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Chief Operating Officer

June 29, 2022

Secretary Bethany Card  
Executive Office of Energy and Environmental Affairs  
Commonwealth of Massachusetts  
100 Cambridge Street, Suite 900  
Boston, MA 02114

**Via electronic mail**

**Re: Turners Falls Hydroelectric Project (FERC No. 1889) and Northfield Mountain Pumped Storage Project (FERC No. 2485) FERC Relicensing and Massachusetts Clean Water Act Section 401 Certification**

Dear Secretary Card:

FirstLight MA Hydro LLC, owner of the Turners Falls Hydroelectric Project and Northfield Mountain LLC, owner of the Northfield Mountain Pumped Storage Project (collectively "FirstLight" and "the Projects") are in receipt of the letter to you from the Connecticut River Conservancy ("CRC"), dated June 13, 2022, regarding the Massachusetts Department of Environmental Protection's ("MDEP") Section 401 Water Quality Certification ("401 WQC") process and the settlement of Federal Energy Regulatory Commission ("FERC") relicensing issues associated with the Projects. The purpose of this letter is to respond to the four primary areas of concern, as stated by CRC, relative to how the FERC Settlement process is unfolding and to ensure that a fully accurate and representative view of the issues is presented.

To date, the Settlement Parties ("Parties") for the Projects have reached Agreements in Principle ("AIPs") on fish passage and flows, recreation, and whitewater boating. These AIPs are public documents and are included as Exhibit 1 along with a list of signatories to each AIP. In addition, the Parties are continuing to make progress on cultural resource issues and are preparing the background information necessary for substantive negotiations regarding erosion in the Turners Falls Impoundment ("TFI").

FirstLight notes that MDEP's sister state agencies, the Massachusetts Division of Fisheries and Wildlife ("MDFW"), the Massachusetts Natural Heritage and Endangered Species Program ("NHESP"), and the Massachusetts Department of Conservation and Recreation are actively participating in the settlement process. The participation of these sister state agencies has been supplemented by the local communities (Erving, Gill, Montague, and Northfield), U.S Fish and Wildlife Service ("USFWS"), National Marine Fisheries Service ("NMFS"), Appalachian Mountain Club, The Nature Conservancy, American Whitewater, Access Fund, Crab Apple Whitewater, Franklin Regional Council of Governments, New England Flow, New England Mountain Biking Association, Western Massachusetts Climbing Coalition, Zoar Outdoor and CRC. Each of these Parties has joined FirstLight as a signatory to one or more of these AIPs. In addition, The

Nolumbeka Project and Elnu Abenaki Tribe continue to participate in negotiations with FirstLight regarding cultural resource issues. By any measure, there is robust participation in this process by state and federal agencies, local communities and regional governments, Tribal interests and a variety of environmental and recreation-focused stakeholders.

These Parties and FirstLight have made great progress toward a comprehensive settlement benefitting the local communities, as well as the physical and cultural environment while providing for the continued production of reliable carbon-free hydroelectric power and energy storage that is critical to the Commonwealth's efforts to meet its nation-leading greenhouse gas reduction targets. In the coming weeks, FirstLight hopes to bring negotiations associated with each of these resource issues to a successful conclusion and to file a comprehensive settlement with FERC that balances the interests of the various Parties and provides a foundation for the 401 WQC process that will follow.

In its letter and associated Exhibits, CRC asserted four problems with how the FERC process is unfolding. FirstLight has reviewed CRC's submittal and offers the following for MDEP's consideration.

### **Background Context Regarding the Importance of the Relicensing Settlement Process and of the Projects to the Regional Energy Grid and Achieving The Commonwealth's Climate Goals**

At the outset, FirstLight wishes to echo CRC's appreciation for the extensive engagement by state agencies in this relicensing process. The AIPs, collectively, reflect enormous environmental and economic benefits to the local and regional area in the form of new capital investments and operating conditions that will directly benefit fish passage and habitat protection in the Connecticut River, as well as significant new recreational investments in Franklin County. Importantly, they also represent (in FirstLight's view) an appropriate recognition of the needs to balance relicensing conditions in the context of the role these assets play in the Commonwealth's environmental and climate goals going forward. For reference, Cabot Station is the fourth largest conventional hydroelectric station in New England and the largest in Massachusetts. The Northfield Mountain Pumped Storage Project ("NFM Project") is the region's largest energy storage project. The NFM Project's ability to store 8,729 MWhs of energy, its large MW capacity, and its ability to ramp up electricity production rapidly make it the most valuable tool the Independent System Operator-New England<sup>1</sup> ("ISO-NE") has to continuously maintain New England's load and supply balance both now and into the future with the continued penetration of renewable energy.

The importance of these energy facilities to regional reliability has never been clearer. As stated in ISO-NE's March 17, 2021, letter to FERC (Exhibit 2) the NFM Project is a critical resource to continually maintain the load and generation balance throughout New England. It does this by providing the region with power at times of high energy demand, serving as additional operating reserve to respond to a given contingency, such as a sudden, unanticipated loss of a major generating plant or transmission facility or a large loss of load. As discussed in further detail below, an expanded Upper Reservoir volume will allow the NFM Project to provide enhanced regional reliability benefits both as a generator and load, a critical feature required for the continued build out of intermittent renewable sources in the state and region.

In addition, as the Commonwealth advances its vision for achieving carbon-neutrality by 2050, large-scale energy storage facilities like the NFM Project will be critical elements in ensuring that we can build an electric grid that is clean, reliable, affordable and equitable, in furtherance of the goals of the Global

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<sup>1</sup>ISO-NE is an independent, non-profit Regional Transmission Organization serving CT, ME, MA, NH, RI and VT.

Warming Solutions Act and other nation-leading climate legislation enacted in the Commonwealth over the past several years.

**CRC Assertion I – The Proposed Minimum Flows Below Turners Falls Dam Are Insufficient to Meet Water Quality Standards**

The Massachusetts Surface Water Quality Standards from Turners Falls Dam to Holyoke Dam are designated as Class B waters (see 314 CMR 4.06). Class B waters are defined in 314 CMR 4.05(b) as follows: *Those Inland Waters so designated pursuant to 314 CMR 4.06; including, without limitation, certain wetlands designated in 314 CMR 4.06(2), certain other waters designated in 314 CMR 4.06(5), and certain qualified waters designated in 314 CMR 4.06(6)(b). These waters are designated as habitat for fish, other aquatic life, and wildlife including their reproduction, migration, growth, and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06(1)(d)(6) and (6)(b) as a “Treated Water Supply” these waters shall be suitable as a source of public water supply with appropriate treatment. Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.*

Exhibit 2 of CRC’s letter states that the 3.7-mile segment between Turners Falls Dam and the confluence with the Deerfield River (known as Segment 34-03) is currently impaired for dewatering, flow regime modification, E. coli bacteria, PCBs in fish tissue, and total suspended solids per the Massachusetts Year 2018-2020 Integrated List of Waters (finalized in February 2022).

In discussing this impairment CRC attempts to diminish the legitimacy of certain uses (e.g., state listed species protection) and narrow the focus of the future flow decisions on a 1.0 mile subsegment – from the Turners Falls Dam to Station No. 1 – of Segment 34-03. Further, CRC focuses its discussion of Aquatic Life Use (“ALU”) on just three of six target fish species and one specific recreation use (recreation boating between Turners Falls Dam and Station No. 1).

Flow decisions and the level of improvement over existing conditions in Segment 34-03 are complicated. The impairments listed above for dewatering and flow modification are based on existing operations. The flow regimes contemplated in the AIPs are designed to address these impairments and meet the designated uses as described in the Class B water quality standards over the entire Segment 34-03.

Aquatic Habitat

An aquatic habitat study was conducted in Segment 34-03 to determine flows needed to support various target fish species as part of the licensing process. Segment 34-03 was broken into three separate reaches, as warranted for hydraulic modeling purposes, as shown in Table 1 and Exhibit 3 (attached).

**Table 1: Habitat Reach Description and Lengths**

Reach	Subsegment of Segment 34-03	Subsegment Length
Reach 1	Turners Falls Dam to Station No. 1	1.0 mi
Reach 2	Station No. 1 to Rock Dam/Rawson Island	1.0 mi
Reach 3	Rock Dam/Rawson Island to Montague USGS Gage <sup>2</sup>	1.75 mi

<sup>2</sup> Reach 3 technically ends at the Montague USGS gage, which is only 0.17 miles downstream of the Deerfield River confluence.

Reach 1 includes three sub-reaches including a) the plunge pool below the dam, b) the Right Channel<sup>3</sup>, Center Channel, and Left Channel which flow around Peskeomskut Island and c) the reach from where the three channels converge to Station No. 1. Habitat in the plunge pool, Center Channel and Left Channel were not quantified in the habitat study. The Right Channel is approximately 80-feet-wide and represents approximately 0.1 mile of Reach 1. From the three channel convergence to Station No. 1, the river is approximately 400+ feet-wide and represents approximately 0.5 miles of Reach 1.

CRC focuses its analysis on Reach 1 from July 1 to March 31. CRC disputes whether the Turners Falls Dam releases of 250 or 400 cubic feet per second (“cfs”) from July 1 to March 31, as proposed in the AIP, will meet designated uses in Segment 34-03. CRC proposes a new flow regime of 1,000 cfs from July 1 to November 15 and 500 cfs from November 16 to March 31. CRC bases its analysis on the habitat available under the various flows for three fluvial specialists (Fallfish, Longnose Dace, and Tessellated Darter), or three of the six target species in Reach 1.

CRC ignores the remaining 2.7 miles of Segment 34-03 between Station No. 1 and the Deerfield River confluence. Per the AIP, this reach receives supplemental flow from FirstLight’s Station No. 1 and Cabot Station discharges (see Exhibit 3). Under the AIP, from July 1 to March 31, minimum flows downstream of Station No. 1 are either 1,500 or 1800 cfs, or inflow<sup>4</sup>, whichever is less. Flows below Cabot Station to the Deerfield River confluence (0.75 miles of Segment 34-03) from July 1 to March 31 are generally equivalent to the Naturally Routed Flow (“NRF”)<sup>5</sup> of the Connecticut River<sup>6</sup>. The NRF is essentially the natural flow regime of the Connecticut River.

CRC states that based on the Massachusetts Consolidated Assessment and Listing Methodology 2018 Guidance Manual (“CALM”), that ALU *“is supported when the fish community includes fluvial specialist/dependent species or at least one fluvial species in moderate abundance (emphasis added). Fluvial specialist (FS) species require flowing water for all of their life-history requirements. According to Appendix B in the CALM, longnose dace, fallfish, and tessellated darter are all fluvial specialist species and these species were used as target species in the IFIM study for Turners Falls”.*

Table 2 includes all the target species in the habitat study for Reaches 1, 2, and 3 from July 1 to March 31. Below we focused on Reaches 1 and 2. The flow in Reach 1 and 2 must balance the needs of a variety of fish species and life stages including American shad (juveniles), Fallfish (juvenile and adult), Longnose Dace (juvenile and adult), White Sucker (juvenile and adult), and Tessellated Darter (juvenile and adult), various fish guilds and macroinvertebrates. Each target species has different and often competing habitat (depth, velocity, substrate) requirements. In determining a protective flow regime for all of Segment 34-03 it is necessary to balance the various habitat requirements of these aquatic species and the flow needs of other designated uses.

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<sup>3</sup> The “Right” Channel assumes one is looking in a downstream direction.

<sup>4</sup> As can be seen in the Fish Passage and Flow AIP, the flow in Reach 2 is 1,800 cfs from July 1 to August 31 and 1,500 cfs from September 1 to March 31, or inflow, whichever is less.

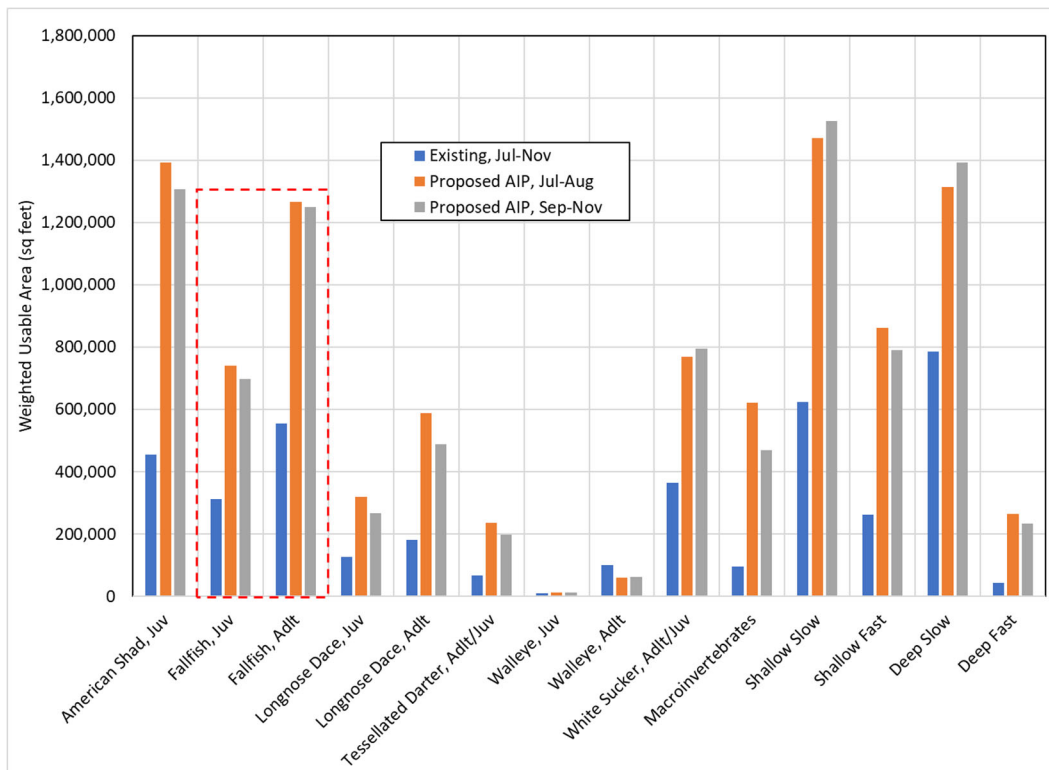
<sup>5</sup> The NRF equates to the total inflow to the Turners Falls Dam including the Vernon Dam total discharge and intervening inflow from major tributaries that are equipped with real-time gages reporting flows on the Ashuelot and Millers Rivers.

<sup>6</sup> As illustrated in the Flow and Fish Passage AIP (Exhibit 1), the proposed flows downstream of Cabot Station, from July 1 to March 31, are equivalent to the NRF except for the hours of midnight to 7 pm from December 1 to March 31, when a minimum flow of 3,800 cfs, or inflow, whichever is less, can be released in lieu of the NRF.

**Table 2: Target Species and Periodicity from July through March in Segment 34-03**

Target Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
American Shad (Juvenile)									
Fallfish (Juvenile and Adult)									
Longnose Dace (Juvenile and Adult)									
White Sucker (Juvenile and Adult)									
Walleye (Juvenile and Adult)									
Tessellated Darter (Juvenile and Adult)									
Habitat Guilds									
Macroinvertebrates									

FirstLight conducted additional analyses of the species and life stages using Reaches 1 and 2<sup>7</sup> from July 1 to March 31 to determine how the AIP compares to existing conditions for these target species as shown in Figure 1.



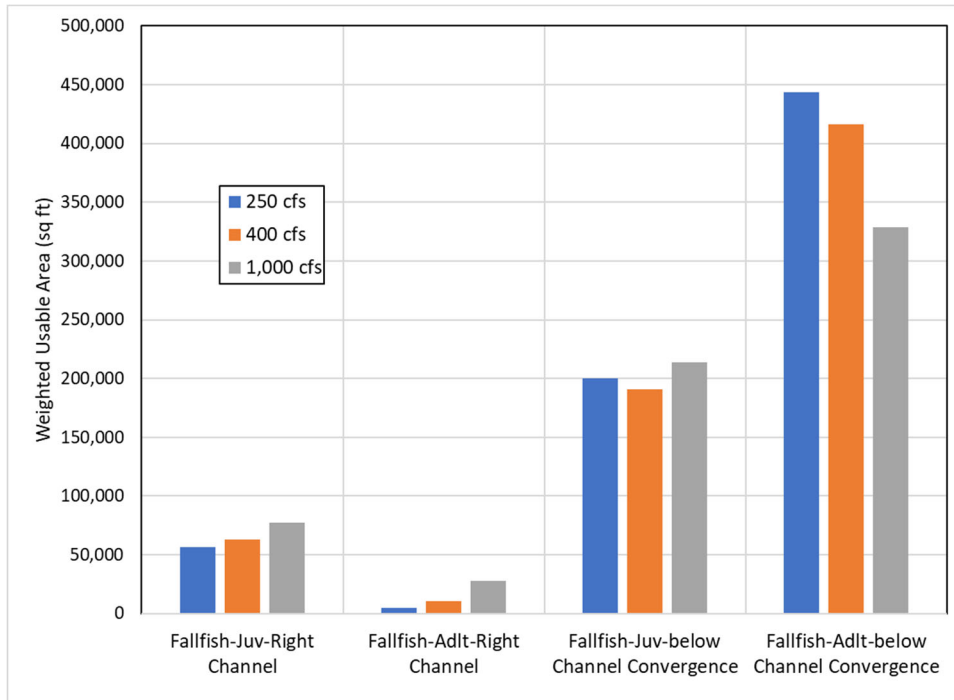
**Figure 1: Weighted Usable Habitat Area for Existing versus Proposed (AIP) Minimum Flow Conditions in Reaches 1 and 2**

Per Figure 1 the quantity of habitat available for Fallfish is considerably greater under both existing and AIP proposed conditions than compared to other fluvial species (Longnose Dace or Tessellated Darter).

<sup>7</sup> Note that Reach 3 of the IFIM Study includes both a subsegment downstream of Cabot Station as well as a subsegment that is upstream of Cabot Station but influenced by both Cabot Station operations and Deerfield River flows. We focused our analysis on Reaches 1 and 2 as habitat in those reaches is influenced primarily by the amount of bypass flow.

Nearly all species<sup>8</sup> exhibit substantial increases in habitat when comparing existing conditions to those under the proposed AIP condition, and Fallfish would receive increases on the order of 223% - 236% for juveniles and 225% - 228% for adults.

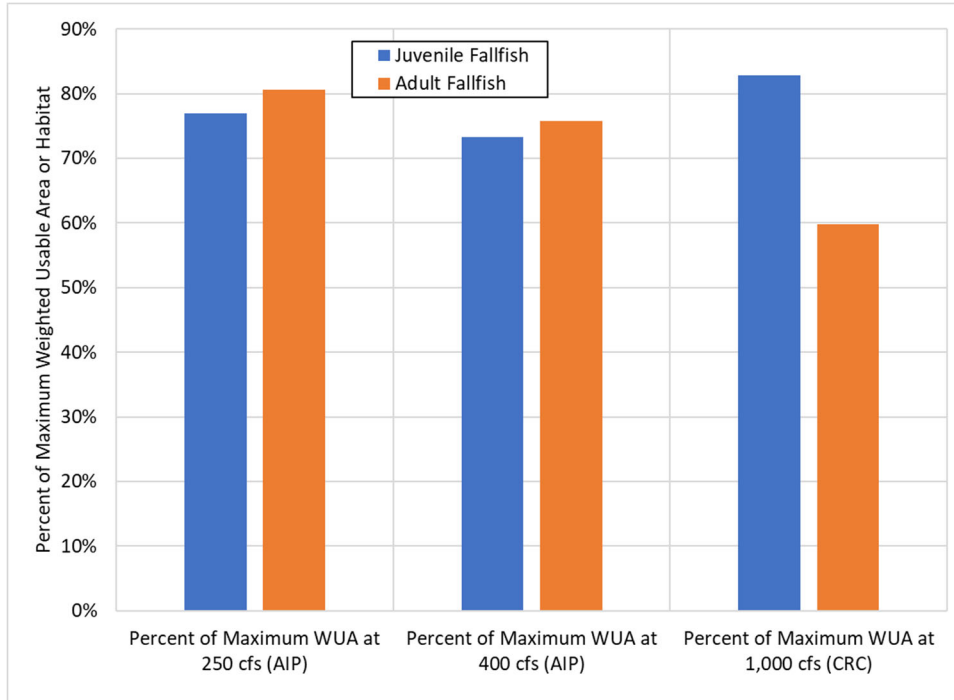
In analyzing the benefits of Turners Falls Dam discharges, emphasis was placed on juvenile and adult Fallfish while recognizing the differences in habitat within Reach 1. The fluvial habitat of interest in Reach 1 is composed of the Right Channel and the reach from the convergence of the three channels to Station No. 1. The quantity of juvenile and adult Fallfish in Reach 1 is far greater in the reach below the three channel convergence to Station No. 1 compared to the Right Channel (Figure 2).



**Figure 2: Quantity of Fallfish (Juvenile and Adult) Habitat in the Right Channel and below the Three Channel Convergence (Transects T-10 and T-11) to Station No. 1 under flows of 250, 400 and 1,000 cfs.**

Figure 3 illustrates the relationship between the various flows proposed and maximum habitat below the channel convergence, as represented by Transects T-10 and T-11.

<sup>8</sup> Walleye adults prefer low flow conditions in this river reach and will therefore not receive habitat benefits from the higher flows proposed in the AIP or CRC proposals



**Figure 3: Comparison of Fallfish (Juvenile and Adult) Percent Maximum Weighted Usable Area at 250, 400 and 1,000 cfs from the Three Channel Convergence (Transects T-10 and T-11) to Station No. 1**

As can be seen from Figure 3, there are small increases in the percentage of maximum habitat for juvenile Fallfish as flows progress from 250 cfs (77%) to 1,000 cfs (82.8%). However, for adult Fallfish there are substantial decreases in the percentage of maximum habitat as flows increase from 250 cfs (80.6%) to 1,000 cfs (59.8%). As each of these life stages resides in the stream at the same time, it requires a flow management choice. FirstLight submits that the small increases in juvenile habitat would not justify the decreases in adult habitat at higher flows.

In summary, under both the AIP and CRC proposals, the flow regime in Segment 34-03 will improve substantially over existing conditions, including a subsegment downstream of Cabot Station that will essentially have the natural flow regime of the Connecticut River. Massachusetts Water Quality Standards for Segment 34-03 of the Connecticut River include aquatic life as a designated use, but this does not mean a proposed flow must maximize habitat for any given fish species or life stage in any specific location within the affected reach. Rather, the question is whether the proposed flow regime balances the needs of the designated uses of the overall affected reach. Since it is physically impossible to maximize habitat for all species and life stages of fish given their different habitat needs and the physical characteristics of the riverine habitat that are static (e.g., substrate, slope), judgments must be made about how to provide flow for aquatic habitat. FirstLight has collaborated with the federal and state fishery agencies to achieve this balance in the AIP.

Attainment of Boating Use

In support of its case for higher flows to Reach 1, CRC cites the Boating Navigability Study completed in December 2021. The Boating Navigability Study objective was to assess navigability for recreational boaters at various flows in the upper bypass reach. In the case of recreational use and, in particular, boating, every section of an affected river reach may not be able to provide every type of recreation

experience. This is true whether it be a specific craft for boating or different recreation opportunities (e.g. fishing vs boating). The Parties to the Recreation AIP recognize this balance. In the Recreation AIP, to which CRC is a signatory, there is a provision for two boating access sites below Turners Falls Dam - upstream and downstream of Peskeomskut Island. The purpose of the boater access downstream of Peskeomskut Island is to accommodate through paddlers<sup>9</sup> who portage Turners Falls Dam and wish to paddle the entire bypass reach while accommodating resource concerns associated with NHESP listed plants. These types of creative solutions allow for multiple uses of the entire bypass reach consistent with the designated uses of the entire reach.

### **CRC Assertion II – The Purported Protection of Two Plant Species Does Not Justify Low Flows That Do Not Protect Aquatic Life Uses**

Here, CRC interjects the potential for two additional fish species of special concern, the Burbot (*Lota lota*) and Longnose Sucker (*Catostomus catostomus*) to be included in the habitat analysis for Segment 34-03. Neither of these species was listed as target species for the habitat study conducted in consultation with the NHESP, MDFW, USFWS, and NMFS during the FERC licensing process. Moreover, there is a general lack of structural habitat for these species in Segment 34-03 as can be seen in Exhibit 4 (NHESP Species Status Sheets). Specifically, Burbot are generally found in deep lakes and cool streams having shelter. They can also be found in weedy areas of streams and large rivers. Segment 34-03 is generally lacking in this type of structural habitat. Longnose Sucker use streams and tributary rivers with rocky substrates. This type of structural substrate is also lacking in Segment 34-03. Longnose Sucker are reported to frequent tributaries such as the Deerfield and Westfield Rivers having steeper topography with boulder strewn channels.

### **CRC Assertion III – Increases in Storage Capacity at Northfield Mountain Will Exacerbate Existing CWA Impairments and Impact Recreation**

CRC asserts that expanded<sup>10</sup> operations of the NFM Project Upper Reservoir will lead to greater and more frequent fluctuations in the TFI. Absent from the CRC submittal is any reference to FirstLight's agreement under the AIP to release the NRF downstream of Cabot Station to smooth out downstream fluctuations in river levels. FirstLight conducted an operations modeling sensitivity analysis where it modeled the TFI to provide the NRF with and without expanded NFM Project operations<sup>11</sup>. The results of this analysis, in the form of annual and monthly flow duration curves, are included in Exhibit 5. This analysis shows that operations to provide the NRF are a major contributor to the amount and frequency of changes from baseline (existing) conditions.

CRC also proposes a variety of "Recommendations for Addressing Impairments". Included within this list are recommendations for a.) managing and removing non-native invasive plant species; b.) developing a dredging plan for Barton Cove over the next license period; and c.) participating with the owners of the upstream hydroelectric facilities to develop and implement an Adaptive River Management Plan.

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<sup>9</sup> These would be paddlers traversing the Connecticut River.

<sup>10</sup> Expanded operations means a wider water level operating range of the NFM Project Upper Reservoir.

<sup>11</sup> As explained in the Executive Summary of FirstLight's AFLA, the additional Upper Reservoir storage will provide regional reliability benefits by enhancing the NFM Project's ability to deliver long-term and flexible capacity when it is most needed. It is difficult to quantify how often that flexible capacity will actually be needed. Nevertheless, FirstLight has modeled an example operation of how the additional storage may be used



FirstLight disagrees with all these recommendations. CRC has provided no rationale for FirstLight to assume responsibility for controlling invasive plant species in broad areas of the Connecticut River. FirstLight in the Amended Final License Application (“AFLA”) has proposed an Invasive Species Management Plan that would regulate FirstLight’s activities as licensee. Non-native invasive plant species are a regional problem associated with land use trends as well as seed transfer and propagation. FirstLight’s responsibility is to manage its Project facilities to minimize the spread of these species.

Exhibit 3 of CRC’s letter states its rationale for keeping TFI water levels above elevation 179 ft to accommodate boating. As shown in Table 3, TFI elevations are above El. 179 ft from 98 to 99% of the time, during the boating season, under the scenario with expanded NFM operations and operations to provide the NRF. Given the need to manage TFI to provide the NRF as well as produce and store energy, FirstLight’s proposal to retain its existing operational range is a reasonable accommodation of multiple uses of the TFI. Dredging of Barton Cove would be a costly capital project that cannot be justified by the limited benefits. Dredging was not included in the Recreation AIP which CRC signed.

**Table 3: Comparison of TFI Water Levels (>=179) under alternative NFM Project Operations**

Period	Time TFI Water Levels greater than or equal to El. 179 feet	
	AIP with Expanded NFM Project Operations	AIP without Expanded NFM Project Operations
January	95.5%	96.7%
February	95.8%	92.9%
March	97.1%	97.3%
April	95.0%	93.3%
May	94.6%	94.6%
June	97.9%	95.7%
July	98.5%	99.1%
August	98.9%	98.8%
September	99.5%	99.3%
October	99.2%	98.7%
November	99.3%	98.5%
December	99.2%	99.1%
Annual	97.6%	97.0%

Finally, CRC is proposing an Adaptive River Management Plan for the entire five-project area that addresses erosion, environmental, and cultural issues. CRC did not provide a timeframe for developing this plan. There are logistical and timing problems with this approach. First, the three hydroelectric projects, owned by Great River Hydro (“GRH”), upstream of the Projects are located in the States of New Hampshire and Vermont and, hence, not subject to Massachusetts 401 WQC jurisdiction. Second, this request ignores the 10 years over which 70+ studies have been conducted under the FERC licensing process for the five projects and the significant progress of those who have worked toward a comprehensive proposal on both the FirstLight and GRH projects. In fact, the Comprehensive Settlement and new FERC Licenses will represent a new management plan for this section of the Connecticut River and can be achieved now. With the AIPs completed for flows and fish passage, recreation and whitewater boating, FirstLight can turn its attention to resolving erosion and cultural resource issues and drafting the Comprehensive Agreement.

**CRC Assertion IV – Requiring a Decommissioning Plan and Sufficient Funding is Necessary to Avoid Future Water Quality Standard Violations When the Facilities Are Shuttered**

Exhibit 4 of CRC’s letter was the first communication (either written or verbal) FirstLight has seen where CRC advocates for funding for decommissioning. This is an issue that would have widespread implications for the hydroelectric industry in Massachusetts and nationally and, as such, warrants consultation with our industry partners before giving a complete response. Leaving aside the question of MDEP’s authority to impose such a requirement in a 401 WQC, nothing in the relicensing record would support decommissioning funding for the Projects. No party to the proceeding is advocating decommissioning. Further, a funding requirement for future dam decommissioning assumes that decommissioning equates to dam removal. It does not. Dams serve multiple purposes and if the Projects are ever decommissioned for power production, it is likely the dams would remain in place for other public purposes such as recreation and water supply. For this reason, FERC has considered and rejected a requirement that licensees contribute to decommissioning funds.

**Conclusion**

In summary, CRC’s letter is a proposal offered in the alternative to a series of AIPs agreed to by a large group of state and federal agencies, local communities and non-government organizations. FirstLight and the other Parties are working hard to achieve a final, comprehensive settlement resolving the full range of relicensing issues. Once that settlement is reached, FirstLight will file it with an Explanatory Statement into the FERC record where it will be posted for public comment. Similarly, that settlement will be the basis of FirstLight’s Application for a 401 WQC where it will again go through a rigorous public comment period. In both of these submittals, FirstLight will lay out the scientific case as to why it believes the Projects, as proposed in the Comprehensive Settlement, will meet Massachusetts Water Quality Standards. This is the appropriate timing to have a complete record before the MDEP.

FirstLight would welcome MDEP’s involvement in the settlement discussions in an advisory or any other capacity it chooses. Regardless of MDEP’s decision in this regard, FirstLight is committed to seeking a successful completion of the settlement process by the end of the summer. FirstLight believes that settlement is the quickest path to implementation of environmental and recreational improvements for which Project stakeholders have advocated. It also will enable the Projects to continue to provide both direct carbon-free energy and provide energy storage services that will contribute to the integration of other carbon-free sources while helping the Commonwealth to reduce its carbon footprint.

Should you have any questions or if you would like to discuss this matter further, please do not hesitate to contact me.

Sincerely,



Justin Trudell  
Chief Operating Officer

Attachments:

- Exhibit 1: AIPs for Flows and Fish Passage, Whitewater Boating and Recreation

- Exhibit 2: ISO-New England March 17, 2021 Letter to FERC
- Exhibit 3: Instream Flow Study Reaches between Turners Falls Dam and Montague USGS Gage
- Exhibit 4: NHESP Species Status Sheets for Burbot and Longnose Sucker Habitat Needs
- Exhibit 5: Turners Falls Impoundment Elevation Duration Curves

cc: Settlement Service List, MDEP Commissioner, EPA Region 1, MA legislative delegation, Kevin Cassidy (cassidy@lclark.edu), Ron Shems (ron@tarrantgillies.com)

**TURNERS FALLS HYDROELECTRIC PROJECT  
FERC PROJECT NO. 1889**

**NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT  
FERC PROJECT NO. 2485**

**AGREEMENT IN PRINCIPLE TO DEVELOP  
A RELICENSING SETTLEMENT AGREEMENT**

**February 2, 2022**

**WHEREAS**, FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight) are the Federal Energy Regulatory Commission (FERC) licensees for the Turners Falls Hydroelectric Project, FERC Project No. 1889 (Turners Falls Project) and Northfield Mountain Pumped Storage Project, FERC Project No. 2485 (Northfield Mountain Project), respectively. Both the license for the Turners Falls Project and the license for the Northfield Mountain Project expired April 30, 2018. The Projects have been operating on annual licenses pursuant to Section 15 of the Federal Power Act (FPA) since that time.

**WHEREAS**, in accordance with the requirements of the FPA and FERC's regulations, FirstLight filed a Final Application for New License (FLA) for the Turners Falls and Northfield Mountain Projects with FERC on April 29, 2016. Because certain environmental studies had not yet been completed as of the statutory deadline for filing of the FLA, FirstLight filed a separate Amended Final License Application for each Project on December 4, 2020 (AFLA), including FirstLight's proposed protection, mitigation and enhancement (PM&E) measures to be included in the new licenses and the scientific and evidentiary basis for those measures.

**WHEREAS**, since filing of the AFLAs, FirstLight has been engaged with federal and state resource agencies, local communities, environmental organizations, Native American Tribes, and other stakeholders to consider agency and stakeholder proposals for additional PM&E measures on a broad range of issues pertaining to fish passage, streamflows, recreation, and cultural resources, with the goal of developing a comprehensive settlement agreement that resolves all outstanding issues for the relicensing of the Projects and associated regulatory approvals, including water quality certification under section 401 of the Clean Water Act and compliance with section 7 of the Endangered Species Act.

**WHEREAS**, FirstLight has been engaged specifically with the Parties to this Agreement in Principle (AIP), including Appalachian Mountain Club, American Whitewater, Access Fund, Connecticut River Conservancy, Crab Apple Whitewater Inc, Franklin Regional Council of Government, Massachusetts Department of Conservation and Recreation, New England FLOW, New England Mountain Bike Association, Town of Erving, Town of Gill, Town of Montague, Town of Northfield, Western Massachusetts Climbers' Coalition, and Zoar Outdoors, on recreation improvements at the Projects. The Parties have now achieved conceptual agreement on a proposal for recreational improvements designed to function as part of a framework for the development of a Final Settlement Agreement resolving all issues relating to the relicensing of the Projects.

**NOW, THEREFORE**, the Parties agree in principle as follows:

## **PART I: OVERVIEW AND INTENT**

- A. The Parties agree to negotiate a Final Settlement Agreement collaboratively and in good faith as soon as possible. The intent of the Parties is to execute a Final Settlement Agreement no later than June 30, 2022, that would resolve all issues related to the Project relicensings, including outstanding issues not covered by this AIP.
- B. Each Party to this AIP agrees that it will not use negotiation of the Final Settlement Agreement as an opportunity to renegotiate the measures on which the Parties have conceptually agreed as set forth in Part II of this AIP.
- C. As soon as possible following execution of a Final Settlement Agreement, FirstLight will submit the Final Settlement Agreement to FERC as an offer of settlement pursuant to 18 C.F.R. § 385.602, accompanied by an Explanatory Statement.
- D. The Final Settlement Agreement will include PM&E measures in the form of proposed license articles and/or proposed management plans that the Parties will jointly request FERC to include in the new Project licenses.
- E. The Final Agreement may also include measures that will not be included in the new Project licenses but they will be independently enforceable.
- F. The Parties anticipate that the Final Settlement Agreement will contain provisions to encourage federal and state agencies with independent regulatory authority to impose conditions on the FERC Project licenses, to the extent they exercise such authority, to do so in a manner that is consistent with the Final Settlement Agreement. The Parties further expect that the Final Settlement Agreement will include language that commits the Parties not to challenge license conditions that are consistent with the Final Settlement Agreement, or advocate for license conditions that are inconsistent with the Final Settlement Agreement.
- G. Notwithstanding anything in this AIP or Final Settlement Agreement, the Parties acknowledge and agree that certain discretionary permits, licenses and approvals may be required to use the subject properties and/or to perform the PM&E measures described in this AIP, and that nothing herein shall be deemed to waive any Party's obligations to apply for and comply with all such permits, approvals and conditions, and no Party hereby guarantees that any such permits, licenses or approvals will be granted. The Parties further acknowledge and agree that any use of and/or work done with respect to the properties and/or the PM&E measures described in this AIP or Final Settlement Agreement will be done in accordance with all applicable federal, state and local laws, and nothing in this AIP or in the Final Settlement Agreement will be construed as a waiver of any Party's right to enforce the laws within its jurisdiction, said enforcement rights being expressly retained.
- H. All Parties enter into this AIP without any admission of law or fact. The Parties acknowledge that the Final Settlement Agreement must include other material terms that have not yet been agreed upon (for example erosion) and is subject to agreement on language embracing all of the terms agreed to in principle as set forth in Part II herein.

- I. The Parties recognize that the Final Settlement Agreement and any other related agreements negotiated pursuant to this AIP are subject to formal and final review and approval of the Parties' management, executives, boards of directors, and other leadership, as necessary and appropriate to comply with corporate, municipal and agency requirements.
- J. All Parties recognize and acknowledge that this AIP is not legally binding and does not give rise to any enforceable rights in contract.
- K. Unless and until a Final Settlement Agreement is executed by the Parties, any Party may take any action before FERC or any other agency as that Party unilaterally determines necessary to protect its interests.
- L. In the event that this AIP does not culminate in a Final Settlement Agreement, it shall be null and void. No Party shall use this AIP as evidence of any other Party's position on any issue addressed in this AIP.

## **PART II: PROTECTION, MITIGATION AND ENHANCEMENT MEASURES- RECREATION**

### **1 RECREATION**

Since the inception of the Northfield Mountain Project, FirstLight and the predecessor owners of the Northfield Mountain and Turners Falls Projects have been major providers of recreation facilities and programs to the local communities and region, at large. FirstLight agrees to maintain and provide the existing recreation features already in its existing license. In addition, FirstLight agrees to provide additional recreation features and other measures associated with recreation as outlined in [Table 1.0-1](#).

Recognizing that FirstLight has capital commitments on several PM&E measures in this AIP, FirstLight will complete the construction of the proposed License and Off License recreation facilities described in [Table 1.0-1](#) within 5 years of license issuance.

[Figure 1.0-1](#) and [1.0-2](#) show the existing and proposed recreation facilities.

The Final Settlement Agreement will include new Recreation Management Plans (RMP) for the Northfield Mountain Project and Turners Falls Project, which will supersede the RMPs FirstLight filed in its AFLA. The new RMPs will reflect the recreation measures contained in this AIP. FirstLight has agreed that the RMPs will be revisited once every 10 years to evaluate recreation use and demand in consultation with stakeholders. The signatories to this Agreement will be provided with 30 days to comment on any proposed changes to the RMP prior to submission of the RMP to FERC for approval.

**Table 1.0-1 Existing and Proposed Recreation Facilities or Features at the Northfield Mountain and Turners Falls Projects, Listed by Town**

Recreation Facility or Feature	Existing or Proposed	Part of NFM or TF License	License or Off License
<b>Town of Northfield</b>			
<u>Bennett Meadow</u> <ul style="list-style-type: none"> <li>FirstLight will permanently conserve FirstLight’s lands within Bennett Meadow that are not already under conservation easement, pending consultation with the Massachusetts Division of Fisheries and Wildlife (MDFW) on needs for hunting.</li> <li>FirstLight will also add a trail at Bennett Meadow and include historical and cultural interpretation.</li> </ul>	Proposed	Northfield	License
<u>Munn’s Ferry Boat Camping Recreation Area</u> <ul style="list-style-type: none"> <li>Water access only camping sites.</li> <li>Pedestrian footbridge.</li> <li>Tent campsites, each with trash can, tent platform, picnic table, grill, and some fire rings.</li> </ul>	Existing	Northfield	License
<u>Riverview</u> <ul style="list-style-type: none"> <li>Parking lot for 54 vehicles, 2 ADA.</li> <li>Provides picnic tables (10) and grills along the river, Pavilion (8 tables), ADA compliant restrooms, benches.</li> <li>Tours on the Riverboat travelling between Barton Cove and Riverview.</li> <li>Site currently includes dock for Riverboat tours.</li> <li>FirstLight to relocate the dock that would be enclosed by the proposed fish barrier net.</li> <li>FirstLight to provide for an ADA-accessible dock layout that supports motor boats, canoes/kayaks, and Riverboat in consultation with the Town of Northfield and the Massachusetts Department of Conservation and Recreation (MDCR).</li> </ul>	Existing  Proposed Proposed	Northfield	License  License License
<u>Northfield Mountain Tour and Trail Center (also includes the <b>Town of Erving</b>)</u> <ul style="list-style-type: none"> <li>Parking for up to 50 vehicles, 3 ADA.</li> <li>Visitors Center with self-guided interpretive displays, meeting rooms, lounge and ADA accessible restrooms.</li> <li>Offers recreation and environmental education programs year-round.</li> <li>25 miles of trails used for mountain biking, x-country skiing, snowshoeing, horseback riding and walking.</li> <li>Mountaintop Observation Deck.</li> <li>Retain seasonal ski equipment rentals at the Northfield Visitors Center and continue to maintain ski trails.</li> <li>FirstLight will add up to 5 miles of new trails for mountain biking to be designed in consultation with the New England Mountain Bike Association (NEMBA) and the MDCR.</li> <li>FirstLight to donate used sporting equipment to local youth organizations.</li> </ul>	Existing  Proposed Proposed	Northfield	License  License License
<u>Turners Falls Impoundment Access and Viewing (also includes the <b>Town of Gill</b>)</u> <ul style="list-style-type: none"> <li>FirstLight to provide paddle access camping at 2 new campsites in coordination with the Appalachian Mountain Club (AMC): one in the Barton Cove area in Gill and the other (if possible) at Mallory Brook in Northfield.</li> <li>FirstLight will install one pocket park at the Pauchaug-Schell Bridge Greenway and include signage for historical and cultural interpretation.</li> <li>FirstLight will install another pocket park at a location to be determined in Northfield, or an equivalent investment for a single river access point in consultation with the Parties, which may include signage for historical and cultural interpretation. The second pocket park will be in Northfield; the access point may not be in the town of Northfield.</li> </ul>	Proposed Proposed Proposed	Northfield	License License Off-License
<b>Town of Erving</b>			
<u>Climbing Ledges</u> <ul style="list-style-type: none"> <li>FirstLight will make Rose Ledge a designated Project Recreation Facility to allow climbing as it is already in the Project Boundary.</li> <li>FirstLight will permanently conserve Farley Ledge for climbing and other recreation purposes.</li> </ul>	Proposed Proposed	Northfield	License Off-License
<b>Town of Montague</b>			
<u>Cabot Camp</u> <ul style="list-style-type: none"> <li>FirstLight will create a formal access trail for a put-in to the Millers River at Cabot Camp, add a picnic table and improve signage.</li> </ul>	Proposed	Northfield	License

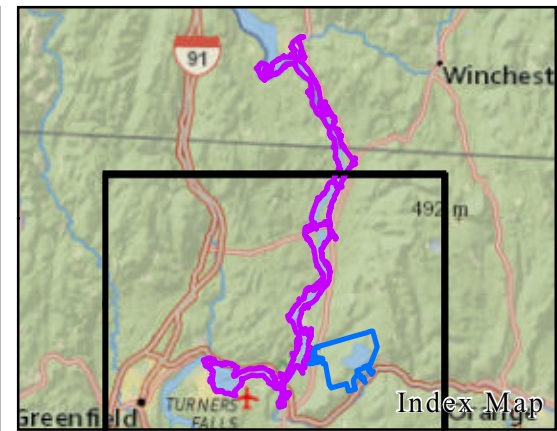
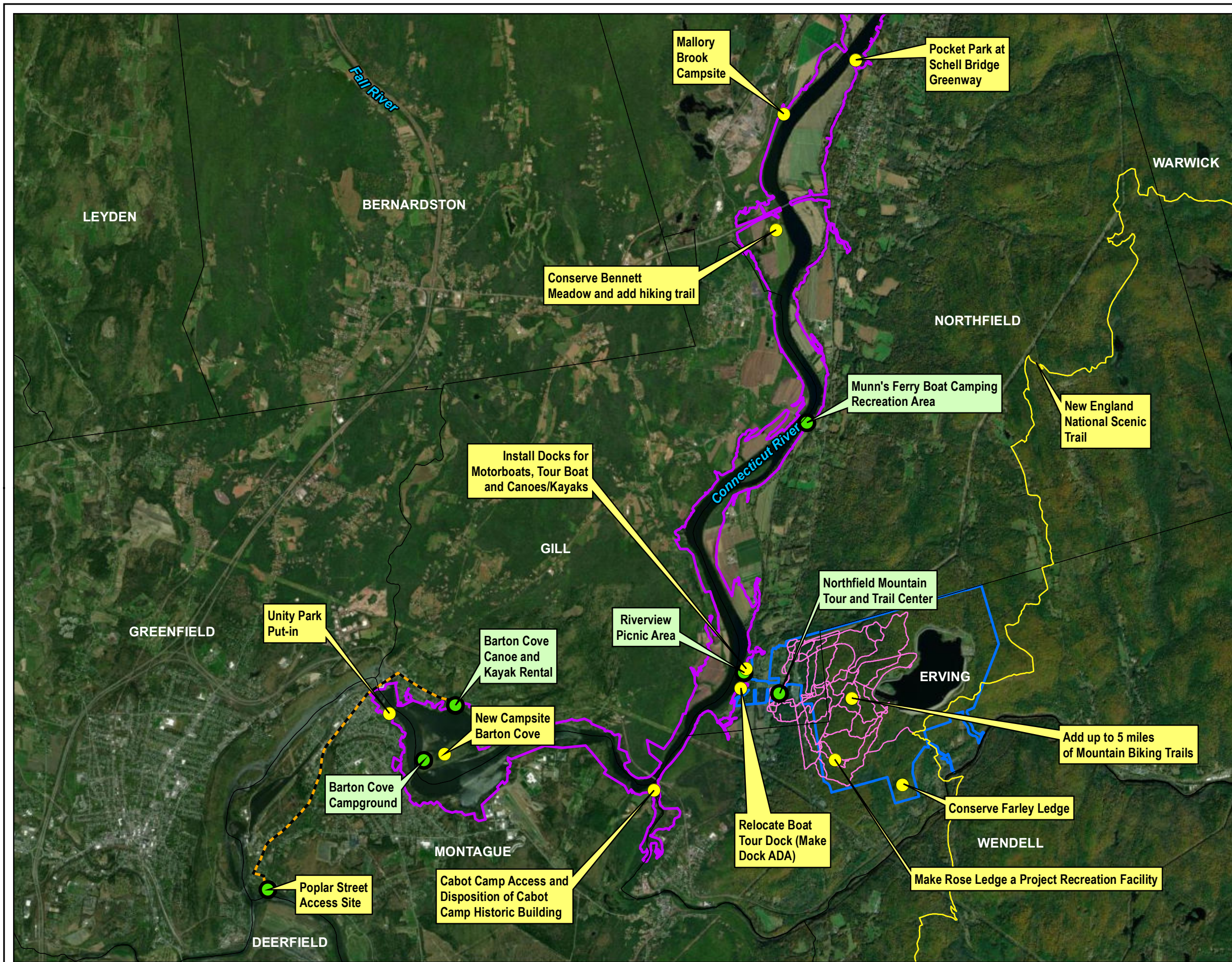


Recreation Facility or Feature	Existing or Proposed	Part of NFM or TF License	License or Off License
<ul style="list-style-type: none"> <li>FirstLight, in consultation with the Town of Montague, will attempt to find a qualified organization within the first 3 years of license issuance to take responsibility for preserving the Cabot Camp historic buildings. Absent finding a qualified organization and in consultation with the Town of Montague, FirstLight would: a) conduct a topographic and property survey, and condition assessment of the Cabot Camp parcel within 3 years of license issuances, b) plan and conduct market/re-development study of Cabot Camp in collaboration with the Town of Montague and c) if no acceptable means to otherwise preserve the historic structures of Cabot Camp is identified, re-use the property for other recreation or alternative uses consistent with the Historic Properties Management Plan (HPMP) and the Recreation Management Plan (RMP).</li> </ul>	Proposed		License
<u>Unity Park</u> <ul style="list-style-type: none"> <li>FirstLight will add a new car-top access and put-in at the northern end of Unity Park, and work with the Town of Montague to provide a means of storing and locking vessels and reconfiguring the Unity Park parking lot to improve vehicle and pedestrian safety.</li> </ul>	Proposed	Northfield	License
<u>Gatehouse Fishway Viewing Area</u> <ul style="list-style-type: none"> <li>Continue with providing approximately 27 parking spaces, picnic tables, bike rack, trail, fishway view visitor facility (with feed to above ground TV), ADA accessible restrooms and interpretive signage.</li> </ul>	Existing	Northfield	License
<u>River Access below Turners Falls Dam</u> FirstLight will complete the following river access points: <ul style="list-style-type: none"> <li>Turners Falls bypass both upstream and downstream of Peskeomskut Island (located just below the Turners Falls Dam).</li> <li>At the Station No. 1 tailrace for fishing and non-motorized boats.</li> <li>Improvements at the Poplar Street put-in and take-out to include placement of stairs with boat slide leading to a landing/concrete abutment, a gangway and a floating dock. Improve signage at this location and improve digital information about the site and porta potty. Work with Montague to address parking and sanitary facilities.</li> </ul>	Proposed  Existing	Turners Falls  Turners Falls	License
<u>Safety Improvements</u> <ul style="list-style-type: none"> <li>FirstLight will make safety improvements to abandoned water passages, under FirstLight's ownership, in the Turners Falls bypass (focused between the dam and upstream of Station No. 1 on river left).</li> </ul>	Proposed	Turners Falls	License
<u>Viewing Platform</u> <ul style="list-style-type: none"> <li>FirstLight will construct a viewing platform and picnic area below the Turners Falls Dam with the best feasible view of the Great Falls and their surrounding natural environment. FirstLight to maintain the adjacent area near the bridge crossing.</li> </ul>	Proposed	Turners Falls	License
<u>Turners Falls Branch Canal</u> <ul style="list-style-type: none"> <li>FirstLight will continue to provide the overlook and benches.</li> </ul>	Existing	Turners Falls	License
<u>Cabot Woods</u> <ul style="list-style-type: none"> <li>FirstLight will continue to provide parking for approximately 17 cars, picnic tables, and offer fishing access at Cabot Woods.</li> <li>FirstLight will replace and maintain stairs at Cabot Woods.</li> </ul>	Existing Proposed	Turners Falls	License
<u>Portage</u> <ul style="list-style-type: none"> <li>Continue with the current portage where boaters can call FirstLight for transport, and maintain signage explaining canoe portage operations, procedures and the call number. (May 1 – October 15)</li> <li>FirstLight will construct a portage trail around Rock Dam (on river left; on the Cabot Woods side of the river) subject to consultation with the National Marine Fisheries Service, Natural Heritage Endangered Species Program (NHESP), and recreation stakeholders. The Nolumbeka Project Inc., and the Elnu Abenaki Tribe.</li> </ul>	Existing  Proposed	Turners Falls	License  License
<b>Town of Gill</b>			
<u>Barton Cove Nature Area and Campground</u> <ul style="list-style-type: none"> <li>Nature Area Parking for 26 vehicles, Campground Parking for 28 vehicles</li> <li>Restrooms (2 facilities, ADA compliant)</li> <li>Walking trail to an overlook</li> <li>Campground for trailer and tents sites, 28 campsites (1 ADA compliant), sites include picnic table, grills and fire ring, trash containers</li> <li>Nature trail, dock</li> </ul>	Existing	Northfield	License

Recreation Facility or Feature	Existing or Proposed	Part of NFM or TF License	License or Off License
<ul style="list-style-type: none"> <li>FirstLight to provide paddle access camping at 2 new campsites in coordination with the Appalachian Mountain Club (AMC): one in the Barton Cove area in Gill and the other (if possible) at Mallory Brook in Northfield.</li> </ul>	Proposed	Northfield	License
<u>Barton Cove Canoe and Kayak Rental Area</u> <ul style="list-style-type: none"> <li>Parking for 28 vehicles</li> <li>6 picnic tables, seasonal restroom</li> <li>Offers paddlecraft rentals with PFDs, and picnicking</li> <li>Paddlecraft rental service</li> <li>On-call vehicular canoe and kayak transport service</li> <li>FL will add the ability to lock canoes and kayaks during the day at Barton Cove in the Town of Gill.</li> <li>FirstLight will donate used sporting equipment to local youth organizations</li> </ul>	Existing	Northfield	License
	Proposed	Northfield	License
<b>Project-wide</b>			
<u>Flow Notification</u> <ul style="list-style-type: none"> <li>FirstLight will provide real-time Turners Falls Impoundment (TFI) water level information and real-time discharge information at Turners Falls Dam and Station No. 1 year-round on a website that will be accessible to the public.</li> <li>FirstLight will develop a flow monitoring plan with the agencies.</li> <li>FirstLight will provide digital flow notification of the Naturally Routed Flow (NRF) and the anticipated Turners Falls Dam spillage and anticipated Station No. 1 discharge for a 12-hour window into the future at any given time. This proposal is contingent upon advance notification procedures to be followed by Great River Hydro (GRH). Should FirstLight take deviations to passing the 12-hour previous NRF it will post the revised flows (in the 12-hour look ahead window) to the digital location as soon as practicable after they are known. Should GRH provide FirstLight with flow data more than 12 hours in advance, FL will publish the information sooner.</li> </ul>	Proposed	Northfield and Turners Falls	License
<u>ADA</u> <ul style="list-style-type: none"> <li>For any new construction and rehabilitation of existing public recreation buildings and facilities, FirstLight will comply with 521 CMR to the extent applicable pursuant to 521 CMR and Title III of the Americans with Disabilities Act. As part of the Recreation Management Plan process and updates, FirstLight will conduct a programmatic assessment of the existing and proposed public recreation buildings and facilities for consistency with the requirements of the Americans with Disabilities Act (ADA), and will implement applicable ADA improvements.</li> </ul>	Proposed	Northfield and Turners Falls	License
<u>Recreation Advisory Group and Recreation Management Plan</u> <ul style="list-style-type: none"> <li>FirstLight will have an annual Recreation Advisory Group meeting to discuss recreation use and O&amp;M needs. Any signatory to the settlement agreement can be an invitee and participant in these meetings.</li> </ul>	Proposed	Northfield and Turners Falls	Off-License
<u>Recreation Management Plan</u> <ul style="list-style-type: none"> <li>FirstLight will revise and submit a new Recreation Management Plan that will be part of the Settlement Agreement.</li> <li>FirstLight will consult with the Parties on the proposed recreation features.</li> <li>The Recreation Management Plan will be revisited once every 10 years to evaluate recreation use and demand. Those to be consulted on the RMP include the Parties as defined above.</li> </ul>	Proposed	Northfield and Turners Falls	License
<u>Advertising</u> <ul style="list-style-type: none"> <li>FirstLight will commit to coordinating promotion of its Project facilities with local communities and organizations and improve its digital presence. FL will commit to working with the Recreation Advisory Group to identify the targeted audiences for this outreach, including EJ communities, Indigenous communities, those with disabilities, visitors to the region, residents, and local communities and organizations; and a schedule for pushing out facility promotional materials.</li> </ul>	Proposed	Northfield and Turners Falls	Off-License
<u>Conservation Easements</u> <ul style="list-style-type: none"> <li>FirstLight will place lands it owns and are not used for specific project activities (e.g., power production, project recreation facilities, etc.) along the TFI shoreline in conservation easement to maintain riparian buffers and river right (looking downstream) downstream of the Turners Falls Dam. The easements will include those lands where agricultural farming occurs up to the river's edge; however, no conservation easements will be sought on existing developed lands along the TFI.</li> </ul>	Proposed	Northfield and Turners Falls	License

Recreation Facility or Feature	Existing or Proposed	Part of NFM or TF License	License or Off License
<ul style="list-style-type: none"> <li>FirstLight will conserve the approximately 1.3-mile portion of the New England National Scenic Trail in the Project boundary on the eastern side of the Northfield Mountain Upper Reservoir in Erving, MA.</li> </ul>			





Northfield Mountain Pumped Storage Project No. 2485  
Turners Falls Hydroelectric Project No. 1889

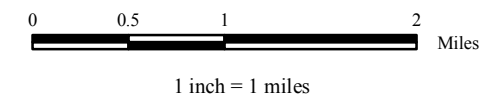
Figure 1.0-1: Turners Falls Impoundment  
Proposed Recreation Facilities

Legend

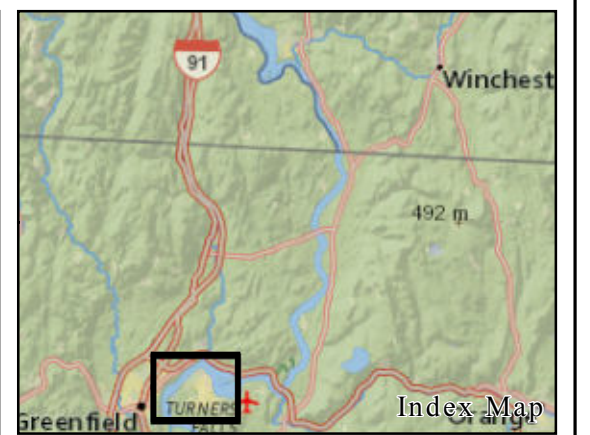
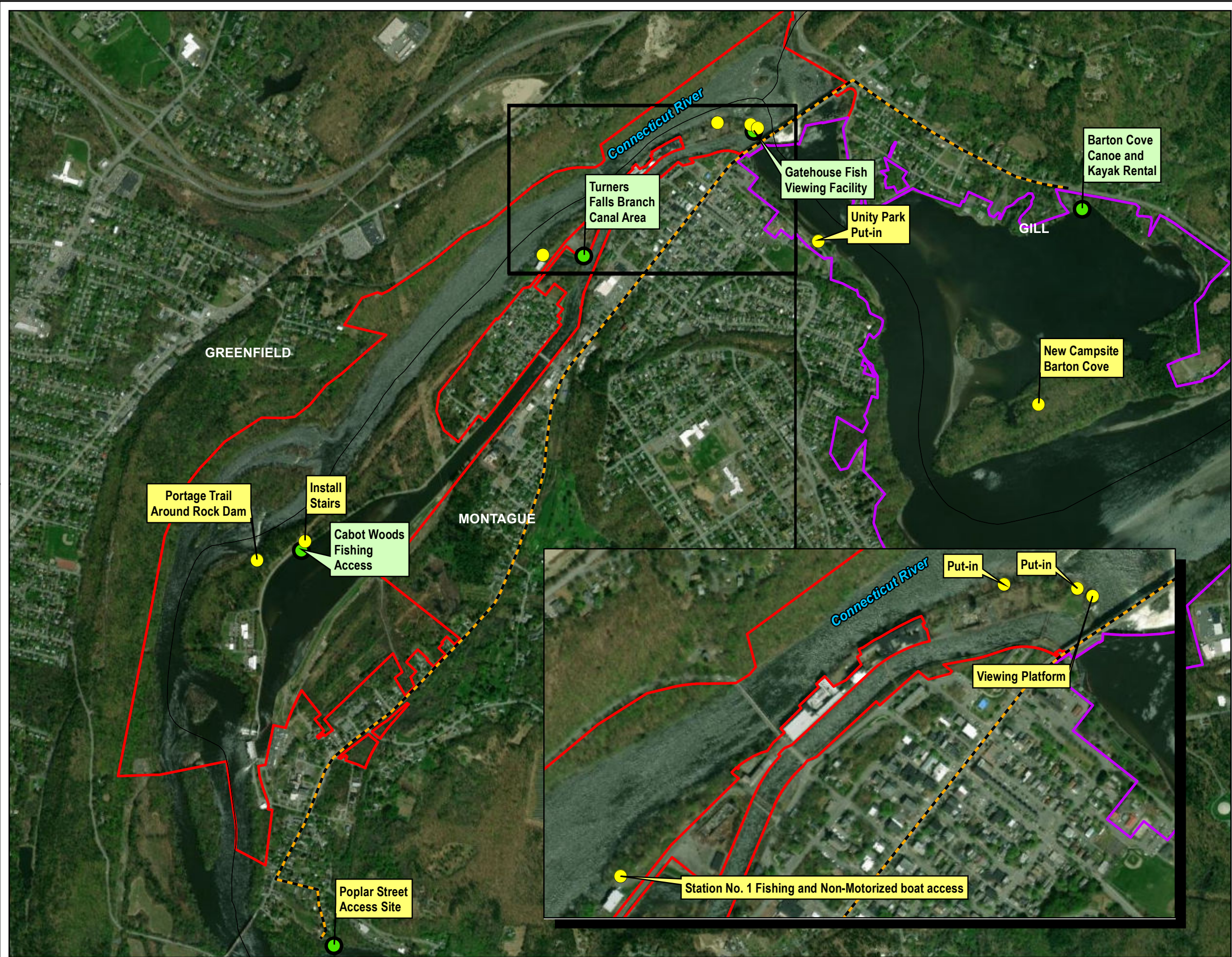
- Proposed Recreation Facility
- Existing Project Recreation Facility
- Canoe Portage
- Northfield Mountain Trail System
- New England National Scenic Trail
- Northfield Mountain (NFM) Project Boundary
- Combined TF/NFM Project Boundary



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS,







Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889

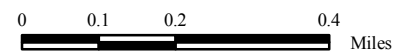
Figure 1.0-2: Turners Falls Area  
 Proposed Recreation Facilities

Legend

- Proposed Recreation Facility
- Existing Project Recreation Facility
- Canoe Portage
- Turners Falls (TF) Project Boundary
- Combined TF/NFM Project Boundary



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
 National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS,



1 inch = 0 miles





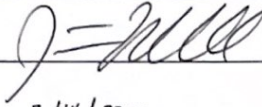
### **PART III SIGNATURES**

The signing of this AIP is a good faith indication by the Parties that they support this AIP and commit to developing a Final Settlement Agreement and other necessary documents for the comprehensive settlement of all issues related to the relicensing of the Turners Falls Project and Northfield Mountain Project.

**Organization:** FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight)

By: JUSTIN TRUDELL

Title: COO

Signature: 

Date: 2/14/2022

**Organization:** Appalachian Mountain Club

By: Susan Arnold \_\_\_\_\_

Title: Interim President and CEO \_\_\_\_\_

Signature: *Susan Arnold* \_\_\_\_\_

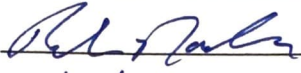
Date: February 2, 2022 \_\_\_\_\_



**Organization:** American Whitewater

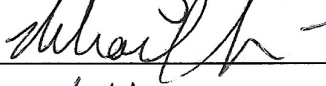
By: ROBERT NASDOR

Title: NORTHEAST STEWARDSHIP DIR

Signature: 

Date: 2/15/22


Organization: Access Fund

By: Michael J. Morin  
Title: NE Regional Director  
Signature:   
Date: 02/14/21

**Organization:** Connecticut River Conservancy

By: Andrew Fisk

Title: Executive Director

Signature:  Andrew Fisk  
2022.02.14 14:58:47 -05'00'

Date: \_\_\_\_\_

Organization: Crab Apple Whitewater, Inc

By: FRANK J MOONEY II

Title: OPERATIONS MANAGER

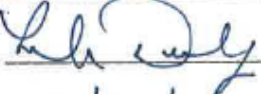
Signature: Frank J Mooney II

Date: 2-14-22

**Organization:** Franklin Regional Council of Governments

By: Linda Dunlavy

Title: Executive Director

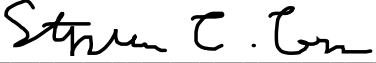
Signature: 

Date: 2/17/22

**Organization:** Massachusetts Department of Conservation and Recreation

By: Stephanie C. Cooper

Title: Acting Commissioner

Signature: 

Date: February 15, 2022

Organization: New England Flow

By: Thomas J. Christopher  
Title: Secretary / Director  
Signature: Thomas J. Christopher  
Date: 2/16/22

**Organization:** New England Mountain Bike Association

By: Sam Veggeberg

Title: President - Pioneer Valley NEMBA

Signature: *Sam Veggeberg*

Date: 02/14/2022



**Organization:** Town of Erving, MA

By: Bryan Smith

Title: Town Administrator

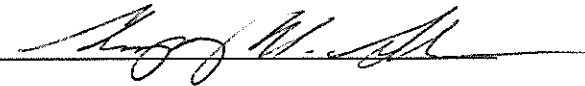
Signature: 

Date: February 09, 2022

Organization: Town of Gill ,MA

By: Gregory M. Snedeker

Title: Chair, Selectboard

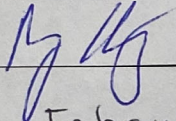
Signature: 

Date: February 14, 2022

**Organization:** Town of Montague, MA

By: Richard Kuklewicz

Title: Selectboard Chair

Signature: 

Date: February 14, 2022

**Organization:** Town of Northfield, MA

By: HEATH F. CUMMINGS

Title: SELECTBOARD CHAIR

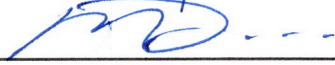
Signature: 

Date: 2/22/22

**Organization:** Western Massachusetts Climbing Coalition

By: Pamela Matsuda-Dunn

Title: Secretary, Board of Directors

Signature: 

Date: 02.14.2022

6

Organization: Zoar Outdoor~~s~~

By: JANET Cowie

Title: General Manager

Signature: Janet Cowie

Date: 2/15/22

**TURNERS FALLS HYDROELECTRIC PROJECT  
FERC PROJECT NO. 1889**

**NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT  
FERC PROJECT NO. 2485**

**AGREEMENT IN PRINCIPLE TO DEVELOP  
A RELICENSING SETTLEMENT AGREEMENT**

**February 14, 2022**

**WHEREAS**, FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight) are the Federal Energy Regulatory Commission (FERC) licensees for the Turners Falls Hydroelectric Project, FERC Project No. 1889 (Turners Falls Project) and Northfield Mountain Pumped Storage Project, FERC Project No. 2485 (Northfield Mountain Project), respectively. Both the license for the Turners Falls Project and the license for the Northfield Mountain Project expired April 30, 2018. The Projects have been operating on annual licenses pursuant to Section 15 of the Federal Power Act (FPA) since that time.

**WHEREAS**, in accordance with the requirements of the FPA and FERC's regulations, FirstLight filed a Final Application for New License (FLA) for the Turners Falls and Northfield Mountain Projects with FERC on April 29, 2016. Because certain environmental studies had not yet been completed as of the statutory deadline for filing of the FLA, FirstLight filed a separate Amended Final License Application for each Project on December 4, 2020 (AFLA), including FirstLight's proposed protection, mitigation and enhancement (PM&E) measures to be included in the new licenses and the scientific and evidentiary basis for those measures.

**WHEREAS**, since filing of the AFLAs, FirstLight has been engaged with federal and state resource agencies, local communities, environmental organizations, Native American Tribes, and other stakeholders to consider agency and stakeholder proposals for additional PM&E measures on a broad range of issues pertaining to fish passage, streamflows, recreation, and cultural resources, with the goal of developing a comprehensive settlement agreement that resolves all outstanding issues for the relicensing of the Projects and associated regulatory approvals, including water quality certification under section 401 of the Clean Water Act and compliance with section 7 of the Endangered Species Act.

**WHEREAS**, FirstLight has been engaged specifically with the Parties to this Agreement in Principle (AIP), including American Whitewater, Appalachian Mountain Club, Crab Apple Whitewater, Inc., New England FLOW, and Zoar Outdoors, on flow releases for whitewater boating. The Parties have now achieved conceptual agreement on a proposal for whitewater flow releases designed to function as part of a framework for the development of a Final Settlement Agreement resolving all issues relating to the relicensing of the Projects.

**NOW, THEREFORE**, the Parties agree in principle as follows:

## **PART I: OVERVIEW AND INTENT**

- A. The Parties agree to negotiate a Final Settlement Agreement collaboratively and in good faith as soon as possible. The intent of the Parties is to execute a Final Settlement Agreement no later than June 30, 2022, that would resolve all issues related to the Project relicensings, including outstanding issues not covered by this AIP.
- B. Each Party to this AIP agrees that it will not use negotiation of the Final Settlement Agreement as an opportunity to renegotiate the measures on which the Parties have conceptually agreed as set forth in Part II of this AIP.
- C. As soon as possible following execution of a Final Settlement Agreement, FirstLight will submit the Final Settlement Agreement to FERC as an offer of settlement pursuant to 18 C.F.R. § 385.602, accompanied by an Explanatory Statement.
- D. The Final Settlement Agreement will include PM&E measures in the form of proposed license articles and/or proposed management plans that the Parties will jointly request FERC to include in the new Project licenses.
- E. The Final Agreement may also include measures that will not be included in the new Project licenses but they will be independently enforceable.
- F. The Parties anticipate that the Final Settlement Agreement will contain provisions to encourage federal and state agencies with independent regulatory authority to impose conditions on the FERC Project licenses (including the Section 401 Water Quality Certification to be issued by Massachusetts Department of Environmental Protection), to the extent they exercise such authority, to do so in a manner that is consistent with the Final Settlement Agreement. The Parties further expect that the Final Settlement Agreement will include language that commits the Parties not to challenge license conditions that are consistent with the Final Settlement Agreement, or advocate for license conditions that are inconsistent with the Final Settlement Agreement.
- G. All Parties enter into this AIP without any admission of law or fact. The Parties acknowledge that the Final Settlement Agreement must include other material terms that have not yet been agreed upon and is subject to agreement on language embracing all of the terms agreed to in principle as set forth in Part II herein.
- H. The Parties recognize that the Final Settlement Agreement and any other related agreements negotiated pursuant to this AIP are subject to formal and final review and approval of the Parties' management, executives, boards of directors, and other leadership, as necessary and appropriate to comply with corporate, municipal and agency requirements.
- I. All Parties recognize and acknowledge that this AIP is not legally binding and does not give rise to any enforceable rights in contract.
- J. Unless and until a Final Settlement Agreement is executed by the Parties, any Party may take any action before FERC or any other agency as that Party unilaterally determines necessary to protect its interests.



- K. In the event that this AIP does not culminate in a Final Settlement Agreement, it shall be null and void. No Party shall use this AIP as evidence of any other Party's position on any issue addressed in this AIP.

## **PART II: PROTECTION, MITIGATION AND ENHANCEMENT MEASURES- WHITEWATER**

### **1 BOATING RELEASES**

FirstLight will provide the releases described below or inflow, whichever is less. Inflow shall be the Naturally Routed Flow (NRF) measured 12 hours prior to real time.<sup>1</sup> The NRF is defined as the sum of the Vernon Hydroelectric Project total discharge from 12 hours previous, Ashuelot River United States Geological Survey Gage (USGS) gage flow from 12 hours previous, and Millers River USGS gage flow from 12 hours previous. Boating flow releases in the July 1 through October 31 period may be modified temporarily: (1) during and to the extent required by operating emergencies beyond the control of FirstLight; and (2) upon mutual agreement among FirstLight and the United States Fish and Wildlife Service, National Marine Fisheries Service, Massachusetts Division of Fisheries and Wildlife, and the Parties to this Agreement.

#### *April 1 to June 30*

FirstLight is proposing certain flow releases to the Turners Falls bypass for the benefit of fisheries that also have benefits for recreational boating. These flow releases are shown in Table 1.0-1. The Parties recognize that flow discussions are ongoing with the state and federal fish and wildlife agencies and that any final flow agreement is subject to resolution of issues of concern to those agencies.

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<sup>1</sup> The Parties to this AIP acknowledge that the definition of NRF is being negotiated separately with the state and federal fish and wildlife agencies and therefore could be subject to change.

**Table 1.0-1. April 1 to June 30 Aquatic Flow Releases**

Date	Total Bypass Flow <sup>2</sup>	Turners Falls Dam	Station No. 1 <sup>3,4</sup>
04/01-05-31 <sup>1</sup>	6,500 cfs or the NRF, whichever is less	4,290 cfs	2,210 cfs
06/01-06/15 <sup>1</sup>	4,500 cfs or the NRF, whichever is less	2,990 cfs	1,510 cfs
06/16-06/30 <sup>1</sup>	3,500 cfs of the NRF, whichever is less	2,280 cfs	1,220 cfs

<sup>1</sup>The flow split during these periods is approximately 67% from the Turners Falls Dam and 33% from Station No. 1. If FirstLight conducts further testing, in consultation with the National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS) and Massachusetts Division of Fish and Wildlife (MDFW) and determines that migratory fish are not delayed by passing a greater percentage of the bypass flow via Station No. 1, it may increase the percentage through Station No. 1 upon written concurrence of those agencies. If further testing shows that the flow split could potentially be modified, FirstLight shall consult with American Whitewater (AW), Appalachian Mountain Club (AMC), Zoar Outdoors, Crab Apple Whitewater, Inc and New England FLOW relative to any changes in the flow split and address those entities comments in any filing before FERC or the Massachusetts Department of Environmental Protection (MDEP).

<sup>2</sup>If the NRF is less than 6,500 cfs (04/01-05/31), 4,500 cfs (06/01-06/15) or 3,500 cfs (06/16-06/30) the flow split will still be set at approximately 67% of the NRF from the Turners Falls Dam and 33% of the NRF from Station No. 1. If 90% of the NRF is less than 1,800 cfs (7/1-8/31) or 1,500 cfs (9/1-11/15), FirstLight shall maintain the Turners Falls Dam discharge at 500 cfs. If the NRF is less than 1,500 cfs (11/16-3/31), FirstLight shall maintain the Turners Falls Discharge at 300 cfs for Years 1-3, but thereafter at 500 cfs.

<sup>3</sup>To maintain the flow split, Station No. 1 must be automated, which will not occur until Year 3 of the license. FirstLight proposes to maintain the flow split such that the Turners Falls Dam discharge will be as shown above, or higher flows will be spilled, in cases where the additional flow cannot be passed through Station No. 1.

<sup>4</sup>The Turners Falls Hydro (TFH) project (FERC No. 2622) and Milton Hilton, LLC project (unlicensed) are located on the power canal and discharge into the bypass reach upstream of Station No. 1. The hydraulic capacities of the TFH project and Milton Hilton, LLC project are 289 and 113 cfs, respectively. If the TFH project is operating, FirstLight will reduce its Station No. 1 discharge by 289 cfs. If the Milton Hilton, LLC project is operating, FirstLight will reduce its Station No. 1 discharge by 113 cfs.

*July 1 to October 31*

FirstLight shall provide the boating releases described below, which will be updated annually at the beginning of each calendar year and posted on a website.

July 2020						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August 2020						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Sep 2020						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Oct 2020						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

### Special Release Events

Independence Day, Labor Day, and Columbus Day weekends: provide 3 days of 4-hour releases (10:00 am-2:00 pm) of 5,000 cfs, or NRF, whichever is less, as measured 12 hours before, from the Turners Falls Dam. If July 4 falls on a weekday, the release will be held that day plus the first full weekend of July. Labor Day always falls on the first Monday in September. Columbus Day always falls on the second Monday in October.

### August and October Releases

On the first full weekend in August and on the fourth full weekend in October: provide 2 days of 4-hour releases (10:00 am-2:00 pm) of 5,000 cfs, or NRF, whichever is less, as measured 12 hours before from the Turners Falls Dam.

### Station No. 1 Releases

From Station No. 1 release 2,000 cfs or NRF, whichever is less, as measured 12 hours before + 500 cfs from Turners Falls Dam. from 10:00 am-2:00 pm on weekends from July through October, except when Special Release Events or August and October Releases are required.

### Canal Drawdown

NRF spilled at Turners Falls Dam for 24 hours/day. The canal drawdown schedule will be determined at FirstLight's discretion working with ISO-NE. It will be a 4-day event and the canal drawdown will start on Sunday.


### **PART III SIGNATURES**

The signing of this AIP is a good faith indication by the Parties that they support this AIP and commit to developing a Final Settlement Agreement and other necessary documents for the comprehensive settlement of all issues related to the relicensing of the Turners Falls Project and Northfield Mountain Project.

Organization: FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight)

By: JUSTIN TRUDEL

Title: COO

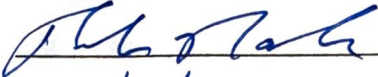
Signature: 

Date: 2/14/2022

**Organization:** American Whitewater

By: ROBERT NASON

Title: NORTHEAST STEWARDSHIP DIR

Signature: 

Date: 2/15/22

**Organization:** Appalachian Mountain Club

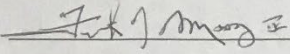
By: Susan Arnold  
\_\_\_\_\_  
Title: Interim President and CEO  
\_\_\_\_\_  
Signature: *Susan Arnold*  
\_\_\_\_\_  
Date: February 16, 2022  
\_\_\_\_\_



Organization: Crab Apple Whitewater, Inc

By: FRANK J MOONEY II

Title: OPERATIONS MANAGER

Signature: 

Date: 2-16-22

Organization: New England Flow

By: Thomas J. Christopher  
Title: Secretary/Director  
Signature: Thomas J. Christopher  
Date: 2/16/22

Organization: Zoar Outdoor~~s~~

By: JANET COWIE

Title: GENERAL MANAGER

Signature: Janet Cowie

Date: 2/14/22

**TURNERS FALLS HYDROELECTRIC PROJECT  
FERC PROJECT NO. 1889**

**NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT  
FERC PROJECT NO. 2485**

**AGREEMENT IN PRINCIPLE TO DEVELOP  
A RELICENSING SETTLEMENT AGREEMENT**

**March 17, 2022**

**WHEREAS**, FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight) are the Federal Energy Regulatory Commission (FERC) licensees for the Turners Falls Hydroelectric Project, FERC Project No. 1889 (Turners Falls Project) and Northfield Mountain Pumped Storage Project, FERC Project No. 2485 (Northfield Mountain Project), respectively. Both the license for the Turners Falls Project and the license for the Northfield Mountain Project expired April 30, 2018. The Projects have been operating on annual licenses pursuant to Section 15 of the Federal Power Act (FPA) since that time.

**WHEREAS**, in accordance with the requirements of the FPA and FERC's regulations, FirstLight filed a Final Application for New License (FLA) for the Turners Falls and Northfield Mountain Projects with FERC on April 29, 2016. Because certain environmental studies had not yet been completed as of the statutory deadline for filing of the FLA, FirstLight filed a separate Amended Final License Application for each Project on December 4, 2020 (AFLA), including FirstLight's proposed protection, mitigation and enhancement (PM&E) measures to be included in the new licenses and the scientific and evidentiary basis for those measures.

**WHEREAS**, since filing of the AFLAs, FirstLight has been engaged with federal and state resource agencies, local communities, environmental organizations, Native American Tribes, and other stakeholders to consider agency and stakeholder proposals for additional PM&E measures on a broad range of issues pertaining to fish passage, streamflows, recreation, and cultural resources, with the goal of developing a comprehensive settlement agreement.

**WHEREAS**, FirstLight has been engaged specifically with the Parties to this Agreement in Principle (AIP), including the Massachusetts Division of Fisheries and Wildlife (MDFW), Massachusetts Natural Heritage and Endangered Species Program (NHESP), National Marine Fisheries Service (NMFS), The Nature Conservancy (TNC), and the United States Fish and Wildlife Service (USFWS). The Parties have now achieved conceptual agreement on minimum bypass flows to benefit fisheries resources and their habitats, operational restrictions to benefit downstream fish and wildlife habitat, and project modifications to improve upstream and downstream fish passage, designed to function as part of a framework for FERC's proposed action to be analyzed in the ESA section 7 context, Federal Power Act Section 18 prescriptions and for development of a Final Settlement Agreement facilitating the resolution of all issues relating to the relicensing of the Projects. The Parties are still negotiating certain critical elements such as a protocol for dampening Great River Hydro (GRH) peaking flows, the Cobblestone tiger beetle mitigation plan, and fish passage performance metrics and adaptive management provisions.

**NOW, THEREFORE**, the Parties agree in principle as follows:

## **PART I: OVERVIEW AND INTENT**

- A. The Parties agree to negotiate toward a Final Settlement Agreement based on the terms of this AIP, with the intention reaching a Final Settlement Agreement, if one can be reached, no later than June 30, 2022.
- B. All Parties enter into this AIP without any admission of law or fact. The Parties acknowledge that the Final Settlement Agreement must include other material terms that have not yet been agreed upon (for example impoundment bank erosion) and is subject to agreement on language embracing all of the terms agreed to in principle as set forth in Part II herein.
- C. The Parties recognize that the Final Settlement Agreement and any other related agreements negotiated pursuant to this AIP are subject to formal and final review and approval of the Parties' management, executives, boards of directors, and other leadership, as necessary and appropriate to comply with corporate, municipal and agency requirements. The signatories to this AIP are the principal negotiators for each Party, who represent by their signatures only that:
  - They have informed their respective management or leadership of the terms of this AIP.
  - They have been authorized to negotiate toward a Final Settlement Agreement based in substance on the terms of this AIP.
- D. All Parties recognize and acknowledge that this AIP is not legally binding and does not give rise to any enforceable rights in contract.
- E. Unless and until a Final Settlement Agreement is executed by the Parties, any Party may take any action before FERC or any other agency as that Party unilaterally determines necessary to protect its interests.
- F. In the event that this AIP does not culminate in a Final Settlement Agreement, it shall be null and void. No Party shall use this AIP as evidence of any other Party's position on any issue addressed in this AIP or as evidence that any term should or should not be incorporated into the New Licenses for the Turners Falls and Northfield Mountain Projects.
- G. Nothing in this Agreement shall be construed as a waiver of any state or federal agency authority to carry out its statutory and regulatory mandates, including the requirement for FERC to engage in consultation under Section 7 of the Endangered Species Act. All parties understand that the terms conceptually agreed upon in this document do not circumscribe the authority of the agencies or their analyses under Section 7 of the Endangered Species Act.

## **PART II: PROTECTION, MITIGATION AND ENHANCEMENT MEASURES- OPERATIONS**

### **1 OPERATIONS**

#### **1.1 Project Operations**

##### *1.1.1 Turners Falls Project Operations*

- (a) FirstLight shall operate the Turners Falls Hydroelectric Project in accordance with the following operational flow regime until the third (3<sup>rd</sup>) anniversary of the date of license issuance.

FirstLight has included two timing elements to address the new operational paradigm. From license issuance until the third (3<sup>rd</sup>) anniversary of the date of license issuance, FirstLight shall institute the minimum flows in the bypass and below Cabot Station and Cabot Station up/down ramping in paragraph (a) and (b), as a license condition, and also put processes in place with GRH and ISO-NE to assure success in meeting its obligations for Flow Stabilization restrictions described in paragraph (c). In addition, Station No. 1 upgrades (described later) will be completed during this period. FirstLight also will submit to FERC for approval no later than 1 year after license issuance a project operation, monitoring and reporting plan after consultation with the agencies. On the third (3<sup>rd</sup>) anniversary of the date of license issuance and upon FERC's approval of the project operation, monitoring and reporting plan, FirstLight shall institute the full suite of flow enhancements shown in paragraphs (a), (b) and (c) (i.e., minimum flows in bypass and below Cabot Station, Cabot Station up/down ramping and flow stabilization restrictions). Table 1.1.1-1 summarizes the operations from license issuance through the third (3<sup>rd</sup>) anniversary of the date of license issuance.

**Table 1.1.1-1: Operating Conditions from License Issuance through the third (3rd) anniversary of the date of license issuance: Turners Falls Dam Minimum Flow, Station No. 1 Minimum Flow, below Cabot Station Minimum Flows, Cabot Station Ramping, and Flexible Operations**

1. Date	2. Total Bypass Flow <sup>2</sup>	3. Turners Falls Dam	4. Station No. 1 <sup>4,5</sup>	5. Below Cabot Station Minimum Flow	6. Cabot Station Ramping to Protect Shortnose Sturgeon and Odonates	7. Allowable Deviations from Ramping
01/01-03/31	1,500 cfs or the Naturally Routed Flow (NRF), whichever is less	400 cfs <sup>3</sup>	1,100 cfs	3,800 cfs or NRF, whichever is less (1,500 cfs + 2,300 cfs)	N/A	0 hours of Flexible Operations
04/01-05/15	6,500 cfs or the NRF, whichever is less	4,290 cfs	2,210 cfs	8,800 cfs between midnight and 7 pm or NRF, whichever is less (6,500 cfs + 2,300 cfs)	Up/Down to 2,300 cfs/hour	0 hours of Flexible Operations
05/16-05/31	6,500 cfs or the NRF, whichever is less	4,290 cfs	2,210 cfs	8,800 cfs between midnight and 7 pm or NRF, whichever is less (6,500 cfs + 2,300 cfs)	Up/Down to 2,300 cfs/hour	0 hours of Flexible Operations
06/01-06/15 <sup>1</sup>	4,500 cfs or the NRF, whichever is less	2,990 cfs	1,510 cfs	6,800 cfs or NRF, whichever is less (4,500 cfs + 2,300 cfs)	Up/Down to 2,300 cfs/hour	0 hours of Flexible Operations
06/16-06/30 <sup>1</sup>	3,500 cfs of the NRF, whichever is less	2,280 cfs	1,220 cfs	5,800 cfs or NRF, whichever is less (3,500 cfs + 2,300 cfs)	Up/Down to 2,300 cfs/hour	0 hours of Flexible Operations
07/01-07/15	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	Up to 2,300 cfs/hour (8 am to 2 pm)	N/A
07/16-07/31	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	Up to 2,300 cfs/hour (8 am to 2 pm)	
08/01-08/15	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	Up to 2,300 cfs/hour (8 am to 2 pm)	N/A
08/16-08/31	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	N/A	
09/01-09/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	N/A
09/16-09/30	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	
10/01-10/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	N/A
10/16-10/31	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	
11/01-11/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	N/A
11/16-11/30	1,500 cfs or 90% of the NRF, whichever is less	400 cfs <sup>3</sup>	1,100 cfs	1,500 cfs or 90 % of the NRF, whichever is less	N/A	
12/01-12/31	1,500 cfs or the NRF, whichever is less	400 cfs <sup>3</sup>	1,100 cfs	3,800 cfs or NRF, whichever is less (1,500 cfs + 2,300 cfs)	N/A	N/A

<sup>1</sup>The flow split during these periods is approximately 67% from the Turners Falls Dam and 33% from Station No. 1. If FirstLight conducts further testing, in consultation with the National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS) and Massachusetts Division of Fish and Wildlife (MDFW) and determines that migratory fish are not delayed by passing a greater percentage of the bypass flow via Station No. 1, it may increase the percentage through Station No. 1 upon written concurrence of those agencies. If further testing shows that the flow split could potentially be modified, FirstLight shall consult with American Whitewater (AW), Appalachian Mountain Club (AMC), Zoar Outdoors, Crab Apple Whitewater, Inc and New England FLOW relative to any changes in the flow split and address those entities comments in any filing before FERC or the Massachusetts Department of Environmental Protection (MDEP).

<sup>2</sup>If the NRF is less than 6,500 cfs (04/01-05/31), 4,500 cfs (06/01-06/15) or 3,500 cfs (06/16-06/30) the flow split will still be set at approximately 67% of the NRF from the Turners Falls Dam and 33% of the NRF from Station No. 1 subject to footnote 1. If 90% of the NRF is less than 1,800 cfs (7/1-8/31) or 1,500 cfs (9/1-11/15), FirstLight shall maintain the Turners Falls Dam discharge at 250 cfs or a maximum of 400 cfs, subject to footnote 6. If the NRF is less than 1,500 cfs (11/16-3/31), FirstLight shall maintain the Turners Falls Discharge at 400 cfs subject to footnote 3.

<sup>3</sup>The design maximum capacity of the canal gate is 400 cfs. FirstLight commits to opening the attraction flow gate to its maximum opening and will implement ice mitigation measures to maintain the maximum opening, if necessary, and monitor gate operations to determine if supplemental measures, such as cable heating the gate, are needed to maintain flows at or as close to 400 cfs as possible.

<sup>4</sup>To maintain the flow split, Station No. 1 must be automated, which will not occur until Year 3 of the license. FirstLight proposes to maintain the flow split such that the Turners Falls Dam discharge will be as shown above, or higher flows will be spilled, in cases where the additional flow cannot be passed through Station No. 1.

<sup>5</sup>The Turners Falls Hydro (TFH) project (FERC No. 2622) and Milton Hilton, LLC project (unlicensed) are located on the power canal and discharge into the bypass reach upstream of Station No. 1. The hydraulic capacities of the TFH project and Milton Hilton, LLC project are 289 and 113 cfs, respectively. If the TFH project is operating, FirstLight may reduce its Station No. 1 discharge by 289 cfs. If the Milton Hilton, LLC project is operating, FirstLight may reduce its Station No. 1 discharge by 113 cfs.

<sup>6</sup> The 250 cfs is subject to an inspection of rare plant species in the bypass under Turners Falls Dam spillage flows ranging from 250-400 cfs in the first 4 years after license issuance. The entity conducting the inspection of rare plants will be resolved by the Parties as part of the Comprehensive Settlement Agreement. Pending the results of the study, NHESP may authorize that the Turners Falls Dam discharge be increased up to a maximum of 400 cfs with the portion of the bypass flow coming from Station No. 1 reduced by the corresponding amount. The Parties agree to discuss this issue further as part of Comprehensive Settlement discussions due to competing interests from multi-day through paddlers and flatwater paddlers.

The bypass flows and minimum flow below Cabot Station may be modified temporarily: (1) during and to the extent required by operating emergencies beyond the control of FirstLight; and (2) upon mutual agreement among FirstLight for Projects Nos. 1889 and 2485 and the USFWS, NMFS, MDEP, and MDFW.

- (b) The NRF represents the inflow to the Turners Falls Dam. The NRF is defined as the sum of the Vernon Hydroelectric Project total discharge from 12 hours previous, Ashuelot River United States Geological Survey (USGS) gage flow from 12 hours previous, and Millers River USGS gage flow from 12 hours previous.
- (c) FirstLight shall operate the Turners Falls Project in accordance with the conditions in paragraph (a) and the following operational flow regime beginning on the third (3<sup>rd</sup>) anniversary of the date of license issuance (see Table 1.1.1-2).



**Table 1.1.1-2: Operating Conditions starting on the third (3<sup>rd</sup>) anniversary of the date of license issuance: Turners Falls Dam Minimum Flow, Station No. 1 Minimum Flow, below Cabot Station Minimum Flows, Flow Stabilization, Cabot Station Ramping and Flexible Operations**

1. Date	2. Total Bypass Flow <sup>2</sup>	3. Turners Falls Dam	4. Station No. 1 <sup>4,5</sup>	5. Below Cabot Station Minimum Flow	6. Flow Stabilization to Protect Shad Spawning (4/1-5/15), Puritan and Cobblestone Tiger Beetles, and state listed mussel and plant species (5/16-11/30)	7. Cabot Station Ramping to Protect Shortnose Sturgeon and Odonates	8. Allowable Deviations from Flow Stabilization
01/01-03/31	1,500 cfs or the Naturally Routed Flow (NRF), whichever is less	400 cfs <sup>3</sup>	1,100 cfs	3,800 cfs or NRF, whichever is less (1,500 cfs + 2,300 cfs)	N/A	N/A	0 hours of Flexible Operations
04/01-05/15	6,500 cfs or the NRF, whichever is less	4,290 cfs	2,210 cfs	8,800 cfs between midnight and 7 pm or NRF, whichever is less (6,500 cfs + 2,300 cfs)	Provide NRF ±10% below Cabot Station from 7 PM to Midnight, with deviations up to +/-20% allowed for up to 22 hours.	Up/Down to 2,300 cfs/hour (ramping will take precedence over flow stabilization)	0 hours of Flexible Operations
05/16-05/31	6,500 cfs or the NRF, whichever is less	4,290 cfs	2,210 cfs	8,800 cfs between midnight and 7 pm or NRF, whichever is less (6,500 cfs + 2,300 cfs)	Provide NRF ±10% below Cabot Station from 7 pm to Midnight, with deviations up to +/-20% for up to 18 hours.	Up/Down to 2,300 cfs/hour (ramping will take precedence over flow stabilization)	0 hours of Flexible Operations
06/01-06/15 <sup>1</sup>	4,500 cfs or the NRF, whichever is less	2,990 cfs	1,510 cfs	6,800 cfs or NRF, whichever is less (4,500 cfs + 2,300 cfs)	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 7 hours	Up/Down to 2,300 cfs/hour (ramping will take precedence over flow stabilization)	0 hours of Flexible Operations
06/16-06/30 <sup>1</sup>	3,500 cfs of the NRF, whichever is less	2,280 cfs	1,220 cfs	5,800 cfs or NRF, whichever is less (3,500 cfs + 2,300 cfs)	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 7 hours	Up/Down to 2,300 cfs/hour (ramping will take precedence over flow stabilization)	0 hours of Flexible Operations
07/01-07/15	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 55 hours	N/A	20 hours of Flexible Operations with no more than 7 flex events per month (Jul).
07/16-07/31	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less			
08/01-08/15	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less			
08/16-08/31	1,800 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,550 cfs	1,800 cfs or 90 % of the NRF, whichever is less	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 27 hours	N/A	26 hours of Flexible Operations with no more than 7 flex events per month (Aug).
09/01-09/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 44 hours	N/A	23 hours of Flexible Operations with no more than 7 flex events per month (Sep).
09/16-09/30	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less			
10/01-10/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less			
10/16-10/31	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less			
11/01-11/15	1,500 cfs or 90 % of the NRF, whichever is less	250 cfs <sup>6</sup>	1,250 cfs	1,500 cfs or 90 % of the NRF, whichever is less	Provide NRF ±10% below Cabot Station, with deviations up to +/-20% for up to 11 hours	N/A	28 hours of Flexible Operations with no more than 7 flex events per month (Nov).
11/16-11/30	1,500 cfs or 90 % of the NRF, whichever is less	400 cfs <sup>3</sup>	1,100 cfs	1,500 cfs or 90 % of the NRF, whichever is less			
12/01-12/31	1,500 cfs or the NRF, whichever is less	400 cfs <sup>3</sup>	1,100 cfs	3,800 cfs or NRF, whichever is less (1,500 cfs + 2,300 cfs)	N/A	N/A	N/A

1. Date	2. Total Bypass Flow <sup>2</sup>	3. Turners Falls Dam	4. Station No. 1 <sup>4,5</sup>	5. Below Cabot Station Minimum Flow	6. Flow Stabilization to Protect Shad Spawning (4/1-5/15) and Puritan Tiger Beetles (5/16-11/15)	7. Cabot Station Ramping to Protect Shortnose Sturgeon and Odonates	8. Allowable Deviations from Ramping and Flow Stabilization
<p><sup>1</sup>The flow split during these periods is approximately 67% from the Turners Falls Dam and 33% from Station No. 1. If FirstLight conducts further testing, in consultation with the NMFS, USFWS and MDFW and determines that migratory fish are not delayed by passing a greater percentage of the bypass flow via Station No. 1, it may increase the percentage through Station No. 1 upon written concurrence of those agencies. If further testing shows that the flow split could potentially be modified, FirstLight shall consult with American Whitewater (AW), Appalachian Mountain Club (AMC), Zoar Outdoors, Crab Apple Whitewater, Inc and New England FLOW relative to any changes in the flow split and address those entities comments in any filing before FERC or the Massachusetts Department of Environmental Protection (MDEP).</p> <p><sup>2</sup>If the NRF is less than 6,500 cfs (04/01-05/31), 4,500 cfs (06/01-06/15) or 3,500 cfs (06/16-06/30) the flow split will still be set at approximately 67% of the NRF from the Turners Falls Dam and 33% of the NRF from Station No. 1, subject to footnote 1. If 90% of the NRF is less than 1,800 cfs (7/1-8/31) or 1,500 cfs (9/1-11/15), FirstLight shall maintain the Turners Falls Dam discharge at 250 cfs or a maximum of 400 cfs, subject to footnote 6. If the NRF is less than 1,500 cfs (11/16-3/31), FirstLight shall maintain the Turners Falls Discharge at 400 cfs subject to footnote 3.</p> <p><sup>3</sup>The design maximum capacity of the canal gate is 400 cfs. FirstLight commits to opening the attraction flow gate to its maximum opening and will implement ice mitigation measures to maintain the maximum opening, if necessary, and monitor gate operations to determine if supplemental measures, such as cable heating the gate, are needed to maintain flows at or as close to 400 cfs as possible.</p> <p><sup>4</sup>To maintain the flow split, Station No. 1 must be automated, which will not occur until Year 3 of the license. FirstLight proposes to maintain the flow split such that the Turners Falls Dam discharge will be as shown above, or higher flows will be spilled, in cases where the additional flow cannot be passed through Station No. 1.</p> <p><sup>5</sup>The Turners Falls Hydro (TFH) project (FERC No. 2622) and Milton Hilton, LLC project (unlicensed) are located on the power canal and discharge into the bypass reach upstream of Station No. 1. The hydraulic capacities of the TFH project and Milton Hilton, LLC project are 289 and 113 cfs, respectively. If the TFH project is operating, FirstLight may reduce its Station No. 1 discharge by 289 cfs. If the Milton Hilton, LLC project is operating, FirstLight may reduce its Station No. 1 discharge by 113 cfs.</p> <p><sup>6</sup> The 250 cfs is subject to an inspection of rare plant species in the bypass under Turners Falls Dam spillage flows ranging from 250-400 cfs in the first 4 years after license issuance. The entity conducting the inspection of rare plants will be resolved by the Parties as part of the Comprehensive Settlement Agreement. Pending the results of the study, NHESP may authorize that the Turners Falls Dam discharge be increased up to a maximum of 400 cfs with the portion of the bypass flow coming from Station No. 1 reduced by the corresponding amount. The Parties agree to discuss this issue further as part of Comprehensive Settlement discussions due to competing interests from multi-day through paddlers and flatwater paddlers.</p>							

FirstLight agrees that as part of an off-license agreement, it will plan for and begin implementation of the proposed flow stabilization measures in Table 1.2.1-2 upon license issuance, recognizing that it will not be required to demonstrate to FERC or the Parties that it is meeting the flow stabilization requirements in Column 6 of Table 1.2.1-2 until the third (3<sup>rd</sup>) anniversary of the date of license issuance. FirstLight agrees to provide reports to the Parties to demonstrate substantive progress towards implementing the flow stabilization requirements. The Parties agree to determine the frequency of reporting as part of the Comprehensive Settlement Agreement.

In addition, FirstLight will have restricted discretionary flexible operating capability to respond to elevated energy prices (as defined in paragraph (d) below) between July 1 and November 30, as well as unrestricted capability to respond to emergencies, ISO-NE transmission and power system requirements, and other regulatory requirements (as defined in paragraph (e) below).

- (d) Flexible operations allow for deviation from the prescribed operating limits (defined as Flow Stabilization and Cabot Station Ramping which are shown in Columns 6 and 7 of Table 1.2.1-2 in paragraph (c)). Such flexible operations are limited to the July 1 to November 30 period and will occur at the discretion of FirstLight and will be limited by a maximum number of hours and events per period as shown in Column 8 of Table 1.2.1-2 in paragraph (c).
- (e) If compliance with the prescribed operating limits (defined as Flow Stabilization and Cabot Station Ramping which are shown in Columns 6 and 7 of Table 1.2.1-2 in paragraph (c)) would cause FirstLight to violate or breach any law, any applicable license, permit, approval, consent, exemption or authorization from a federal, state, or local governmental authority, any agreement with a governmental entity, or any tariff, capacity rating requirement, ramping criterion, or other requirement of the ISO-NE or its successors (ISO-NE)<sup>1</sup>, FirstLight may deviate from the prescribed operating limitations to the least degree necessary in order to avoid such violation or breach. In addition, FirstLight may deviate from the operating limits for the following reasons:
- To implement Flood Flow Operations as defined in paragraph (g) below.
  - To perform demonstrations of the resources' operating capabilities under ISO-NE rules and procedures. FirstLight will use best efforts to be allowed by ISO-NE to perform these demonstrations at times that will not cause it to deviate from the operating limits, with recognition that the April 1 to June 30 period will be avoided to the maximum extent possible.
  - To manage the Turners Falls Impoundment (TFI) to stay within license limits, with recognition that the April 1 to June 30 period will be avoided to the maximum extent possible.
  - If compliance with the prescribed operating limitations would cause a public safety hazard or prevent timely rescue.

From license issuance until the third (3<sup>rd</sup>) anniversary of the date of license issuance, FirstLight shall document on an hourly basis for each day any deviations from the Cabot Station Ramping restrictions and the same in the third (3<sup>rd</sup>) anniversary of the date of license issuance to license expiration from the Cabot Station restrictions and Flow Stabilization restrictions. Each day, between April 1 and November 30 any deviations would be recorded in a spreadsheet showing the daily deviations, the reason for the deviation, the number of hours and scope. The Parties agree to determine the frequency of reporting as part of the

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<sup>1</sup>ISO-NE requirements are conditions when ISO-NE requires FirstLight to be fully available and, if necessary, responsive. Some examples include ISO-NE reserve deficiencies (a.k.a. reserve constraint penalty factors) when reserves are depleted on the power grid, for fuel security emergencies or scarcity events, for ISO-NE system (or system) stability (e.g., VAR support), and system over supply (negative prices).

Comprehensive Settlement Agreement. In addition, FirstLight shall provide the total number of deviations and supply it to the USFWS, NMFS, MDFW and MDEP on an annual basis no later than March 1 of each year. Deviations will be tracked as follows:

- Identify Deviations: At the top of each hour, FirstLight will record the maximum and minimum total Project discharge and Cabot Station discharge which occurred over the past hour. The NRF (as detailed in paragraph (b) of the “Operational Regime” section) will be compared with the recorded range of Project discharge in a given hour to identify if a Flow Stabilization deviation occurred over the past hour. The recorded range of Cabot Station discharge will be reviewed each hour to see if a Cabot Station Ramping violation occurred. Any deviation within the hour will be counted in one-hour increments.
  - Categorize Deviations: When a deviation is identified it will be categorized as either Regulatory (as detailed in paragraph (e) of the “Turners Falls Project Operations” in Section 1.2.1 of this Proposal), NRF Allowance (as detailed in paragraph (d) of the “Turners Falls Impoundment Water Level Management” in Section 1.2.2 of this Proposal), or Discretionary (as detailed in paragraph (d) of the “Operational Regime” section of this Proposal).
- (f) Cabot Emergency Gate Use. FirstLight shall use the Cabot Emergency Gates under the following conditions: a) in case of a Cabot load rejection<sup>2</sup>, b) in the case of dam safety issues such as potential canal overtopping or partial breach, and c) to discharge approximately 500 cfs between April 1 and June 15 for debris management. FirstLight shall avoid discharging higher flows through the gates from April 1 to June 15 whenever possible; however, if necessary, FirstLight shall coordinate with NMFS to minimize potential impacts to Shortnose Sturgeon in the area below Cabot Station.
- (g) Flood Flow Operations. FirstLight shall operate the Turners Falls Project in accordance with its existing agreement with the United States Army Corp of Engineers (USACOE). This agreement, memorialized in the *Reservoir and River Flow Management Procedures* (1976), as it may be amended from time to time, governs how the Turners Falls Project shall operate during flood conditions<sup>3</sup> and coordinate its operations with the Licensee of the Northfield Mountain Project (FERC No. 2485).
- (h) The Parties agree that as part of the Final Settlement Agreement they will work to develop a mutually-agreeable protocol to dampen the magnitude of Great River Hydro’s (GRH) Vernon Hydroelectric Project (FERC No. 1904) flexible operations discharges (i.e., peaking releases) below FirstLight’s Turners Falls Project from July 1 through November 30 .

#### 1.1.2 Turners Falls Impoundment Water Level Management

- (a) FirstLight shall operate the TFI, as measured at the Turners Falls Dam, between elevation 176.0 feet and 185.0 feet NGVD29.
- (b) FirstLight shall limit the rate of rise of the TFI water level, as measured at the Turners Falls Dam, to be less than 0.9 feet/hour from May 15 to August 15 between the hours of 8:00 am and 2:00 pm for the protection of odonates.

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<sup>2</sup> A load rejection is when the Cabot Station units are suddenly shut off. If this were to occur, the canal could potentially be overtopped. To prevent overtopping, the Cabot Emergency Gates open so that incoming flow down the power canal can be discharged via the Cabot Emergency Gates. Load rejections could occur at any time.

<sup>3</sup> These procedures define a flood as the NRF in excess of 65,000 cfs. However, these procedures implement measures for flood control when the NRF reaches 30,000 cfs.

- (c) The rate of rise of the TFI may be modified temporarily: (1) during and to the extent required by operating emergencies beyond the control of FirstLight; and (2) upon mutual agreement among the Licensees for Projects Nos. 1889 and 2485 and the USFWS, NMFS and MDFW.
- (d) FirstLight is entitled to increase the allowable NRF deviation from  $\pm 10\%$  to  $\pm 20\%$  in order to better manage TFI water levels. The increased flow deviation would be limited by the number of hours shown in Column 6 of Table 1.2.1-2 in paragraph (c) of "Turners Falls Project" in Section 1.2.1 of this Proposal. The allowance for an increased flow deviation outlined in this paragraph is different from the exceptions outlined in paragraphs (d) and (e) of "Turners Falls Project" in Section 1.2.1 of this Proposal. As such, the increased flow deviations outlined in this paragraph shall not count against any time allotment for exceptions outlined in paragraphs (d) and (e) of "Turners Falls Project" in Section 1.2.1 of this Proposal, and similarly operations meeting the exception criteria outlined in paragraphs (d) and (e) of "Turners Falls Project" in Section 1.2.1 of this Proposal shall not count against any time allotment for deviations outlined in this paragraph. Additionally, flow deviations in excess of  $\pm 10\%$  of NRF resulting from conflicting operational requirements shall not count against any time allotment for deviations outlined in this paragraph.

### *1.1.3 Northfield Mountain Pumped Storage Project Operations*

- (a) Flood Flow Operations. FirstLight shall operate the Northfield Mountain Project in accordance with its existing agreement with the USACOE. This agreement, memorialized in the Reservoir and River Flow Management Procedures (1976), as it may be amended from time to time, governs how the Northfield Mountain Project shall operate during flood conditions and coordinate its operations with the Licensee of the Turners Falls Project (FERC No. 1889).
- (b) Upper Reservoir Water Level Management: FirstLight shall operate the Northfield Mountain Project Upper Reservoir between elevation 1004.5 and 920.0 feet NGVD29.

### *1.1.4 Cobblestone Tiger Beetles*

As part of Final Settlement FirstLight agrees to work with the Settlement Parties to develop a Cobblestone Tiger Beetle Mitigation Plan. This plan will not include any requirements that limit the capacity of Cabot Station.

## **PART II: PROTECTION, MITIGATION AND ENHANCEMENT MEASURES- FISH PASSAGE**

### **2 FISH PASSAGE**

#### **2.1 Provisions to Provide Bypass Flows**

##### *2.1.1 Station No. 1- Improve Operating Range of Turbines*

FirstLight will automate the Station No. 1 turbines to throttle the station over a range of flows within 3 years of license issuance.

#### **2.2 Fish Passage Design and Consultation, Fish Passage Efficiency Metrics and Adaptive Management Plans**

The Parties agree to the following:

- For any new fish passage facility described in this AIP, FirstLight will consult and obtain approval from the MDFW, NMFS and USFWS on the facility design and on operation and maintenance procedures. For any new fish passage facility, the Parties will attempt to meet agency design guidelines to the extent practicable.
- As part of the Final Settlement Agreement, the Parties will negotiate upstream and downstream fish passage efficiency and timing metrics for the Projects and include the metrics, if agreed upon, as part of the Final Settlement Agreement. The Parties will also negotiate adaptive management measures to be followed if the agreed upon fish passage metrics are not achieved.

#### **2.3 Downstream Fish Passage**

##### *2.3.1 Intake Protection at the Northfield Mountain Pumped Storage Project Intake/Tailrace*

FirstLight will install a barrier net as conceptually proposed in the Amended Final License Application for the period August 1 to November 15 to protect out-migrating juvenile shad and silver eel, to be operational no later than August 1 of Year 7 after license issuance. The barrier net will be 3/8-inch on the top and 3/4-inch on the bottom. The Parties agree to FirstLight's proposed operational period so long as there is a mechanism for expanding the operational period if daytime pumping operations at the Northfield Mountain Project during the adult alosine fish passage season increase substantially and there is demonstrated additional entrainment. FirstLight will be required to provide the agencies with annual logs of daily operation data with respect to the timing of pumping and generating. FirstLight will also be required to include the Northfield Mountain Project in the study design for effectiveness studies of upstream and downstream fish passage measures at the Turners Falls Project (e.g., deploy receivers at the Northfield Mountain Project lower reservoir intake and sites upstream and downstream of the intake, as well as in the Northfield Mountain Upper Reservoir).

The Parties agree to discuss the possibility of a fund to be used for habitat improvement projects and/or alosine management activities to offset the potential loss of ichthyoplankton through entrainment as part of final settlement discussions.

### 2.3.2 Cabot Intake Protection and Downstream Passage Conveyance

Within 4 years<sup>4</sup> of license issuance, FirstLight will replace the existing trashrack structure with a new full depth trashrack with 1-inch clear spacing. In terms of general design concepts, the Parties agree that the new trashracks will have multiple openings for fish passage and that those openings will include both the top and bottom of the water column. The Parties further agree that they will attempt to maximize the hydraulic capacity of these openings within the constraints of the conveyance mechanisms. The Parties have analyzed a number of alternatives and believe the following conceptual design has merit for future exploration of detailed design alternatives:

*The new trashrack will have multiple surface entrances including a.) between Units 2 and 3; b.) between Units 4 and 5; and c.) at the right wall of the intake (looking downstream) at Unit 6. These openings will be 3-feet-wide by 2-feet-tall and will connect to the existing trash trough located behind the racks. Each opening at the top of the trashrack will have an approximate hydraulic capacity of 24 cfs, and the existing trash trough will convey a total hydraulic capacity of approximately 72 cfs from these openings. The new trashrack will have an additional entrance near the bottom at the left wall of the intake (looking downstream) at Unit 1. This entrance will be approximately 3-feet-wide by 3-feet-tall and will and will connect to a vertical pipe to safely convey fish to the existing trash trough or log sluice. This entrance will be sized to provide a velocity that attracts fish to the bypass relative to the turbine intakes (approximately 5 feet-per-second).*

*In addition to the entrances integral to the new trashrack structure, fish will be conveyed via a new uniform acceleration weir (UAW) and log sluice. The log sluice will be resurfaced to limit turbulence and injury to migrants. A steel panel (or equivalent) will be provided below the UAW to exclude migrants from being delayed in the space below the UAW. Total flow from all downstream passage components at Cabot Station will be at least 5% (685 cfs) of maximum hydraulic station capacity (13,728 cfs). The conveyance at each bypass entrance will be determined during the design phase.*

FL will consult and obtain approval from the Agencies during the design process as described in Section 2.2.

### 2.3.3 Station No. 1 Bar Rack

FirstLight will construct a ¾-inch clear-spaced bar rack at the entrance to the Station No. 1 branch canal the same year (see footnote 6) the Cabot Intake Protection and Downstream Passage Conveyance is built, so as to minimize canal outage time.

### 2.3.4 Plunge Pool below Bascule Gate No. 1

FirstLight will construct a plunge pool downstream of the Bascule Gate No. 1 as part of the construction of the Spillway Lift, to be operational no later than April 1 of Year 9 after license issuance.

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<sup>4</sup> Relative to the Cabot Intake Protection and Downstream Passage Conveyance and the Station No. 1 Bar Rack, the times cited are from license issuance based on the time needed to complete construction. The actual first year of operation of these two facilities will depend on when the license is issued.



## **2.4 Upstream Fish Passage**

### *2.4.1 Anadromous Passage*

#### 2.4.1.1 Spillway Lift

FirstLight will construct a new Spillway Lift at the Turners Falls Dam to be operational no later than April 1 of Year 9 after license issuance irrespective of what quarter the license is issued.

#### 2.4.1.2 Rehabilitate Gatehouse Trapping Facility

FirstLight will rehabilitate the Gatehouse Trapping facility (sampling facility) to be operational no later than April 1 of Year 9 after license issuance.

#### 2.4.1.3 Retire Cabot Ladder and Portions of Gatehouse Ladder

FirstLight will retire the Cabot ladder and the canal portions of the Gatehouse ladder once the new Spillway Lift is operational.

### *2.4.2 Eel Passage*

#### 2.4.2.1 Eel Passage Measures

FirstLight will conduct the following measures:

- Install and operate interim upstream eel passage in the vicinity of the Spillway Ladder within 1 year of license issuance and continue operating until permanent upstream eel passage becomes operational. The location and design of interim eelway(s) will be determined in consultation with the agencies.
- Conduct up to 2 years of eel ramp siting studies, using a similar methodology to relicensing Study 3.3.4 (both years). Siting surveys will be initiated the year the new Spillway Lift becomes operational.
- Based on siting survey results, design, construct, operate, and maintain up to two permanent upstream eel passage facilities at the Turners Falls Project no later than 3 years after completing the final siting survey. The Parties agree that final eel ramp siting will take into account the ability to maintain the facilities in light of spillage conditions at the Project. In particular, the Parties agree not to site any ramps immediately at the foot of any active spillway structures.

**PART III SIGNATURES**

**Organization:** FirstLight MA Hydro LLC and Northfield Mountain LLC (collectively, FirstLight)

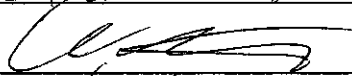
By: Justin Trudell

Title: *Justin Trudell*

Signature: Chief Operating Officer

Date: 3/17/2021

Organization: Massachusetts Division of Fisheries and Wildlife

By: Caleb Stator  
Title: Chief of Hatcheries  
Signature:   
Date: 3/17/2022

**Organization:** Massachusetts Natural Heritage and Endangered Species Program

**By:** Jesse Leddick

**Title:** Chief of Regulatory Review

**Signature:**

A handwritten signature in blue ink, consisting of several loops and a trailing line, positioned to the right of the 'Signature:' label.

**Date:** March 17, 2022

**Organization:** National Marine Fisheries Service

By: Christopher Boelke  
\_\_\_\_\_

Title: New England Branch Supervisor, Habitat and Ecosystem Services  
\_\_\_\_\_

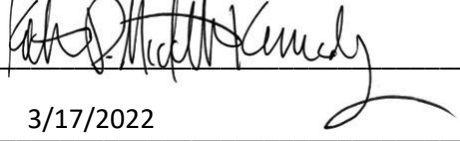
Signature:   
\_\_\_\_\_

Date: 3/17/22  
\_\_\_\_\_

**Organization:** The Nature Conservancy

By: Katie Kennedy

Title: Applied River Scientist

Signature: 

Date: 3/17/2022

**Organization:** United States Department of the Interior, United States Fish and Wildlife Service

**By:** Audrey Mayer, Ph.D.

**Title:** Field Supervisor, New England Field Office

**Signature:** AUDREY MAYER Digitally signed by AUDREY MAYER  
Date: 2022.03.17 11:38:00 -04'00'

**Date:** 03/17/2022





Peter Brandien  
Vice President, System Operations

March 17, 2021

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

Re: Applications for Relicensing of FirstLight MA Hydro LLC for Turners Falls Hydroelectric Project (FERC No. 1889) and Northfield Mountain LLC for Northfield Mountain Pumped Storage Project (FERC No. 2485);

Docket Nos. P-2485-\_\_\_\_ and P-1889-\_\_\_\_

Dear Secretary Bose:

ISO New England Inc. (“ISO-NE”)<sup>1</sup> offers this letter in support of the operational benefits to the New England bulk power system that will result from the continued operation and proposed improvements of the Northfield Mountain Pumped Storage Project (“Northfield Mountain Project”) and the Turners Falls Hydroelectric Project (“Turners Falls Project”),<sup>2</sup> as requested by Northfield Mountain LLC and FirstLight MA Hydro Generating LLC (collectively, “FirstLight”), respectively, in their December 4, 2020 relicensing applications. The Projects’ current licenses expired on April 30, 2018, and they are operating on annual licenses.

ISO-NE supports the relicensing of FirstLight’s over 1200-megawatt (“MW”) pumped-storage, hydroelectric generating Projects. The Projects are located on the Connecticut River in the Commonwealth of Massachusetts and the states of New Hampshire and Vermont. The Northfield Mountain Project comprises four reversible pump-turbine units rated at 1,180 megawatt (“MW”) (gross) and 1,174 MW (net).<sup>3</sup> It is currently New England’s largest energy storage generating facility with the capability to rapidly ramp up electric production. The approximately 68.2 MW

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<sup>1</sup>Capitalized terms used but not otherwise defined in this filing letter have the meanings ascribed thereto in the ISO’s Transmission, Markets and Services Tariff (“Tariff”).

<sup>2</sup> The Northfield Mountain Project and Turners Falls Project are collectively referred to as the “Projects.”

<sup>3</sup> The ratings are based on the Standard Large Generator Interconnection Agreement by and among ISO-NE, Northfield Mountain LLC (f/k/a FirstLight Hydro Generating Company), and NSTAR Electric Company (f/k/a Western Massachusetts Electric Company), designated as Original Service Agreement No. LGIA-ISON/NU-09-03.

Turners Falls Project comprises the approximately 62.0 MW Cabot Station and 6 MW Station No. 1 hydroelectric generating facilities.<sup>4</sup> It operates to help meet peak demand, and also provides voltage control and reserve.

As is well-known, the New England power system has the potential to be energy constrained at times. Operational difficulties have occurred during severe and/or extended cold weather when the region's fuel infrastructure is constrained, and looking forward, they may appear at other times of the year as the region transitions to a fleet of resources that no longer have stored fuel. The Projects are pumped-storage hydropower facilities that can provide energy in support of reliability during periods of system stress. Currently, the Projects provide the region with power at times of high energy demand, and can serve as additional operating reserve to respond to a given contingency, such as a sudden, unanticipated loss of a major generating plant or a transmission facility, within the electric system. They also can be available to supplement the loss of production from "just-in-time" resources at times when the weather is not cooperating.

Accordingly, ISO-NE supports the relicensing of the Projects for their continued operation. Issuing a relicensing of the Projects, with the proposed expanded upper reservoir range at the Northfield Mountain Project, will further assist in meeting the region's current and future energy security risks by providing a reliable supply of electricity.

Please feel free to contact me if you have any questions on this matter.

Very truly yours,



Peter Brandien

Vice President, System Operation  
ISO New England Inc.  
One Sullivan Road  
Holyoke, MA 01040  
(413) 535-4000

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<sup>4</sup> The Turner Falls values are informed by the Standard Large Generator Interconnection Agreement by and among ISO-NE, FirstLight MA Hydro LLC (f/k/a Northeast Generation Company), and NSTAR Electric Company (f/k/a Western Massachusetts Electric Company), designated as Original Service Agreement No. LGIA-ISONE/NU-06-05; the Standard Small Generator Interconnection Agreement by and among ISO-NE, FirstLight MA Hydro LLC (f/k/a Northeast Generation Company), and NSTAR Electric Company (f/k/a Western Massachusetts Electric Company), designated as SGIA-ISONE/NU-06-08; and the 2020 CELT Report, available at [https://www.iso-ne.com/static-assets/documents/2020/04/2020\\_celt\\_report.xlsx](https://www.iso-ne.com/static-assets/documents/2020/04/2020_celt_report.xlsx).

## **CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service lists compiled by the Secretary in these proceedings.

Dated at Holyoke, Massachusetts this 17<sup>th</sup> day of March, 2021.

/s/ Julie Horgan

Julie Horgan

eTariff Coordinator

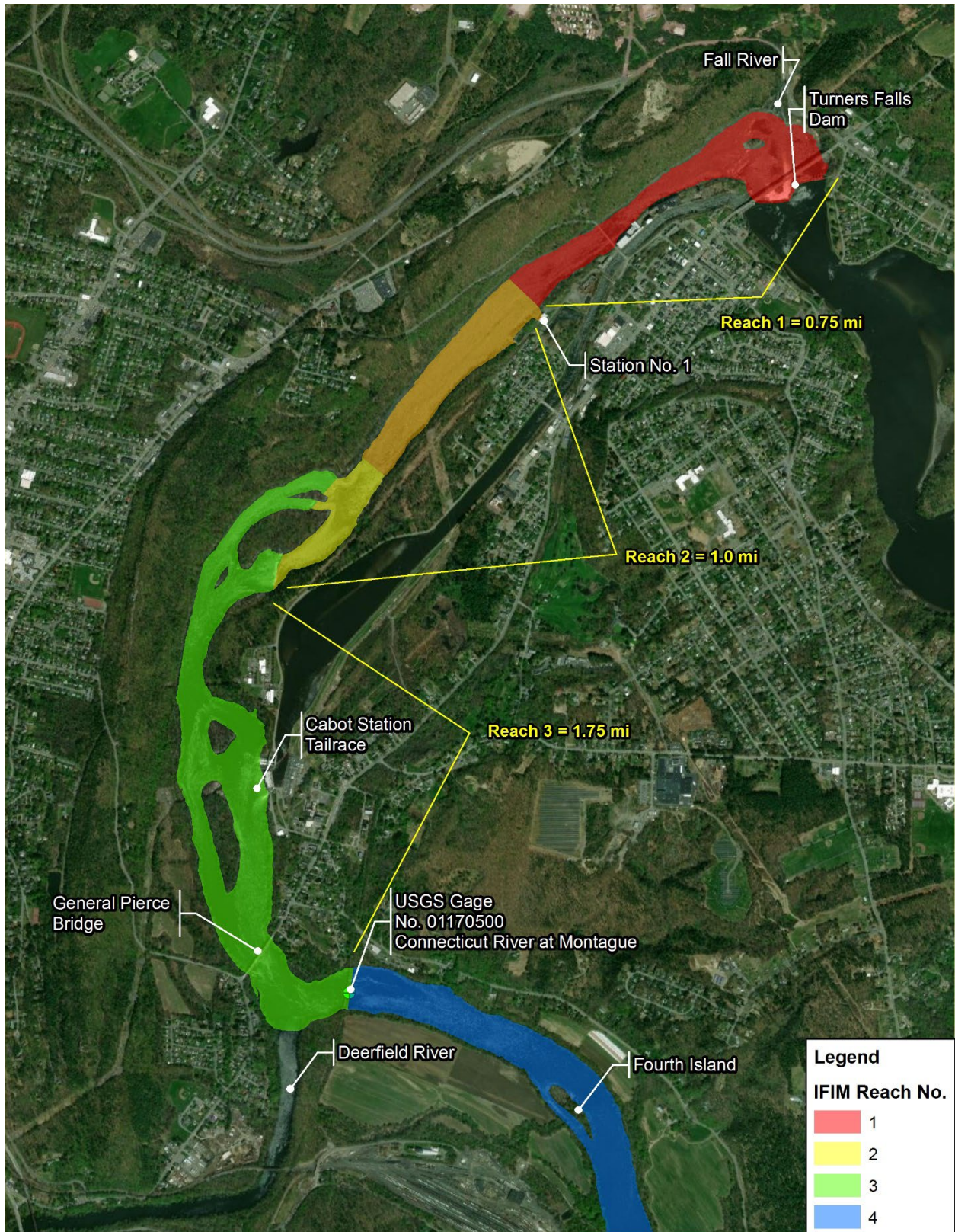
ISO New England Inc.

One Sullivan Road

Holyoke, MA 01040

(413) 540-4218





**Exhibit 3: Instream Flow Study Reaches between Turners Falls Dam and the Montague USGS Gage**





**Natural Heritage  
& Endangered Species  
Program**

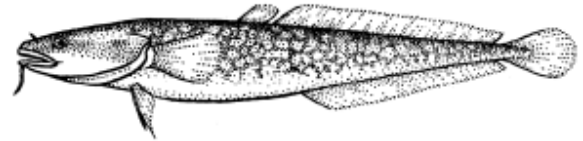
[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

*Massachusetts Division of Fisheries & Wildlife*

**Burbot  
*Lota lota***

State Status: **Special Concern**  
Federal Status: **None**

**DESCRIPTION:** Burbot are a freshwater cod species that has an elongate body and a single, noticeable, chin barbel. They have two dorsal fins. The second dorsal fin and the anal fin are elongate and end at the caudal peduncle. No other inland fish species in Massachusetts looks like this fish.



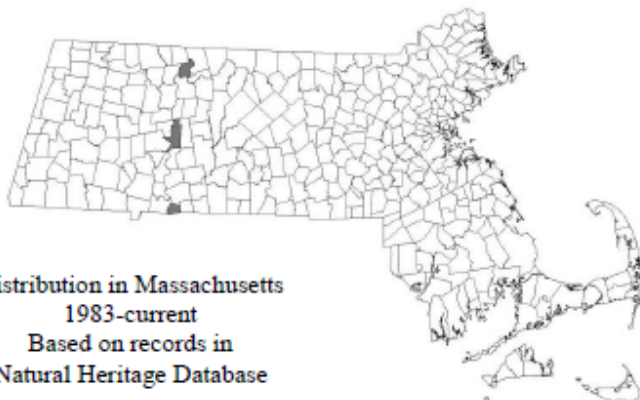
Drawing by Laszlo Meszoly, from Hartel et al. 2002. *Inland Fishes of Massachusetts.*

**HABITAT:** Burbot are generally found in deep lakes and cool streams that have shelter such as rock slabs and trees in which they can hide. They can be found in weedy areas of streams and large rivers and have been found to live among dense *Potamogeton* plants in New York. In lakes, they are found in the hypolimnion with other deep, cold-water fish such as trout. In Massachusetts, Burbot are rare and only a few individuals have been collected in the Connecticut watershed and historically in the Housatonic watershed.

**LIFE HISTORY:** Burbot are nocturnal and can live up to 10 to 15 years. They mature when they are 3 or 4 years old and at a size of 280-480 mm in length. They spawn in midwinter under the ice, from November to May, but generally January through March. Males reach the spawning grounds first and females follow a couple of days later. Spawning takes place over rocky substrates and occurs at night. No nests are built. Spawning activity is quite a sight. They are known to form writhing masses of 10-12 constantly moving individuals that can get as large as 2 feet in diameter. This writhing mass of spawners moves over the bottom and drops eggs. The eggs partially float and sink slowly to the bottom.

**FOOD:** Young fish feed mainly on insect larvae, crayfish, and mollusks. As Burbot get larger, they begin to feed primarily on fish, such as sculpin, Blacknose Dace, darters, madtoms, Yellow Perch, Alewife, and sticklebacks. To supplement this, they will also feed on mollusks, crayfish, and fish eggs.

Eggs take approximately 30 days to hatch. Young begin to appear in late February to June. They grow fast during the first four years, after which their growth begins to slow. As growth begins to decline, they increase in weight. Burbot can reach a length of 1200 mm (46 in) and weight 75 lbs.



Distribution in Massachusetts  
1983-current  
Based on records in  
Natural Heritage Database

**MOVEMENTS:** Burbot can move large distances. Studies have shown that their average movements may be as much as 20 km and that their maximum movements can be as far as 125 km.

**Breeding Season**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Updated 2015

*A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan*

**Massachusetts Division of Fisheries & Wildlife**

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; [www.mass.gov/dfw](http://www.mass.gov/dfw)

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)



**Natural Heritage  
& Endangered Species  
Program**

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

*Massachusetts Division of Fisheries & Wildlife*

**Longnose Sucker  
*Catostomus catostomus***

State Status: **Special Concern**  
Federal Status: **None**

**GENERAL DESCRIPTION:** Longnose Suckers are torpedo-shaped fish with a snout that extends beyond the subterminal mouth. They can grow to over 500 mm (~20 in.); however in New England they are generally smaller. They are silvery-gray to yellowish in color and sometimes have darker blotches or saddles along their sides. During the breeding season they will have a red lateral stripe and tubercles (pimple-like bumps) on their head and fins.

**SIMILAR SPECIES:** Longnose Suckers and White Suckers (*Catostomus commersoni*) can be easily confused. Longnose Suckers have finer scales and have 85 lateral line scales, compared to 75 for White Suckers. The lateral line pores can sometimes be easily seen in the Longnose Sucker whereas in the White Sucker the pores are not visible. In the Longnose Sucker, the lower lips look like two square flaps, whereas in the White Sucker the lower lips are more tapered.

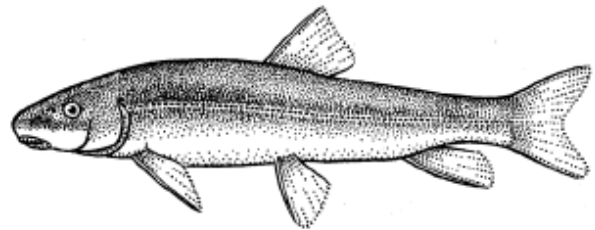
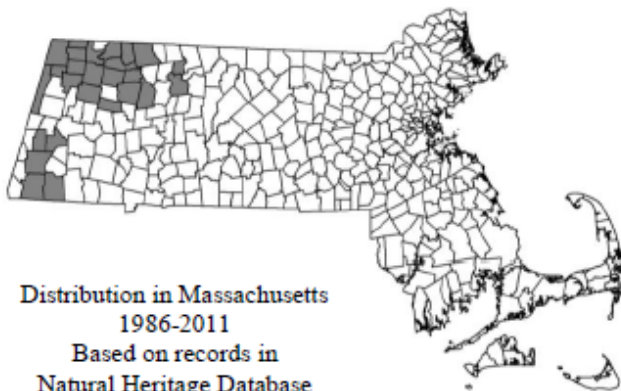


Illustration by Laszlo Meszoly, from Hartel et al. 2002.  
*Inland Fishes of Massachusetts.*

**HABITAT:** In Massachusetts, Longnose Suckers are found mainly in cool upper sections of streams and rivers with rocky substrates. They are only found in the western part of the State, specifically in the Deerfield, Housatonic, Hoosic, and Westfield watersheds. In other parts of their range they are found in lakes and have been found as deep as 600 ft.

**LIFE HISTORY:** Longnose Suckers reach maturity at around 5 to 7 years of age, or 130-400 mm (~5 to ~16 in.) in length. They can live up to 20 years and can spawn multiple times during their life. Upstream spawning migrations occur from mid-April through July. They may migrate many kilometers to reach spawning grounds. Their peak spawning activity is relatively short lasting, between 5 and 10 days, and only occurs during daylight hours. Spawning occurs in areas that have moderate to fast stream currents and gravel substrates. Longnose Suckers do not build nests but release adhesive, sinking eggs and show no territoriality.

Young-of-the-year can be found in midwater feeding on plankton. Adult Longnose Suckers feed primarily on benthic invertebrates, specifically *Gammarus*, *Daphnia*, and a variety of insect larvae as well as algae. Longnose Suckers are vulnerable to predation during spawning by



*A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan*

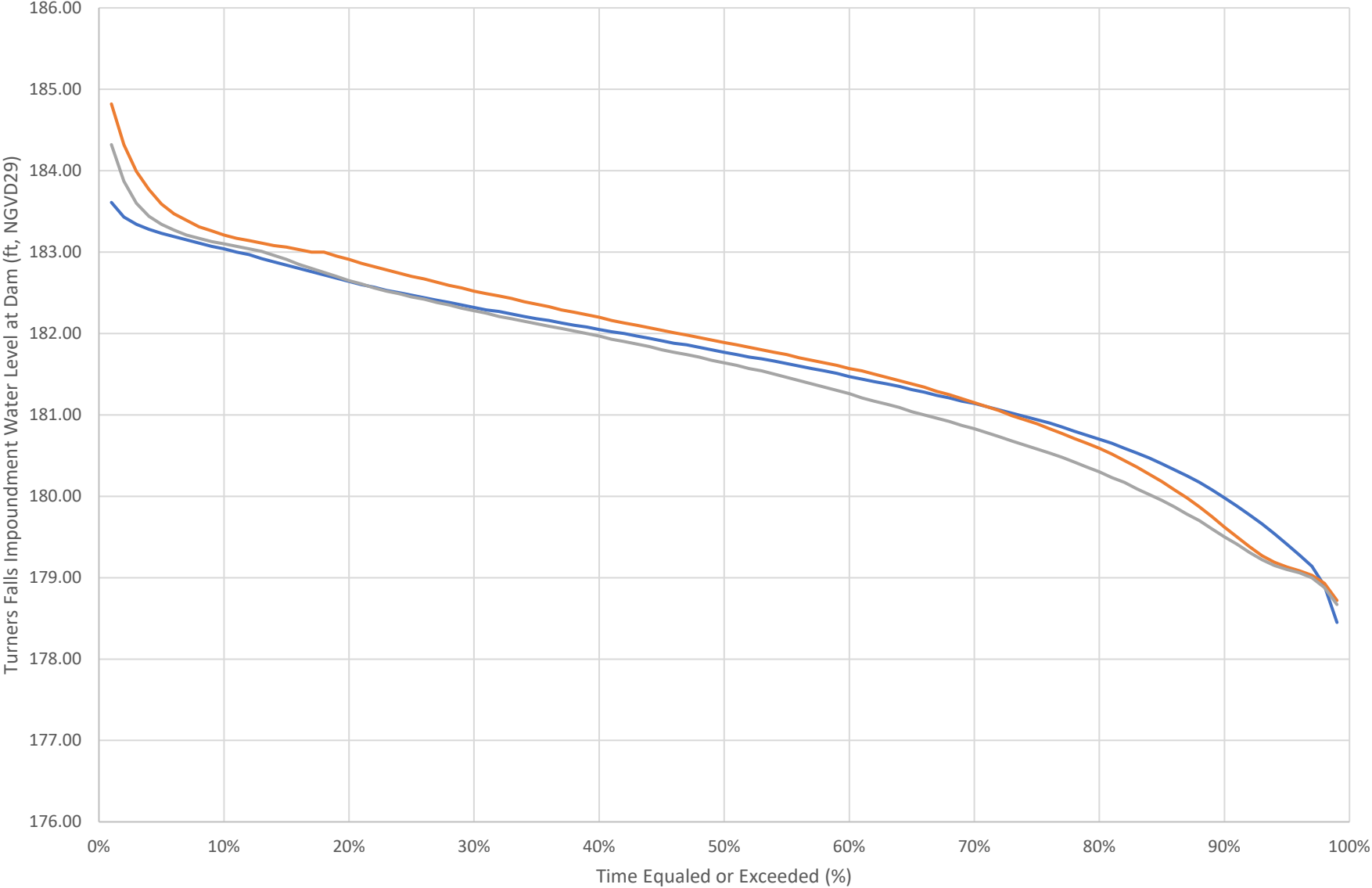
**Massachusetts Division of Fisheries & Wildlife**

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; [www.mass.gov/dfw](http://www.mass.gov/dfw)

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

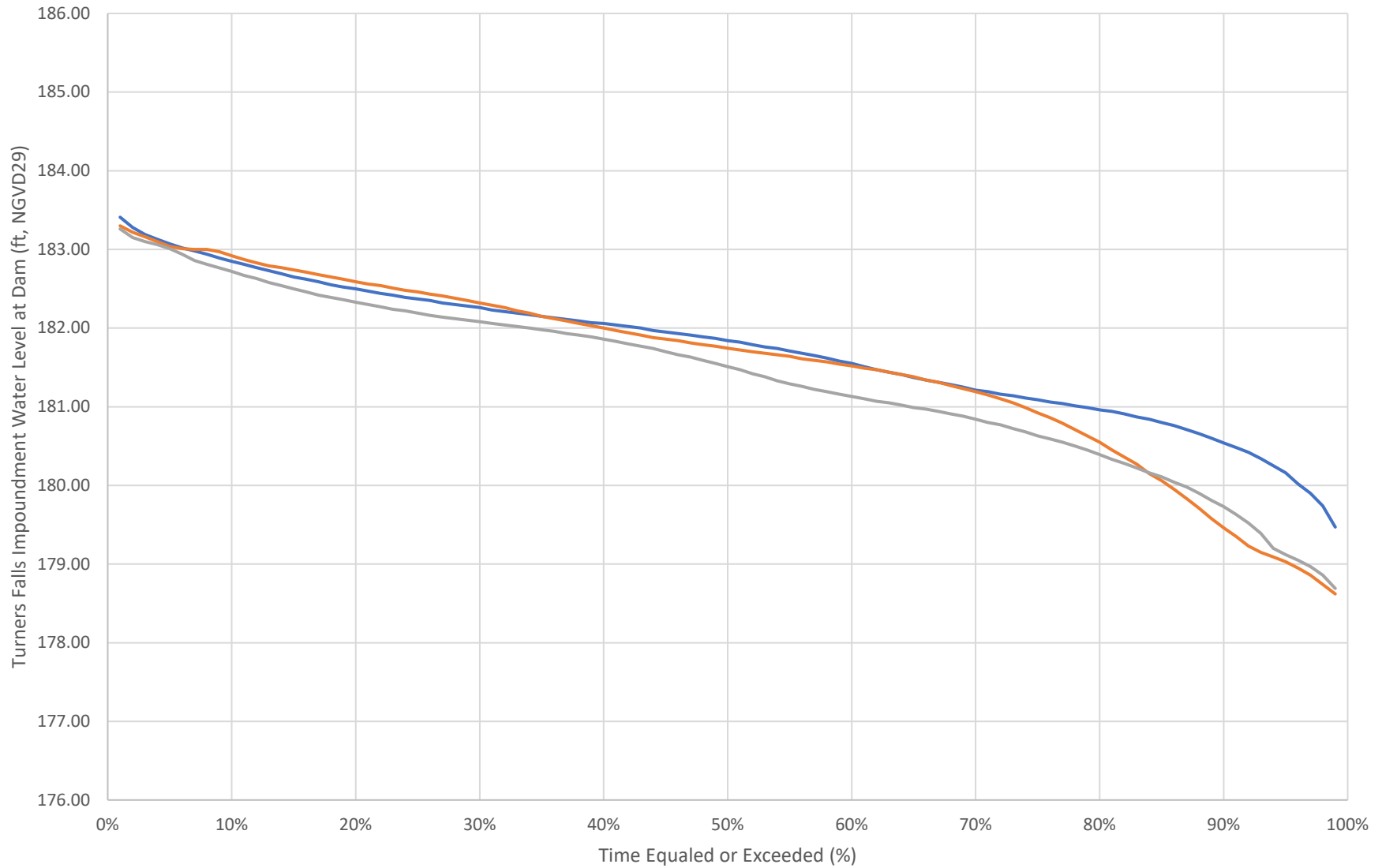
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Duration Curves - Annual



Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

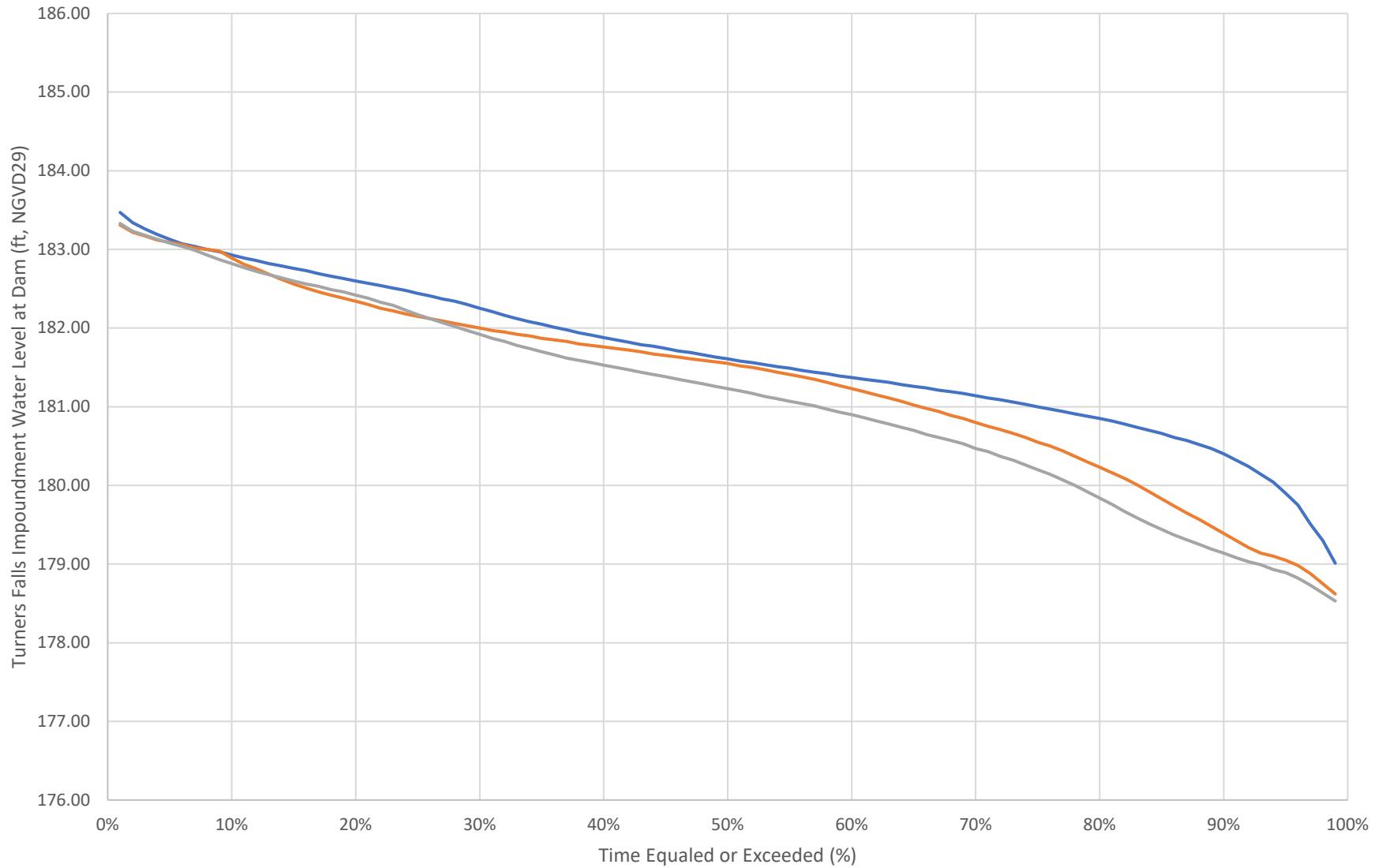
Duration Curves - January



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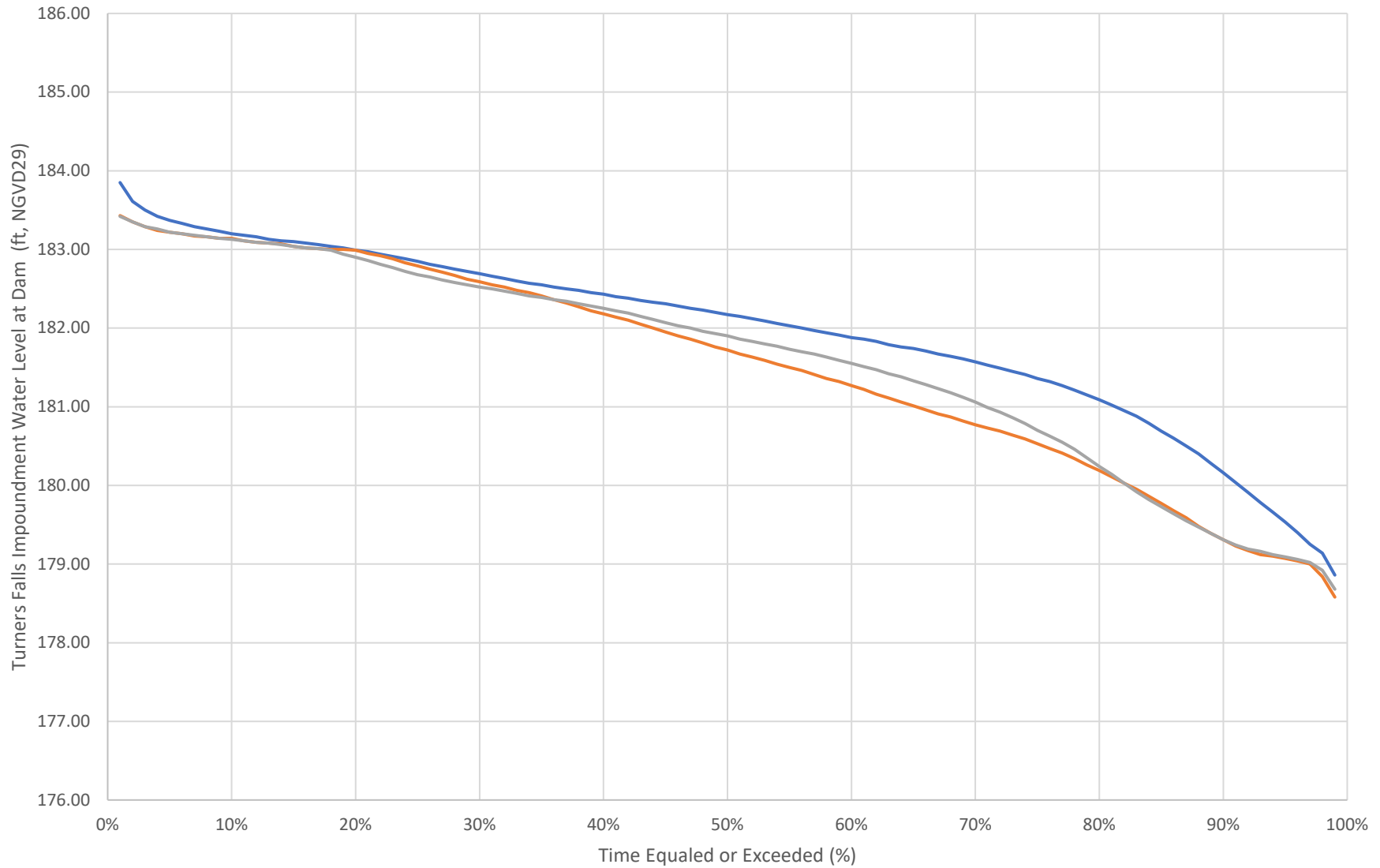


Duration Curves - February



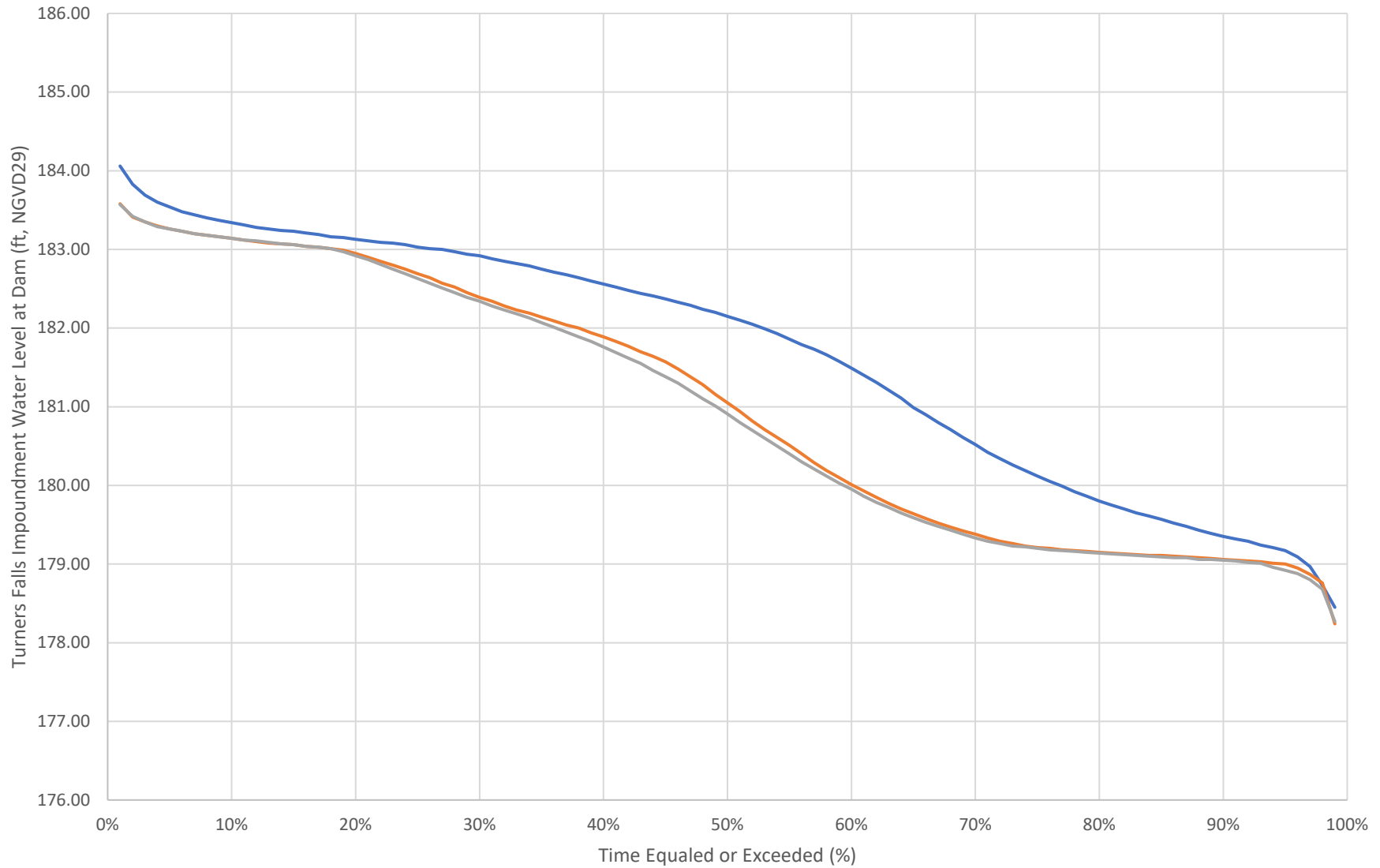
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Duration Curves - March



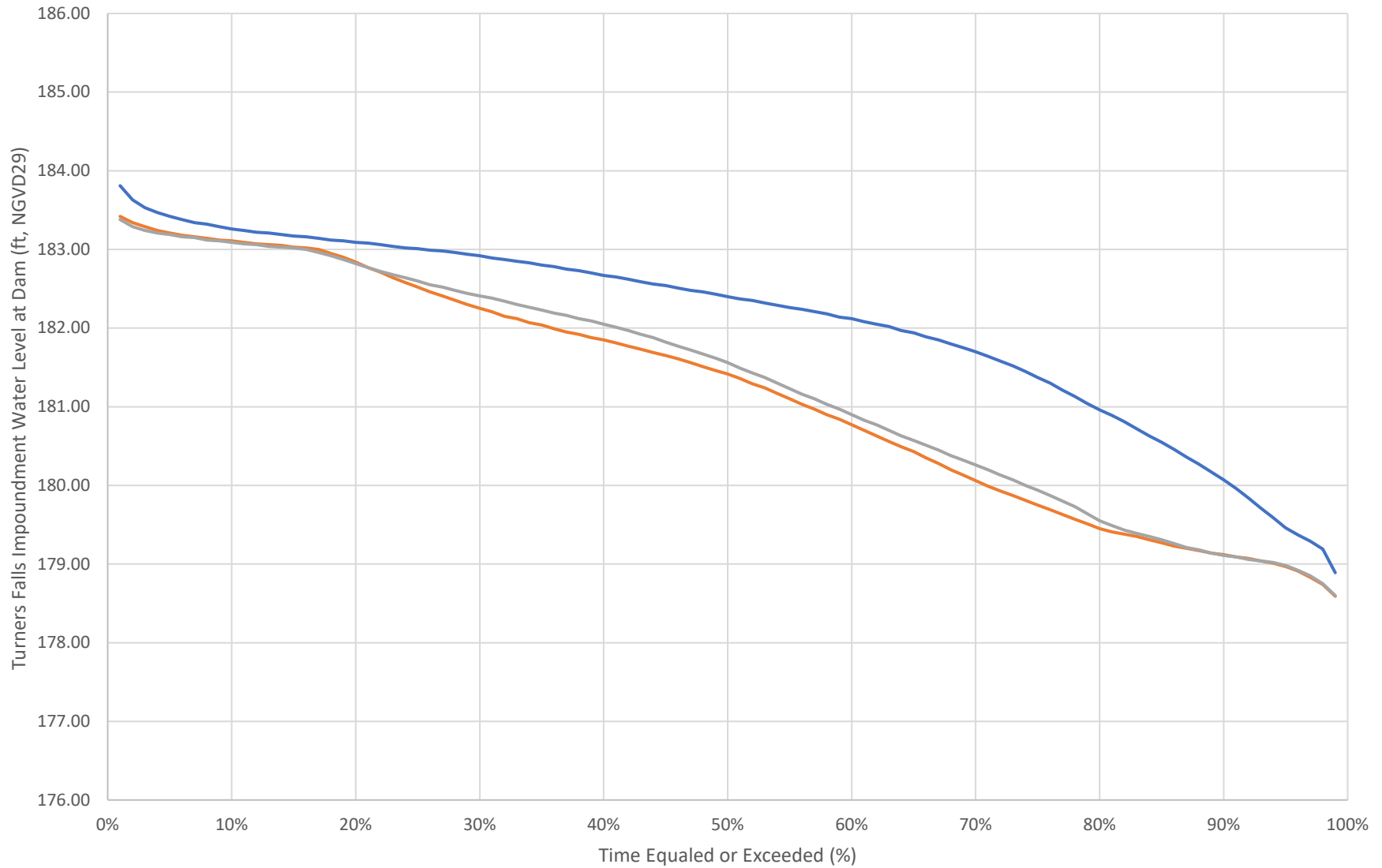
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Duration Curves - April



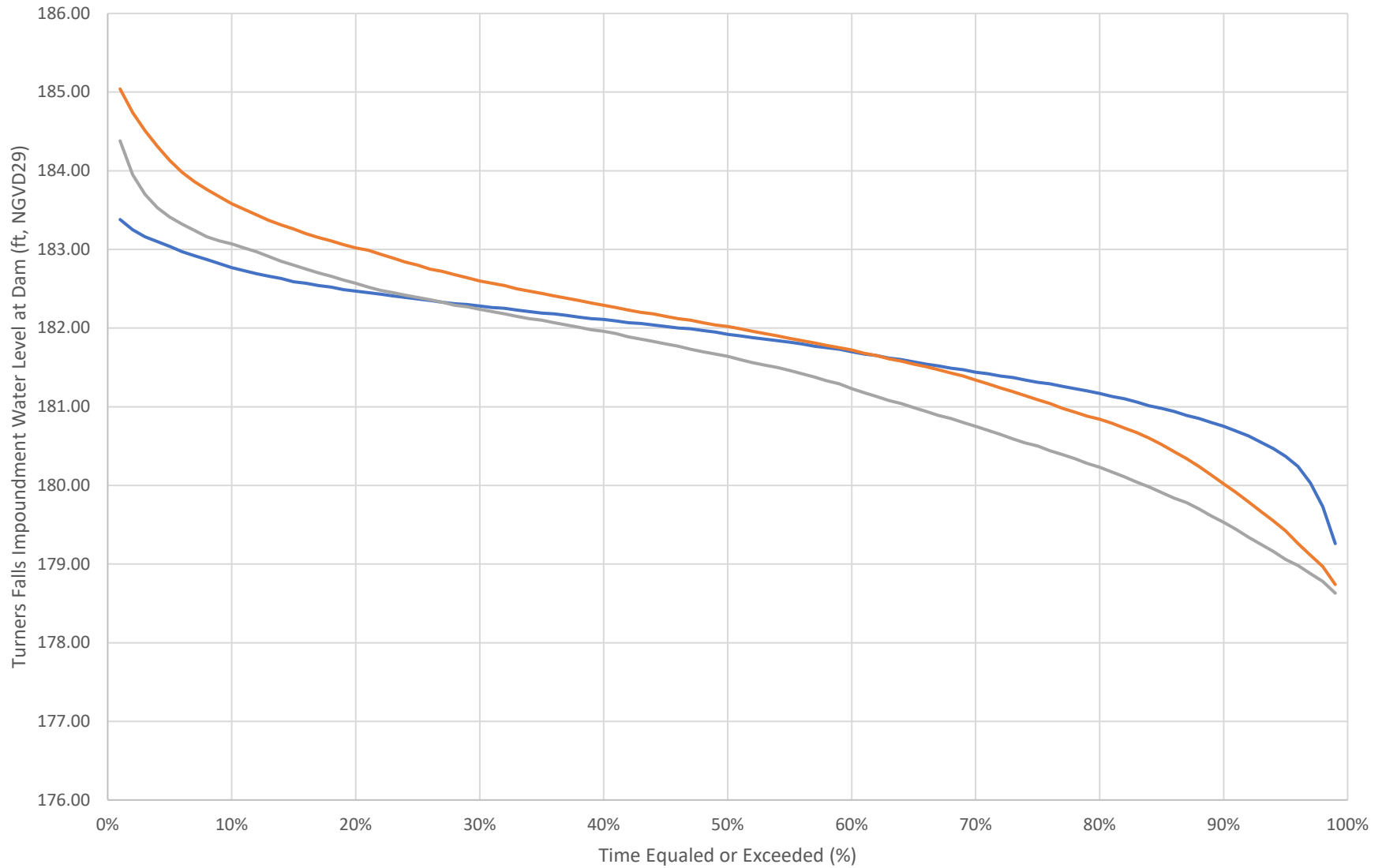
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Duration Curves - May



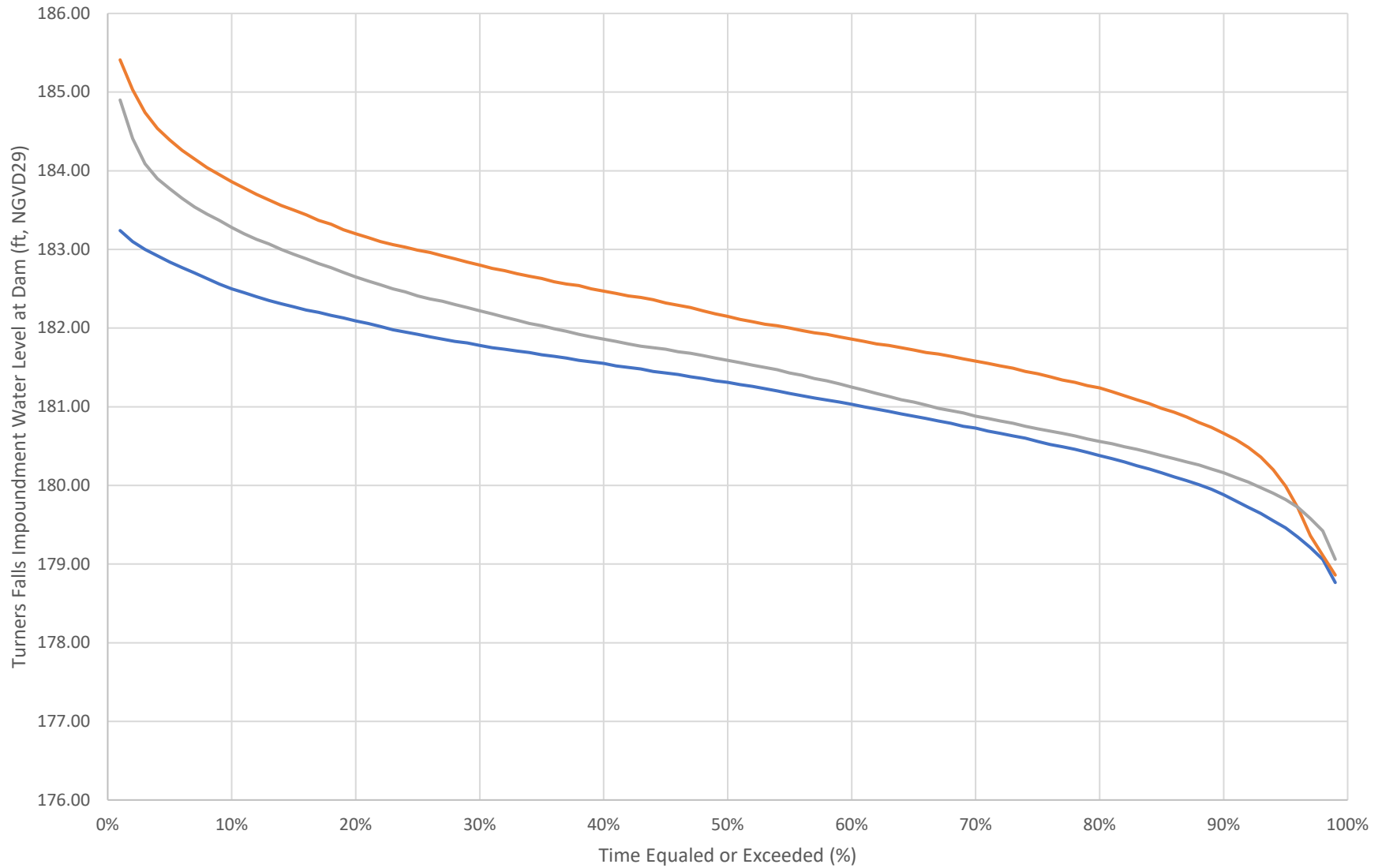
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Duration Curves - June



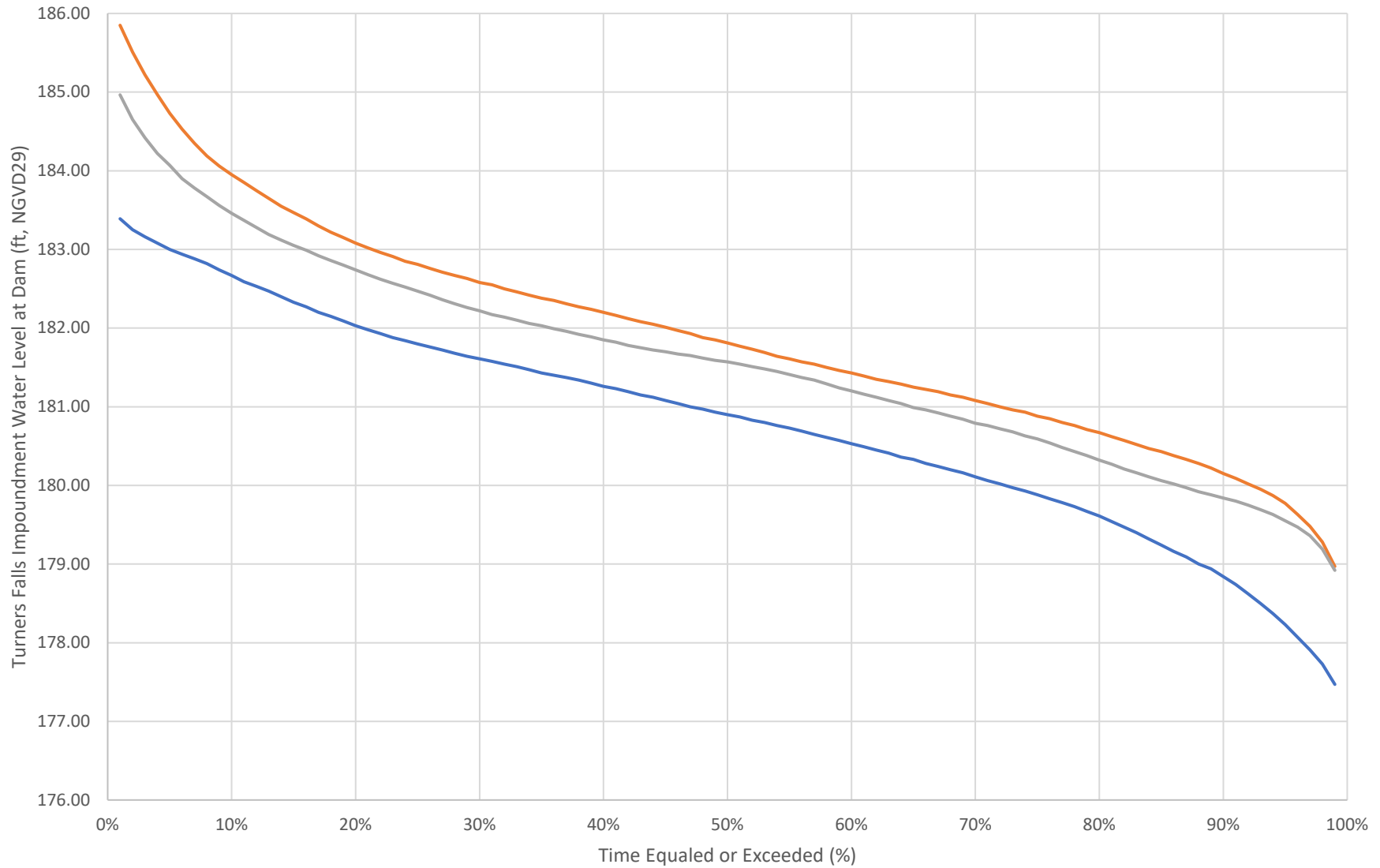
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Duration Curves - July



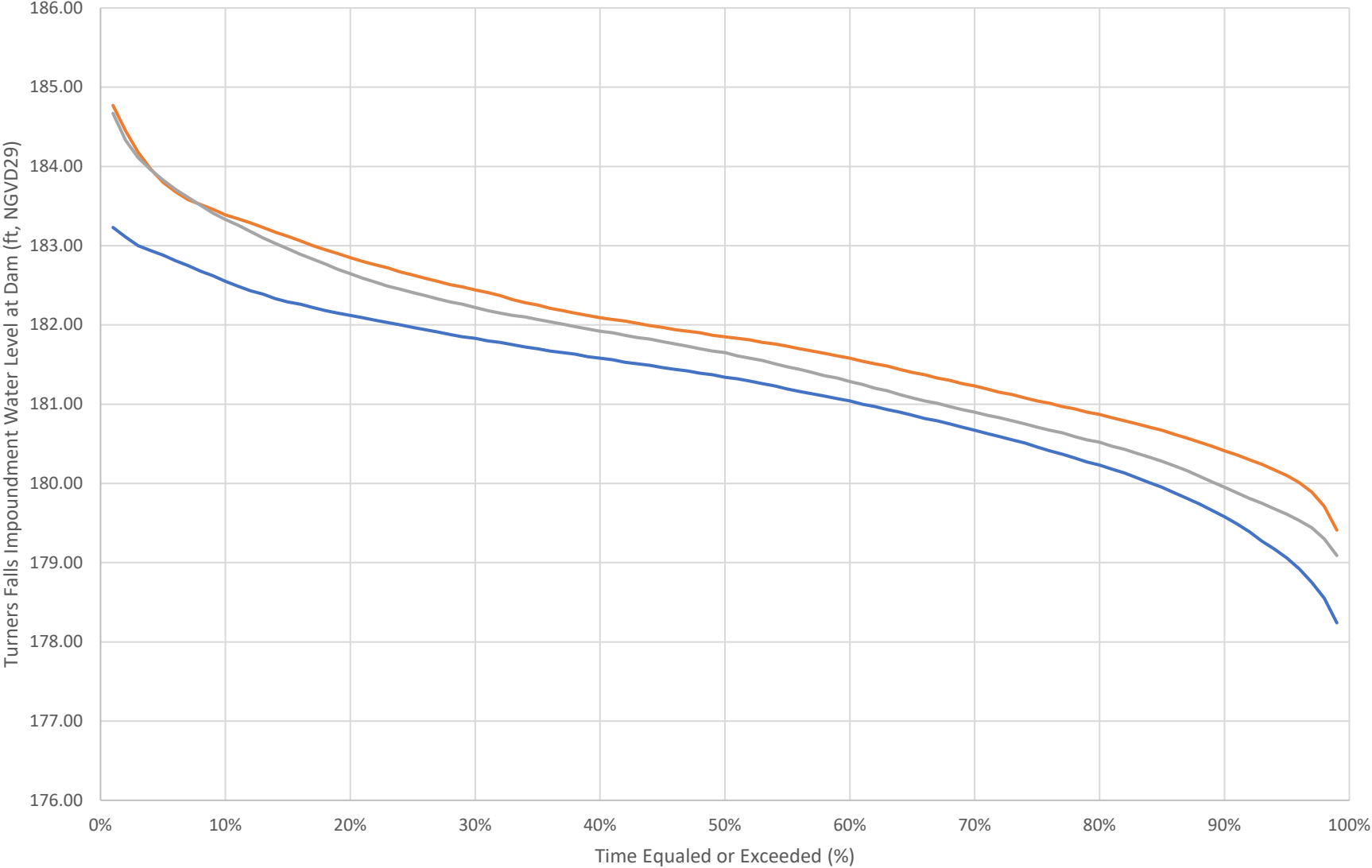
Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

Duration Curves - August



Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

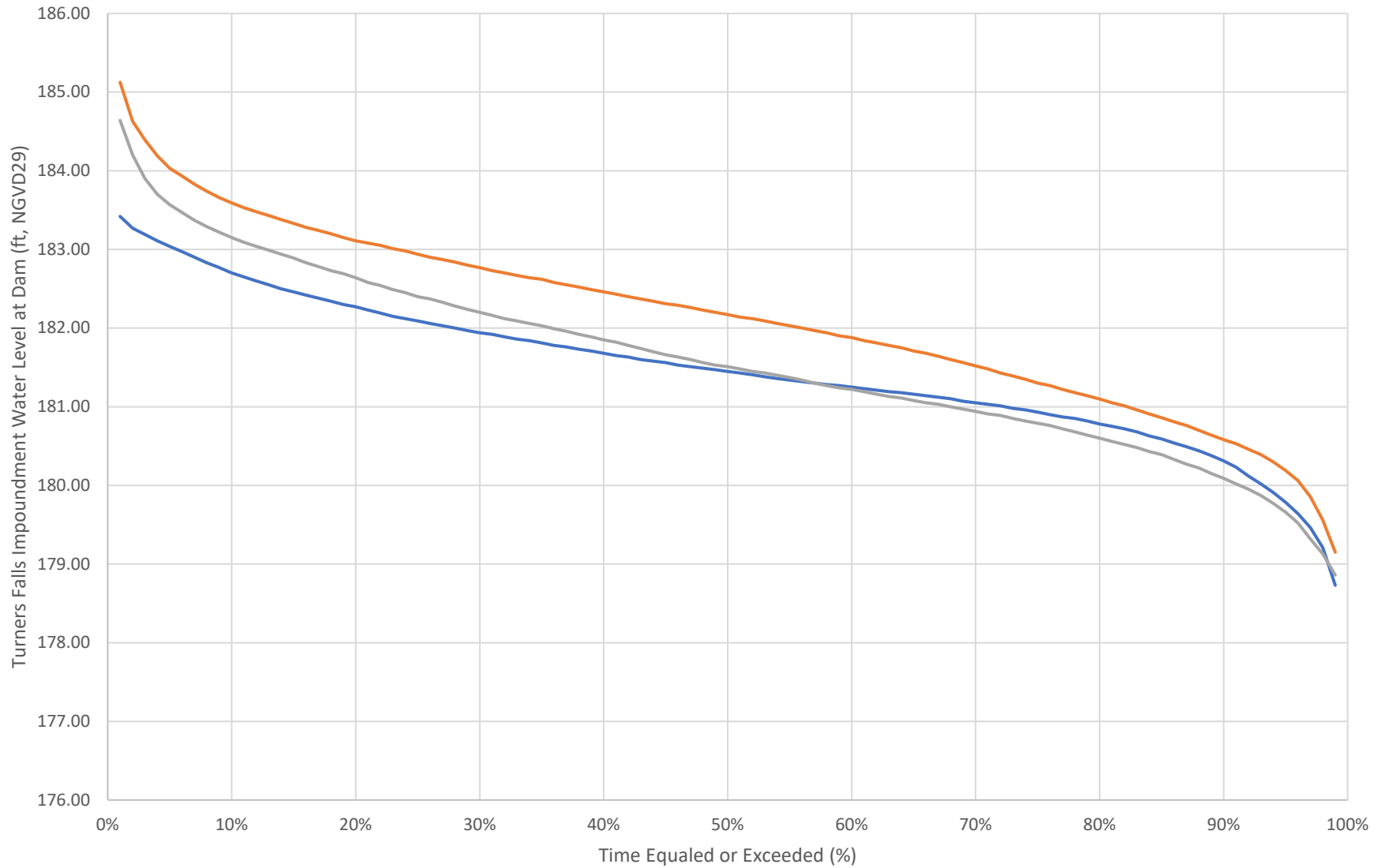
Duration Curves - September



Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

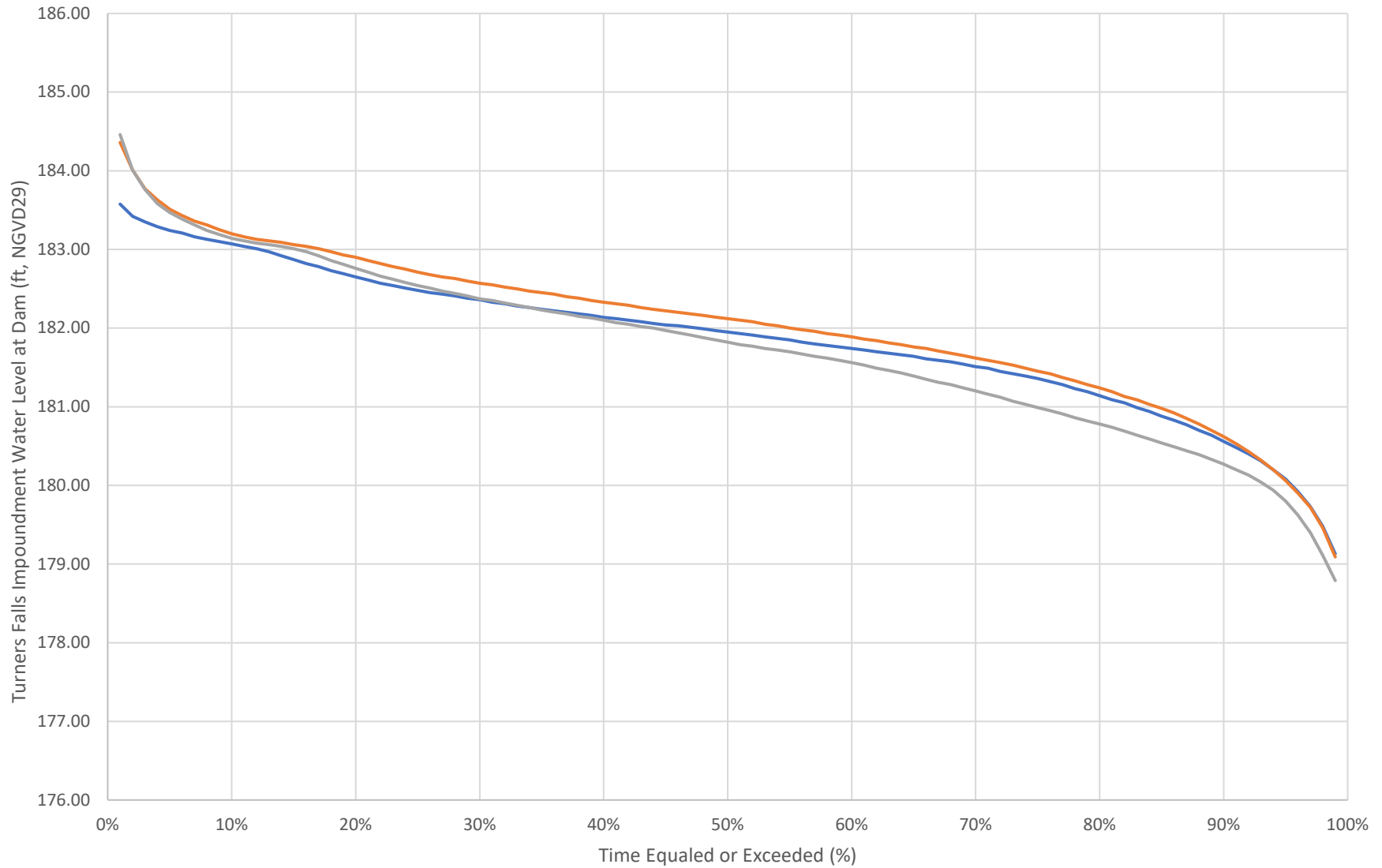


Duration Curves - October



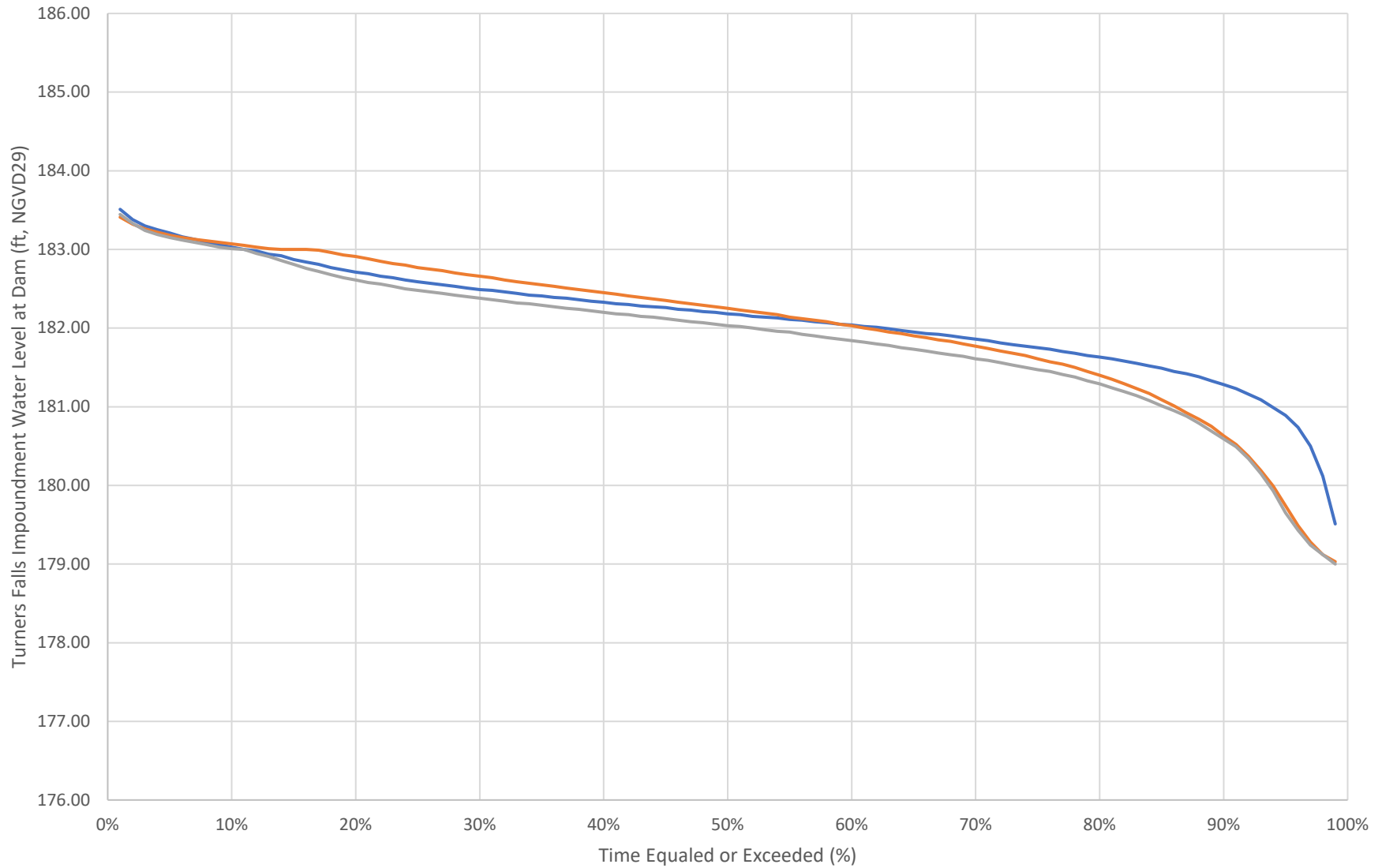
Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

Duration Curves - November



Existing Operations      AIP with Expanded NFM Project Operations      AIP without Expanded NFM Project Operations

Duration Curves - December



Existing Operations

AIP with Expanded NFM Project Operations

AIP without Expanded NFM Project Operations