Great River Hydro

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August 2, 2022

VIA ELECTRONIC FILING

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Great River Hydro, LLC
Wilder Hydroelectric Project, FERC Project No. 1892-030
Bellows Falls Hydroelectric Project, FERC Project No. 1855-050
Vernon Hydroelectric Project, FERC Project No. 1904-078

Offer of Settlement and Revisions to Exhibit D Documents

Dear Secretary Bose:

Pursuant to Rule 602 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("Commission")[1] and in response to the Commission's July 25, 2022 request for a status update on settlement negotiations,[2] Great River Hydro, LLC ("GRH"), licensee of the Wilder (FERC No. 1892), Bellows Falls (FERC No. 1855), and Vernon (FERC No. 1904) hydroelectric projects ("Projects"), hereby files this Offer of Settlement consisting of the Settlement Agreement for Fish Passage ("Agreement"), executed by and between GRH, the U.S. Department of Interior ("Interior") Fish and Wildlife Service ("USFWS"), New Hampshire Fish and Game Department ("NHFG"), and Vermont Fish and Wildlife Department ("VFWD"), and the accompanying Explanatory Statement.

The purpose of the Agreement is to resolve among the Parties all issues related to upstream and downstream fish passage at the Projects under the new licenses. The Agreement constitutes the Parties' full and complete recommended terms and conditions for inclusion in the new licenses

[1] 18 C.F.R. § 385.602(b)(2) (2021).

[2] Letter to John L. Ragonese, Great River Hydro, from Vince Yearick, FERC, Project Nos. 1892-030, 1855-050, and 1904-078 (issued July 25, 2022).

with regard to fish passage. The Agreement is a product of extensive discussions among the parties over more than a year and is the second of two settlement agreements in these relicensing proceedings. In December 2020, GRH filed a Memorandum of Understanding between GRH, USFWS, New Hampshire Department of Environmental Services, NHFG, Vermont Department of Environmental Conservation, VFWD, The Nature Conservancy, and the Connecticut River Conservancy addressing operation of the Projects under the new licenses, including flow, impoundment, and operational measures to be included in the respective applications and subsequent draft state water quality certifications for the Projects under Section 401 of the Clean Water Act.

The Agreement is in the public interest[3] and is supported by substantial evidence in the record, as required by Section 313(b) of the Federal Power Act.[4] Accordingly, GRH requests that the Commission consider the Agreement in its environmental analysis of the relicensings, acknowledge the Offer of Settlement, and incorporate the terms of the Agreement—which will be reflected in the USFWS's preliminary prescriptions for the Projects—in the new licenses for the Projects.

With this letter, GRH notifies all relicensing participants that unless otherwise provided by the Commission, comments on the Offer of Settlement must be filed on or before August 22, 2022 [20 days after filing], and any reply comments must be filed on or before September 1, 2022 [30 days after filing].

As part of this filing, GRH also submits revisions to its Exhibit D statement of costs and financing for each Project included in its Amended Final License Applications ("FLA") filed on December 7, 2020, as amended on March 30, 2021.[5] Specifically, GRH has updated the estimated costs of the proposed fish passage related environmental measures under the new licenses in Table D-1 of each Exhibit D to reflect the schedule for fish passage measures included in the Agreement.

The following documents are included in this filing:

1. Transmittal letter
2. Explanatory Statement
3. Settlement Agreement
4. Appendix B to Settlement Agreement in excel format
5. Revised Exhibit D Table D-1 (Vernon) in pdf format
6. Revised Exhibit D Table D-1 (Bellows Falls) in pdf format
7. Revised Exhibit D Table D-1 (Wilder) in pdf format

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[3] *Settlements in Hydropower Licensing Proceedings Under Part I of the Federal Power Act*, 116 FERC ¶ 61,270 at PP 3-5 (2006).

[4] 16 U.S.C. § 825*l*(b).

[5] GRH Response to License Application Additional Information Requests, Project Nos. 1855-050, 1892-030, and 1904-078 (filed Mar. 30, 2021) (providing revised Exhibit D Tables D-1 for each Project).

If you have any questions regarding this filing or require additional information, please contact me at 603-498-2851.

Sincerely,

John L. Ragonese
FERC License Manager

Enclosures

Fish Passage Settlement Agreement Distribution List

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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	**Project No. 1892-030 (Wilder)**
Great River Hydro, LLC	)	**Project No. 1855-050 (Bellows Falls)**
	)	**Project No. 1904-078 (Vernon)**

SETTLEMENT AGREEMENT EXPLANATORY STATEMENT

Pursuant to Rule 602 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("FERC" or "Commission"), Great River Hydro, LLC ("GRH"), licensee of the Wilder Hydroelectric Project No. 1892 ("Wilder"), Bellows Falls Hydroelectric Project No. 1855 ("Bellows Falls"), and the Vernon Hydroelectric Project No. 1904 ("Vernon") (collectively, the "Projects"), hereby files this Offer of Settlement in the Project relicensings. The Offer of Settlement consists of: (1) the Settlement Agreement for Fish Passage ("Agreement") executed by GRH, the U.S. Department of Interior ("Interior") Fish and Wildlife Service ("USFWS"), New Hampshire Fish and Game Department ("NHFG"), and Vermont Fish and Wildlife Department ("VFWD"), attached hereto; and (2) this Explanatory Statement. As described herein, the Agreement resolves among the Parties all issues related to the appropriate prescriptions for fish passage at the Projects under the new licenses pursuant to Section 18 of the Federal Power Act ("FPA")[1] and the Parties' recommended terms and conditions related to fish passage under Sections 10(a) and 10(j) of the FPA.[2] The Agreement is fully supported by the record in these proceedings[3] and is in the public interest. Accordingly, GRH respectfully requests that the Commission review the terms of the Agreement in its environmental analysis of

[1] 16 U.S.C. § 811 (2018).

[2] *Id*. § 803(a) and (j).

[3] *Id*. § 825*l*(b).

the Project relicensings, acknowledge the Offer of Settlement, and issue new licenses for the Projects consistent with the fish passage provisions set forth in the Agreement and preliminary prescriptions to be filed by USFWS consistent with and required by the Agreement.[4]

I. BACKGROUND

The Wilder, Bellows Falls, and Vernon Projects are located on the Connecticut River in New Hampshire and Vermont, located at river miles (RM) 217.4, 173.7, and 141.9 respectively. The Vernon Project dam is located approximately 20 miles upstream of FirstLight MA Hydro LLC's Turners Falls Hydroelectric Project No. 1889. The Turners Falls impoundment serves as the lower reservoir for Northfield Mountain LLC's Northfield Mountain Pumped Storage Project No. 2485. The Turners Falls and Northfield Mountain Projects also are undergoing relicensing, and Commission staff has indicated its intent to prepare a single environmental impact statement for the five projects.

In 1979, the Commission issued 38-year licenses for the Projects in separate proceedings.[5] In 2015, the Commission extended the term of each license by one year to allow additional time to complete aquatic studies in light of potential changes to the environmental baseline resulting from the decommissioning of the Vermont Yankee Nuclear Power Plant, which withdrew cooling water from, and discharged it back into, the Vernon Project impoundment.[6] The licenses for the Projects were issued for a period ending on April 30, 2019.

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[4] Because the substantive requirements of the Agreement will be included in the preliminary prescription to be filed by USFWS and included in the new licenses, the Agreement does not require formal Commission approval. Although Commission approval of the Agreement is not necessary or required, GRH would not object to such approval and endorsement.

[5] *New England Power Co.*, 9 FERC ¶ 61,322 (1979) (Wilder); *New England Power Co.*, 8 FERC ¶ 61,122 (1979) (Bellows Falls); *New England Power Co.*, 7 FERC ¶ 61,292 (1979) (Vernon).

[6] *TransCanada Hydro Northeast Inc*., 152 FERC ¶ 62,048 (2015).

By notices dated May 9, 2019, FERC authorized GRH to continue operation of each of the Projects until such time as the Commission acts on its application for new licenses.

GRH commenced the relicensing process by filing a Notice of Intent to Relicense the Project and Pre-Application Document with FERC on October 31, 2012. After completing pre-filing consultation with federal and state resource agencies and commencing a number of environmental studies, GRH filed final applications for new licenses for the Projects on May 1, 2017.[7] At that time, aspects of key studies were not yet final, and the applications did not contain GRH's complete licensing proposal detailing environmental measures for the Projects in the new license terms. After completion of the remaining studies, GRH filed amended Final License Applications with the Commission on December 7, 2020.[8] The Amended FLAs also included a Memorandum of Understanding between GRH, USFWS, New Hampshire Department of Environmental Services, NHFG, Vermont Department of Environmental Conservation, VFWD, The Nature Conservancy, and the Connecticut River Conservancy addressing operation of the Projects under the new licenses, including flow, impoundment, and operational measures to be included in the respective applications and subsequent draft water quality certifications for the Projects under Section 401 of the Clean Water Act.

The next step in the relicensing process is FERC's issuance of a "Notice of Application Accepted for Filing, Soliciting Motions to Intervene and Protests, Ready for Environmental Analysis, and Soliciting Comments, Recommendations, Terms and Conditions, and Preliminary Fishway Prescriptions" ("REA Notice") for the Projects. The execution of the Agreement will

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[7] Great River Hydro, LLC, Application for New Licenses for the Vernon, Bellows Falls, and Wilder Hydroelectric Projects, Project Nos. 1855-050, 1892-030, and 1904-078 (filed May 1, 2017) ("Final License Application").

[8] Great River Hydro, LLC, Amended Application for New Licenses for the Vernon, Bellows Falls, and Wilder Hydroelectric Projects, Project Nos. 1855-050, 1892-030, and 1904-078 (filed Dec. 7, 2020) ("Amended FLAs").

facilitate timely filing of USFWS' Section 18 Fishway prescriptions that are consistent with state fishery agency fish passage recommendations and acceptable to GRH.

A. Wilder Project

As described in GRH's Amended FLA for the Project,[9] the principal Wilder Project works include a 59-foot-high dam consisting of a 232-foot long non-overflow section and a 526-foot-long spillway section, a 45-mile long reservoir, fish passage facilities, and a powerhouse. The powerhouse contains two adjustable-blade, propeller type Kaplan turbine-generator units (identified as Units 1 and 2) and one horizontal Francis unit (identified as Unit 3) with a combined output capacity of 35.6 MW. The maximum hydraulic capacity of each of the Kaplan units is 6,000 cubic feet per second ("cfs") and maximum hydraulic capacity of the Francis unit is 700 cfs, for a total of 12,700 cfs.

The Project has a 208 ft long concrete forebay intake that is integral to the powerhouse structure with separate water passage for each of the three turbine generating units. The water passage for Units 1 and 2 have trashracks with 5-inch clear spacing. The water passage for Unit 3 has a trashrack with 1.625-inch clear spacing. A hydraulic trashrack rake is used to pull river debris away from the unit intakes.

The Wilder Project includes an upstream fish passage facility consisting of a fish ladder designed to provide passage past the dam for migrating Atlantic salmon. Upstream migrating fish are guided to the ladder entrance by attraction water supplied from the discharge of the Unit 3 generator and collection channel weirs or, when Unit 3 is unavailable, the Unit 3 bypass supplies attraction water. Fish may enter the ladder through a tailrace entrance weir at the

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[9] *See* Amended FLA at Exhibits A and E.

northwest end of the powerhouse, or through a spillway entrance weir or turbine entrance weir incorporated into the southeast and southwest walls of the attraction water channel. Typically, the upstream fish ladder is operated annually from May 15 through July 15 and from September 15 through November 15 for Atlantic salmon; however, in recent years, fish ladder operation has been suspended because of low salmon returns and abandonment of the Atlantic salmon restoration program by the USFWS and the states.

As of February 11, 2016, the Connecticut River Atlantic Salmon Commission ("CRASC") no longer requires downstream passage operations at the Wilder Project for Atlantic salmon smolts. Downstream passage flows are provided for adult Atlantic salmon from October 15 to December 31 if 50 or more adults are documented as having passed upstream. Downstream fish passage is provided by the skimmer gate (trash/ice sluice) located between Unit 3 and the fish ladder entrance gallery bay and spillway. A flow of 512 cfs is maintained continuously through the skimmer gate for downstream passage of Atlantic salmon when required.

B. Bellows Falls Project

As described in GRH's Amended FLA for the Project,[10] the principal Bellows Falls Project works include a 643-feet long dam with a maximum height of 30 feet with a gated spillway, a 26-mile long reservoir, a power canal, 900-feet long tailrace, powerhouse, and fish passage facilities. The powerhouse contains three vertical Francis turbine generating units (identified as Units 1, 2, and 3) with a combined output capacity of 40.8 MW. The maximum hydraulic capacity of each of the Francis units is 3,670 cfs for a total of 11,010 cfs.

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[10] *See* Amended FLA at Exhibits A and E.

The power canal, which is approximately 1,700 ft long, connects the impoundment to the powerhouse. The canal creates a 3,500 ft long natural bypassed reach between the dam and the outlet of the powerhouse tailrace.

The Project has a concrete gravity intake that is integral to the powerhouse structure with two water passages for each of the three turbine generating units. The water passages for the three turbine generating units have trashracks with 4-inch clear spacing and two head gates that can be used in any one of the three units. A hydraulic trashrack rake is used to pull river debris away from the unit intakes.

The Bellows Falls Project includes an upstream fish passage facility consisting of a conventional vertical-slotted weir fish ladder at the powerhouse and an upstream concrete barrier dam in the bypassed reach. The barrier dam was installed as a component of the Project's upstream fish ladder installation. It prevents upstream migrating fish from entering the bypassed reach and encourages the preferred route via the fish ladder at the base of the station. Under high water conditions, it inhibits upstream movement into the bypassed reach via spillway discharge and potentially later becoming trapped in isolated pools after spill ends. The fish ladder was designed to provide passage for migrating Atlantic salmon past the dam by way of the forebay and canal. Upstream migrating fish are attracted to the tailrace channel by flow from the turbines. Once in the tailrace area, fish are attracted to the main entrance weir at the east end of the powerhouse. Attraction water is provided by the upper three weirs containing slide gates, which can be opened and closed to maintain the required fish ladder flow. Typically, the upstream fish ladder is operated annually from May 15 through July 15 and from September 15 through November 15 for Atlantic salmon; however, in recent years, salmon-specific fish ladder operation has been suspended because of low returns and

abandonment of the Atlantic salmon restoration program by the USFWS and the states. GRH has operated the ladder for upstream migrating sea lamprey at the request of the USFWS, VFWD and NHFG and the ladder may serve as a possible upstream passage route for American eel.

As of February 11, 2016, the CRASC no longer requires downstream passage operations at the Bellows Falls Project for Atlantic salmon smolts. Downstream passage flows are provided for adult Atlantic salmon from October 15 to December 31 if 50 or more adults are documented as having passed upstream. Downstream fish passage is provided by the forebay sluiceway/skimmer gate with fish being guided to the gate by a solid, partial depth diversion boom across the canal.

C. Vernon Project

As described in GRH's Amended FLA for the Project,[11] the principal Vernon Project works include a 956-feet long dam with a maximum height of 58 feet, a 27-mile long reservoir, powerhouse, and fish passage facilities. The powerhouse contains a sluice gate block section that is 356 ft long and a concrete overflow spillway section, divided into 12 bays, that is about 600 ft long. The powerhouse contains four single-runner vertical Francis turbines rated at 2,000 kW each (Units 1-4), four vertical axial flow Kaplan turbines rated at 4,000 kW each (Units 5-8), and two single runner vertical Francis turbines rated at 4,200 kW each (Units 9-10), with a combined output capacity of 32.4 MW. The maximum hydraulic capacity of the Project is 17,130 cfs.

[11] *See* Amended FLA at Exhibits A and E.

The Project has a concrete gravity intake that is integral to the powerhouse structure with two water passages for Units 9 and 10, and a single water passage for Units 1-8. The water passages for Units 9 and 10 have trashracks with 3.625-inch clear spacing and head gates consisting of two concrete gates with an electrically driven fixed hoist. Units 1-8 have trashrack clear spacing of 1.75 inches. Units 1-4 head gates consist of a single steel-hinge gate, one for each unit. Units 5-8 have one steel slide gate for each unit equipped with an electrically driven fixed hoist. A hydraulic trashrack rake is used to pull river debris away from the unit intakes.

The Vernon Project includes an upstream fish passage facility consisting of a reinforced concrete structure (Ice Harbor and vertical slot design) that is 984 ft long and has accessory electrical, mechanical, and pneumatic equipment that was originally designed to provide passage for migrating Atlantic salmon and American shad past the dam. Upstream migrating fish enter the tailrace area where they are attracted to entrance weirs at the west end of the powerhouse. Fish are attracted into the fish ladder and "climb" by swimming through a series of 51 pools created by a sequence of overflow weirs in the lower section and by a series of vertical slot pools in the upper section. After passing the first 26 overflow weir pools, fish enter the counting/trapping area and a regulating pool. As of 2020 upstream passage is provided from April 7 through July 15 (actual start date depends on passage counts at Turners Falls) for Atlantic salmon and American shad and from September 15 through November 15 for Atlantic salmon (as requested). Because of low salmon returns and abandonment of the Atlantic salmon restoration program by the USFWS and the states, the Vernon ladder is primarily used to pass American shad, sea lamprey and American eel.

Downstream fish passage facilities consist of a "fish pipe" that discharges about 350 cfs through the powerhouse at a point located between Units 4 and 5 and a louver array that extends from the forebay to the fish pipe entrance. The louver intercepts and directs downstream-migrating fish that enter the forebay from mid-river and from the east shoreline into the fish pipe. A second smaller "fish bypass" (or "fish tube") is located near Unit 10. It discharges about 40 cfs and functions as a secondary passage route for fish that are not intercepted by the louver array and are able to enter the western end of the forebay. Downstream passage is provided for adult American shad from April 7 (or the same date as upstream passage begins) through July 31; juvenile American shad from August 1 through November 15; adult American eels from September 1 through November 15; and adult Atlantic salmon from October 10 through December 31, if 50 or more adults are documented passing upstream. As of February 11, 2016, the CRASC no longer requires downstream passage operations at the Vernon Project for Atlantic salmon smolts.

D. Fish Resources in the Project Vicinity

In the Connecticut River in the vicinity of the Projects, the fish assemblage includes diadromous species such as American eel, American shad, sea lamprey, and Atlantic salmon, which require upstream and downstream passage through portions of the Project areas to use their native ranges to complete their life cycle. Several studies were conducted at the Projects to assess both upstream passage effectiveness and downstream passage effectiveness, route of passage, and survival for various diadromous species. These include relicensing studies 17 (Upstream Passage of Riverine Fish Species Assessment); 18 (American Eel Upstream Passage Assessment); 19 (American Eel Downstream Passage Assessment); 20 (American Eel Downstream Migration Timing Assessment); and 22 (Downstream Migration of Juvenile

American Shad – Vernon).

II. OVERVIEW OF AGREEMENT

The Agreement details the terms of the appropriate prescriptions for fish passage pursuant to Section 18 of the FPA and the Parties' recommended terms and conditions related to fish passage pursuant to Section 10(a) and 10(j) of the FPA to be incorporated into the new licenses for the Projects. The Agreement obligates USFWS to file preliminary prescriptions consistent with the terms of the Agreement within 60 days after the deadline established by FERC in its REA Notice.[12] The Agreement provides for upstream and downstream fish passage facilities at each Project as described below.

Vernon

With respect to downstream passage at the Vernon Project (Section 3.4.1), the Agreement provides for downstream fish passage measures based on the outcome of a hydraulic study or suitable alternative to inform passage/design options to be conducted by GRH. The Agreement also includes several components for upstream passage of Targeted Migrants: potential modifications to the existing Vernon fish ladder for improved effectiveness for passage of American eel and sea lamprey (Section 3.4.2.1); interim upstream eel passage facilities until permanent facilities are operational (Section 3.4.2.2); new permanent upstream eel passage facilities to be operated annually between July 16 through November 15 (Section 3.4.2.3); and potential modifications to the existing Vernon fish ladder and collection gallery below the powerhouse for improved effectiveness for American shad passage (Section 3.4.3).

[12] *See* 18 C.F.R. § 5.22.

Bellows Falls

With respect to downstream passage at the Bellows Falls Project (Section 3.5.1), the Agreement provides for downstream American eel passage measures based on the outcome of a hydraulic study or suitable alternative to inform passage/design options to be conducted by GRH. The Agreement also includes several components for upstream passage of Targeted Migrants: monitoring and potential modifications to the existing Bellows Falls fish ladder for improved effectiveness for passage of American eel and sea lamprey (Section 3.5.2.1); interim upstream eel passage facilities until dedicated upstream eel passage facilities are operational (Section 3.5.2.2); new permanent upstream eel passage facilities to be operated annually between July 16 through November 15 (Section 3.5.2.3); and potential new permanent upstream eel passage facilities in the Bellows Falls Bypass Reach based on the results of an eel survey to be conducted by GRH (Section 3.5.2.4).

Wilder

With respect to downstream passage at the Wilder Project (Section 3.6.1), the Agreement provides for downstream American eel passage measures based on the outcome of a hydraulic study or suitable alternative to inform passage/design options to be conducted by GRH. The Agreement also includes several components for upstream passage of American eel and sea lamprey: monitoring and potential modifications to the existing Wilder fish ladder for improved effectiveness for passage of American eel and sea lamprey (Section 3.6.2.1), and new permanent upstream eel passage facilities based on the results of an upstream eel survey in the vicinity of the powerhouse and spillway to be conducted by GRH (Section 3.6.2.3).

The Agreement provides that GRH will develop in consultation with the agencies and submit for FERC approval a Fish Passage Facilities Operations and Maintenance Plan detailing

how and when the fishways will be operated and maintained (Section 3.7). For each new fish passage facility, GRH will conduct effectiveness testing during the first year of operation followed by two years of representative, quantitative effectiveness studies (Section 3.8).

In addition to substantive requirements for upstream and downstream passage of Targeted Migrants at the Projects, the Agreement includes several other components. First, the Agreement reserves Interior's authority under Section 18 of the FPA to prescribe additional upstream or downstream fishways in the future (Section 2.1). Second, the Agreement specifically outlines the agreed upon pathway for addressing potential future removal of the agency approved barrier dam previously tied to the fish ladder and salmon restoration program at the Bellows Falls Project. Agencies may desire removal of the dam in the future but have agreed to not request or rely upon GRH to remove it, instead agreeing to third-party efforts to fund and remove it. GRH's obligation is limited by the Agreement, only to provide logistical and regulatory approval support for third-party efforts to remove the barrier dam (Section 2.5).

IV. CONCLUSION

The Agreement successfully identifies and stipulates mutually agreeable, appropriate prescriptions and recommended terms and conditions for fish passage at the Projects under the new licenses pursuant to Sections 10(a), 10(j), and 18 of the FPA. The resulting provisions of the Agreement are supported by the record and in the public interest. GRH therefore respectfully requests that the Commission review the terms of the Agreement in its environmental analysis for the relicensing of the Projects, acknowledge the Offer of Settlement, and issue new licenses for the Projects consistent with the provisions of the Agreement—which will be reflected in the preliminary prescriptions for the Projects—as set forth herein.

Respectfully submitted,

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Counsel for Great River Hydro, LLC

CERTIFICATE OF SERVICE

Pursuant to Rule 2010 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission, I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in Project Nos. 1855, 1892, and 1904.

Dated at Portsmouth, NH, this 2nd day of August, 2022.

John L. Ragonese
FERC License Manager
Great River Hydro, LLC
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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	**Project No. 1892-___**
Great River Hydro, LLC	)	**Project No. 1855-___**
	)	**Project No. 1904-___**

SETTLEMENT AGREEMENT FOR FISH PASSAGE

GREAT RIVER HYDRO, LLC

SETTLEMENT AGREEMENT FOR FISH PASSAGE
VERNON, BELLOWS FALLS, AND WILDER HYDROELECTRIC PROJECTS

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GREAT RIVER HYDRO, LLC
SETTLEMENT AGREEMENT FOR FISH PASSAGE

VERNON, BELLOWS FALLS, AND WILDER HYDROELECTRIC PROJECTS

INTRODUCTION

THIS SETTLEMENT AGREEMENT (Agreement), effective as of the date of the last signature affixed hereto (the Effective Date), is made and entered into by and between Great River Hydro, LLC, a Delaware limited liability company (Licensee); the United States Department of the Interior (DOI) Fish & Wildlife Service (USFWS); the New Hampshire Fish and Game Department (NHFG); and the Vermont Fish and Wildlife Department (VFWD) (each, a Party and collectively, the Parties).

This Agreement relates to the Vernon Project (FERC Project No. 1904), Bellows Falls Project (FERC Project No. 1855), and Wilder Project (FERC Project No. 1892) (collectively, the Projects), which are the subject of ongoing relicensing proceedings before the Federal Energy Regulatory Commission (FERC or Commission) for new licenses to operate the Projects (New Licenses). Specifically, this Agreement resolves all issues related to upstream and downstream fish passage for Targeted Migrants at the Projects under the New Licenses.

1 GENERAL TERMS

1.1 Term of the Agreement

This Agreement shall remain in effect, in accordance with its terms, throughout the term of the New Licenses, including any annual licenses thereafter.

1.2 Purpose and Goals

The purpose of this Agreement is to resolve among the Parties the appropriate prescriptions for fish passage pursuant to section 18 of the Federal Power Act (FPA) (16 U.S.C. § 811) and the Parties' recommended terms and conditions related to fish passage for Targeted Migrants under sections 10(a) and 10(j) of the FPA (16 U.S.C. §§ 803(e) and (j)), to be incorporated into the New Licenses for the Projects.[1]

[1] The Parties to this Agreement, along with the New Hampshire Department of Environmental Services and the Vermont Department of Environmental Conservation, also have executed a Memorandum of Understanding (MOU), dated as of December 1, 2020, governing proposed operational measures for the Projects under the New Licenses. Nothing in this Agreement is intended to modify the understanding of the Parties under the MOU.

1.3 Parties to Support Terms

The Parties agree to support the issuance of New Licenses by FERC and Water Quality Certifications pursuant to Section 401 of the Clean Water Act (CWA) (33 U.S.C. § 1341) by the New Hampshire Department of Environmental Services (NHDES) and the Vermont Department of Environmental Conservation (VDEC) that are consistent with the terms of this Agreement. For those matters addressed herein, specifically the passage of American shad, American eel, and sea lamprey, the Parties agree not to propose or otherwise communicate to FERC or any other federal or state resource agency with jurisdiction directly related to the current relicensing processes any comments, certification, or license conditions that would be materially additive to, or materially inconsistent with, the terms of this Agreement. However, this Agreement shall not be interpreted to restrict any Party's participation or comments regarding other matters that are not the subject matter of this Agreement, future proceedings regarding the Projects, or compliance with the terms and conditions of the Project Licenses or this Agreement.

1.4 Terms and Definitions

The Parties agree that the following terms shall be defined as follows:

- Agencies: Collective term used to refer to the United States Department of the Interior (DOI) Fish & Wildlife Service (USFWS); the New Hampshire Fish and Game Department (NHFG); and the Vermont Fish and Wildlife Department (VFWD).

- Date of License Issuance (DOLI): The date of FERC issuance of the New License. Implementation schedules outlined in this Agreement are stated by Month/Day within a specified calendar year following the DOLI.

- License Year: Full calendar years counted after DOLI. License Year 1 starts January 1 following DOLI.

- Licensee: Great River Hydro, LLC, or its successor or assigns. Great River Hydro, LLC is a Delaware limited liability company.

- New License: The new license issued by the Commission for a specified Project.

- Projects: The Vernon Hydroelectric Project (FERC Project No. 1904), the Bellows Falls Hydroelectric Project (FERC Project No. 1855), and the Wilder Hydroelectric Project (FERC Project No. 1892).

- Targeted Migrants: American shad, *Alosa sapidissima* (Vernon only);[2] sea lamprey, *Petromyzon marinus*; and American eel, *Anguilla rostrata*.

1.5 Successors and Assigns

This Agreement shall be binding upon and shall inure to the benefit of the Parties hereto and their respective successors and assigns.

1.6 Agency Appropriations

Nothing in this Agreement shall be construed as obligating any federal, state, or local government to expend in any fiscal year any sum in excess of appropriations made by Congress, state legislatures, or local legislatures, or administratively allocated for the purpose of this Agreement for the fiscal year; or as involving the DOI, USFWS, NHFG, or VFWD in any contract or obligation for the future expenditure of money in excess of such appropriations or allocations.

1.7 Establishes No Precedents

The Parties have entered into the negotiations and discussions leading to this Agreement with the explicit understanding that the discussions leading up to and resulting in the Agreement are privileged, shall not prejudice the position of any Party or entity that took part in such discussions and negotiations, and are not to be otherwise used in any manner in connection with these or any other proceedings. The Parties understand and agree that this Agreement establishes no principles or precedents with regard to any issue addressed herein or with regard to any Party's participation in future relicensing proceedings and that none of the Parties to this Agreement will cite this Agreement or its approval by FERC, the USFWS, NHFG, or VFWD as establishing any such principles or precedents. This Section 1.7 shall survive any termination of this Agreement. Any Party withdrawing from this Agreement pursuant to Section 1.14 will continue to be bound by this Section 1.7.

1.8 Filing of Settlement Agreement

The Parties agree that within thirty 30 days of the Effective Date, the Licensee shall file this Agreement, together with an Explanatory Statement, with the Commission pursuant to 18 C.F.R. § 385.602 in the dockets for the Projects' relicensing proceedings.

[2] While blueback herring (BBH) are not present in the vicinity of the Projects at this time, the Agencies are managing for the restoration of this species in the Connecticut River Basin and specific passage and protection measures for BBH may be needed in the future.

1.9 Filing of Preliminary Prescriptions for Projects

The USFWS shall file preliminary prescriptions in the relicensing proceedings for the Projects that are fully consistent with the terms of this Agreement within 60 days after the deadline established by FERC in its "Ready for Environmental Analysis and Soliciting Preliminary Prescriptions" notice under 18 C.F.R. § 5.22.

1.10 Trial-Type Hearing Requests and Alternatives

The Parties agree that if the USFWS files preliminary prescriptions for the relicensing proceedings with FERC that are fully consistent with this Agreement, neither the Licensee, nor any Party to this Agreement will file a request for trial-type hearing of issues of disputed fact pursuant to 16 U.S.C. § 811 or alternative prescriptions pursuant to 16 U.S.C. § 823d(b) with respect to those preliminary prescriptions.

The Licensee expressly reserves the right to challenge a new or amended fish passage prescription made by USFWS under any reservation of authority included in its final prescriptions for the Projects.

1.11 Filing of Final Prescriptions for Projects

If no party to the FERC relicensing proceedings files a request for trial-type hearing on disputed issues of material fact pursuant to 16 U.S.C. § 811 or alternative prescriptions pursuant to 16 U.S.C. § 823d(b) with respect to USFWS's preliminary prescriptions, and no fact is otherwise submitted to the record before the USFWS or the Commission that would make the preliminary prescription inconsistent with the administrative record, USFWS will file final prescriptions with FERC that are fully consistent with the terms of this Agreement within 60 days after the deadline for filing comments on FERC's draft NEPA document under 18 C.F.R. § 5.25(d), consistent with 43 C.F.R. § 45.73(a). If a party to the relicensing proceedings files a request for trial-type hearing or alternative prescription and USFWS issues a final prescription that is inconsistent with the terms of this Agreement, the Licensee may withdraw from this Agreement pursuant to Section 1.14 and reserves all right to challenge the modified prescription before FERC or the U.S. Court of Appeals.

1.12 Support For Water Quality Certifications for Projects

The Parties agree that they will support the NHDES and VDEC's issuance of Section 401 Water Quality Certifications to the extent that they include fish passage provisions not materially inconsistent with the provisions of this Agreement. The Licensee reserves its right to challenge the Water Quality Certifications with respect to conditions incorporated therein that are materially additive to or materially inconsistent with this Agreement or unrelated to fish passage.

1.13 Filing and Support of Settlement Provisions as Recommended Terms and Conditions

The fish passage provisions included in this Agreement constitute the Parties' complete and final recommended terms and conditions for fish passage to be included in the New Licenses through the relicensing proceedings. The Parties reserve their right to take any position before FERC with regard to terms and conditions unrelated to fish passage that may be proposed for inclusion in the New Licenses.

1.14 Withdrawal Rights

No Party may withdraw from this Agreement without the prior written consent of the other Parties, which consent may be withheld in another Party's sole discretion; provided, however, a Party may unilaterally withdraw from this Agreement if: (i) USFWS issues a final prescription that is materially additive to, or materially inconsistent with the terms of this Agreement; (ii) NHDES or VDEC issues a Water Quality Certification that contains fish passage conditions that are materially additive to, or materially inconsistent with, the terms of this Agreement and the Water Quality Certification is not thereafter satisfactorily modified after administrative and judicial appeals are pursued by the Licensee; (iii) any Party recommends terms and conditions for the New Licenses under sections 10(a) and 10(j) of the FPA that are materially additive to, or materially inconsistent with, the terms of this Agreement with regard to the matters addressed herein; or (iv) FERC issues New Licenses that contain fish passage conditions which are materially additive to, or materially inconsistent with, the terms of this Agreement, and the New Licenses are not thereafter satisfactorily modified as a result of the filing of a request for rehearing as provided in Section 1.15.

A Party withdrawing from this Agreement shall provide twenty (20) days' prior written notice, which notice shall include a written explanation of the reasons for withdrawing from this Agreement. In the event that a Party withdraws from this Agreement pursuant to this Section 1.14, this Agreement shall thereafter be null and void, and any Party may take the position that this Agreement is not available to support FERC's public interest determination.

1.15 Rehearing and Judicial Review of FERC License

The Parties agree not to file a request with FERC for rehearing of the New Licenses concerning matters addressed in this Agreement unless: (i) the New Licenses contain fish passage conditions that are materially inconsistent with the terms of this Agreement, including inconsistent timelines for studies and the operation of fish passage facilities; or (ii) the New Licenses contain fish passage conditions that are materially additive to the terms of the Agreement. In the event a Party files a request for rehearing in accordance with the terms of this provision, it will provide the other Parties written notice of its intention to file a request for rehearing at the earliest practicable time. Any Party, following the issuance of a FERC order on rehearing, may elect to

file a petition for judicial review with respect to the matters covered by this provision, and the other Parties will not oppose such petition.

1.16 Counterparts

This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

1.17 Notice

If practicable, all required notices will be provided by e-mail or comparable electronic messaging agreed to by all Parties. Notice will also be sent to all Parties by first-class mail or comparable method of distribution, and as applicable will be filed with FERC. For the purposes of this Agreement, and unless otherwise specified, notice (including notice via e-mail) will be effective upon receipt, but if provided only by U.S. Mail, seven (7) days after the date on which it is mailed.

For the purpose of notice, the list of authorized representatives of the Parties is attached as Appendix C. The Parties will provide notice of any change in the authorized representatives designated in Appendix C, and the Licensee will maintain the current distribution list of such representatives. The Parties acknowledge their responsibility to keep the other Parties informed of their current address, telephone, and e-mail information. Notice obligations under this Section 1.17 are in addition to any notice provisions required by applicable law.

2 GENERAL AGREEMENTS OF THE PARTIES

2.1 Reservation of Authority to Prescribe Fish Passage Measures

The Parties agree that in order to allow for the timely implementation of fish passage, including effectiveness measures, the DOI will propose to reserve its authority to prescribe fishways by requesting that FERC include the following condition in any new license(s) it may issue for the Projects:

"Pursuant to Section 18 of the Federal Power Act, the Secretary of the Interior herein exercises their authority under said Act by reserving that authority to prescribe fishways during the term of the License and by prescribing the fishways described in the Department of Interior's Prescription for Fishways for the Projects."

2.2 Reopeners

The Parties agree that, except as provided herein, this Agreement is not intended to limit or restrict the ability of any Party to petition FERC pursuant to any reopener condition contained in the New Licenses, including but not limited to any exercise by the Secretary of the DOI relating to her/his fishway prescription authority under section 18 of the FPA that is reserved in the New License.

No such petition may be filed which would, if granted, be materially inconsistent with this Agreement, or cause other portions of the Agreement to be reopened, unless the Party who files the petition can demonstrate with substantial evidence that a change in circumstances has occurred which provides good cause for the filing of the petition. Unless in the case of the exercise of section 18 authority, which shall be processed under procedures established by the applicable statutes and regulations, no such petition may be filed without the filer providing at least sixty (60) days written notice of its intention to do so to all the other Parties. Within thirty (30) days following the giving of notice, the Parties shall in good faith consult with the other Parties regarding the need for and the purpose of the petition. Consultation requires at least one meeting of the Parties, which may be completed electronically (e.g., virtually, via telephone, etc.) or in-person in order to accommodate the schedule/availability of the Parties. In the event such a petition is filed, the filing Party shall include with its filing documentation of its consultation with the other Parties and a summary of recommendations and responses to those recommendations. The filing Party shall also serve a copy of its petition to all the other Parties via the Commission's electronic service system. The Parties are free to take any position before the Commission on such a petition.

2.3 License Amendments and Modifications

The Parties agree that, except as provided herein, nothing in this Agreement is intended to limit or restrict the ability of the Licensee to seek amendments of the New Licenses. The Licensee may only seek a license amendment or other modification to the New Licenses that would be materially inconsistent with the provisions of this Agreement if it has substantial evidence that a change in circumstances has occurred that provides good cause for the filing of the amendment or modification and has provided the Parties at least 60 days' written notice of its intention to do so and, promptly following the notice, has consulted with the Parties regarding the need for and the purpose of the amendment or modification. For other license amendments or modifications that only relate to, but would not alter the license conditions set forth in this Agreement, the Licensee shall provide all Parties at least 30 days' notice of the proposed amendment or modification and, upon any Party's request, shall consult with the Parties regarding the amendment or modification and defer the filing for another 30 days. In any application for an amendment or modification that relates to any term or condition of this Agreement, the Licensee shall document its consultation, summarize the positions and recommendations of the Parties,

and provide its response to those positions and recommendations. The Licensee shall serve a copy of any application for amendment or modification to the Parties at the time of the filing. The Licensee will not oppose an intervention request filed in a timely manner by any Party in an amendment or modification proceeding involving the New Licenses.

2.4 Agreement Amendments

No amendment to this Agreement shall be effective unless reduced to writing and signed by the Parties.

2.5 Support for Removal of Salmon Dam

The Licensee shall support and facilitate third party efforts to remove the Salmon Dam in the Bellows Falls bypass reach but in no event shall be responsible for financing removal efforts.

3 FISH PASSAGE MEASURES THE PARTIES AGREE SHOULD BE INCORPORATED INTO THE TERMS OF THE NEW LICENSES

3.1 General fish passage obligations of Licensee

The Licensee shall operate the Projects to provide safe, timely, and effective passage for Targeted Migrants, pursuant to the measures and implementation schedules detailed in subsections 3.1.1 through and including 3.8 below, and as summarized in Tables 3.4.1-1 through 3.6.2-1 (Appendix A of this Agreement) and as depicted in the Project Specific Fish Passage Implementation Chart (Appendix B of this Agreement).[3] Upstream and downstream passage systems may include physical facilities, spillage plans, reasonable operational modifications, or new (USFWS-approved) technologies as they become available. The schedules provided under this section are stated in terms of License Years based on the DOLI. They do not preclude the Licensee from proactively addressing any element on an expedited timeframe.

For all identified fish passage measures, the first year of operation shall be a shakedown year[4] followed by two years of representative quantitative effectiveness studies. Additional study years may be required in order to achieve two full representative passage seasons. A representative passage season is one where there are no anomalous[5] environmental or operational conditions, or incomplete data (e.g., due to equipment malfunction). Additional study years also may be warranted in response to any fish passage/project modifications made. A single

[3] In case of inadvertent conflict between Tables in Appendix A or the Gannt Chart in Appendix B and the narrative under Section 3, the narrative under Section 3 shall control.
[4] Shakedown refers to assessing whether all components of the fish passage facility are operating as designed.
[5] Anomalous conditions are those outside the bounds of the 25th to 75th percentile conditions for a given parameter.

representative study year may suffice should results clearly suggest measures are effective, as agreed to in writing by the Agencies.

The Parties may, by mutual written agreement, modify any time limit to implement the identified fish passage measures, if there is good and substantial reason for the modification. The Parties acknowledge that modifications to time limits under the New Licenses may require FERC approval. Delay in completing one element shall not be justification for a delay in subsequent elements.

The Licensee will develop Fish Passage Management Plans (FPMP) for each of the Projects, in consultation with the Agencies, and will submit each to the Commission for approval within approximately 120 days of the DOLI. The FPMPs will specify the implementation schedules as calendar dates and will identify anticipated subsequent, supplemental fish passage filings to the FERC that may be required dependent upon the scope of the element to be implemented. The FPMP will identify all anticipated consultation with the Agencies in the development of pre-design analyses, design, and effectiveness evaluations, as appropriate. The proposed implementation schedule and deadlines for actions under this Agreement will be discussed further with the Agencies, with timelines/schedules being advanced, where feasible, in light of the actual DOLI, particularly if the DOLI occurs between January 1 and March 31.

Table 3-1. Required fish passage operational periods.

Project	**Direction**	**Dates**	**Beginning**
Vernon	Upstream	April 1[a] – July 15	Upon New License issuance
		April 1[a] – November 15	Upon completion and implementation of enhancements (including interim eel passage)
	Downstream	April 7[b] – December 1	Upon New License issuance
Bellows Falls	Upstream	April 1[a] – July 15	Upon New License issuance
		April 1[a] – November 15	Upon completion and implementation of enhancements (including interim eel passage)
	Downstream	August 1 – December 1	Upon New License issuance
Wilder	Upstream	April 1[a] – July 15	Upon New License issuance
	Downstream	August 1 – December 1	Upon completion and implementation of enhancements

a. The April 1 start date is to accommodate early spring spawners such as walleye and white suckers only. The fish ladders at Vernon, Bellows Falls, and Wilder shall commence operation as close as possible to April 1 annually, but no later than April 15 as long as ice conditions and/or debris conditions allow for fish ladder inspections and the ladders are fully operational.
b. Downstream passage at Vernon is to be operational for Spring American Shad migration and shall commence operation as close as possible to April 7 annually, but no later than April 15 concurrent with the start of upstream American Shad migration season through the Vernon fishway.

3.2. Study Plan Review

For all study plans under this Agreement, the Licensee shall consult with and reach agreement with the Agencies, addressing their comments and concerns, on study plan design on a schedule that allows sufficient time to procure equipment, materials, etc. necessary to conduct the study during the specified study period. The Licensee shall provide the Agencies with draft study, survey, and assessment plans associated with provisions under Section 3 (e.g., hydraulic study, Passive Integrated Transponder (PIT) studies, eel surveys, etc.) and provide a minimum of 30 days for review and comment.

3.3. Fish Passage Design Review

For all provisions under subsections 3.4 through 3.6, design of passage facilities shall occur in consultation with, and require approval by, the Agencies and shall meet USFWS Design Criteria (USFWS 2019, or as modified) to the extent practicable from an engineering perspective. The Licensee shall provide plan sets for review and comment to the Agencies at the 30%, 60%, and 90% level.

3.4 Fish Passage and Protection Measures at the Vernon Project

The Licensee shall design, construct, operate, maintain, and evaluate the effectiveness of fish passage and protection facilities for Targeted Migrants at the Vernon Project.

3.4.1 Downstream Passage and Protection

The Licensee shall undertake a hydraulic study or a suitable alternative, designed to inform downstream passage/design options. The study plan shall be developed in consultation with the Agencies and shall be initiated no later than January 1 of License Year 2; the study initiated, completed and reported on no later than December 31 of License Year 3. The Licensee will use results of the study to develop design alternatives to provide safe, timely, and effective passage for Targeted Migrants. The Licensee shall initiate design consultation with the Agencies no later than July 1 of License Year 3, and final design plans (sufficient for construction bid purposes) shall be completed no later than December 31 of License Year 4. Construction shall be initiated during License Year 5 and completed no later than December 31 of License Year 6. Approved structural facilities and/or operational measures shall be fully operational no later than April 7 of License Year 7.

Specific passage/protection and effectiveness study requirements and their associated implementation schedules and operational periods are provided in Table 3.4.1-1.

3.4.2 Upstream American Eel and Sea Lamprey Passage

3.4.2.1 Within Ladder Measures for Eel and Lamprey Passage for the period April 7 through July 15

The Licensee shall undertake a hydraulic study within the existing Vernon fish ladder together with an engineering assessment of the ladder to inform potential modifications for improved effectiveness for passage of American eel and sea lamprey (this is the same hydraulic study and engineering assessment discussed under section 3.2.3). The objectives of the hydraulic study are to determine the hydraulic conditions of the fish ladder and identify hydraulic related barriers to effective eel and sea lamprey ladder passage. The engineering assessment will evaluate the condition of current as-built fish ladder components. The Licensee shall initiate consultation with the Agencies on the hydraulic study design and scope of engineering assessment no later than November 15 of License Year 2. The Licensee shall initiate the study no later than July 16 of License Year 3 and complete and report on the study no later than December 31 of License Year 4.

During the License Year 5 upstream anadromous passage season, the Licensee shall undertake studies, using PIT technology to assess passage performance of American eel and sea lamprey within the Vernon fish ladder. Consultation with the Agencies on the PIT study design will be initiated no later than July 1 of License Year 3; and the study will be initiated no later than May 1 and completed and reported on no later than December 31 of License Year 4. Should the Agencies deem results of the study insufficient to determine where passage impediments occur within the Vernon ladder, the study design will be modified through consultation with the Agencies (e.g., additional PIT antennas deployed or moved to different locations) and an additional year of study will take place in License Year 5.

The Licensee will use results of the hydraulic and PIT studies to develop design alternatives to improve eel and lamprey passage through the ladder during the period April 7 through July 15. The Licensee shall initiate design consultation with the Agencies in Year 4 and final design plans (sufficient for construction bid purposes) shall be completed no later than July 15 of License Year 5. Approved eel/lamprey ladder modifications shall be initiated starting on July 16 of License Year 5 and completed no later than April 6 of License Year 6 and be fully operational no later than April 7 of License Year 6. These dates associated with initiating design consultation with the Agencies, finalizing design plans, final design approvals by the Agencies, and date of commencing operation shall be extended 1 year if an additional year of PIT study is necessary.

3.4.2.2 Within Ladder Interim Measures for Eels for the period July 16 through November 15

The Licensee shall design, construct, operate, and maintain interim (possibly temporary) measures approved by the Agencies to pass American eels for the July 16 to November 15 period. The interim upstream eel passage facility shall consist of an eel ramp-trap, or similar design, as specified in USFWS Design Criteria (USFWS 2019). The eel ramp-trap will be located below the station, potentially within or near the entrance to the existing fish ladder at a location to be determined in consultation with the Agencies. The Licensee shall initiate design consultation with the Agencies for interim upstream eel passage facilities no later than January 1 of License Year 2, and final design plans shall be completed no later than December 31 of License Year 2. Construction of approved interim upstream eel passage facilities shall be completed by July 15 of License Year 3 and shall be fully operational no later than July 16 of License Year 3. Interim eel passage facilities shall be operated annually until permanent upstream eel passage facilities are operational. The first two years of interim passage operation will include monitoring and reporting eel use and upstream passage. Based on the results of the monitoring, if the interim measure does not appear to pass eels in anticipated and consistent numbers, the Licensee will consult and reach agreement with the Agencies on the need for further monitoring and/or adjustment to the interim measure (e.g., location or design).

3.4.2.3 Permanent Upstream Eel Passage Measures for the period July 16 through November 15

Based on the PIT and hydraulic studies required pursuant to Section 3.4.2.1, ladder monitoring results, and upstream interim eel passage data, the Licensee shall consult with the Agencies no later than July 1 of License Year 9 to determine whether existing information is sufficient to identify permanent upstream eel passage measures for the period July 16 through November 15 (i.e., via the interim means, alternate permanent ramps or via the fish ladder), or if additional studies are needed.

Should the Agencies determine additional studies are not warranted, the Licensee shall select, subject to approval by the Agencies, the preferred method of upstream permanent passage no later than January 31 of License Year 10. The Licensee shall initiate design consultation for permanent upstream eel passage facilities with the Agencies no later than February 1 of License Year 10, and the Licensee shall complete final design plans no later than December 31 of License Year 10. Construction of permanent upstream eel passage facilities approved by the Agencies shall be completed such that they are fully operational no later than July 16 of License Year 11. Agencies acknowledge the 6.5 month construction window may be negatively impacted or delayed by weather and river conditions or ability to procure materials.

Should the Agencies determine additional studies are warranted, the Licensee shall undertake them in License Year 10. Consultation with the Agencies on the additional study design will be initiated promptly following notification of additional study requirement and no later than February 15 of License Year 10, with the study initiated, completed, and reported on no later than December 31 of License Year 10. Based on study results, the Licensee shall decide on an Agency-approved preferred method of upstream permanent passage no later than January 31 of License Year 11. The Licensee shall initiate design consultation with the Agencies for permanent upstream eel passage facilities no later than February 1 of License Year 11, and complete final design plans no later than December 31 of License Year 11. Construction of permanent upstream eel passage facilities approved by the Agencies shall be completed such that they are fully operational no later than July 16 of License Year 12. Parties acknowledge the 6.5 month window to construct may be negatively impacted by weather and river conditions or ability to procure materials.

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.4.2-1.

3.4.3 Upstream Anadromous Fish Passage

No later than July 16 of License Year 7, the Licensee shall assess if the physical configuration of the collection gallery below the powerhouse could trap American shad. If trapping conditions exist, the Licensee shall identify a solution in consultation with, and requiring approval by, the Agencies. The approved solution shall be fully implemented no later than April 7 of License Year 9.

The Licensee shall design and implement improvements to the public viewing window and counting room. The Licensee shall initiate design consultation with the Agencies during License Year 4, complete final designs by December 31 of License Year 4, initiate the improvements in License Year 5, and complete the improvements no later than April 1 of License Year 6.

The Licensee shall undertake a hydraulic study and engineering assessment of the existing Vernon fish ladder to inform potential modifications for improved effectiveness for American shad passage (this is the same hydraulic study discussed under section 3.4.2). The objectives of the hydraulic study are to determine the hydraulic conditions of the fish ladder and identify hydraulic related barriers to effective fish ladder passage. The engineering assessment will evaluate the condition of current as-built fish ladder components. The Licensee shall initiate consultation with the Agencies on design of the hydraulic study and scope of the engineering assessment no later than November 15 of License Year 2. The Licensee shall initiate the study no later than July 16 of License Year 3, and complete and report on the study no later than December 31 of License Year 4. The Licensee will use results of the study to develop design

modifications to improve shad passage through the Project. The Licensee shall initiate design consultation with the Agencies no later than January 1 of License Year 4 and complete final design plans (sufficient for construction bid purposes) no later than July 15 of License Year 5. The Licensee shall initiate approved shad ladder modifications by July 16 of License Year 5 and complete modifications no later than April 6 of License Year 6. Modifications shall be fully operational no later than April 7 of License Year 6.

The Licensee shall make any necessary repairs to the existing fish trap to achieve full functionality. Fish trap repairs shall be initiated in License Year 8 and completed no later than December 31 of License Year 9.

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.4.3-2.

3.5 Fish Passage and Protection Measures at the Bellows Falls Project

The Licensee shall construct, operate, maintain, and evaluate the effectiveness of fish passage and protection facilities for Targeted Migrants at the Bellows Falls Project.

3.5.1 Downstream Passage and Protection

In License Years 3 and 4, the Licensee shall undertake a hydraulic study or a suitable alternative, designed to inform downstream passage/design options to achieve safe, timely, and effective passage for American eel. The Licensee shall initiate consultation with the Agencies on study design no later than January 1 of License Year 6, and complete and report on the study no later than December 31 of License Year 7. The Licensee will use results of the study to develop supplemental or additional operational and/or structural passage and protection measures at the dam and/or in the canal. The Licensee shall initiate design consultation with the Agencies no later than January 1 of License Year 8, and complete final design plans (sufficient for construction bid purposes) no later than December 31 of License Year 9. The Licensee shall initiate construction of approved eel passage and protection measures no later than July 16 of License Year 10 and complete construction by December 31 of License Year 11. Approved structural facilities and/or operational measures shall be fully operational no later than August 1 of License Year 12.

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.5.1-1.

3.5.2 Upstream American Eel and Sea Lamprey Passage

3.5.2.1 Within Ladder Measures for Eel and Lamprey Passage for the period April 1 through July 15

The Licensee shall monitor eel and lamprey fish ladder use from April 1 through July 15 during License Years 2 and 3.

In License Year 4 the Licensee shall undertake a study using PIT technology to assess passage performance of American eel and sea lamprey within the Bellows Falls fish ladder. The Licensee shall initiate design consultation with the Agencies on the PIT study no later than September 1 of License Year 3. The Licensee shall initiate the field study no later than May 1 of License Year 4; and complete and report on the study no later than December 31 of License Year 4. Should the Agencies deem results of the monitoring or PIT-tag study insufficient to determine where passage impediments occur within the Bellows Falls ladder, the study design will be modified through consultation with the Agencies (e.g., additional PIT antennas deployed or moved to different locations) and an additional year of study will take place in License Year 5.

Should the Agencies determine that hydraulic-based impediments to passage exist within the fish ladder based on results from the PIT-tag study, the Licensee shall undertake a hydraulic study and engineering assessment of the existing Bellows Falls fish ladder to inform potential modifications for improved effectiveness for passage of American eel and/or sea lamprey. The objectives of the hydraulic study are to determine the hydraulic conditions of the fish ladder and identify hydraulic related barriers to effective eel and/or sea lamprey ladder passage. The engineering assessment will evaluate the condition of current as-built fish ladder components. The study and assessment shall be developed in consultation with the Agencies. The Licensee shall initiate consultation with the Agencies on the hydraulic study design and scope of engineering assessment no later than July 16 of License Year 5; and complete and report on the study no later than December 31 of License Year 6.

The Licensee will use results of these studies to develop design alternatives to improve eel and/or lamprey passage through the ladder for the period April 1 through July 15. The Licensee shall initiate design consultation with the Agencies no later than January 1 of License Year 7 and complete final design plans (sufficient for construction bid purposes) no later than July 15 of License Year 8. Approved eel/lamprey ladder modifications shall be completed by the Licensee no later than April 6 of License Year 9 and be fully operational no later than April 7 of License Year 9. These dates associated with initiating design consultation with the Agencies, finalizing design plans, final design approvals by the Agencies, and date of commencing operation shall be extended 1 year if an additional year of PIT tag study is performed.

3.5.2.2 Within Ladder Interim Measures for Eels for the period July 16 through November 15

The Licensee shall design, construct, operate, and maintain interim (possibly temporary) measures approved by the Agencies to pass American eels upstream for the period July 16

through November 15. The interim upstream eel passage facility shall consist of an eel ramp-trap, or similar design, as specified in USFWS Design Criteria (USFWS 2019). The eel ramp-trap will be located below the station, potentially within or near the entrance to the existing fish ladder at a location to be determined in consultation with the Agencies. The Licensee shall initiate design consultation for temporary upstream eel passage facilities with the Agencies no later than July 16 of License Year 2 and complete final design plans no later than December 31 of License Year 3. The Licensee shall complete construction no later than July 15 of License Year 4 and approved interim upstream eel passage facilities shall be fully operational no later than July 16 of License Year 4. Interim eel passage facilities shall be operated annually until dedicated upstream eel passage facilities are operational. The first two years of interim passage operation will include monitoring and reporting eel use and upstream passage. Based on the results of the monitoring, if the interim measure does not appear to pass eels in anticipated and consistent numbers, the Licensee will discuss next steps with the Agencies such as further monitoring and/or adjustment to the interim measure (e.g., location or design).

3.5.2.3 Permanent Upstream Eel Passage Measures for the period July 16 through November 15

Based on the PIT and hydraulic studies required pursuant to Section 3.5.2.1, ladder monitoring results, and upstream temporary eel passage data, the Licensee shall initiate consultation with the Agencies no later than July 1 in License Year 9 to determine whether existing information is sufficient to identify necessary locations for permanent upstream eel passage measures for the period July 16 through November 15 (i.e., via the temporary means, alternate permanent ramps or via the fish ladder), or if additional studies are needed.

Should the Agencies determine additional studies are not warranted, the Licensee shall select, subject to approval by the Agencies, the preferred method of upstream permanent passage no later than January 31 of License Year 10. The Licensee shall initiate design consultation for permanent upstream eel passage facilities with the Agencies no later than February 1 of License Year 10, and complete final design plans no later than December 31 of License Year 10. The Licensee shall complete construction of approved permanent upstream eel passage facilities such that they are fully operational no later than July 16 of License Year 11. Agencies acknowledge the 6.5 month window to construct may be negatively impacted by weather and river conditions or ability to procure materials.

Should the Agencies determine additional studies are warranted, the Licensee shall undertake them in License Year 10. The Licensee shall initiate consultation with the Agencies on the design of additional studies no later than February 15 of License Year 10. Results shall be provided to the Agencies by December 31 of License Year 10. Based on study results, the Licensee shall decide on an Agency-approved preferred method of permanent upstream passage

no later than January 31 of License Year 11. The Licensee shall initiate design consultation for permanent upstream eel passage facilities no later than February 1 of License Year 11, and complete final design plans no later than December 31 of License Year 11. The Licensee shall complete construction of approved permanent upstream eel passage facilities such that they are fully operational no later than July 16 of License Year 12. Agencies acknowledge the 6.5 month window to construct may be negatively impacted by weather and river conditions or ability to procure materials.

3.5.2.4 Permanent Upstream Eel Passage Measures in the Bellows Falls Bypass Reach

The Licensee shall initiate consultation with the Agencies on an eel survey study plan no later than July 1 of the year the Salmon Dam is removed or License Year 6, whichever is later. The first passage season after removal of the Salmon Dam or License Year 7, whichever is later, the Licensee shall undertake the upstream eel survey between May and October to determine where juvenile eels congregate (e.g., near the fish ladder, in the tailrace, near the spillway, etc.). The Licensee will report the results and consult with the Agencies upon completion of the study and prior to initiating designs for a permanent upstream eel passage design. Should study results indicate an area of eel concentration in the vicinity of the spillway, the Licensee shall install a single upstream eel passage facility within the bypass reach.

Design of a permanent upstream eel passage facility in the bypass reach, if determined necessary by the Agencies, shall occur in consultation with, and require approval by the Agencies. The Licensee shall initiate design consultation no later than January 1 and complete final design plans no later than December 31 of the year following the results of the upstream eel survey or License Year 8, whichever is later. The Licensee shall complete construction of an approved bypass reach upstream eel passage facility no later than July 31 of the second year following completion of the upstream eel survey or License Year 9, whichever is later. Agencies acknowledge the 7 month window to construct may be negatively impacted by weather and river (spill conditions in the bypass) conditions or ability to procure materials. If the Licensee successfully completes construction by July 31 of the second year following the results of the upstream eel survey or License Year 9, whichever is later, it will immediately begin operating the permanent bypass eel passage on August 1 of that same year. Otherwise, the Licensee will operate the permanent bypass eel passage no later than May 1 of the following year (i.e., the third year following the results of the upstream eel survey or License Year 10).

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.5.2-1.

3.6 Fish Passage and Protection Measures at the Wilder Project

The Licensee shall construct, operate, maintain, and evaluate the effectiveness of fish passage and protection facilities for American eel and sea lamprey at the Wilder Project.

3.6.1 Downstream Passage and Protection

The Licensee shall undertake a hydraulic study or a suitable alternative, designed to inform downstream passage/design options to achieve safe, timely, and effective passage for American eel. The Licensee shall initiate consultation with the Agencies on study design no later than January 1 of License Year 10 and undertake, complete and report on the study no later than December 31 of License Year 11. The Licensee will use results of the study to develop alternatives to provide safe, timely, and effective passage for American eels. The Licensee shall initiate design consultation of the passage and protection system(s) with the Agencies, no later than January 1 in License Year 12 and complete final design plans (sufficient for construction bid purposes) no later than December 31 of License Year 13. The Licensee shall initiate construction of approved eel passage and protection measures no later than July 16 of License Year 14 and complete construction by December 31 of License Year 15. Approved structural facilities and/or operational measures shall be fully operational no later than August 1 of License Year 16.

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.6.1-1.

3.6.2 Upstream American Eel and Sea Lamprey Passage

3.6.2.1 Within Ladder Measures for Eel and Lamprey Passage for the period April 7 through July 15

The Licensee shall monitor 2 years of eel and lamprey fish ladder use (number, timing and size estimation) from April 7 through July 15 during License Years 1 and 3. Monitoring data will be used by the Agencies to determine if fish ladder operational dates need to be adjusted to protect downstream migrants (i.e., manage the number of eels passing upstream until downstream measures in place).

During License Year 8, the Licensee shall undertake a study using PIT technology to assess passage performance of American eel and sea lamprey within the Wilder fish ladder. The Licensee shall initiate consultation with the Agencies on the PIT study design no later than September 1 of License Year 7. The Licensee shall initiate the study no later than May 1 and complete and report on the study no later than December 31 of License Year 8. Should the Agencies deem results of this study insufficient to determine where passage impediments occur within the Wilder ladder, the study design will be modified through consultation with the

Agencies (e.g., additional PIT antennas deployed or moved to different locations) and an additional year of study will take place in License Year 9.

Should the Agencies determine that hydraulic-based impediments to passage exist based on PIT study results, the Licensee shall undertake a hydraulic study and an engineering assessment of the existing Wilder fish ladder to inform potential modifications for improved effectiveness for passage of American eel and/or sea lamprey. The objectives of the hydraulic study are to determine the hydraulic conditions of the fish ladder and identify hydraulic related barriers to effective eel and/or sea lamprey ladder passage. The engineering assessment will evaluate the condition of current as-built fish ladder components. The Licensee shall initiate consultation with the Agencies on the hydraulic study design and scope of engineering assessment no later than July 16 of License Year 9 and complete and report on the study and assessment no later than December 31 of License Year 10.

The Licensee will use results of the PIT study, hydraulic study, engineering assessment, and monitoring study to develop design alternatives to improve eel and/or lamprey passage through the ladder during the upstream anadromous fish passage season. Design of ladder modification(s) shall occur in consultation with, and require approval by, the Agencies. The Licensee shall initiate design consultation no later than January 1 of License Year 11 and complete final design plans (sufficient for construction bid purposes) no later than July 15 of License Year 12. Approved eel/lamprey ladder modifications shall be completed no later than December 31 of License Year 13 and be fully operational no later than April 7 of License Year 14.

3.6.2.3 Permanent Upstream Eel Passage Measures

The Licensee shall undertake an upstream eel survey in the vicinity of the powerhouse and spillway to determine areas of eel concentration at the Project. The Licensee shall initiate study design consultation for the upstream eel survey with the Agencies no later than July 1 of License Year 7. The Licensee shall conduct the study from May through October and provide survey results to the Agencies no later than December 31 in License Year 8.

Based on the PIT and hydraulic studies required pursuant to Section 3.6.2.1, ladder monitoring results, upstream temporary eel passage data, and the upstream eel survey, the Licensee shall consult with the Agencies in License Year 11 to determine whether existing information is sufficient to identify the location for permanent upstream eel passage measures, or if additional studies are needed.

Should the Agencies determine additional studies are not warranted, the Licensee shall decide on an Agency-approved preferred method of upstream permanent passage no later than December 31 of License Year 11. The Licensee shall initiate design consultation for permanent upstream eel passage facilities with the Agencies no later than February 1 of License Year 12, and complete final design plans no later than December 31 of License Year 12. The Licensee shall complete construction of approved permanent upstream eel passage facilities (potentially consistent with eel/lamprey ladder modifications) such that they are fully operational no later than July 16 of License Year 13.

Should the Agencies determine additional studies are warranted, the Licensee shall initiate study design consultation with the Agencies no later than January 1 in License Year 12. Results shall be provided to the Agencies by December 31 of License Year 12. Based on study results, the Agencies shall decide the preferred method of permanent upstream passage no later than January 31 of License Year 13. The Licensee shall initiate design consultation for permanent upstream eel passage facilities with the Agencies no later than February 1 of License Year 13, and complete final design plans no later than December 31 of License Year 13. The Licensee shall complete construction of approved permanent upstream eel passage facilities such that they are fully operational no later than July 16 of License Year 14. Agencies acknowledge the 6.5 month window to construct may be negatively impacted by weather and river conditions or ability to procure materials.

Specific passage and protection requirements and their associated implementation schedules and operational periods are provided in Table 3.6.2-1.

3.7. Fish Passage Facilities Operations and Maintenance Plan

The Licensee shall develop and implement a Fish Passage Facilities Operations and Maintenance Plan (FOMP). The FOMP shall detail how and when the fishways will be operated and describe routine maintenance activities that will occur both during and outside of the fish passage seasons. The FOMP will include a provision to provide annual fishway Operation and Maintenance (O&M) reports that summarize the status of the fish passage facilities, identify needed repairs or equipment replacement, etc. The O&M report shall be submitted to the Agencies by January 31 annually. The FOMP shall be developed in consultation with and require approval by the Agencies prior to submitting the final FOMP to the FERC for approval. The FOMP shall be in place no later than six (6) months from the first fish passage facilities (or passage facility improvements) coming on-line, and shall be updated as needed as new passage facilities, or modifications to existing facilities, are placed into service; and based on information obtained from operation of the facilities pursuant to the annual O&M reports.

3.8 Fish Passage Facilities Effectiveness Testing

The Licensee shall conduct a shakedown assessment for each fish passage facility during the first year of operation followed by two years of representative, quantitative effectiveness studies (except as provided in Section 3.1). No later than six (6) months prior to each identified fish passage facility becoming operational, the Licensee shall file a facility-specific Passage Effectiveness Studies Plan (PESP) for Commission approval. The PESP shall be developed in consultation with and require approval by the Agencies, prior to submitting PESPs to the FERC for approval. The PESP shall detail how the constructed and operational passage facilities will be evaluated for their effectiveness at passing Targeted Migrants. Study results will be used to inform potential remedial measures to improve passage efficiency of the measures designed and constructed under this Agreement. Each PESP may be supplemented based on information obtained from operation of the facilities pursuant to the annual O&M reports and/or previous study results.

American shad performance standards upon which the results of any required effectiveness studies shall be reviewed and compared are summarized in Table 3.8-1.

Table 3.8-1. Summary of upstream and downstream performance standards for American shad passage facilities at the Vernon Project.

Facility	Efficiency	Delay
Downstream Passage and Protection	95% through-Project survival based on the number of test fish that approach within 1 km of a project area [(# passed alive/# arrive)*100].	Test fish that pass the project do so within 24 hours of arriving within 1 km of the project area.
Upstream Anadromous Passage	75% upstream efficiency based on the number of test fish that approach within 1 km of the project area [(# passed/# arrive)*100].	Test fish that pass the project do so within 48 hours of arriving within 1 km of the project area.

In addition, given regional management objectives and cumulative effects of downstream passage through multiple hydropower projects, the Agencies have a goal of 95% through-project survival for American eels.

REFERENCES

USFWS (U.S. Fish and Wildlife Service). 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives as of the date first above written.

Great River Hydro, LLC

By: _____

Name: Scott D. Hall

Title: President & CEO

United States Fish and Wildlife Service

By: _____

Name: _____

Title: _____

New Hampshire Fish and Game Department

By: _____

Name: Scott R. Mason

Title: Director, New Hampshire Fish and Game

Vermont Department of Fish and Wildlife

By: _____

Name: Christopher A. Herrick

Title: Commissioner, Vermont Fish & Wildlife

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives as of the date first above written.

Great River Hydro, LLC

By: _____

Name: _____

Title: _____

United States Fish and Wildlife Service

By: DAVID SIMMONS Digitally signed by DAVID SIMMONS Date: 2022.07.15 14:03:45 -04'00'

Name: David Simmons

Title: Acting Supervisor, New England Field Office

New Hampshire Fish and Game Department

By: Scott R. Mason

Name: Scott R. Mason

Title: Director, New Hampshire Fish and Game

Vermont Department of Fish and Wildlife

By: Christopher A. Herrick

Name: Christopher A. Herrick

Title: Commissioner, Vermont Fish & Wildlife

APPENDIX A

FISH PASSAGE IMPLEMENTATION TABLES

Table 3.4.1-1. VERNON DOWNSTREAM PASSAGE & PROTECTION				
Item	**Measure**	**Implementation Schedule**	**Operation Period**	**Effectiveness Studies**
1	Hydraulic study above the dam to inform downstream passage design/options.	• Initiate Study Design Consultation NLT 1/1 of License Year 2. • Initiate and Complete Study NLT 12/31 in License Year 3.		
2	Design, construct, operate, maintain, and study effectiveness of measures to pass eels and alosines downstream.	• Design consultation initiated by 7/1 of License Year 3; design completed NLT 12/31 License Year 4. • Initiate construction/modifications (mods) in License Year 5 and complete no later than Dec. 31 of License Year 6. • Operate no later than April 7 of License Year 7.	April 7 to December 1[A]	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).

A. Downstream passage initiated concurrent with upstream passage for shad. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.

B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating as designed.

C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.

D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.4.2-1. VERNON UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
3a	Undertake fish ladder hydraulic study.	• Initiate Study Design Consultation NLT 11/15 in License Year 2. • Initiate Study NLT 7/16 in License Year 3. • Complete Study NLT 12/31 in License Year 4.		
3b	Conduct upstream Eel/Lamprey passage study using Passive Integrated Transponder technology.	• Initiate Study Design Consultation NLT 7/1 in License Year 3. • Conduct PIT study from May through July 15 in License Year 4 (during License Year 5, if needed).	May 1 to July 15	
3c	Design, construct, operate, maintain, and study effectiveness of permanent upstream ladder improvement measures to pass eels and lamprey upstream.	• Initiate design consultation in License Year 4 and complete design consultation NLT 7/15 in License Year 5. • Initiate construction of permanent upstream ladder improvement measures NLT 7/16 in License Year 5 and complete improvement measures NLT 4/6 in License Year 6. • Operate permanent upstream ladder improvement measures NLT 4/7 in License Year 6. • All deadlines stated above extended 1 year if additional study under 3b required in License Year 6.	May 1 to July 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).
4a	Design, construct, operate, maintain, and monitor interim, possibly temporary, measures to pass eels upstream after the anadromous passage season.	• Initiate design consultation in License Year 2. • Complete construction of interim eel passage measures NLT 7/15 in License Year 3. • Operate interim eel passage measures NLT 7/16 in License Year 3.	July 16 to November 15	Yr 1: shakedown.[B]

Table 3.4.2-1. VERNON UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
4b	Permanent upstream eel passage outside of anadromous passage season.	• Consultation and determination on need for additional studies regarding permanent eel passage measures initiated NLT 7/1 in License Year 9 and completed NLT 1/31 in License Year 10. • If no additional studies required: ○ Design Consultation initiated 2/1 of License Year 10 and Completed by 12/31 in License Year 10. ○ Complete construction NLT 7/15 in License Year 11. ○ Operate measure NLT 7/16 in License Year 11. • If additional studies are required: ○ Study design consultation initiated NLT 2/15 in License Year 10 and completed NLT 1/1 in License Year 11. ○ Initiate design consultation in February of License Year 11 and complete design consultation by 12/31 in License Year 11. ○ Complete construction of permanent upstream eel passage measures NLT 7/15 in License Year 12. ○ Operate permanent eel passage measure NLT 7/16 in License Year 12.	July 16 – November 15	

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.4.3-2. VERNON UPSTREAM ANADROMOUS				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
5a	Evaluate whether fish are trapped behind collection gallery below powerhouse.	Complete by 7/16 in License Year 7.		
5b	Design and implement solution if fish are trapped behind collection gallery.	Construct or implement mitigation solutions NLT 12/31 in License Year 8 in order to have no issues during the fish passage season starting 4/7 in License Year 9.	April 7 to July 15	
6	Design and implement improvements to counting window and room.	• Design Consultation initiated in License Year 4 and completed by 12/31 in License Year 4. • Initiate construction of improvements during License Year 5 and complete NLT 4/1 in License Year 6. • All improvements in place to operate and function NLT 4/7 in License Year 6.		
7a	Undertake fish ladder hydraulic study and engineering assessment.	• Initiate Study Design Consultation NLT 11/15 in License Year 2. • Initiate study and assessment NLT 7/16 in License Year 3. • Complete Study NLT 12/31 in License Year 4.		
7b	Additional fish ladder modifications (mods): consult/design, install, operate, maintain, and study effectiveness of mods.	• Initiate design consultation in License Year 4 and complete design consultation NLT 7/15 in License Year 5. • Construct additional ladder modifications NLT 7/16 in License Year 5 and complete NLT 4/6 in License Year 6. • Operate additional ladder modifications NLT 4/7 in License Year 6.	April 7 to July 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).
7c	Fish trap repair.	Initiate overhaul of Vernon Fish ladder trapping facility in License Year 8 and complete overhaul NLT 12/31 in License Year 9.		

A. Actual dates of operation are based on passage of fish at the previous downstream fishway. Vernon ladder shall be operational within three days of the Turners Falls fishways being opened.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.5.1-1. BELLOWS FALLS DOWNSTREAM PASSAGE & PROTECTION				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
8a	Hydraulic study above the dam to inform downstream passage design/options.	• Initiate Study Design Consultation NLT 1/1 of License Year 6. • Initiate and Complete Study NLT 12/31 of License Year 7.		
8b	Design, construct, operate, maintain, and study effectiveness of measures to pass eels downstream.	• Design consultation initiated NLT 1/ 1 of License Year 8; design completed NLT 7/15 of License Year 10. • Initiate construction/modifications (mods) NLT 7/16 in License Year 10 and complete no later than 12/31 of License Year 11. • Operate no later than 4/7 of License Year 12.	August 1 to December 1	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/modifications made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/modifications made).

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.5.2-1. BELLOWS FALLS UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
9a	Monitor fish ladder use by American eel (eel) and Sea Lamprey (lamprey).	Monitor during License Years 2 and 3.	May 1 – July 15	
9b	Upstream eel/lamprey passage studies (PIT tag study of ladder).	• Initiate Study Design Consultation NLT 9/1 in License Year 3. • Conduct PIT study from May through July 15 in License Year 4 (during License Year 5, if needed).	May 1 to July 15	
9c	Undertake fish ladder hydraulic study and engineering assessment, if necessary.	• Initiate Study Design Consultation NLT 7/16 in License Year 5. • Conduct study and assessment NLT 12/31 in License Year 6.		
9d	Consultation, design, and construction of upstream fish ladder modifications for eel and lamprey during the anadromous fish passage season.	• Initiate design consultation in License Year 7 and complete design consultation NLT 7/15 in License Year 8. • Construct permanent upstream ladder improvement measures NLT 7/16 in License Year 8 and complete NLT 4/6 in License Year 9. • Operate permanent upstream ladder improvement measures NLT 4/7 in License Year 9. • All deadlines stated above extended 1 year if additional study under 9b required in License Year 5.	May 1 to July 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).
10a	Design, construct, operate, maintain, and monitor interim, possibly temporary, measures to pass eels upstream after the anadromous passage season (excluding the bypass reach).	• Initiate design consultation NLT 7/16 in License Year 2 and complete design consultation NLT 12/31 in License Year 3. • Complete construction of interim eel passage measures NLT 7/15 in License Year 4. • Operate interim eel passage measures NLT 7/16 in License Year 3.	July 16 to November 15 (until permanent measures become operational)	

Table 3.5.2-1. BELLOWS FALLS UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
10b	Permanent upstream eel passage outside of anadromous passage season (excluding the bypass reach).	• Consultation and determination on need for additional studies regarding permanent eel passage measures initiated NLT 7/1 in License Year 9 and completed NLT 1/31 in License Year 10; • If no additional studies required: o Design consultation initiated 2/1 of License Year 10 and completed by 12/31 in License Year 10 o Complete construction NLT 7/15 in License Year 11 o Operate measure NLT 7/16 in License Year 11 • If additional studies are required: o Study design consultation initiated NLT 2/15 in License Year 10 and completed NLT 1/1 in License Year 11 o Initiate design consultation in February of License Year 11 and complete design consultation by 12/31 in License Year 11 o Complete construction of permanent upstream eel passage measures NLT 7/15 in License Year 12 o Operate permanent eel passage measure NLT 7/16 in License Year 12	July 16 to November 15	
10c	Undertake upstream eel survey in bypass reach.	• Study design consultation initiated NLT 7/1 in License Year 6 or year fish barrier dam is removed, whichever is later. • Conduct eel survey study from May through October in License Year 7 or in first year following barrier dam removal, whichever is later.	May 1 to November 15	

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.5.2-1. BELLOWS FALLS UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE (cont'd)				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
10d	Consultation, design, and construction of additional upstream eel passage facilities in bypass reach.	• Initiate design consultation in February of License Year 8 and complete design consultation by 12/31 in License Year 8 or the year following the completion of the eel survey study, whichever is later. • Complete construction of permanent upstream eel passage measure in bypass NLT 7/31 in License Year 9 or in the second year following the completion of the eel survey study, whichever is later. • If the Licensee successfully completes construction by 7/31 of the second year following the results of the upstream eel survey or License Year 9, whichever is later, it will immediately begin operating the permanent bypass eel passage on August 1 of that same year. Otherwise, the Licensee will operate the permanent bypass eel passage NLT 5/1 of the following year.	May 1 to November 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.6.1-1. WILDER DOWNSTREAM PASSAGE & PROTECTION				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
11a	Hydraulic study above the dam to inform downstream passage design/options	• Initiate study design consultation NLT 1/1 of License Year 10. • Initiate and complete study NLT 12/31 of License Year 11.		
11b	Design, construct, operate, maintain, and study effectiveness of measures to pass eels downstream.	• Design consultation initiated NLT 1/1 of License Year 12; design completed NLT 12/31 of License Year 13. • Initiate construction/modifications (mods) NLT 7/16 in License Year 14 and complete NLT 12/31 of License Year 15. • Operate NLT 8/1 of License Year 16.	August 1 to December 1	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.6.2-1. WILDER UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
12a	Monitor fish ladder use by American eel (eel) and Sea Lamprey (lamprey).	Monitor during License Years 1 and 3.	April 7 to July 15	
12b	Upstream eel/lamprey passage studies (PIT tag study of ladder).	• Initiate study design consultation NLT 9/1 in License Year 7. • Conduct PIT study from May through July 15 in License Year 8 (during License Year 9, if needed).	April 7 to July 15	
12c	Undertake fish ladder hydraulic study and engineering assessment, if necessary.	• Initiate study design consultation NLT 7/16 in License Year 9. • Conduct study and assessment NLT 12/31 in License Year 10.		
12d	Consultation, design, and construction of upstream fish ladder modifications for eel and lamprey during the anadromous fish passage season.	• Initiate design consultation in License Year 11 and complete design consultation NLT 7/15 in License Year 12. • Construct permanent upstream ladder improvement measures NLT 7/16 in License Year 12 and complete NLT 12/31 in License Year 13. • Operate permanent upstream ladder improvement measures NLT 4/7 in License Year 14. • All deadlines stated above extended 1 year if additional study under 12b required in License Year 9.	May 1 to July 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

Table 3.6.2-1. WILDER UPSTREAM AMERICAN EEL & SEA LAMPREY PASSAGE (cont'd)				
Item	**Measure**	**Implementation Schedule**	**Operation Period[A]**	**Effectiveness Studies**
13a	Undertake upstream eel survey in the vicinity of the powerhouse and along the spillway.	• Eel survey study design consultation initiated NLT 7/1 in License Year 7. • Conduct eel survey study from May through October in License Year 8.	May 1 to November 15	
13b	Consultation, design, and construction of dedicated upstream eel passage facilities.	• Consultation and determination on need for additional studies regarding dedicated eel passage measures initiated NLT 7/1 in License Year 11 and completed NLT 12/31 in License Year 11. • If no additional studies required: ○ Design consultation initiated 2/1 of License Year 12 and completed by 12/31 in License Year 12. ○ Complete construction NLT 7/15 in License Year 13. ○ Operate measures NLT 7/16 in License Year 13. • If additional studies are required: ○ Initiate study design consultation NLT 1/1 in License Year 12 and complete study NLT 12/31 in License Year 12. ○ Initiate design consultation in February of License Year 13 and complete design consultation by 12/31 in License Year 13. ○ Complete construction of permanent upstream eel passage measures NLT 7/15 in License Year 14. ○ Operate permanent eel passage measures NLT 7/16 in License Year 14.	May 1 to November 15	Yr 1: shakedown[B]; Yr 2: quantitative effectiveness study[C]; Yr 3: additional study year, if needed (i.e., Yr 2 anomalous[D], incomplete, etc. or issues found/mods made); Yr 4: additional study year, if needed (Yr 3 anomalous, incomplete, etc. or issues found/mods made).

A. Future refinement of the timing may be made by the Agencies as information on the behavior of migrants at the Project is documented.
B. Shakedown refers to assessing whether all components of the upstream fish passage facility are operating correctly.
C. Quantitative effectiveness studies are based on a study design that allows for numeric, objective assessments of data collected.
D. Anomalous conditions are those outside the bounds of 25th to 75th percentile conditions for a given parameter (e.g., flow, temperature, etc.).

APPENDIX B

PROJECT SPECIFIC FISH PASSAGE IMPLEMENTATION CHART

Appendix B - Project Specific Fish Passage Implementation Chart

Project and Fish Passage Mitigation Measure	License Issue Year 0	LICENSE YEAR (Year Following License Issuance or Year 0)							
		1	2	3	4	5	6	7	8
VERNON	MONITOR	STUDY	DESIGN	CONSTRUCT	OPERATE				
3.4.2.1 Design and Complete Vernon Ladder Hydraulic Study for eels/lamprey (NLT): design, perform, report			Initiate study design NLT 11/15 Y2	Initiate study NLT 7/16 Y3	complete NLT 12/31 Y4				
3.4.3 Hydraulic and Engineering Assessment of Ladder - shad passage same as 3.2.2.1									
3.4.2.1 Complete Vernon Ladder PIT Study for eels/lamprey: design, perform, and report				Initiate study design NLT 7/1 Y3	complete NLT 12/31 Y4*				
3.4.2.1 Design Consultation and Final Design on Upstream ladder passage measures					Initiate Y4	Complete NLT 7/15 Y5			
3.4.3.1 Design Consultation and Final Design - shad related ladder passage measures					Initiate 1/1 Y4	Complete NLT 7/15 Y5			
3.4.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements						Initiate NLT 7/16 Y5	Complete NLT 4/6 Y6		
3.4.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS							NLT 4/7 Y6		
3.4.3 Construction of Permanent Upstream Ladder shad related measures						Initiate NLT 7/16 Y5	Complete NLT 4/6 Y6		
3.4.3.1 OPERATE PERMANENT UPSTREAM SHAD LADDER IMPROVEMENTS							NLT 4/7 Y6		
3.4.2.2 Design Consultation and Final Design for Interim In-ladder eel passage (7/16-11/15)			Initiate NLT 1/1 complete NLT 12/31 Y2						
3.4.2.2 Construction of Interim In-ladder eel passage (7/16-11/15)				complete NLT 7/15 Y3					
3.4.2.2 OPERATE INTERIM UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS				NLT 7/16 Y3					
3.4.2.3 Study info determination for permanent eel passage measures (7/16-11/15)									
3.4.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.4.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.4.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE 7/16-11/15									
3.4.2.3 IF FURTHER STUDY: Design, Perform and Report additional study									
3.4.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.4.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.4.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)									
3.4.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report			Initiate study design NLT 1/1 Y2	complete & report on study NLT 12/31 Y3					
3.4.1 Design Consultation and Final Design on Downstream passage measures				Initiate NLT 7/1 Y3	complete NLT 12/31 Y4				
3.4.1. Construction of Shad/Eel Downstream measures						Initiate Y5	complete NLT 12/31 Y6		
3.4.1 OPERATE PERMANENT DOWNSTREAM SHAD/EEL MEASURES								NLT 4/7 Y7	
3.4.3 Complete overhaul and repairs to existing fish trap									Initiate Y8
3.4.3 Evaluate, determine and report if fish are trapped behind collection gallery								Complete NLT 7/16 Yr 7	
3.2.3 IF TRAPPED: Implement Prevention Solution									complete NLT 12/31 Y8
3.4.3 Design improvements to public viewing and counting windows					complete NLT 12/31 Y4				
3.4.3 Make and complete improvements to public viewing and counting windows						Initiate Y5	complete NLT 4/1 Y6		
3.4.3 Complete improvements to public viewing and counting windows							NLT 4/7 Y6		
BELLOWS FALLS	MONITOR	STUDY	DESIGN	CONSTRUCT	OPERATE				
3.5.2.1 Monitor eel and lamprey fish ladder use			4/1 - 7/15 Y2	4/1 - 7/15 Y3					
3.5.2.1 Complete Bellows Falls Ladder PIT Study for eels/lamprey: design, perform, report				Initiate study design NLT 9/1 Y3	complete NLT 12/31 Y4*				
3.5.2.1 Design and Complete Ladder Hydraulic Study for eels/lamprey if needed						Initiate NLT 7/16 Y5	complete NLT 12/31 Y6		
3.5.2.1 Design Consultation and Final Design on Upstream ladder passage measures								Initiate NLT 1/1 Y7	complete NLT 7/15 Y 8
3.5.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements									Initiate NLT 7/16 Y8
3.5.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS									
3.5.2.2 Design Consultation and Final Design for Interim In-ladder eel passage (7/16-11/15)			Initiate NLT 7/16 Y2	complete NLT 12/31 Y3					
3.5.2.2 Construction of Interim In-ladder eel passage (7/16-11/15)					complete NLT 7/15 Y 4				
3.5.2.2 OPERATE INTERIM IN-LADDER EEL PASSAGE (7/16-11/15)					NLT 7/16 Y4				
MONITOR INTERIM IN-LADDER EEL PASSAGE (7/16-11/15)					7/16-11/15	7/16-11/15			
3.5.2.4 Survey Bypass Reach for where juvenile eels congregate 1 Yr after barrier dam is out: design, perform, report							Initiate Survey design NLT 7/1 Y6	Initiate study May - Oct Y7 Earliest	
3.5.2.4 Consultation and Finalize Design for permanent bypass reach eel passage facility									Initiate NLT 1/1 complete NLT 12/31 Y8 Earliest
3.5.2.4 Construction of permanent bypass reach eel passage facility									
3.5.2.4 OPERATE PERMANENT BYPASS EEL PASSAGE (end of spring runoff-11/15)									
3.5.2.3 Study info determination for permanent eel passage measures (7/16-11/15)									
3.5.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.5.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.5.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)									
3.5.2.3 IF FURTHER STUDY: Design, Perform and Report additional study									
3.5.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.5.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.5.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)									
3.5.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report							Initiate study design NLT 1/1 Y6	complete NLT 12/31 Y7	
3.5.1 Design Consultation and Final Design on Downstream passage measures									Initiate NLT 1/1 Y8
3.5.1. Construction of Eel Downstream measures									
3.5.1 OPERATE PERMANENT DOWNSTREAM EEL/SEA LAMPREY MEASURES									
WILDER	MONITOR	STUDY	DESIGN	CONSTRUCT	OPERATE				
3.6.2.1 Monitor eel and lamprey fish ladder use		4/7 - 7/15		4/7 - 7/16					
3.6.2.1 Complete Wilder Ladder PIT Study for eels/lamprey (NLT): design, perform, report								Initiate study design NLT 9/1 Y7	Complete NLT 12/31 Y8*
3.6.2.1 Design and Complete Ladder Hydraulic Study for eels/lamprey (NLT) if needed: design, perform, report									
3.6.2.1 Design Consultation and Final Design on Upstream ladder passage measures									
3.6.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements									
3.6.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS									
3.6.2.3 Survey tailrace and spillway for where juvenile eels congregate: design, perform, report								Survey design initiate NLT 7/1 Y7	Complete NLT 12/31 Y8
3.6.2.3 Study info determination for permanent eel passage measures (7/16-11/15)									
3.6.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.6.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.6.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)									
3.6.2.3 IF FURTHER STUDY: Design, Perform and Report additional study									
3.6.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)									
3.6.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)									
3.6.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)									
3.6.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report									
3.6.1 Design Consultation and Final Design on Downstream passage measures									
3.6.1. Construction of Eel Downstream measures									
3.6.1 OPERATE PERMANENT DOWNSTREAM EEL/SEA LAMPREY MEASURES									

*These dates associated with initiating design consultation with the Agencies, finalizing design plans, final design approvals by the Agencies and date of commencing operation shall be extended 1 year if an additional year of PIT study is necessary.

Appendix B - Project Specific Fish Passage Implementation Chart

Project and Fish Passage Mitigation Measure	LICENSE YEAR (Year Following License Issuance or Year 0)							
	9	10	11	12	13	14	15	16
VERNON								
3.4.2.1 Design and Complete Vernon Ladder Hydraulic Study for eels/lamprey (NLT): design, perform, report								
3.4.3 Hydraulic and Engineering Assessment of Ladder - shad passage same as 3.2.2.1								
3.4.2.1 Complete Vernon Ladder PIT Study for eels/lamprey: design, perform, and report								
3.4.2.1 Design Consultation and Final Design on Upstream ladder passage measures								
3.4.3.1 Design Consultation and Final Design - shad related ladder passage measures								
3.4.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements								
3.4.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS								
3.4.3 Construction of Permanent Upstream Ladder shad related measures								
3.4.3.1 OPERATE PERMANENT UPSTREAM SHAD LADDER IMPROVEMENTS								
3.4.2.2 Design Consultation and Final Design for Interim In-ladder eel passage (7/16-11/15)								
3.4.2.2 Construction of Interim In-ladder eel passage (7/16-11/15)								
3.4.2.2 OPERATE [illegible] INTERIM UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS								
3.4.2.3 Study info determination for permanent eel passage measures (7/16-11/15)	*Consult: initiate NLT 7/1/ Y9*	*Complete NLT 1/31 Y10*						
3.4.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)		*Initiate NLT 2/1 complete NLT 12/31 Y10*						
3.4.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)			*complete NLT 7/15 Y11*	*Complete by 7/15 if needed*				
3.4.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE 7/16-11/15			*NLT 7/16 Y11*					
3.4.2.3 IF FURTHER STUDY: Design, Perform and Report additional study		*Initiate NLT 2/15 complete by NLT 12/31 Y10*						
3.4.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)			*Initiate NLT 2/1 complete NLT Dec 31 Y11*					
3.4.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)				*complete NLT 7/15 Y12*	*Complete by 7/15 if needed*			
3.4.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)				*NLT 7/16 Y12*				
3.4.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report								
3.4.1 Design Consultation and Final Design on Downstream passage measures								
3.4.1. Construction of Shad/Eel Downstream measures								
3.4.1 OPERATE PERMANENT DOWNSTREAM SHAD/EEL MEASURES								
3.4.3 Complete overhaul and repairs to existing fish trap	*Complete NLT 12/31 Y9*	*NLT 4/7 Y10*						
3.4.3 Evaluate, determine and report if fish are trapped behind collection gallery								
3.2.3 IF TRAPPED: Implement Prevention Solution	*NLT 4/7 Y9*							
3.4.3 Design improvements to public viewing and counting windows								
3.4.3 Make and complete improvements to public viewing and counting windows								
3.4.3 Complete improvements to public viewing and counting windows								
BELLOWS FALLS								
3.5.2.1 Monitor eel and lamprey fish ladder use								
3.5.2.1 Complete Bellows Falls Ladder PIT Study for eels/lamprey: design, perform, report								
3.5.2.1 Design and Complete Ladder Hydraulic Study for eels/lamprey if needed								
3.5.2.1 Design Consultation and Final Design on Upstream ladder passage measures								
3.5.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements	*Complete NLT 4/6 Y9*							
3.5.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS	*NLT 4/7 Y9*							
3.5.2.2 Design Consultation and Final Design for Interim In-ladder eel passage (7/16-11/15)								
3.5.2.2 Construction of Interim In-ladder eel passage (7/16-11/15)								
3.5.2.2 OPERATE INTERIM IN-LADDER EEL PASSAGE (7/16-11/15)								
MONITOR INTERIM IN-LADDER EEL PASSAGE (7/16-11/15)								
3.5.2.4 Survey Bypass Reach for where juvenile eels congregate 1 Yr after barrier dam is out: design, perform, report								
3.5.2.4 Consultation and Finalize Design for permanent bypass reach eel passage facility								
3.5.2.4 Construction of permanent bypass reach eel passage facility	*complete NLT 7/31 Y9 Earliest*							
3.5.2.4 OPERATE PERMANENT BYPASS EEL PASSAGE (end of spring runoff-11/15)	*Y9 Earliest if operational before 6/1*	*If needed NLT 5/1 Y10 Earliest*						
3.5.2.3 Study info determination for permanent eel passage measures (7/16-11/15)	*Consult: initiate NLT 7/1/ Y9*	*Complete NLT 1/31 Y10*						
3.5.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)		*Initiate NLT 2/1 complete NLT 12/31 Y10*						
3.5.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)			*complete NLT 7/15 Y11*	*complete by 7/15 if needed*				
3.5.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)			*NLT 7/16 Y11*					
3.5.2.3 IF FURTHER STUDY: Design, Perform and Report additional study		*Initiate NLT 2/15 complete NLT 12/31 Y10*						
3.5.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)			*Initiate NLT 2/1 complete NLT 12/31 Y11*					
3.5.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)				*complete NLT 7/15 Y12*	*complete by 7/15 if needed*			
3.5.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)				*NLT 7/16 Y12*				
3.5.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report								
3.5.1 Design Consultation and Final Design on Downstream passage measures	*complete NLT 12/31 Y9*							
3.5.1. Construction of Eel Downstream measures		*Initiate NLT 7/16 Y10*	*complete NLT 12/31 Y11*					
3.5.1 OPERATE PERMANENT DOWNSTREAM EEL/SEA LAMPREY MEASURES				*NLT 8/1 Y12*				
WILDER								
3.6.2.1 Monitor eel and lamprey fish ladder use								
3.6.2.1 Complete Wilder Ladder PIT Study for eels/lamprey (NLT): design, perform, report								
3.6.2.1 Design and Complete Ladder Hydraulic Study for eels/lamprey (NLT) if needed: design, perform, report	*Initiate NLT 7/16 Y9*	*complete NLT 12/31 Y10*						
3.6.2.1 Design Consultation and Final Design on Upstream ladder passage measures			*Initiate NLT 01/01 Y11*	*complete NLT 7/15 Y12*				
3.6.2.1. Construction of Permanent Upstream Eel/Sea Lamprey Ladder improvements				*Initiate NLT 7/16 Y12*	*Complete NLT 12/31 Y13*			
3.6.2.1 OPERATE PERMANENT UPSTREAM EEL/SEA LAMPREY LADDER IMPROVEMENTS						*NLT 4/7 Y14*		
3.6.2.3 Survey tailrace and spillway for where juvenile eels congregate: design, perform, report								
3.6.2.3 Study info determination for permanent eel passage measures (7/16-11/15)			*Consult and Determination NLT 12/31 Y12*					
3.6.2.3 IF NO FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)				*Initiate NLT 2/1 complete NLT 12/31 Y12*				
3.6.2.3 IF NO FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)					*complete NLT 7/15 Y13*			
3.6.2.3 IF NO FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)					*NLT 7/16 Y13*			
3.6.2.3 IF FURTHER STUDY: Design, Perform and Report additional study				*Initiate NLT 1/1 complete NLT 12/31 Y12*				
3.6.2.3 IF FURTHER STUDY: Design for permanent eel passage systems (7/16-11/15)					*Initiate NLT 2/1 complete NLT 12/31 Y13*			
3.6.2.3 IF FURTHER STUDY: Construction of Permanent eel passage (7/16-11/15)						*complete NLT 7/15 Y14*		
3.6.2.3 IF FURTHER STUDY: OPERATE PERMANENT EEL PASSAGE (7/16-11/15)						*NLT 7/16 Y14*		
3.6.1 Hydraulic Study or Alternative above dam for downstream passage: design, perform, report		*Initiate study design NLT 1/1 Y10*	*complete NLT 12/31 Y11*					
3.6.1 Design Consultation and Final Design on Downstream passage measures				*Initiate NLT 1/1 Y12*	*complete NLT 12/31 Y13*			
3.6.1. Construction of Eel Downstream measures						*Initiate NLT 7/16 Y14*	*complete NLT 12/31 Y15*	
3.6.1 OPERATE PERMANENT DOWNSTREAM EEL/SEA LAMPREY MEASURES								*NLT 8/1 Y16*

*These dates associated with initiating design consultation with the Agencies, finalizing design plans, final design approvals by the Agencies and date of commencing operation shall be extended 1 year if an additional year of PIT study is necessary.

APPENDIX C

AUTHORIZED REPRESENTATIVES OF THE PARTIES

APPENDIX C

AUTHORIZED REPRESENTATIVES OF THE PARTIES

For Great River Hydro, LLC:

Great River Hydro, LLC
69 Milk Street, Suite 208
Westborough, MA 01581
Attn: FERC License Manager

With a copy to:

Great River Hydro, LLC
69 Milk Street, Suite 208
Westborough, MA 01581
Attn: Legal Department

For U.S. Fish and Wildlife Service:

Supervisor
New England Field Office
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301

For United States Department of the Interior:

Boston Field Office
Office of the Solicitor
United States Department of the Interior
15 State Street, 8th Floor
Boston, MA 02109-3502

For New Hampshire Fish and Game Department:

Executive Director
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301

For Vermont Fish & Wildlife Department:

Commissioner
Vermont Fish & Wildlife Department
1 National Life Drive, Davis 2
Montpelier, VT 05620-3702

Table D-1. Cost of Proposed Environmental Measures.

Revised 8-1-2022 to reflect Fish Passage Settlement Agreement mitigation schedule

Post License Incremental Operating and Capital Expense Vernon		2020 Dollars	Yr'ly Average over 40 years	YEAR UNDER NEW LICENSE Year Assumed Costs in 2020 $'s 2023	1 2024	2 2025	3 2026	4 2027	5 2028	6 2029	7 2030	8 2031	9 2032	10 2033	11 2034	12 2035	13 2036	14 2037	15 2038	16 2039	17 2040	18 2041	19 2042	20 2043
Cultural - Historic Resources Enhancement Measures	**$ 600,000**																							
Cultural Resources - Phase 1B complete surveys	CapEx	$ 150,000	$ 3,750	$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	CapEx	$ 300,000	$ 7,500	$ -	$ -	$ 25,000	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	$ -
Cultural and Historic fund	CapEx	$ 150,000	$ 3,750	$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures	**$ 9,470,000**																							
Evaluate whether fish are trapped behind collection gallery below powerhouse	CapEx	$ 10,000	$ 250	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement solution if fish are trapped behind collection gallery	CapEx	$ 50,000	$ 1,250	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement Improvements to Counting window and room	CapEx	$ 180,000	$ 4,500	$ -	$ -	$ -	$ -	$ 30,000	$ 125,000	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	CapEx	$ 60,000	$ 1,500	$ -	$ -	$ -	$ 30,000	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	CapEx	$ 280,000	$ 7,000	$ -	$ -	$ -	$ 140,000	$ 140,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study	CapEx	$ 250,000	$ 6,250	$ -	$ -	$ 200,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	CapEx	$ 1,050,000	$ 26,250	$ -	$ -	$ -	$ -	$ 50,000	$ 500,000	$ 500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in ladder	CapEx	$ 220,000	$ 5,500	$ -	$ -	$ -	$ 60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 60,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	CapEx	$ 160,000	$ 4,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 120,000	$ -	$ -	$ -	$ -	$ 40,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	OpEx	$ 390,000	$ 9,750	$ -	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	OpEx	$ 1,850,000	$ 46,250	$ -	$ -	$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Impoundment Shad/Eel DS passage route studies	CapEx	$ 70,000	$ 1,750	$ -	$ -	$ -	$ -	$ 70,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	CapEx	$ 200,000	$ 5,000	$ -	$ -	$ 150,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/EelDownstream Fish Passage Modifications	CapEx	$ 3,350,000	$ 83,750	$ -	$ -	$ -	$ 350,000	$ 500,000	$ 1,250,000	$ 1,250,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/Eel Downstream Passage improvement effectiveness evaluations	CapEx	$ 400,000	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 200,000	$ 200,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Repair or Replace Fish Trap	CapEx	$ 950,000	$ 23,750	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 150,000	$ 800,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures	**$ 665,000**																							
Existing Recreation Improvements Design and Permitting	CapEx	$ 25,000	$ 625			$ 25,000																		
Upstream Portage - new floating dock, pathway and boat slide	CapEx	$ 15,000	$ 375	$ -	$ -	$ -	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs, path and boat slide	CapEx	$ 15,000	$ 375	$ -	$ -	$ -	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gov. Hunt/Vernon Glen-ADA Improvements to Parking and Picnic Sites	CapEx	$ 25,000	$ 625	$ -	$ -	$ -	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stebbins Island Canoe Camp site rehabilitation and improvements	CapEx	$ 5,000	$ 125	$ -	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Fish Ladder Window - update window, lighting, ADA accessibility	CapEx	$ 25,000	$ 625	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	OpEx	$ 555,000	$ 13,875	$ -	$ -	$ -	$ -	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Water Resources - Operations	**$ 1,850,000**																							
WSE monitoring Inflow forecasting equipment and installation	CapEx	$ 650,000	$ 16,250	$ -	$ 50,000	$ 300,000	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	OpEx	$ 1,200,000	$ 30,000	$ -	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Total Vernon Opex (2020$'s)	**OpEx**	**$ 3,995,000**																						
Total Vernon Capex (2020$'s)	**CapEx**	**$ 8,590,000**																						
Total Vernon Opex & CapEx (2020$'s)	**$ 12,585,000**	**$ 12,585,000**																						
		$ 12,585,000	$ 314,625	$ -	$ 80,000	$ 840,000	$ 1,230,000	$ 1,025,000	$ 2,005,000	$ 1,885,000	$ 440,000	$ 505,000	$ 910,000	$ 165,000	$ 255,000	$ 145,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000

	21 2044	22 2045	23 2046	24 2047	25 2048	26 2049	27 2050	28 2051	29 2052	30 2053	31 2054	32 2055	33 2056	34 2057	35 2058	36 2059	37 2060	38 2061	39 2062	40 2063
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000		$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	$ -
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluate whether fish are trapped behind collection gallery below powerhouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement solution if fish are trapped behind collection gallery	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Implement Improvements to Counting window and room	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in ladder	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Impoundment Shad/Eel DS passage route studies	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/EelDownstream Fish Passage Modifications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shad/Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Repair or Replace Fish Trap	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Portage - new floating dock, pathway and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs, path and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gov. Hunt/Vernon Glen-ADA Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stebbins Island Canoe Camp site rehabilitation and improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Fish Ladder Window - update window, lighting, ADA accessibility	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Total	$ 155,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 155,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000	$ 110,000	$ 105,000

Table D-1. Cost of Proposed Environmental Measures.

Revised 8-1-2022 to reflect Fish Passage Settlement Agreement mitigation schedule

Post License Incremental Operating and Capital Expense Bellows Falls		2020 Dollars	Yr'ly Average over 40 years	YEAR UNDER NEW LICENSE Year Assumed Costs in 2020 $'s	2023	1 2024	2 2025	3 2026	4 2027	5 2028	6 2029	7 2030	8 2031	9 2032	10 2033
Cultural - Historic Resources Enhancement Measures	**$ 600,000**														
Cultural Resources - Phase 1B complete surveys	CapEx	$ 150,000	$ 3,750		$ -	$ -	50000	50000	50000	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	CapEx	$ 300,000	$ 7,500		$ -	$ -	$ 25,000	$ 50,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	CapEx	$ 150,000	$ 3,750		$ -	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures	**$ 6,485,000**														
Monitor Fishlader use by Eel and Sea Lamprey	CapEx	$ 120,000	$ 3,000		$ -	$ -	60000	60000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	CapEx	$ 260,000	$ 6,500		$ -	$ -	$ -	$ -	$ 120,000	$ -	$ 70,000	$ 70,000	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study if appropriate)	CapEx	$ 250,000	$ 6,250		$ -	$ -	$ -	$ -	$ -	75000	175000	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	CapEx	$ 725,000	$ 18,125		$ -	$ -	$ -	$ 15,000	$ 60,000	$ -	$ -	$ 50,000	$ 300,000	$ 300,000	$ -
Upstream eel passage (ramps?) below station or in bypassed reach	CapEx	$ 150,000	$ 3,750		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 150,000	$ -
Upstream Fish passage improvement/effectiveness monitoring	CapEx	$ 320,000	$ 8,000		$ -	$ -	$ -	$ -	$ 40,000	$ 40,000	$ -	$ -	$ -	$ 120,000	$ 120,000
Fishladder Operation additional O&M	OpEx	$ 390,000	$ 9,750		$ -	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	OpEx	$ 1,700,000	$ 42,500		$ -	$ -	$ -	$ -	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 50,000	$ 50,000
Resident Impoundment Eel Survey	CapEx	$ 70,000	$ 1,750		$ -	$ -	$ -	$ -	$ -	$ -	$ -	70000	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	CapEx	$ 200,000	$ 5,000		$ -	$ -	0	0	$ -	$ -	$ 150,000	$ 50,000	$ -	$ -	$ -
Design and Install Downstream Eel Passage Enhancements	CapEx	$ 2,000,000	$ 50,000		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,000	$ 150,000	$ 1,500,000
Eel Downstream Passage improvement effectiveness evaluations	CapEx	$ 300,000	$ 7,500		$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	0	$ -
Recreation Resource Enhancement Measures	**$ 941,000**														
Existing Recreation Improvements Design and Permitting	CapEx	$ 25,000	$ 625				$ 25,000								
Herricks Cove-Gate, Road and Parking Improvements	CapEx	$ 25,000	$ 625		$ -	$ -		$ -	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-ADA Improvements to Dock, Parking and Picnic Sites	CapEx	$ 25,000	$ 625		$ -	$ -	$ -	$ -	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-expand car top launches	CapEx	$ 10,000	$ 250		$ -	$ -	$ -	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-Birding observation platforms and trails	CapEx	$ 10,000	$ 250		$ -	$ -	$ -	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Road and Parking Improvements	CapEx	$ 5,000	$ 125		$ -	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-ADA Improvements to Parking and Picnic Sites	CapEx	$ 20,000	$ 500		$ -	$ -	$ -	$ 20,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Picnic Area Improvements	CapEx	$ 10,000	$ 250		$ -	$ -	$ -	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-ADA Improvements to Launch, Parking and Picnic Sites	CapEx	$ 15,000	$ 375		$ -	$ -	$ -	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-General Improvements to Parking and Picnic Sites	CapEx	$ 5,000	$ 125		$ -	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-Repair and re-purpose Red Barn; portage support	CapEx	$ 80,000	$ 2,000		$ -	$ -	$ -	$ 80,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portage- transportation service equipment	CapEx	$ 6,000	$ 150		$ -	$ -	$ 6,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Canoe Camp site rehabilitation and improvements	CapEx	$ 5,000	$ 125		$ -	$ -	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Center - updating fixtures, systems, parking and landscaping	CapEx	$ 20,000	$ 500		$ -	$ -	$ -	$ -	$ -	$ 20,000	$ -	$ -	$ -	$ -	$ -
Landscape design improvements to former substation site next to canal	CapEx	$ 30,000	$ 750		$ -	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	OpEx	$ 555,000	$ 13,875		$ -	$ -	$ -	$ -	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
3rd Party Portage Transportation Expenses	OpEx	$ 95,000	$ 2,375					$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500
Water Resources - Operations	**$ 5,050,000**														
WSE monitoring Inflow forecasting equipment and installation	CapEx	$ 650,000	$ 16,250		$ -	$ 50,000	$ 300,000	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	OpEx	$ 1,200,000	$ 30,000		$ -	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Bypass minimum flow sluice gate	CapEx	$ 3,200,000	$ 80,000		$ -	$ -	$ 200,000	$ 1,500,000	$ 1,500,000	$ -	$ -	$ -	$ -	$ -	$ -
Total Bellows Falls Opex (2020$'s)	**OpEx**	**$ 3,940,000**													
Total Bellows Falls Capex (2020$'s)	**CapEx**	**$ 9,136,000**													
Total Bellows Falls Opex & CapEx (2020$'s)	**$ 13,076,000**	**$ 13,076,000**													
		$ 13,076,000	$ 326,900		**$ -**	**$ 80,000**	**$ 756,000**	**$ 2,202,500**	**$ 1,972,500**	**$ 247,500**	**$ 472,500**	**$ 322,500**	**$ 427,500**	**$ 832,500**	**$ 1,727,500**

Item	11 2034	12 2035	13 2036	14 2037	15 2038	16 2039	17 2040	18 2041	19 2042	20 2043
Cultural - Historic Resources Enhancement Measures										
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures										
Monitor Fishlader use by Eel and Sea Lamprey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study if appropriate)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in bypassed reach	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Resident Impoundment Eel Survey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Install Downstream Eel Passage Enhancements	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ 150,000	150000	0	0	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures										
Existing Recreation Improvements Design and Permitting										
Herricks Cove-Gate, Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-ADA Improvements to Dock, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-expand car top launches	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-Birding observation platforms and trails	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-ADA Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Picnic Area Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-ADA Improvements to Launch, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-General Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-Repair and re-purpose Red Barn; portage support	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portage- transportation service equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Canoe Camp site rehabilitation and improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Center - updating fixtures, systems, parking and landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Landscape design improvements to former substation site next to canal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
3rd Party Portage Transportation Expenses	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500
Water Resources - Operations										
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Bypass minimum flow sluice gate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 457,500**	**$ 257,500**	**$ 262,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**

Item	21 2044	22 2045	23 2046	24 2047	25 2048	26 2049	27 2050	28 2051	29 2052	30 2053
Cultural - Historic Resources Enhancement Measures										
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures										
Monitor Fishlader use by Eel and Sea Lamprey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study if appropriate)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in bypassed reach	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Resident Impoundment Eel Survey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Install Downstream Eel Passage Enhancements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures										
Existing Recreation Improvements Design and Permitting										
Herricks Cove-Gate, Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-ADA Improvements to Dock, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-expand car top launches	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-Birding observation platforms and trails	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-ADA Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Picnic Area Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-ADA Improvements to Launch, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-General Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-Repair and re-purpose Red Barn; portage support	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portage- transportation service equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Canoe Camp site rehabilitation and improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Center - updating fixtures, systems, parking and landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Landscape design improvements to former substation site next to canal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
3rd Party Portage Transportation Expenses	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500
Water Resources - Operations										
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Bypass minimum flow sluice gate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 157,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**

Item	31 2054	32 2055	33 2056	34 2057	35 2058	36 2059	37 2060	38 2061	39 2062	40 2063
Cultural - Historic Resources Enhancement Measures										
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishery and Aquatic Resource Enhancement Measures										
Monitor Fishlader use by Eel and Sea Lamprey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fishladder Hydraulic Study if appropriate)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) below station or in bypassed reach	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishladder Operation additional O&M	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Eel Ramp O&M and fish handling	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Resident Impoundment Eel Survey	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hydraulic Study above the dam for downstream passage design/options	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Install Downstream Eel Passage Enhancements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recreation Resource Enhancement Measures										
Existing Recreation Improvements Design and Permitting										
Herricks Cove-Gate, Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-ADA Improvements to Dock, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-expand car top launches	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Herricks Cove-Birding observation platforms and trails	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Road and Parking Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-ADA Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Charlestown-Picnic Area Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-ADA Improvements to Launch, Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-General Improvements to Parking and Picnic Sites	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pine Street-Repair and re-purpose Red Barn; portage support	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portage- transportation service equipment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Canoe Camp site rehabilitation and improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Visitor Center - updating fixtures, systems, parking and landscaping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Landscape design improvements to former substation site next to canal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
3rd Party Portage Transportation Expenses	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500
Water Resources - Operations										
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Bypass minimum flow sluice gate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 157,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**	**$ 112,500**	**$ 107,500**

Table D-1. Cost of Proposed Environmental Measures.

Revised 8-1-2022 to reflect Fish Passage Settlement Agreement mitigation schedule

Post License Incremental Operating and Capital Expense Wilder		Total 2020 Dollars	Yr'ly Average over 40 years	YEAR UNDER NEW LICENSE Year Assumed 2023 Costs in 2020 $'s
Cultural - Historic Resources Enhancement Measures	**$ 600,000**			
Cultural Resources - Phase 1B complete surveys	CapEx	$ 150,000	$ 3,750	$ -
HPMP requirements	CapEx	$ 300,000	$ 7,500	$ -
Cultural and Historic fund	CapEx	$ 150,000	$ 3,750	$ -
Fishery and Aquatic Resource Enhancement Measures	**$ 6,960,000**			
Monitor Fishlader use by Eel and Sea Lamprey	CapEx	$ 120,000	$ 3,000	$ -
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	CapEx	$ 120,000	$ 3,000	$ -
Upstream Fishladder Hydraulic Study if appropriate)	CapEx	$ 250,000	$ 6,250	$ -
Existing Upstream Fish Ladder Modifications (consult, design,install)	CapEx	$ 550,000	$ 13,750	$ -
Upstream eel passage (ramps?) outside of ladder operation	CapEx	$ 150,000	$ 3,750	$ -
Upstream Fish passage improvement/effectiveness monitoring	CapEx	$ 160,000	$ 4,000	$ -
Fishladder Operation additional O&M	OpEx	$ 390,000	$ 9,750	$ -
Eel Ramp O&M and fish handling	OpEx	$ 1,400,000	$ 35,000	$ -
Resident Impoundment Eel Survey	CapEx	$ 70,000	$ 1,750	$ -
Hydraulic Study above the dam for downstream passage design/options	CapEx	$ 200,000	$ 5,000	$ -
Downstream Fish Passage Modifications Eels(med prob)	CapEx	$ 3,250,000	$ 81,250	$ -
Eel Downstream Passage improvement effectiveness evaluations	CapEx	$ 300,000	$ 7,500	$ -
Recreation Resource Enhancement Measures	**$ 737,000**			
Existing Recreation Improvements Design and Permitting	CapEx	$ 25,000	$ 625	
Upstream Portage - new floating dock, stairs and boat slide	CapEx	$ 25,000	$ 625	$ -
Downstream Portage - Trail improvement, new stairs and boat slide	CapEx	$ 40,000	$ 1,000	$ -
Fishing platform and/or trail and stairs to water	CapEx	$ 27,500	$ 688	$ -
Elevated birding platform	CapEx	$ 17,500	$ 438	$ -
Expanded Gilman Island Canoe Campsite	CapEx	$ 17,000	$ 425	$ -
ADA picnic sites (Lebanon, Hartford, Olcott?)	CapEx	$ 30,000	$ 750	$ -
Additional Recreation Maintenance for Enhancements)	OpEx	$ 555,000	$ 13,875	$ -
Water Resources - Operations	**$ 1,850,000**			
WSE monitoring Inflow forecasting equipment and installation	CapEx	$ 650,000	$ 16,250	$ -
WSE monitoring Inflow forecasting equipment O&M	OpEx	$ 1,200,000	$ 30,000	$ -
Total Wilder Opex (2020$'s)	**OpEx**	**$ 3,545,000**		
Total Wilder Falls Capex (2020$'s)	**CapEx**	**$ 6,602,000**		
Total Wilder Opex & CapEx (2020$'s)	**$ 10,147,000**	**$ 10,147,000**		
		$ 10,147,000	$ 253,675	$ -

Item	1 2024	2 2025	3 2026	4 2027	5 2028	6 2029	7 2030	8 2031	9 2032	10 2033
Cultural Resources - Phase 1B complete surveys	$ -	50,000	50,000	50,000	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ -	$ 25,000	$ 50,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	$ 60,000	-	60,000	-	-	-	-	-	-	-
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	$ -	-	-	-	-	-	-	120,000	-	-
Upstream Fishladder Hydraulic Study if appropriate)	$ -	-	-	-	-	-	-	-	75,000	175,000
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) outside of ladder operation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
Upstream Fish passage improvement/effectiveness monitoring	$ -	-	-	-	-	-	-	-	-	-
Fishladder Operation additional O&M	$ -	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Eel Ramp O&M and fish handling	$ -	-	-	-	-	-	-	-	-	-
Resident Impoundment Eel Survey	$ -	-	-	-	-	-	-	-	-	70,000
Hydraulic Study above the dam for downstream passage design/options	$ -	-	-	-	-	-	-	-	-	50,000
Downstream Fish Passage Modifications Eels(med prob)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0	0
Existing Recreation Improvements Design and Permitting		$ 25,000								
Upstream Portage - new floating dock, stairs and boat slide	$ -	$ -	$ 5,000	$ 20,000	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs and boat slide	$ -	$ -	$ 5,000	$ 35,000	$ -	$ -	$ -	$ -	$ -	$ -
Fishing platform and/or trail and stairs to water	$ -	$ -	$ -	$ 2,500	$ 25,000	$ -	$ -	$ -	$ -	$ -
Elevated birding platform	$ -	$ -	$ -	$ 2,500	$ 15,000	$ -	$ -	$ -	$ -	$ -
Expanded Gilman Island Canoe Campsite	$ -	$ -	$ -	$ 2,000	$ 15,000	$ -	$ -	$ -	$ -	$ -
ADA picnic sites (Lebanon, Hartford, Olcott?)	$ -	$ -	$ 5,000	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	$ -	$ -	$ -	15,000	15,000	15,000	15,000	15,000	15,000	15,000
WSE monitoring Inflow forecasting equipment and installation	$ 50,000	$ 300,000	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Total	**$ 140,000**	**$ 490,000**	**$ 565,000**	**$ 242,000**	**$ 115,000**	**$ 55,000**	**$ 60,000**	**$ 175,000**	**$ 135,000**	**$ 350,000**

Item	11 2034	12 2035	13 2036	14 2037	15 2038	16 2039	17 2040	18 2041	19 2042	20 2043
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	-	-	-	-	-	-	-	-	-	-
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	-	-	-	-	-	-	-	-	-	-
Upstream Fishladder Hydraulic Study if appropriate)	-	-	-	-	-	-	-	-	-	-
Existing Upstream Fish Ladder Modifications (consult, design,install)	50,000	300,000	200,000	-	-	-	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) outside of ladder operation	-	75,000	75,000	-	-	-	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	-	-	$ -	$ 120,000	$ 40,000	-	-	-	-	-
Fishladder Operation additional O&M	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Eel Ramp O&M and fish handling	-	-	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Resident Impoundment Eel Survey	-	-	-	-	-	-	-	-	-	-
Hydraulic Study above the dam for downstream passage design/options	150,000	-	-	-	-	-	-	-	-	-
Downstream Fish Passage Modifications Eels(med prob)	-	100,000	150,000	500,000	2,500,000	-	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	0	$ -	$ -	$ -	150000	150000	0	$ -	$ -
Upstream Portage - new floating dock, stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishing platform and/or trail and stairs to water	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Elevated birding platform	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Expanded Gilman Island Canoe Campsite	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ADA picnic sites (Lebanon, Hartford, Olcott?)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Total	**$ 305,000**	**$ 530,000**	**$ 535,000**	**$ 725,000**	**$ 2,650,000**	**$ 255,000**	**$ 260,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**

Item	21 2044	22 2045	23 2046	24 2047	25 2048	26 2049	27 2050	28 2051	29 2052	30 2053
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	-	-	-	-	-	-	-	-	-	-
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	-	-	-	-	-	-	-	-	-	-
Upstream Fishladder Hydraulic Study if appropriate)	-	-	-	-	-	-	-	-	-	-
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) outside of ladder operation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	-	-	-	-	-	-	-	-	-	-
Fishladder Operation additional O&M	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Eel Ramp O&M and fish handling	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Resident Impoundment Eel Survey	-	-	-	-	-	-	-	-	-	-
Hydraulic Study above the dam for downstream passage design/options	-	-	-	-	-	-	-	-	-	-
Downstream Fish Passage Modifications Eels(med prob)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Portage - new floating dock, stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishing platform and/or trail and stairs to water	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Elevated birding platform	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Expanded Gilman Island Canoe Campsite	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ADA picnic sites (Lebanon, Hartford, Olcott?)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Total	**$ 155,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**

Item	31 2054	32 2055	33 2056	34 2057	35 2058	36 2059	37 2060	38 2061	39 2062	40 2063
Cultural Resources - Phase 1B complete surveys	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
HPMP requirements	$ 50,000		$ 5,000		$ 5,000		$ 5,000		$ 5,000	$ -
Cultural and Historic fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitor Fishlader use by Eel and Sea Lamprey	-	-	-	-	-	-	-	-	-	-
Upstream Eel/Sea Lamprey Passage studies (Pit-tag fishladder, below dam)	-	-	-	-	-	-	-	-	-	-
Upstream Fishladder Hydraulic Study if appropriate)	-	-	-	-	-	-	-	-	-	-
Existing Upstream Fish Ladder Modifications (consult, design,install)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream eel passage (ramps?) outside of ladder operation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Fish passage improvement/effectiveness monitoring	-	-	-	-	-	-	-	-	-	-
Fishladder Operation additional O&M	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Eel Ramp O&M and fish handling	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Resident Impoundment Eel Survey	-	-	-	-	-	-	-	-	-	-
Hydraulic Study above the dam for downstream passage design/options	-	-	-	-	-	-	-	-	-	-
Downstream Fish Passage Modifications Eels(med prob)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Eel Downstream Passage improvement effectiveness evaluations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upstream Portage - new floating dock, stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Downstream Portage - Trail improvement, new stairs and boat slide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fishing platform and/or trail and stairs to water	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Elevated birding platform	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Expanded Gilman Island Canoe Campsite	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ADA picnic sites (Lebanon, Hartford, Olcott?)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Recreation Maintenance for Enhancements)	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
WSE monitoring Inflow forecasting equipment and installation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
WSE monitoring Inflow forecasting equipment O&M	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Total	**$ 155,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**	**$ 110,000**	**$ 105,000**