abandoned in 1928.

FERC Approved the Cultural Resources Management Plan (CRMP) on June 3, 2005. The licensee implements its Programmatic Agreement and CRMP to mitigate the effects of operations within the project's area of potential effect (APE) and Feeder Canal, pursuant to license Article 409.

The licensee files an annual monitoring report on activities undertaken that may be subject to the CRMP. The annual historic properties monitoring report for 2018 was filed on September 18, 2018. The licensee appears to be in compliance with its requirements with regard to cultural resources.

Programmatic Agreement:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=8231177>

Order Approving CRMP:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10595712>

September 18, 2018 Annual HPMP Report

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15042982>

Feeder Dam Project Certification Application

III.G.2 Cultural and Historic Resources: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
G	2	<u>Approved Plan:</u> <ul style="list-style-type: none">• 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.

See above response for Zone 1.

Information Required to Support Recreational Resources Standards.

III.H.1 Recreational Resources: Feeder Dam Development Zone 1

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none">• 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.

The primary recreational facilities at the project consist of cartop boat launches and take-outs, parking facilities, a portage trail, and fisherman access at the tailrace. The licensee constructed recreational facilities along the Feeder Canal which were turned over to the NYSCC. The Feeder Dam Project is in compliance with recreational access, accommodation, and facilities' conditions in the FERC license.

Article 406 requires the licensee to permit public access across project lands to the shoreline of the Feeder Dam impoundment and to file a plan and schedule for constructing recreational enhancements. In addition, within six months from date of issuance of the license, the licensee shall submit for Commission approval, a plan and schedule for constructing the following recreational improvements and facilities. On November 18, 2003 FERC issued an Order Approving the Recreation Plan, which was submitted to FERC on May 1, 2003.

Feeder Dam Recreation Plan:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10468136>

Order Approving the Recreation Plan

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9992439>

Erie permits free public access to the shoreline of the Feeder Dam development across Erie's lands where Project facilities, hazardous areas and existing leases, easements, and private ownership do not preclude access.

Feeder Dam Project Certification Application

III.H.2 Recreational Resources: Feeder Dam Development Zone 2

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none">• 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.

See response above for Zone 1.

Feeder Dam Project Certification Application

PART IV. SWORN STATEMENT AND WAIVER

As an Authorized Representative of Erie Boulevard Hydropower, L.P., the Undersigned attests that the material presented in the application is true and complete.

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

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

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

Company Name: Erie Boulevard Hydropower, L.P.

Authorized Representative

Name: Daniel J. Maguire

Title: Compliance Manager

Authorized Signature: _____

Date: 6/14/19

Feeder Dam Project Certification Application

PART V. CONTACTS

Table V-1. Complete contact information for Erie Boulevard Hydropower, L.P.

Project Owner:	
Name and Title	
Company	Erie Boulevard Hydropower, L.P., a subsidiary of Brookfield Renewable
Phone	
Email Address	
Mailing Address	399 Big Bay Road, Queensbury, NY 12804
Project Operator (if different from Owner):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Daniel J. Maguire, P.E., Compliance Manager
Company	Brookfield Renewable
Phone	315-267-1036
Email Address	Danny.Maguire@brookfieldrenewable.com
Mailing Address	184 Elm Street, Potsdam, NY 13676
Party responsible for accounts payable:	
Name and Title	
Company	Brookfield Renewable
Phone	
Email Address	AP@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC J8X 2A1
Name and Title	Sandeep Mascarenhas, Senior Analyst, Capacity & Ancillary Services Management
Company	Brookfield Renewable
Phone	819-561-2722 ext. 6743
Email Address	Sandeep.Mascarenhas@brookfieldrenewable.com
Mailing Address	41 Victoria, Gatineau, QC J8X 2A1

Feeder Dam Project Certification Application

Table V-2. Complete contact information for current and relevant state, federal, provincial, and tribal resource agency contacts.

Agency Contact (Check area of responsibility: Flows <u> X </u> , Water Quality <u> X </u> , Fish/Wildlife Resources <u> X </u> , Watersheds <u> </u> , T/E Spp. <u> </u> , Cultural/Historic Resources <u> </u> , Recreation <u> X </u>):	
Agency Name	New York State Department of Environmental Conservation
Name and Title	Ben Shubert, Environmental Analyst
Phone	518-623-1281
Email address	benjamin.shubert@dec.ny.gov
Mailing Address	232 Golf Course Road, Warrensburg, NY 12885

Agency Contact (Check area of responsibility: Flows <u> </u> , Water Quality <u> </u> , Fish/Wildlife Resources <u> </u> , Watersheds <u> </u> , T/E Spp. <u> X </u> , Cultural/Historic Resources <u> </u> , Recreation <u> </u>):	
Agency Name	New York State Department of Environmental Conservation
Name and Title	Nicholas Conrad, Information Resources Coordinator
Phone	518-402-8935
Email address	Nick.Conrad@dec.ny.gov
Mailing Address	625 Broadway, Albany, NY 12233-4757

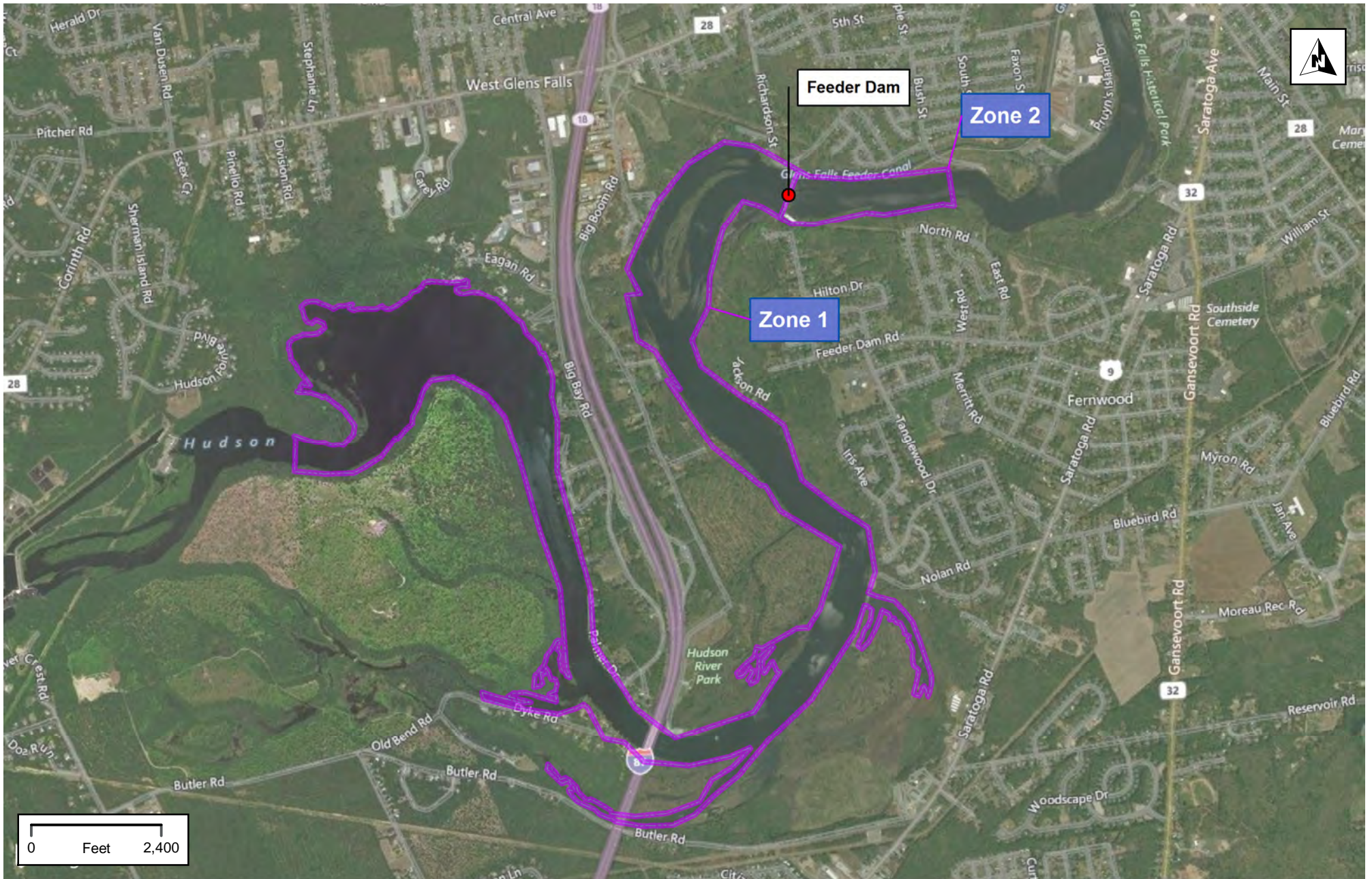
Agency Contact (Check area of responsibility: Flows <u> </u> , Water Quality <u> </u> , Fish/Wildlife Resources <u> </u> , Watersheds <u> </u> , T/E Spp. <u> X </u> , Cultural/Historic Resources <u> </u> , Recreation <u> </u>):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Robyn Niver, Endangered Species Biologist
Phone	607-753-9334
Email address	Robyn_Niver@fws.gov
Mailing Address	3817 Luker Road, Cortland, NY 13045

Agency Contact (Check area of responsibility: Flows <u> X </u> , Water Quality <u> X </u> , Fish/Wildlife Resources <u> X </u> , Watersheds <u> </u> , T/E Spp. <u> X </u> , Cultural/Historic Resources <u> </u> , Recreation <u> </u>):	
Agency Name	U.S. Fish and Wildlife Service
Name and Title	Steve Patch
Phone	607-753-9334
Email address	Stephen_Patch@fws.gov
Mailing Address	3817 Luker Road, Cortland, NY 13045

Agency Contact (Check area of responsibility: Flows <u> </u> , Water Quality <u> </u> , Fish/Wildlife Resources <u> </u> , Watersheds <u> </u> , T/E Spp. <u> </u> , Cultural/Historic Resources <u> X </u> , Recreation <u> </u>):	
Agency Name	New York State Division for Historic Preservation
Name and Title	Michael Lynch, Division Director
Phone	518-237-8643
Email address	Michael.Lynch@parks.ny.gov
Mailing Address	Peebles Island State Park, P.O. Box 189, Waterford, NY 12188-0189

APPENDIX A

FEEDER DAM PROJECT ZONES OF EFFECT



APPENDIX B
PHOTOS OF KEY PROJECT FEATURES

APPENDIX B – PHOTOGRAPHS OF KEY PROJECT FEATURES



Spillway



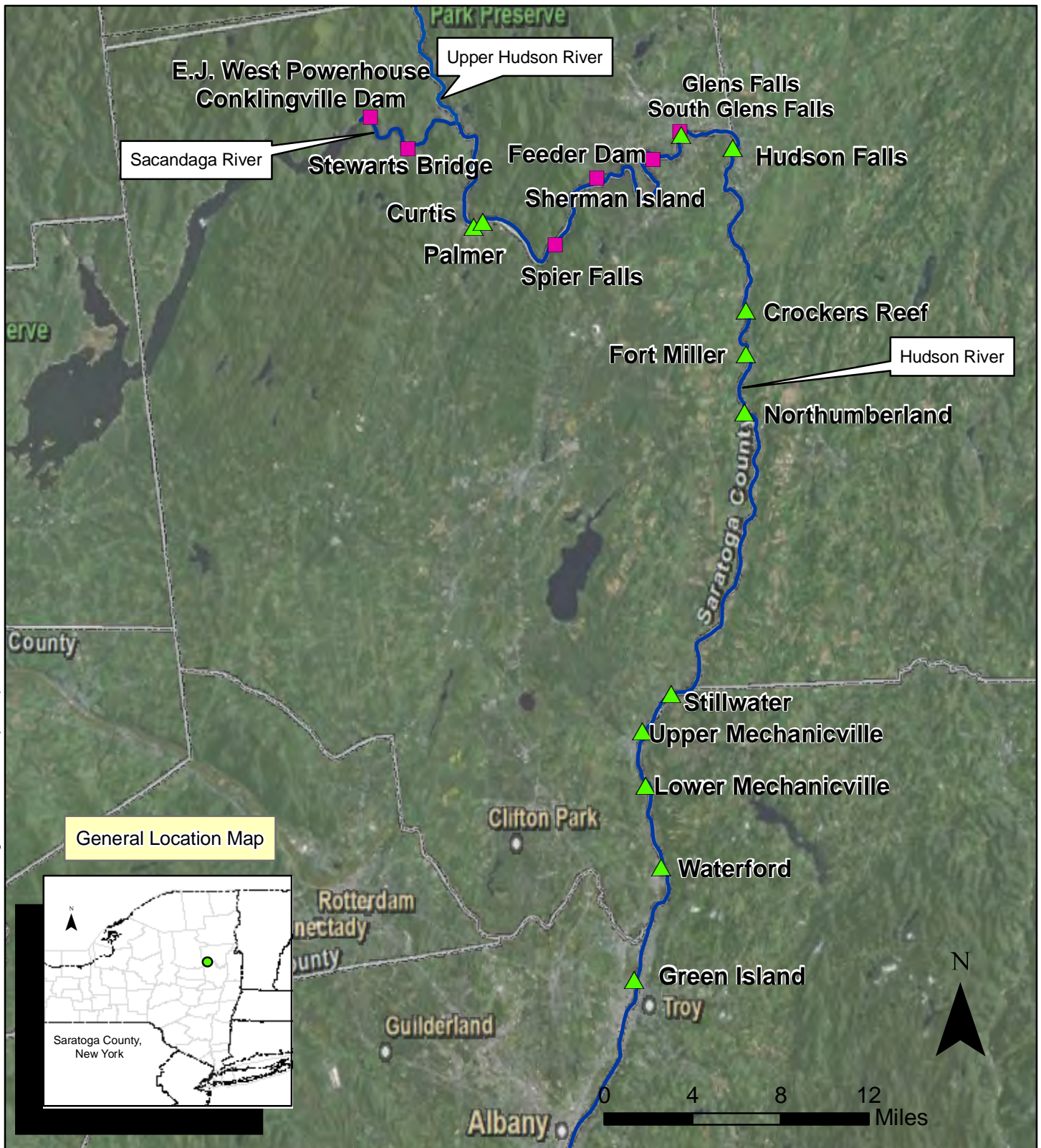
Intake




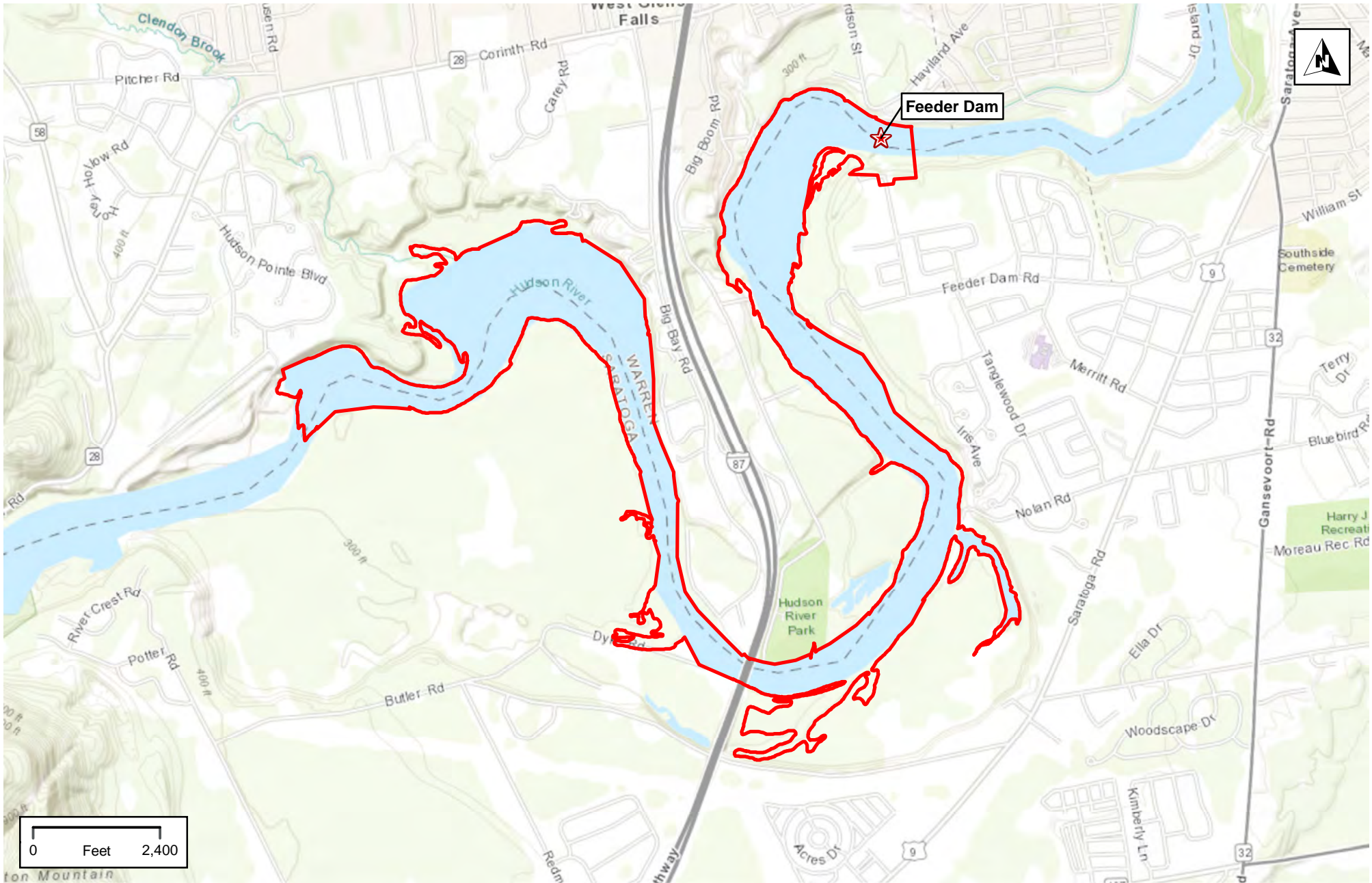
Tailrace and Downstream

APPENDIX C
PROJECT MAPS AND AERIALS

P:\Brookfield\NY\074.0174_EJ_West_Stewarts_Bridge_IGIS\MXDs\ProjectMap_111209kab.mxd
 Thursday, January 20, 2011 2:28:05 PM

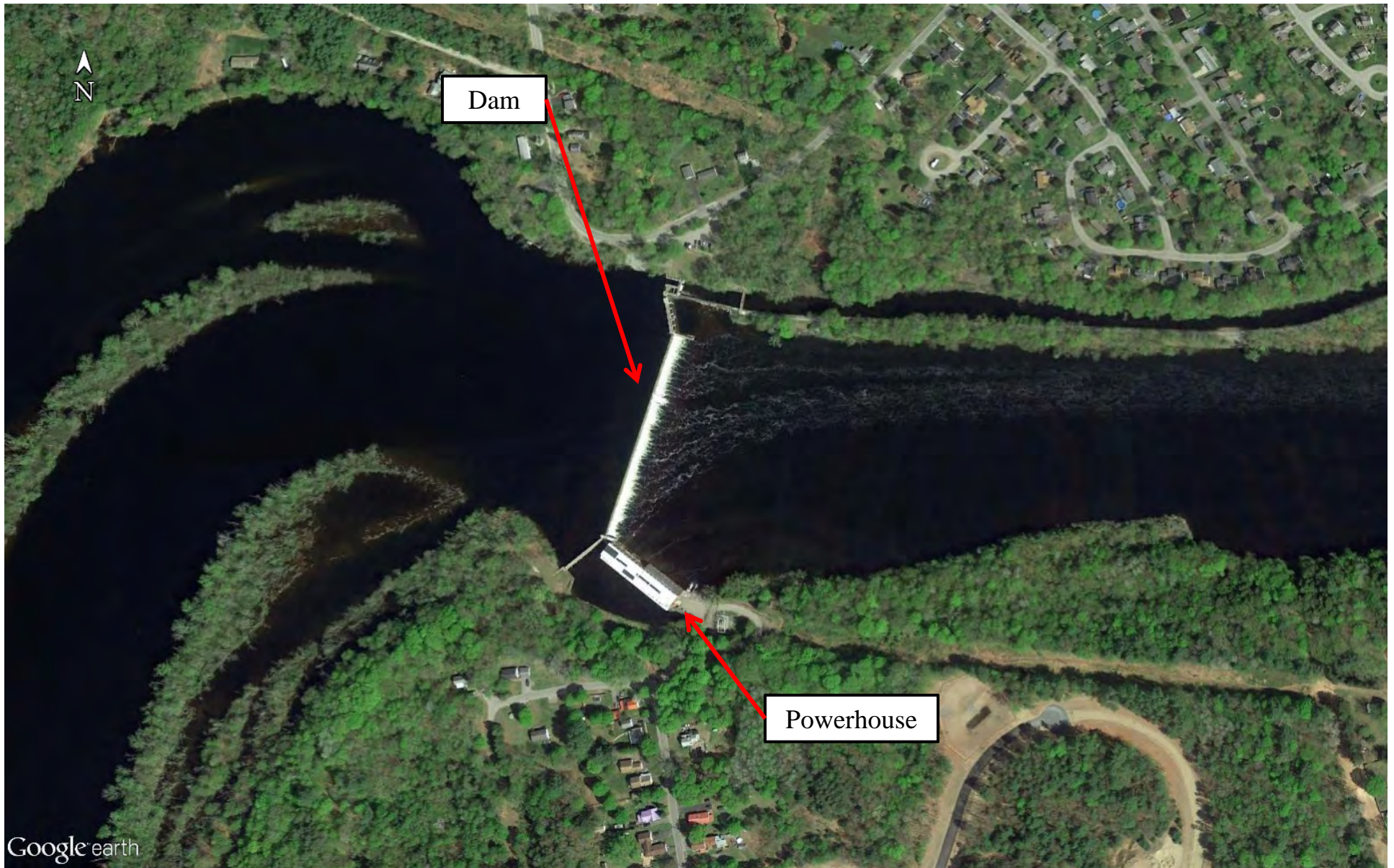


<p>Sacandaga and Hudson River Dam Locations</p> <p>DATA SOURCE: http://server.arcgisonline.com/ArcGIS/rest/services/ESRI_Imagery_World_2D/MapServer FILE LOCATION: P:\BROOKFIELD\074.174\GIS\MXD\PROJECTMAP_111209_kab</p>	<ul style="list-style-type: none"> ▲ Non-Brookfield Dam ■ Brookfield Dam — UpperHudson — River Center Line County Boundary 	<p style="text-align: center;">FIGURE 1</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div> <p>Brookfield Power</p> <p>HDR DTA</p> </div>  </div>
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APPENDIX C – MAPS AND AERIAL PHOTOS OF FACILITY AREA AND RIVER BASIN

FEEDER DAM HYDROELECTRIC PROJECT



APPENDIX D

401 WATER QUALITY CERTIFICATION CONSULTATION

Sent Electronically Only

January 3, 2019

Kevin Bliss
New York State Department of Environmental Conservation
232 Golf Course Rd.
Warrensburg, NY 12885-1172

Subject: **Feeder Dam Hydroelectric Project (FERC No. 2554)**
Low Impact Hydropower Institute Certification
Water Quality Certificate Verification

Dear Ms. Burns:

Erie Boulevard Hydropower, L.P. (Erie) is applying for Low Impact Hydropower Institute (LIHI) certification for the Feeder Dam Hydroelectric Project (FERC No. 2554). This Project is located on the Hudson River in the Towns of Queensbury and Moreau, Warren and Saratoga Counties.

Erie is requesting confirmation from the New York State Department of Environmental Conservation stating that the 401 Water Quality Certificate issued for the operation of the Feeder Dam Hydroelectric Project on February 2, 2002 is still valid. Please provide this confirmation by reply to this letter via letter or email.

Erie respectfully requests a response within 30 days of the date of this letter. Thank you in advance for your assistance, and if you have any questions, please do not hesitate to contact me at (315) 267-1036 or by email at Danny.Maguire@brookfieldrenewable.com.

Sincerely,



Daniel Maguire, P.E.
Compliance Manager
North Atlantic Operations

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 5
232 Golf Course Road, Warrensburg, NY 12885
P: (518) 623-1282 | F: (518) 623-3603
www.dec.ny.gov

January 9, 2019

Daniel Maguire
Brookfield Renewable
184 Elm Street
Potsdam, NY 13676

Via Email: Danny.Maguire@brookfieldrenewable.com (This email is in lieu of a paper copy)

Re: Feeder Dam Hydroelectric Project (FERC No.2554)
DEC #5-5234-00467/00001
Queensbury and Moreau (T), Warren and Saratoga (Co.)

Dear Mr. Maguire,

We received your letter dated January 3, 2019 in which you requested confirmation that the New York State Department of Environmental Conservation (DEC) 401 Water Quality Certificate for the Feeder Dam Hydroelectric project is still valid.

The Water Quality Certification for the project issued pursuant to Section 401 of the Federal Water Pollution Control Act (33 USC 1341) was issued with an effective date of February 5, 2002. The expiration date is coincident with the expiration date of the license issued by the Federal Energy Regulatory Commission (FERC) for FERC Project #2554.

The Water Quality Certification validity remains subject to the project complying with the special conditions detailed in the certificate.

Thank you for contacting us regarding this matter. If you have any questions with this letter, I can be reached at (518) 623-1281 or benjamin.shubert@dec.ny.gov.

Sincerely,



Ben Shubert
Environmental Analyst

ec: Beth Magee, Deputy Regional Permit Administrator



Department of
Environmental
Conservation

APPENDIX E

RARE, THREATENED AND ENDANGERS SPECIES CONSULTATION



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road

Cortland, NY 13045-9385

Phone: (607) 753-9334 Fax: (607) 753-9699

<http://www.fws.gov/northeast/nyfo/es/section7.htm>

In Reply Refer To:

January 31, 2019

Consultation Code: 05E1NY00-2019-SLI-0788

Event Code: 05E1NY00-2019-E-02506

Project Name: Feeder Dam Project

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: <http://www.fws.gov/northeast/nyfo/es/section7.htm>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (<http://www.fws.gov/windenergy/>)

[eagle_guidance.html](#)). Additionally, wind energy projects should follow the Services wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2019-SLI-0788

Event Code: 05E1NY00-2019-E-02506

Project Name: Feeder Dam Project

Project Type: DAM

Project Description: The Feeder Dam Hydroelectric Project is applying to the Low Impact Hydropower Institute (LIHI) for a certification of their project, and is looking for information regarding rare, threatened or endangered species that may occur in the project area. LIHI requires documentation of a finding of no negative effects or documentation that the facility is in compliance with relevant conditions in the species recovery plans.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.276284734314004N73.66674226772821W>



Counties: Saratoga, NY | Warren, NY

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Karner Blue Butterfly <i>Lycaeides melissa samuelis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6656 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/420/office/52410.pdf	Endangered

Critical habitats

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

Caley, Katherine

From: naturalheritage@nynhp.org
Sent: Thursday, January 03, 2019 6:50 PM
To: Caley, Katherine
Subject: Confirmation of your submitted request to New York Natural Heritage

Submission ID: 2904
Submitted on Thursday, January 3, 2019 - 18:49 Submitted values are:

Company, Organization, or Agency: HDR, Inc.
Requestor Name: Katherine Caley
Requestor Address (Street/PO Box): 1304 Buckley Road, Suite 202 Requestor City: Syracuse Requestor State: New York
Requestor Zip Code: 13212 Requestor Telephone #: 315-414-2213 Requestor Email: Katherine.Caley@hdrinc.com Project
Type: hydroelectric facility/project Project Name: Feeder Dam LIHI Consultation Project Applicant: Erie Boulevard
Hydropower Project County:

- Saratoga
- Warren

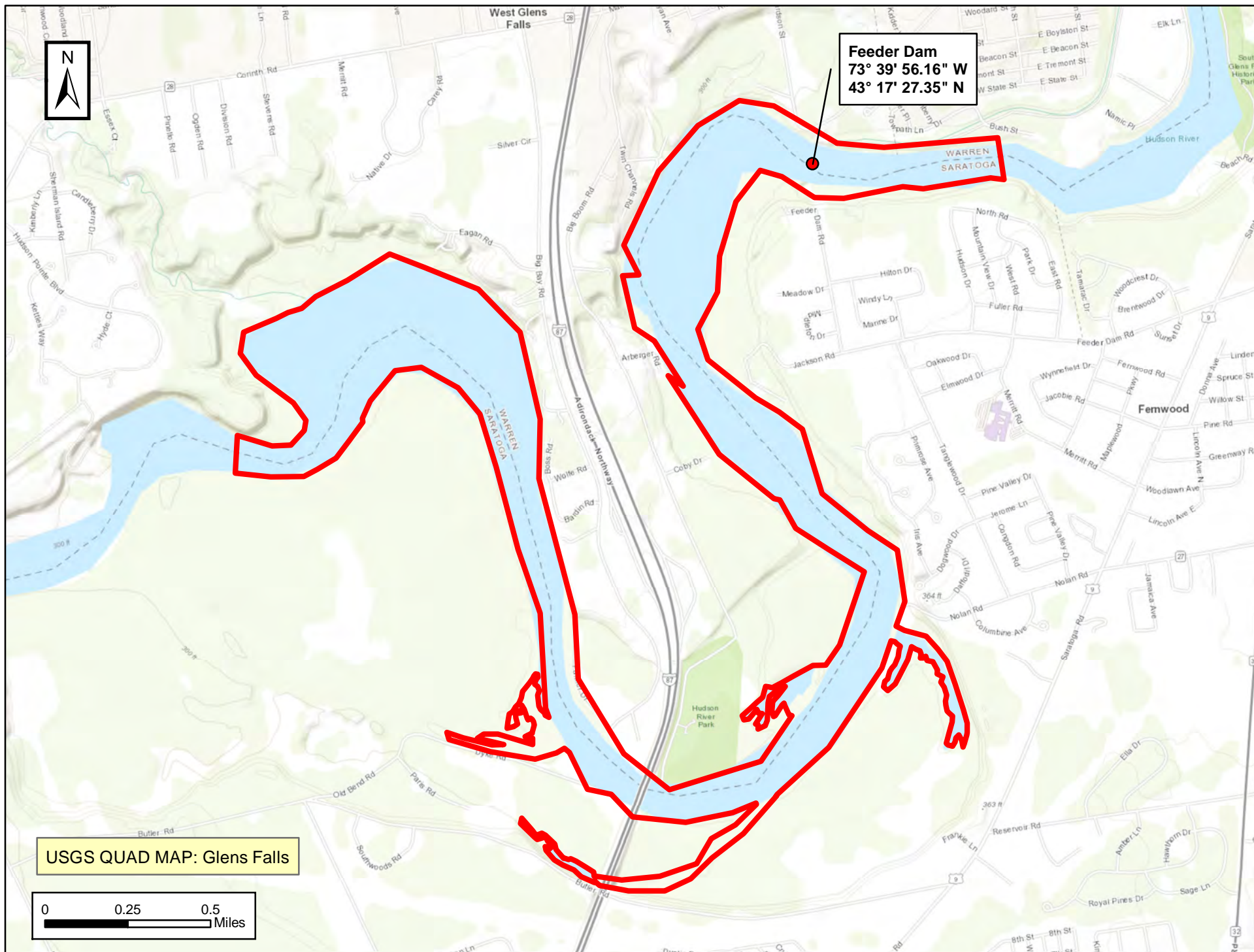
Town (Saratoga County): Moreau
Town (Warren County): Queensbury
Project Summary:

Erie is presently working with the Low Impact Hydropower Institute (LIHI) to certify the Feed Dam Hydroelectric Project (FERC No. 2554) as a low impact project. In preparing the application for LIHI certification, Erie must update or confirm consultation with resource agencies with respect to the presence of threatened or endangered species within the vicinity of the hydroelectric development. Per the request from LIHI, Erie respectfully requests information on the presence of threatened or endangered species within the vicinity of the above-listed project.

As a matter of background, the license from the Federal Energy Regulatory Commission (FERC) was issued for this Project on September 25, 2002. Project operations and environmental protection measures at this Project have been largely determined by a comprehensive Offer of Settlement that Erie developed in conjunction with the New York State Department of Environmental Conservation and other entities in 2002. The licensing processes for this Project included consultation with resource agencies regarding threatened and endangered species.

Current Land Use: The site is currently developed for the primary purpose of hydroelectric energy production on the Hudson River.

Tax parcel number:
Latitude: 43.291
Longitude: -73.666
Street Address of Project:
Project Notes:



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

January 30, 2019

Katherine Caley
HDR, Inc.
1304 Buckley Road, Suite 202
Syracuse, NY 13212

Re: Feeder Dam LIHI Consultation
County: Saratoga, Warren Town/City: Moreau, Queensbury

Dear Ms. Caley:

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

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

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

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

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 5 Office, Division of Environmental Permits at dep.r5@dec.ny.gov, (518) 623-1286.

Sincerely,



Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program



**The following state-listed animals have been documented
in the vicinity of the project site.**

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

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 5 Office at dep.r5@dec.ny.gov, (518) 623-1286.

The following species have been documented near Clendon Brook, within 0.5 mile of the project site.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	FEDERAL LISTING	
Butterflies				
Karner Blue	<i>Plebejus melissa samuelis</i>	Endangered	Endangered	8653
Frosted Elfin	<i>Callophrys irus</i>	Threatened		15238

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

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

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