

Horsley Witten Group

*Sustainable Environmental Solutions*

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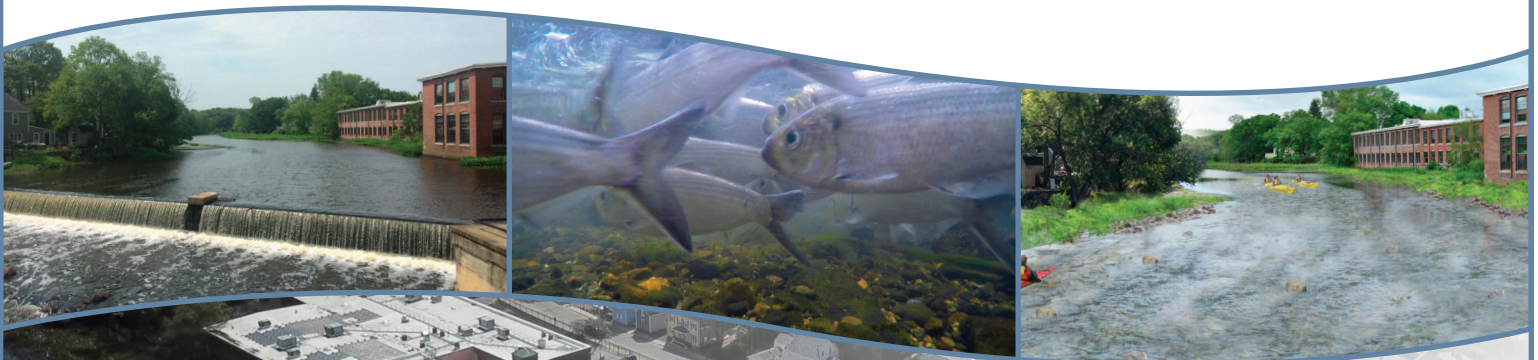


# Ipswich Mills Dam Removal Single Environmental Impact Report

EEA No. 16754 Ipswich,

Massachusetts

March 2024



*Prepared for:*

**Town of Ipswich**

25 Green Street  
Ipswich, MA 01938

*Prepared by:*

**Horsley Witten Group, Inc.**

# Horsley Witten Group

*Sustainable Environmental Solutions*

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March 14, 2024

Ms. Tori Kim  
Executive Office of Environmental Affairs  
100 Cambridge Street, Suite 900  
Boston, MA, 02114

RE: Town of Ipswich – Ipswich Mills Dam Removal Single Environmental Impact Report (SEIR)  
EEA#16754

Dear Ms Kim,

On behalf of the Town of Ipswich (the Town), the Horsley Witten Group, Inc. (HW) is submitting this Single Environmental Impact Report (SEIR) for the Town's proposed Ipswich Mills Dam Removal Project (the Project). The dam is located at the upstream limit of tidal influence, roughly 3.7 miles from the mouth of the Ipswich River. As the most downstream dam on the river, removal would restore or improve fish passage and habitat connectivity to approximately 186 miles of upstream mainstream river and tributary habitat.

Historical records indicate that a dam has existed in the vicinity of the Ipswich Mills Dam site along the Ipswich River since 1637. The current iteration of the dam was constructed/substantively altered in 1908. The current dam is constructed out of cut granite blocks with concrete at some locations and has a 132 foot wide main spillway. The Ipswich Mills Dam was designed to increase the head of the river in order to provide a power source. It does not prevent or mitigate flooding downstream as it provides no significant storage and allows water to flow over the dam during most typical flows.

Currently the Ipswich Mills Dam is detrimental to diadromous and freshwater fish passage and habitat. First and foremost, it limits the ability of migratory fish to move upstream into the watershed to spawn or feed, and downstream to return to the sea. Historically the Ipswich River supported significant populations of migratory fish such as alewife and blueback herring, American shad, rainbow smelt, sea lamprey, Atlantic sturgeon, and Atlantic salmon. River herring in particular have historically had fish runs numbering in the millions but currently have runs only in the thousands of spawners per year. In addition, due to its location at the upstream limit of tidal influence, freshwater species that pass from upstream to downstream over the dam are challenged to return upstream through the existing fish ladder to their native upstream riparian habitat.



Ms. Tori Kim  
March 14, 2024

Under the proposed project the Town is seeking to remove the Ipswich Mills Dam for the purposes of improved fish passage and overall habitat conditions, improved water quality, and liability removal. While the Project meets the definition of an Ecological Restoration Project as defined in 310 CMR 10.04 and is thus eligible for an exemption from the standard MEPA permitting processes and thresholds, the Town has undertaken the MEPA permitting processes for the purposes of public notification and transparency.

On August 14<sup>th</sup>, 2023, the Town filed an Expanded Environmental Notification Form (EENF) for the Project with a request for a waiver of the Mandatory EIR. This filing also requested that in the event that the EIR waiver was denied the Project be allowed to submit a SEIR rather than the standard two-stage Draft and Final EIR process. This EENF was published in the August 23<sup>rd</sup>, 2023 publication of the Environmental Monitor. A MEPA remote meeting took place on September 13<sup>th</sup>, 2023 and an in-person MEPA Site Visit took place on September 14<sup>th</sup>, 2023.

On October 16<sup>th</sup>, 2023 a Certificate of the Secretary of Energy and Environmental Affairs on the EENF was issued, denying the EIR waiver request and granting the request to prepare a SEIR and required only a limited Scope. This SEIR has been developed in accordance with the Scope included in the Certificate.

If you have any questions, please feel free to contact me at (508) 833-6600, or [nprice@horsleywitten.com](mailto:nprice@horsleywitten.com).

Sincerely,

HORSLEY WITTEN GROUP, INC.



Neal M. Price

Principal Scientist

Enclosure: Ipswich Mills Dam Removal SEIR

Cc: Town of Ipswich  
Ipswich River Watershed Association

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Appendix E: 1996 Notice of Intent and Subsequent Orders of Condition

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Appendix G: Due Diligence Report and DEP Approved Sampling Plan

# Single Environmental Impact Report

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## 1. Project Summary

Project Name:	Ipswich Mills Dam Removal
Project Location:	Ipswich River, Ipswich, Massachusetts Approximately 3.7 miles upstream of the mouth of the Ipswich River (42.67768, -70.83786)
EEA Number:	16754
Date Noticed in Monitor:	August 23, 2023
Project Proponent:	Town of Ipswich

This Project aims to remove the Ipswich Mills Dam. There are several goals associated with this Project, including improved fish passage/habitat, improved water quality, and liability removal. The project is also anticipated to provide minor flood reduction benefits to upstream areas with no change to downstream areas. In addition, the Project will allow for paddling continuity from above to below the dam site which cannot currently occur. Construction elements of the proposed project include dam removal, bank stabilization, and channel regrading.

Since the EENF was filed the Project has been updated to include additional information on Project plan set, reevaluate the location of the Project with regards to Outstanding Resource Waters, develop a Due Diligence report to evaluate potential threats to sediment quality, develop a Massachusetts Department of Environmental Protection (MassDEP) approved sediment sampling plan, develop a sediment management plan, and provide updates on the cultural and archaeological resources assessment.

## 2. Project Description and Permitting

### 2.1 Project Description

The Town of Ipswich (the Town) is proposing to remove the Ipswich Mills Dam. The Ipswich Mills Dam is located at the head of tide on the Ipswich River in downtown Ipswich, Massachusetts. It sits approximately 3.7 miles upstream from the mouth of the Ipswich River at Ipswich Bay. As the most downstream dam on the river, removal would restore or improve fish passage and habitat connectivity to approximately 186 miles of upstream mainstem river and tributary habitat. The Horsley Witten Group, Inc. (HW) is providing technical support to the Town for this proposed dam removal project (the Project) and for its associated environmental permitting. Additional primary Project Partners are the Ipswich River Watershed Association (IRWA), the Massachusetts Division of Ecological Restoration (DER), and the National Oceanic and Atmospheric Administration (NOAA). This project is, at its essence, about reversing past damage to the environment, and has been designed with input from experienced and well-trained technical experts in the field. This is a *Priority Project* for DER, and has involved significant project management, design, and technical input from DER staff for many years.

Historical records show that a dam has existed in the vicinity of the project site since 1637. Multiple iterations of a dam at this location existed prior to 1908 when the most recent version of the dam was either built or modified from an earlier version to its current design. The current dam and all prior dam iterations were built for the purpose of generating power for nearby mill buildings and manufacturing processes. As such, the dam simply increases the head in the river in order to provide that power source. It is a so-called “run of the river” dam that provides minimal storage and does not serve to prevent or mitigate flooding downstream. The dam no longer generates power and now stands as a relic

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structure in the river. It is detrimental to both diadromous and freshwater fish migration and habitat. The primary goals of the proposed project are improving fish passage and overall habitat conditions, improving water quality, and liability removal. Secondary goals include an anticipated minor reduction in upstream flood conditions, with no change to downstream conditions, and providing the ability to paddle from above to below the dam as a recreational improvement. Construction elements include dam removal, bank stabilization, and channel regrading.

### 2.2 Project Updates

Elements of the Project were thoroughly detailed in an Expanded Environmental Notification Form (EENF), which was noticed in the August 23<sup>rd</sup>, 2023 edition of the Environmental Monitor. An EENF Certificate was issued by the Massachusetts Executive Office of Energy and Environmental Affairs Secretary on October 23<sup>rd</sup>, 2023 (Appendix A). As requested during the EENF process, the Project plan set has been updated to update the Federal Emergency Management Agency (FEMA) flood lines, to add a note detailing the source of the FEMA flood lines, to add the boundaries of historic districts, and to add the delineated wetlands resource area boundaries in the vicinity of the dam (Appendix B). The following changes or updates to the Project have occurred since the EENF was filed in order to address comments and concerns raised:

- An update to the Project plan set to update the Federal Emergency Management Agency (FEMA) flood lines, to add a note detailing the source of the FEMA flood lines, to add the boundaries of the historic districts adjacent to the Project site, and to add wetland resource areas (See Appendix B).
- A reevaluation of the Project relative to the proximity to Outstanding Resource Waters (See Section 3.4).
- The development of a Due Diligence report to evaluate potential threats to sediment quality (See Section 5.1 and Appendix G)
- The development of a MassDEP approved sediment sampling plan (See Section 5.2 and Appendix G).
- The development of sediment management alternatives in conjunction with the sediment management plan (See Section 5.3 and Appendix G).
- Updates to the cultural and archaeological resources assessment (See Section 4).

### 2.3 SEIR Scope

The EENF Certificate denied the Proponent's request for an Environmental Impact Report (EIR) Waiver but granted the Proponent's request to file a Single EIR (SEIR) in lieu of the standard draft and final EIR process. MEPA regulations at 301 CMR 11.07(6)(l) require a response to the Secretary's Certificate. Section 2.3 below details the specific elements of the limited scope described in the Certificate and where those elements are addressed within this SEIR.

#### 2.3.1 Project Description and Permitting

- Describe any changes to the Project since the filing of the EENF, including any changes to environmental impacts associated with such changes (See Section 2.2).
- Include an updated list of required Permits, Financial Assistance, and other state, local and federal approvals and provide an update on the status of each of these pending actions (See Section 2.5 and Section 2.6).



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- Include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the Project's consistency with those standards (See Section 2.5).
- Provide additional details on the existing c.91 approval by the former Department of Public Works (DPW) in 1973 as well as the authorization history of the modifications to the dam, to the extent such information is available (See Section 2.7).
- Describe how the Project complies with the Public Benefit Determination (PBD) (301 CMR 13.00) criteria (See Section 2.8).
- Include site plans for existing and post-development conditions clearly identifying buildings, impervious areas, wetland resource areas, historic and archaeological assets, and stormwater and utility infrastructure and including datums relative to the location of each of the proposed Project components (See Appendix B).
- Describe the total permanent and temporary impacts on resource areas resulting from the proposed Project (See Section 3.1 and Section 3.2).
- Address whether the proposed re-grading within or adjacent to the former dam footprint constitutes "filling" of Land Under Waterway (LUWW) (See Section 3.3).
- Reevaluate whether there are any Outstanding Resource Waters (ORW) in the vicinity of the Project (See Section 3.4).
- Provide an update on the status of the reconnaissance-level archaeological and historic properties survey, requested by Massachusetts Historical Commission (MHC) (See Section 4).
- Discuss the timeline of construction activities and how construction will be timed to avoid both time-of-year (TOY) restrictions (See Section 6).

### 2.3.2 Sediment Management

- Consult with Massachusetts Department of Environmental Protection (MassDEP) and Coastal Zone Management (CZM) to develop and provide a sediment sampling plan (See Section 5.2 and Appendix G).
- Discuss the potential contamination present within the impoundment and in upstream and downstream areas (See Section 5.1 and Appendix G).
- Discuss how the Proponent intends to identify whether there are any Threshold Effects Concentration (TEC) exceedances or Probable Effects Concentration (PEC) exceedances based on the sediment sampling plan and/or sediment analysis (See Section 5.2 and Appendix G).
- Discuss how the Project will manage sediments in accordance with the Massachusetts Contingency Plan (MCP) and detail changes in the proposed sediment management methodology described in the EENF (See Section 5.3 and Appendix G).
- Commit to the implementation of a post-construction monitoring program that addresses sediment transport, channel and bank stability, and invasive species monitoring and management (See Section 7).
- Provide a copy of the post-construction monitoring plan if finalized, or, alternatively, a conceptual discussion of its main components (See Section 7).

### 2.3.3 Mitigation and Chapter 61 Findings

- Include a separate chapter summarizing all proposed mitigation measures including construction-period measures, a comprehensive list of all commitments made by the Proponent

## Ipswich Mills Dam Removal Single Environmental Impact Report

to avoid, minimize, and mitigate the environmental and related public health impacts of the Project, and include a separate section outlining mitigation commitments relative to Environmental Justice (EJ) populations (See Section 8 and Section 8.1).

- Contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, contain a schedule for implementation, and clearly indicate which mitigation measures will be constructed or implemented based upon Project phasing (See Section 8 and Section 8.1).
- Identify the Agency Action or Permit associated with each category of impact (See Section 8).

### 2.3.4 Responses to Comments

- Include a copy of the EENF Certificate and a copy of each comment letter received (See Section 9.1 and Appendix A).
- Include a comprehensive response to comments that specifically address each issue raised in the comment letter. This directive is not intended to enlarge the scope of the Single EIR beyond what has been expressly identified in the EENF certificate (See Section 9.2).

### 2.3.5 Circulation

- Circulate the Single EIR to each Person or Agency who commented on the EENF, each Agency from which the Project will seek Permits, Land Transfers, or Financial Assistance, and to any other Agency or Person identified in the Scope (See Section 2.4).
- Pursuant to 301 CMR 11.16(5) the Proponent may circulate copies of the Single EIR to commenters in a digital format, by directing commenters to a Project website address, or electronically (See Section 2.4).
- The Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis (See Section 2.4).
- A copy of the Single EIR should be made available for review in the Ipswich Public Library (See Section 2.4).

## 2.4 Project Documents and Outreach

Electronic copies of this SEIR and previous project documents can be found online at the project website [www.ipswichmillsdam.com](http://www.ipswichmillsdam.com). The public can request to be added to an email list to receive relevant project updates. A hardcopy of this SEIR will be provided to the Ipswich Public Library.

Project outreach has been continual over the multiple phases of this project, including but not limited to the below:

- A dedicated project [webpage](#) that features all project documents (including a draft of this filing), FAQs, project updates, and the ability to submit comments and questions.
- Regular local press publishings, including update articles and letters to the editor.
- Direct engagement emails to interested citizens leading up to key project events and milestones.
- Regularly updated fact sheets and FAQs.
- Frequent public presentations, including:
  - Multiple meetings leading up to and during the feasibility study.
  - [A Tale of Two Dams](#) which highlighted the vast similarities between this project and the Great Dam removal in Exeter, NH.



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- A public input meeting where a series of questions were asked to the public, where they then “voted” on each question.
- Multiple project videos, including a [video](#) summarizing the feasibility study.
- A public drop-in session in 2022 that featured project partners and experts, offering the public a more direct setting to ask questions and provide feedback; a [video](#) was also produced summarizing the event.
- Leading up to the 2023 Spring Town Meeting, IRWA opened a pop-up shop at a central downtown location.
  - A wide range of events was held at the shop every weekend, including an opportunity to interact with and learn about native wildlife species.
  - Additionally, the shop was open at various hours throughout the week for citizens to drop-in, ask questions, and learn more about the project.
- [Article 14](#) at the 2023 Spring Town Meeting asked the public if they would support moving the project forward to the permitting phase; that Article passed with a vote of 314-144.
- Summary presentation of the MEPA EENF filing to the Ipswich Select Board on July 24, 2023.
- Open public forum at Ipswich Town Hall for citizens to provide feedback on the project to the Ipswich Select Board on September 19, 2023.

### 2.5 Regulatory Requirements

Due to the nature of the Project the Ipswich Mills Dam Removal is subject to a significant number of regulatory reviews and approvals. A summary of the required regulatory submittals, approvals, and reviews, including the current status of such actions, is below in **Table 1**.

This Project triggers the mandatory EIR threshold 301 CMR 11.03(3)(a)(4) structural alteration of an existing dam, as well as other MEPA thresholds 301 CMR 11.03(3)(b)(1)(b) alteration to 500 or more linear feet of bank along a fish run or inland bank, 301 CMR 11.03(3)(b)(1)(d) alteration of 5,000 or more square feet (sf) of bordering vegetation wetlands, and 301 CMR 11.03(3)(b)(1)(f) alteration of 0.5 or more acres of any other wetlands. As noted in the MEPA certificate issued in October 2023, it was determined that this Project qualified for a streamlined review as an Ecological Restoration Project under 301 CMR 11.01(2)(b)4. The Town of Ipswich opted to voluntarily undergo MEPA review of the Project, providing transparency and allowing full public comment on the proposal.

As federal funds will be used during the scope of this Project, Memorandum of Agreement (MOA) will be executed with MHC acting as State Historic Preservation Officer (SHPO) pursuant to Section 106 of the NHPA. Section 106 Review will be completed by NOAA as the lead agency. The Public Archaeological Laboratory (PAL) is currently under contract to complete the reconnaissance-level archaeological and historic properties survey; the report is expected Spring of 2024 and will be provided to MHC. See Appendix C for the Scope of Services for this work.

The Project is located on tidelands and is subject to the jurisdiction of M.G.L c. 91 and the Waterways Regulations at 310 CMR 9.00. The Project will thus require a Water Quality Certification pursuant to Section 401 of the U.S. Clean Water Act and a Chapter 91 license. The Project will apply for a Restoration Order of Conditions (OOC) from the Ipswich Conservation Commission. The Project is expected to meet the definition of a full Ecological Restoration Project under the dam removal category.

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*Table 1 Summary of Required Regulatory Submittals, Approvals, and Reviews*

Agency	Permit/Approval/Review	Status
Executive Office of Energy and Environmental Affairs (EEA)	Expanded Environmental Notification Form (EENF)/Single Environmental Impact Report (SEIR)	EENF submitted 8/23/23 EENF Certificate issued 10/23/23 SEIR to be submitted March 2024
MA Historic Commission (MHC)	National Historic Preservation Act (NHPA) Section 106 Historical Review	Cultural Resources Summary completed 2018 Reconnaissance-level survey field work complete NOAA will be lead agency on NHPA review
Massachusetts Department of Environmental Protection (MassDEP)	Section 401 Water Quality Certification	To be submitted following submittal of SEIR
	Chapter 91 License	To be submitted following submittal of SEIR
Ipswich Conservation Commission	Massachusetts Wetlands Protection Act Ecological Restoration Order of Conditions	To be submitted following submittal of 401/91
Massachusetts Division of Marine Fisheries (DMF)	Fishway Permit	To be submitted following submittal of NOI
Massachusetts Office of Coastal Zone Management (Mass CZM)	Federal Consistency Review	To be completed following submittal of SEIR
Massachusetts Office of Dam Safety (ODS)	Chapter 253 Dam Safety Permit	To be submitted following submittal of SEIR
United States Army Corps of Engineers (USACE)	Clean Water Act Section 404/Section 10 General Permit 10 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities	To be submitted following submittal of SEIR
United States Environmental Protection Agency (EPA)	National Pollutant Discharge Elimination System (NPDES) Permit	To be submitted following submittal of NOI

The Project will also require a Fishway Permit from DMF for the deconstruction of the current fishway. The Project will require Federal Consistency review by CZM, which will be completed in partnership with federal lead agency NOAA. Additionally, the Project will require a Chapter 253 Dam Safety Permit from the Massachusetts Department of Conservation and Recreation (DCR) ODS for removal of the dam.

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The Project will require the submittal of a Pre-Construction Notification (PCN) to the USACE seeking authorization under the General Permits for Massachusetts in accordance with Section 404 of the Clean Water Act. The Project will also require a NPDES Construction General Permit from EPA.

## 2.6 State and Federal Financial Assistance

The Project has received financial assistance from state and federal agencies over several phases of work. Funding has come from DER, the Massachusetts Environmental Trust, the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), and NOAA. A summary of state and federal financial assistance received to date is included below in **Table 2**.

*Table 2 Summary of State and Federal Financial Assistance*

Source	Period	Project Phase	Amount
NOAA	2011	Pre-Feasibility	\$24,809
DER	2012	Pre-Feasibility	\$5,000
DER	2016	Feasibility	\$107,205
DER	2016	Feasibility	\$58,269
DER	2016	Feasibility	\$43,505
DER	2016	Feasibility	\$38,630
DER	2018	Feasibility	\$11,327
DER	2018	Feasibility	\$27,752
MA Environmental Trust	2020	Follow-up studies	\$25,000
DER	2020	Follow-up studies	\$21,399
DER	2021	Follow-up studies	\$49,991
EEA	2021	Follow-up studies	\$75,000
DER	2022	Follow-up studies	\$40,376
DER	2023	Follow-up studies	\$40,000
NOAA	2023	Permitting	\$100,000

## 2.7 Authorization History

The scope for this SEIR in the EENF Certificate requested that Research be conducted into the Chapter 91 approval granted in 1973 for maintenance and renovation work on the dam. Research and compilation of documentation related to the history of modifications to the dam was completed including reviewing Town records and communication with MassDEP. The most relevant information found is contained within the 1980 Phase 1 Dam Safety Inspection Report completed by the Department of the Army, New England Division, and provided herein as Appendix D. The Dam Safety Inspection Report's Appendix B details the authorization of modifications made to the dam from 1973-74 from the

MA Department of Public Works (DPW), Division of Waterways. These modifications were proposed and completed by the previous dam owner GTE Sylvania and included removal of a slide gate on the east and west sides of the dam and closure of the openings, and closure of openings in the Sylvania (now EBSCO) building foundation walls, where water flows from the west slide gates.

MassDEP reviewed that 1973 letter from DPW Division of Waterways and opined that the authorization letter was not actually a Chapter 91 license or permit. MassDEP provided a spreadsheet of Chapter 91 licenses and permits for us to further research but no potential matches to a Chapter 91 license or permit for the Ipswich Mills dam were found. Therefore, while appropriate due diligence investigation and research were conducted, no evidence of a prior Chapter 91 license or permit for the dam was discovered.

A NOI dated June 20<sup>th</sup> 1995 and subsequent OOC dated August 22<sup>nd</sup> 1995 are provided here as Appendix E. The OOC authorized the Town of Ipswich to construct the currently active chute-type fishway located on river right, as well as to cut a notch into the dam and install a floating trash boom connected to the pier.

## 2.8 Tidelands and Public Benefit Determination

As a head-of-tide dam, the Project site is considered to be located within jurisdictional tidelands. Through dam removal, this Project will restore the natural extent of freshwater tidal marsh, one of the rarest wetlands habitat types in Massachusetts. Water-dependent use projects are presumed to have a public benefit and the below summarizes the Project as it relates to each of the considerations identified in the legislation.

### 1. *Purpose and effect of the development*

As a restoration project, this project aims to restore natural riverine processes and ecological functions to the Ipswich River. Dam removal has been extensively studied as the preferred alternative, and both positive and negative potential effects have been considered during the MEPA process.

### 2. *Impact on abutters and the surrounding community*

The impact on abutters and the surrounding community is detailed within Attachments 6 and 7 in the EENF. Upstream flood risk is expected to be reduced by a limited amount through dam removal and there will be no significant changes to flooding or other hydraulic conditions downstream. Impacts to the nearby EBSCO facility have been carefully considered. The Project provides a permanent solution for the Town and taxpayers as it requires no maintenance or future investment and eliminates a liability.

### 3. *Enhancement to the property*

As an ecological restoration Project, dam removal will provide multiple public benefits via enhancement of ecosystem services. The upstream floodplain will be restored, providing enhanced flood protection during a range of flood flows. And as the site of an historic herring run where dams and other barriers were identified as a primary cause of population declines, the Project will provide a significant improvement to volitional fish passage.

### 4. *Benefits to the public trust rights in tidelands or other associated rights*

Water quality will be locally improved and the natural sediment transport regime of the lower Ipswich River will be restored, elements which are considered to be crucial for maintaining the health of downstream salt marsh and shellfish beds. Data collected at the Project site and other dams across the



state show that the artificial impoundments created by dams in general (and including this Project dam) create an unnatural warming effect to the water, subsequently decreasing dissolved oxygen levels and macroinvertebrate biodiversity. The Project provides substantial benefits to these ecological components that will have a cascading effect on the overall quality of the public trust rights.

*5. Community activities on the development site*

Community activities at the Project site will be positively impacted. Opportunities to install new educational signage and enhance the river viewing experience are currently being explored. Additionally, canoes and kayaks would be able to navigate from above to below the dam providing paddling access to the coast and mouth of the Ipswich River under correct tidal conditions.

*6. Environmental protection and preservation*

Mitigation and Draft Section 61 findings (Section 6) summarize the environmental protection and preservation measures associated with the Project. Short-term impacts associated with construction activities will be minimized using BMPs, with additional site-specific measures coming from permit specifications and TOY restrictions.

*7. Public health and safety, and the general welfare*

The project will promote public health and safety by removing a low head dam from a heavily recreated river and downtown area. In January 2024, DCR sent an official memo to dam owners, including the Town, which detailed the dangers and public safety impacts of low head dams like the Ipswich Mills Dam (Appendix F).

### 3. Resource Area Impacts

#### 3.1 Temporary Impacts to Resource Areas

The Project will have temporary impacts on LUWW, Bank, Fish Run, Bordering Land Subject to Flooding, and Riverfront Area. These impacts, detailed below in **Table 3**, are the result of dam removal, boulder and cobble relocation, and a temporary construction access path.

*Table 3 Temporary Impacts to Resource Areas*

Resource Area	Temporary Impact
LUWW	35,870 square feet
Bank	490 linear feet
Fish Run	35,870 square feet
Bordering Land Subject to Flooding	1,730 square feet
Riverfront Area	4,100 square feet

#### 3.2 Permanent Impacts to Resource Areas

The Project will have permanent impacts on Bordering Vegetated Wetland, Land Under Water Bodies and Waterways, Bank, Fish Run, Bordering Land Subject to Flooding, and Riverfront Area. These impacts are detailed below in **Table 4**. It is important to note that the loss of fish run is due to the conversion of LUWW to Bordering Vegetated Wetland. The Massachusetts Wetland Protection Act considers land under the ocean, ponds, streams, rivers, lakes, or creeks that underlie an anadromous/catadromous fish run as “Fish Run”. As a result, any loss of LUWW at this site has an equivalent loss of the Fish Run resource area. The ability of fish to migrate through this site will be vastly improved as a result of this project.

*Table 4 Permanent Impacts to Resource Areas*

Resource Area	Permanent Overall Impact
Bordering Vegetated Wetland	+184,800 square feet
LUWW	-184,800 square feet
Bank	-700 linear feet
Fish Run	-184,800 square feet
Bordering Land Subject to Flooding	-352,100 square feet
Riverfront Area	-54,500 square feet

### 3.3 Dredge and Fill

Two components of this Project will meet the regulatory definition of dredge. First, 440 cubic yards of material (concrete, boulders, and cobbles) will be directly excavated (dredged by regulatory definition) within the Project’s Limit of Work (LOW) as a part of the dam and fishway removal. Approximately 6,900 cubic yards of additional sediment upstream of the dam is estimated to be mobile with the potential to migrate downstream over time following dam removal. That potentially mobile sediment meets the dredge definition due to the passive release of sediment from the impoundment and downstream relocation following the removal of the dam. Passive release of mobile sediment or other management options will be evaluated pending the results of sediment sampling and analysis, as described further below in Section 5.

The proposed relocation of existing boulders and cobbles within the current river channel to create a more optimized channel geometry also meets the Massachusetts Wetlands Protection Act regulatory definition for “fill”. This proposed relocation of rock materials as a part of the Project will result in approximately 170 cubic yards of fill over 3,560 square feet.

### 3.4 Outstanding Resource Waters

In the initial filing for this Project the Proponent declared that there were no Outstanding Resource Waters (ORW) in the vicinity of the Project. Per the ORW layer in Massachusetts GIS MassMapper, the nearest ORW is the Great Marsh Area of Critical Environmental Concern (ACEC), which is over 3 miles downstream. The Massachusetts Department of Environmental Protection Northeast Regional Office provided comment on the EENF stating that the Designated Shellfish Area immediately downstream of the dam qualified as an Outstanding Resource Area. The Proponent amends its initial assessment to concur with MassDEP NERO.

A Designated Shellfish Growing Area extends from just downstream of the Ipswich Mills Dam out to Ipswich Bay. The portion of the Designated Shellfish Growing Area immediately downstream of the dam to just under 1.5 miles downstream is currently classified as “Prohibited”. Per the Division of Marine Fisheries (DMF), “Prohibited” areas are “closed to the harvest of shellfish under all conditions, except the gathering of seeds for municipal propagation programs under a DMF permit. Downstream of the “Prohibited” area is a “Conditionally Approved” area, which is “Closed some of the time due to rainfall or seasonally poor water quality or other predicable events.” It is important to note that these classifications are not permanent and can be updated pending the results of an annual review and/or evaluation completed once every three years. To avoid impacts to this area there are several sediment management alternatives for the Project, depending on the results of sediment sampling and analyses in accordance with a MassDEP approved sediment sampling plan (Section 5.2).

## 4. Archaeological Resources

During the public comment period of the EENF, the MHC requested that a reconnaissance-level archaeological and historic properties survey be conducted for the Project. The PAL will be completing this reconnaissance-level archaeological and historic properties survey over the winter and spring of 2024. See Appendix C for the Scope of Services for this work.

## 5. Sediment Assessment and Management

The assessment of sediment quantity and quality retained in the impoundment behind the dam is a significant consideration for the proposed dam removal. Sediment assessment and management will be more fully addressed during MassDEP's 401 Water Quality Certification process to come. For the purposes of this SEIR, MassDEP was contacted to discuss the Project at a meeting held on January 4<sup>th</sup>, 2024. Subsequently a Due Diligence Review and Sediment Sampling Plan was submitted for MassDEP review on February 15<sup>th</sup>, 2024 and that plan was approved by MassDEP on February 28<sup>th</sup>, 2024. The Due Diligence Review and Sediment Sampling Plan, along with the MassDEP approval correspondence are included in Appendix G. Important components of the Due Diligence Review and Sediment Sampling Plan are summarized in the sections below.

### 5.1 Due Diligence

To evaluate potential historical threats to sediment quality, Horsley Witten Group conducted a due diligence review in January 2024 (Appendix G). The Project area, including the mainstream Ipswich River and tributaries further upstream, has a long history of industrial land use for manufacturing. Former factories and sites include the Ipswich Manufacturing Company, Ipswich Hosiery Mills, Tanning Process Company, and Sylvania.

A railroad line also traverses near the left bank, or westerly side of the river, across the Project area. This railroad line suggests the potential for pesticides, herbicides, creosote, and metal contributions to sediments. The known contaminant source at the Ipswich Mills Building and other historic mills and industrial land use more closely surrounding the Project area suggests the potential for polychlorinated biphenyls (PCBs), metals, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) to impact sediment quality. While there is no indication that Sylvania's use of the mill facility during World War II included munitions production, in the event explosives were produced perchlorate may be present.

### 5.2 Sediment Sampling Plan

Sediment sampling will occur in accordance with the sampling plan described below. This sampling plan was approved by the Massachusetts Department of Environmental Protection on February 28, 2024.

#### 5.2.1 Sampling Parameters

Based on the due diligence review, and in consideration of the 401 Water Quality Certification (WQC) requirements (314 CMR 9.00), the proposed sediment sampling plan includes all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides, as follows:

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc);
- VOCs;
- SVOCs;

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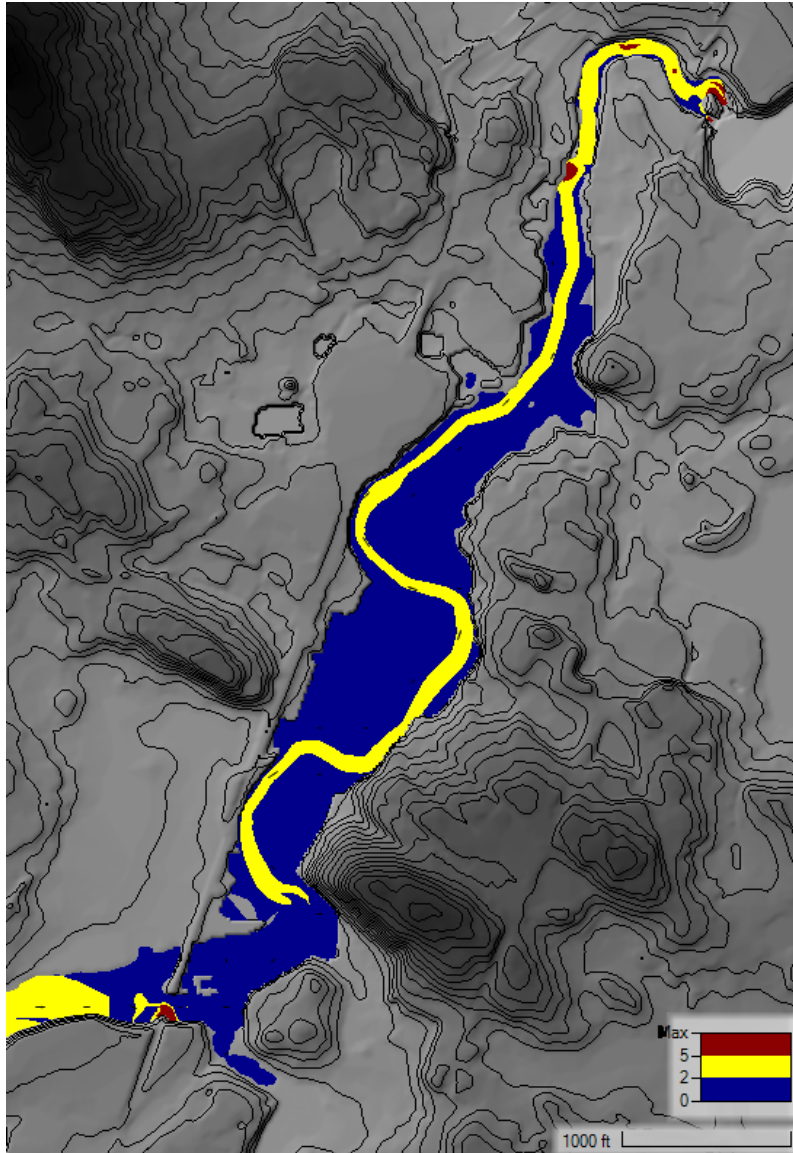
- Organochlorine Pesticides and Herbicides;
- PCBs with congeners;
- Extractable Petroleum Hydrocarbons (EPH);
- Total Petroleum Hydrocarbons (TPH);
- Total Organic Carbon;
- Percent water; and
- Grain Size Distribution – wet sieve (ASTM D422).

Toxicity Characteristics Leaching Procedure (TCLP) analyses will be run for those parameters that are detected above the TCLP 20X rule relative to the standards from 40 CFR 261.24. It is anticipated, based on past sampling results from 2005 and 2012, that TCLP analysis will not be required.

### 5.2.2 Upstream Sampling Locations

Upstream sampling locations were guided by hydrologic and hydraulic (H&H) modeling as well as an analysis of tributary confluences. H&H modeling completed during the Project's assessment and design phase identified the areas in the impoundment upstream of the dam where sediment is likely to mobilize. **Figure 1** depicts post-dam removal flow velocity conditions for the 2-year storm event. The areas where silt is expected to mobilize is in **yellow**.

The confluences of tributary streams were used to break the impounded stretch of the Ipswich River into "reaches". This helps to identify any potential sediment quality concerns in the mobile sediment portions of the mainstream river that may have originated from contaminant sources on the tributaries. Each of these "reaches" is to be characterized by three discrete sampling locations combined into a single composite laboratory submittal.



*Figure 1 Proposed Channel Velocity During 2-Year Flow*  
*Blue: no sediment transport expected (0-2 feet per second (fps))*  
*Yellow: transport of silt is feasible (2-5 fps)*  
*Maroon: transport of silt, sand, and gravel is feasible (5 fps or greater)*

**Figure 2** depicts the recommended upstream sampling locations, with color coding to show the approximate locations of discrete grabs to be composited into each laboratory-submitted sample. The recommended upstream sampling locations, listed from upstream to downstream are as follows:

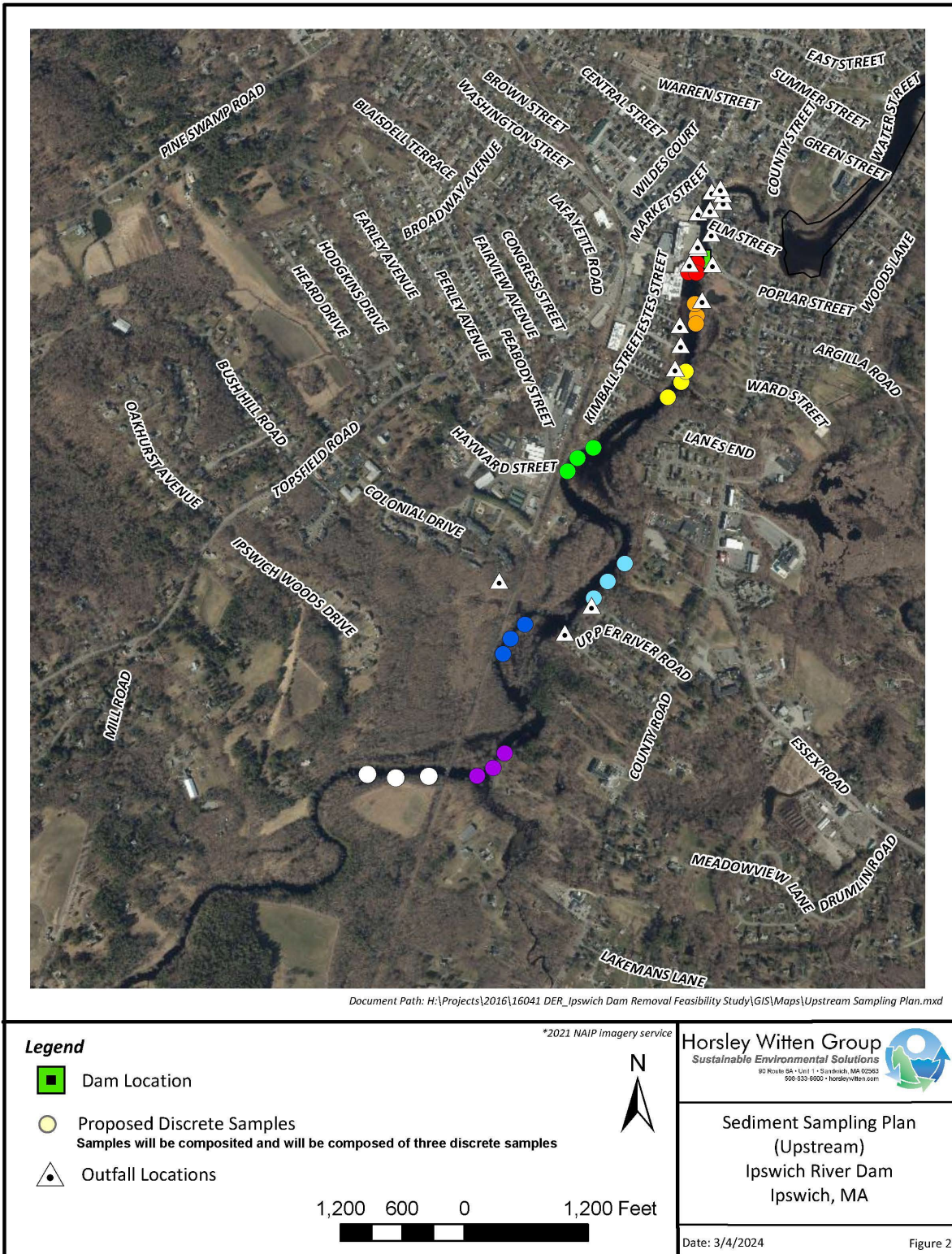
- One composite sample (white dots on **Figure 2**) from approximately 1.5 miles upstream of the dam (above the railroad bridge). This sample will represent upstream background conditions beyond the extent of hydraulic or sediment impacts anticipated to occur as a result of dam removal.

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- One composite sample (purple dots on **Figure 2**) from approximately 1.20 – 1.30 miles upstream of the dam representing the river reach at the Miles River confluence and below the Massachusetts Bay Transportation Authority (MBTA) Railroad bridge influence upstream.
- One composite sample (dark blue dots on **Figure 2**) from approximately 0.95 – 1.05 miles upstream of the dam representing the river reach adjacent to the next MBTA Railroad influence.
- One composite sample (light blue dots on **Figure 2**) from approximately 0.70 – 0.80 miles upstream of the dam representing the river reach between Kimball Brook and the MBTA Railroad.
- One composite sample (light green dots on **Figure 2**) from approximately 0.45 – 0.55 miles upstream of the dam representing the river reach between Saltonstall Brook and Kimball Brook.
- One composite sample (yellow dots on **Figure 2**) from approximately 0.25 miles upstream of the dam representing the river reach between the broader section of the dam impoundment and Kimball Brook.
- One composite sample (orange dots on **Figure 2**) from approximately 200-1,000 feet upstream of the dam representing the wider impounded river reach relatively close to the dam where significant mobilization is anticipated.
- One composite sample (red dots on **Figure 2**) from immediately upstream of the dam where significant mobilization is anticipated.



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\*Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

Figure 2 Upstream Sampling Locations

### 5.2.3 Downstream Sampling Locations

Based on H&H modeling of flow velocities, mobilized sediment is predicted to settle along three general zones:

1. Within the first 1,000 feet downstream of the former dam location between the Choate Bridge and the County Street Bridge (represented in **yellow** in **Figure 3**). Here, coarse sediment that is impounded immediately behind the dam may settle after flood events. This area has been historically starved of sediment due to the effects of the dam. Settlement of coarse sediment in this area will gradually and eventually correct this imbalance and occur primarily by infilling of the existing voids between larger cobbles and boulders along the banks.
2. In the cove immediately downstream of the County Street Bridge and the lower falls (represented in **blue** in **Figure 3**). This area is expected to be relatively favorable to sediment settling, as it is the first location downstream of the dam at which point the river significantly widens, resulting in lower velocities. With its low elevation location beneath the lower falls, it is also the first location along the river that receives nearly full tidal fluctuation and exchange. Tidal influence will tend to redistribute any sediment deposited here over a much broader area over time. Both fine and coarse sediment may settle here.
3. Along the 3.1-mile course of the Ipswich River downstream of the cove (represented in **purple** in **Figure 3**). Fine and coarse sediment is expected to gradually transport along this large section of the river before ultimately reaching the Atlantic Ocean. This most downstream depositional area represents the low elevation, main stem of the river that receives essentially full tidal influence and will, therefore, be inundated for significant portions of most days. In reality, the tides overtop onto the salt marsh plain during the astronomically highest tides of each cycle dramatically increasing the depositional area for this zone above that shown here.

The areas of each sediment settling zone are listed below in **Table 5**.



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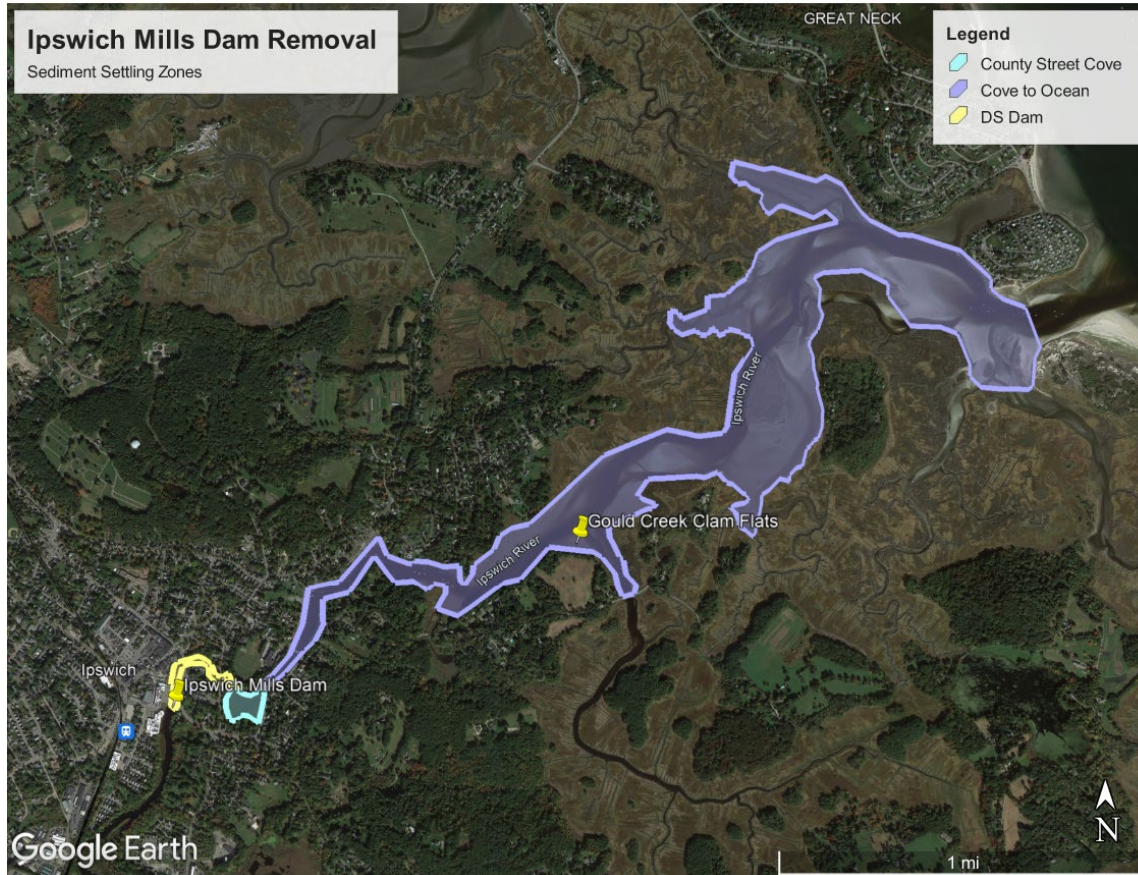


Figure 3 Sediment Settling Zones

Table 5. Sediment Settling Zone Areas

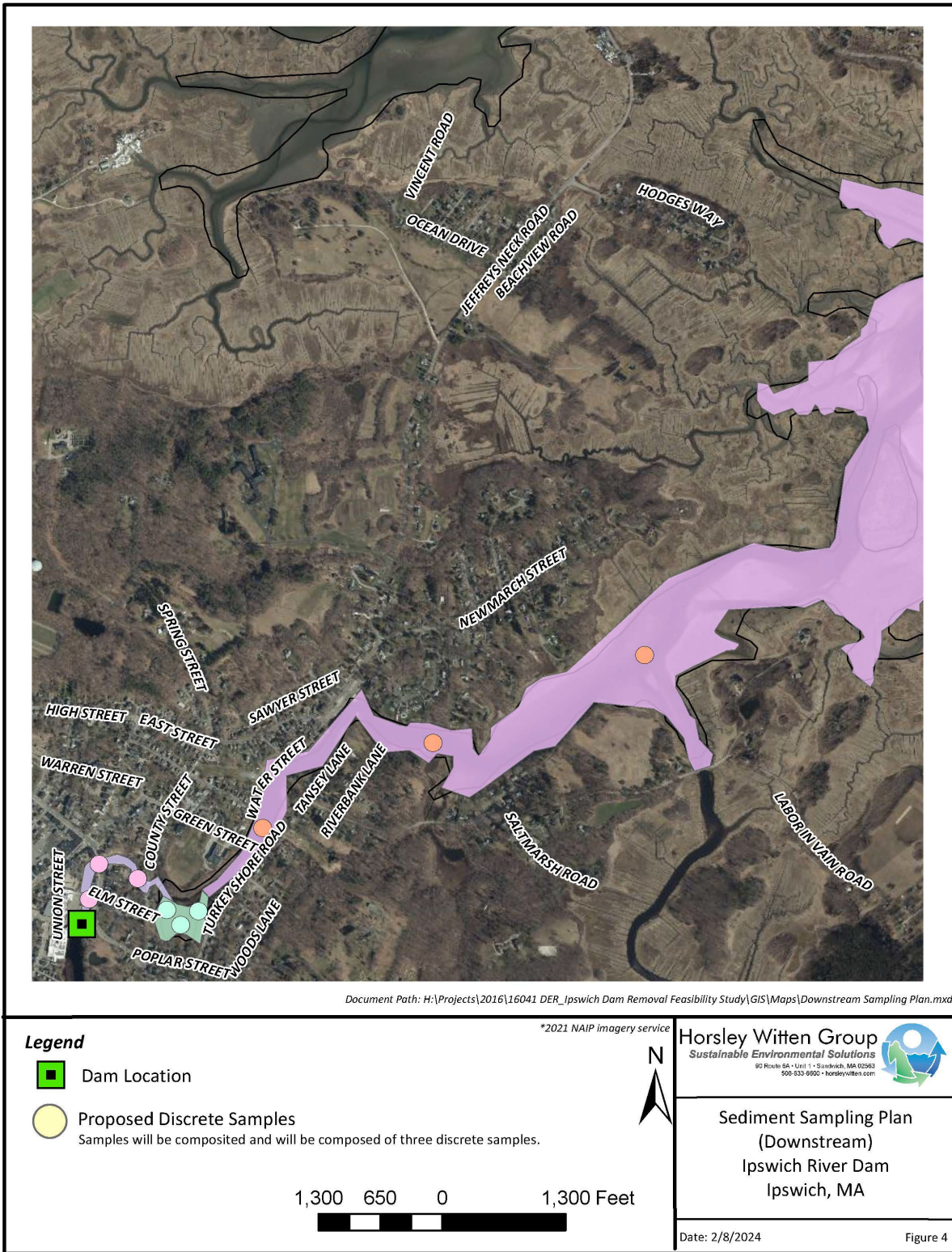
Zone	Area (sf)
Downstream of Dam	143,800
County Street Cove	195,400
Downstream of Cove to Ocean	12,780,800

Each of these zones is to be characterized by three discrete sampling locations combined into a single composite sample for laboratory submittal. **Figure 4** depicts the recommended downstream sampling locations, with color coding to show the approximate locations of discrete grabs to be composited into each laboratory-submitted sample. The recommended downstream sampling locations, listed from upstream to downstream are as follows:

- One composite sample (pink dots on **Figure 4**) from the first 1,000 feet downstream of the dam representing the yellow depositional area from **Figure 3**.
- One composite sample (light green dots on **Figure 4**) approximately 1,500-2,000 feet downstream of the dam representing the teal depositional area in the cove below the lower falls from **Figure 3**.
- One composite sample (orange dots on **Figure 4**) from approximately 1-3 miles downstream of the dam representing the purple salt marsh depositional area from **Figure 3**.



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\*Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

Figure 4 Downstream Sediment Sampling Locations

### 5.3 Sediment Management Alternatives

Sediment management alternatives for the 6,900 cubic yards (CY) of potentially mobile sediments have been identified and were preliminarily discussed with MassDEP on January 4<sup>th</sup>, 2024. The identified alternatives are detailed below. The appropriate sediment management alternative will be chosen depending on the results of the sediment sampling described above.

#### 5.3.1 Option 1: 100% Passive Release

If no significant contamination issues are identified during sediment sampling and analysis, the preferred alternative of 100% passive release of sediments will be advanced for the Project.

Sediment impounded behind the dam will gradually mobilize over a period of years following dam removal. How quickly that sediment mobilizes will depend upon the weather and the corollary size and frequency of flood events that occur. H&H modeling estimates that the 2-year return frequency flood event is the most frequent return interval event with velocity characteristics likely to mobilize significant sediment quantities. Based on reviewed academic literature, in the first year after removal of a low-head dam, between 8% to 65% of the total sediment volume impounded by a dam is typically expected to mobilize, with an average mobilization rate of 28%<sup>1</sup>. Sediment mobilization is typically greatest in the first year subsequent to dam removal when the hydraulic processes in the river experience immediate changes as a result of the dam removal and the quantity of potentially mobile sediment is greatest.

To estimate the sediment mobilization process during the first year after dam removal, HW idealized the annual mobile sediment load as a single volume moving at once from one sediment settling zone to another. This is highly unrealistic as actual sediment mobilization will occur more gradually, but it provides a conservative method for assessing the maximum potential depth and volume of sediment that could temporarily accumulate in a given zone at any one time.

We present below two scenarios for annual sediment mobilization, the maximum value of 65% and the average rate of 28%. To be conservative the minimum rate of 8% was not assessed. Considering our use of only the higher annual sediment mobilization rates, along with the conceptualization of each scenario's entire annualized sediment load being mobilized all at once, the scenarios discussed below present highly conservative maximum sediment accumulation values.

**Table 6** lists the maximum potential volume and depth of settled sediment in each zone under the high, 65%, first-year mobilization scenario. In this scenario, 4,490 CY of impounded sediment is modeled to mobilize, of which 940 CY are coarse and 3,550 CY are fine. During flood-driven mobilization events, only coarse sediment was modeled to settle in Zone 1 immediately downstream of the dam, so only the volume of impounded coarse sediment is included in the calculation of settled material in that zone.

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<sup>1</sup> Sawaske, S. R. and Freyberg, D. L., "A comparison of past small dam removals in highly sediment-impacted systems in the U.S.," *Geomorphology* Vol. 151-152, May 2012, p. 50-58

*Table 6. High Year 1 Mobilization Scenario (65%) – Maximum Sediment Settling*

<b>Zone</b>	<b>Maximum Volume of Settled Sediment (CY)</b>	<b>Maximum Depth of Settled Sediment (in)</b>
Zone 1 -Downstream of Dam*	940	2.1
Zone 2 - County Street Cove**	3,550	5.9
Zone 3 - Downstream of Cove to Ocean**	3,550***	0.09

\* Only includes impounded coarse sediment. Fine sediment is expected to continue to migrate further downstream during peak flood events.

\*\* Only includes impounded fine sediment, as coarse sediment has already been accounted for with deposition in Zone 1. In these zones, the dominant hydrologic influence on sediment migration is tidal, rather than river-driven, so accumulated sediment is expected to redistribute across each tide cycle.

\*\*\* Represents the same volume of sediment that mobilizes to Zone 2. This sediment is assumed to continue to migrate downstream to Zone 3 over time.

**Table 7** lists the maximum potential volume and depth of settled sediment in each zone under this typical 28%, first-year mobilization scenario. In this scenario, 1,940 CY of impounded sediment is modeled to mobilize, of which 410 CY are coarse and 1,530 CY are fine. Again, only coarse sediment is included in Zone 1 just downstream of the former dam.

*Table 7. Average Year 1 Mobilization Scenario (28%) – Maximum Sediment Settling*

<b>Zone</b>	<b>Maximum Volume of Settled Sediment (CY)</b>	<b>Maximum Depth of Settled Sediment (in)</b>
Zone 1 -Downstream of Dam*	410	0.9
Zone 2 - County Street Cove**	1,530	2.5
Zone 3 - Downstream of Cove to Ocean**	1,530***	0.04

\* Only includes impounded coarse sediment. Fine sediment is expected to continue to migrate further downstream during peak flood events.

\*\* Only includes impounded fine sediment, as coarse sediment has already been accounted for with deposition in Zone 1. In these zones, the dominant hydrologic influence on sediment migration is tidal, rather than river-driven, so accumulated sediment is expected to redistribute across each tide cycle.

\*\*\* Represents the same volume of sediment that mobilizes to Zone 2. This sediment is assumed to continue to migrate downstream to Zone 3 over time.

Due to the highly conservative assumptions discussed above for these sediment accumulation assessments, the sediment accumulation depth values shown in **Tables 2 and 3** are also highly conservative. In reality, an entire years' worth of sediment load will not accumulate instantaneously but will be spread out over a year's worth of storm events. The more incremental accumulations that will actually occur will then be distributed and spread further by tidal activity in between storm events.



### *5.3.2. Option 2: Dredge and Reuse*

If portions of the mobile sediment are determined by MassDEP to have characteristics unsuitable for passive release, those specific areas will be spot dredged. Upland reuse options for that dredged material would be determined based on the observed concentrations of contaminants and reuse facility acceptance criteria. The remaining sediment would be assumed suitable for passive release and will be left to mobilize or stabilize in place.

### *5.3.3. Option 3: Dredge and Disposal*

If portions of the mobile sediment are determined by MassDEP to have characteristics unsuitable for passive release, and the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those specific areas will be spot dredged for disposal. Upland disposal options for dredged sediment would be determined based on the concentrations of contaminants and receiving facility acceptance criteria. That portion of the dredged sediments not suitable for upland reuse would need to be shipped to an authorized receiving facility. All remaining, un-dredged sediment would be assumed suitable for passive release. and will be left to mobilize or stabilize in place.

### *5.3.4 Option 4: Reassess*

If sediment contamination issues are identified in sediment sampling and analysis that preclude the previous sediment management options, then the Project Team will evaluate additional sediment management alternatives to minimize Project impacts and advance a feasible project approach.

## 6. Construction Activities

While not proposed to occur in distinct separate phases, the general order of operations for construction activities is dam removal followed by regrading followed by stabilization (see below for more detail on each activity). During the Public Comment Period on the EENF, DMF noted that in order to protect migrating and spawning diadromous fish present in the Ipswich River from temporary impacts from the project they would likely recommend a time-of-year (TOY) restriction on in-water, silt-producing work from March 1 to June 30 and September 1 to November 15 of any given year. After all required permits have been obtained, the Project will be timed in order to avoid these anticipated TOY restrictions.

Standard precautions will be implemented to prevent the spread of potential invasive species during construction (i.e. cleaning of equipment). Newly exposed floodplain will be allowed to revegetate naturally from the native seed bank present in the sediment. This has shown to be successful on other Massachusetts dam removal projects, especially where the project area is not currently impacted by significant areas of established invasive species. Monitoring for invasive species will occur during the revegetation period (See Section 7).

### 6.1 Dam Removal

The full vertical extent of the dam will be removed slowly in vertical and horizontal increments to allow for gradual release of water from the impoundment. Dam removal will begin west of the active fishway near the center of the dam. Starting towards the center of the dam is intentional in order to ensure that flow stays concentrated in the middle of the river and does not lead to erosion during the dam removal process. Flow and sediment transport will be observed for potential negative downstream impacts before proceeding with the following increment. Nearly the full horizontal extent of the dam will also be removed with the exception of the two furthest edges necessary to ensure continued stability of

riverside retaining walls. There will be sawcut vertical faces to create clean edges of dam removal at the two ends where the dam meets the river walls, which are not proposed to be removed. In addition to the dam, a floating log boom and the existing fishway will also be removed. Dam debris will be removed from the river at regular intervals.

## 6.2 Regrading

Coarse bed material including rock and large boulders have accumulated upstream and downstream from the existing dam location, some of those boulders potentially associated with former iterations of the subject dam. These boulders and other coarse material will be regraded to form a more natural profile and support good fish passage conditions under a variety of flow conditions.

## 6.3 Stabilization

Following dam removal newly exposed sediments will be susceptible to erosion and some of that sediment is intended to beneficially migrate downstream to replenish currently sediment starved areas downstream of the dam. In areas immediately adjacent to the existing dam encapsulated soil lifts will be installed to protect the riverside retaining walls from potentially increased river velocities in these areas during some flow conditions. Stone support will be installed on the toe of the slopes for the soil lifts in order to further protect them and the upgradient retaining walls against erosion. Further upstream, where newly exposed soils are not expected to be subject to higher river velocities, the new Bordering Vegetated Wetlands will be stabilized with coir logs

# 7. Post-Construction Monitoring

A monitoring baseline will be established prior to Project implementation. This baseline will consist of a descriptive survey to be completed following a visual reconnaissance of the upstream and downstream areas likely to be impacted by dam removal. Channel and bank stability will be documented and photographed at key locations. Sediment transport will be monitored by the establishment of 2-3 stations where repeat measurements can be taken at known sediment accumulation areas (bars). Measurements will be taken at a higher frequency during the first fall/winter following removal. Newly exposed banks will be monitored frequently during the growing season to check for invasive species establishment.

Agency comments from the Massachusetts Division of Marine Fisheries (DMF) received with the EENF submittal recommended the development of a post-construction monitoring plan. A discussion with the DMF Shellfish Program Manager was held on February 16<sup>th</sup>, 2024. During that discussion, it was reiterated that DMF supports the Project and currently carries out comprehensive monitoring of locations downstream of the Ipswich Mills Dam within the tidelands and shellfish resource areas on the lower Ipswich River. DMF confirmed that both baseline and post-Project monitoring for turbidity, fecal coliform, and contaminants will be completed as part of DMF's ongoing monitoring programs. Baseline and post-Project monitoring for sedimentation will be completed by the Ipswich River Watershed Association (IRWA).

During the revegetation period, project partners will monitor the site regularly and hand pull observed invasive species before they can substantially establish. Monitoring will occur for at least two years or until native vegetation has been established.

## 8. Mitigation and Draft Section 61 Findings

MGL c.30 § 61 requires that “all authorities of the Commonwealth ... review, evaluate, and determine the impact on the natural environment of all works, projects or activities conducted by them and ... use all practicable means and measures to minimize [their] damage to the environment. ... Any determination made by an agency of the Commonwealth shall include a finding describing the environmental impact, if any, of the Project and a finding that all feasible measures have been taken to minimize said impact.” Each state agency to issue a permit for the Project shall also issue a Section 61 Finding in connection with permit issuance, identifying mitigation that is relied upon to satisfy the Section 61 requirement.

A table of mitigation measures for environmental and related public health impacts is included below in **Table 8**. All mitigation will be the responsibility of the Project proponent and their contractor(s). Section 6 of this SEIR identifies the agencies that are expected to take agency action on the Project and issue Section 61 Findings, as well as the expected actions and permit issuances anticipated to be required. A draft proposed Section 61 Finding is provided in this section.

### Proposed Section 61 Finding

<u>Project Name:</u>	Ipswich Mills Dam Removal
<u>Project Location:</u>	Ipswich River, Ipswich, Massachusetts Approximately 3.7 miles upstream of the mouth of the Ipswich River (42.67768, -70.83786)
<u>EEA Number:</u>	16754
<u>Date Noticed in Monitor:</u>	August 23, 2023 (EENF)
<u>Project Proponent:</u>	Town of Ipswich

The potential environmental impacts of the proposed Project have been characterized and quantified in the EENF dated August 2023 and Section 6 of this SEIR, which are incorporated by reference into this Section 61 Finding. As an ecological restoration project, the Project will result in net environmental benefits overall. The Project proponent has striven to develop appropriate mitigation measures to address short-term impacts, the majority of which are associated with construction-period activities. With the mitigation measures proposed and carried out in cooperation with state agencies, [AGENCY] finds that there are no significant unmitigated impacts associated with the Project.

The Project proponent takes ultimate responsibility for both the identification of appropriate mitigation measures, and implementation of said measures throughout the duration of the Project, whether carried out by the Project proponent themselves, or by the proponent’s contractor(s). The proponent has prepared **Table 8** of mitigation measures that outline these responsibilities.

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Having reviewed the MEPA filings for the Project, including the mitigation measures referenced above and described in greater detail in the EENF and this SEIR, [AGENCY] finds pursuant to MGL c.30 § 61, that with the implementation of the aforesaid measures, all practicable and feasible means and measures will have been taken to avoid or minimize potential damage from the Project to the environment.

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[Agency]

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[By]

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[Date]

**Table 8** below describes mitigation measures included in the planning and design to avoid, minimize, and mitigate potential damage to the environment resulting from the Project.

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*Table 8 Summary of Potential Environmental and Related Public Health Impacts and Avoidance, Minimization, and Mitigation Measures*

Subject Matter	Potential Impacts	Avoidance, Minimization, and Mitigation Measures	Schedule and Cost	Agency Action or Permit
Land	<p>Direct disturbance area is approximately 1.26 acres</p> <p>Overall Project is ecological restoration and net improvement over existing conditions by restoring natural flow of the river and allowing for aquatic passage</p>	<p>This Project will not impact the use of adjacent lands</p> <p>The Project design minimizes the limits of work to the extent practicable and phases construction to minimize area disturbed at one time.</p> <p>The Project design includes erosion, sediment, and turbidity controls to further minimize impacts. Project design also requires restoration of staging/access areas with loam/seed, stabilizing banks with stone and coir logs (as appropriate by location), enhancing the riparian corridor with wetland seed mix and planting of native shrubs, as necessary.</p> <p>Post-construction monitoring of the Project includes frequent monitoring of newly exposed banks during the growing season to check for invasive species establishment.</p>	N/A	None
Rare Species	None anticipated	None anticipated; dependent on NHESP determination	N/A	None
Wetlands, Waterways, and Tidelands	301 CMR 11.03(3)(a)(4): structural alteration of an existing dam that causes an expansion of 20% or any decrease in impoundment capacity	Wetlands Protection Act Order of Conditions via Ipswich Conservation Commission & MassDEP Water Quality Certification.	TBD	MassDEP 401 Water Quality Certification

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	<p>(removing the Ipswich Mills Dam will result in a decrease in impoundment capacity)</p> <p>Temporary and permanent impacts to wetland resources areas including Bank (490 lf if temporary and 700 lf if permanent), Bordering Vegetated Wetlands (184,800 sf permanent), Land Under Water Bodies and Waterways/Fish Runs (35,870 sf temporary and 184,000 sf permanent), Border Land Subject to Flooding (1,730 sf temporary and 352,100 sf permanent), and Riverfront Area (4,100 sf temporary and 54,500 sf permanent)</p> <p>Overall Project is ecological restoration and net improvement over existing conditions by restoring natural flow of the river and allowing for aquatic passage</p> <p>Impervious area will be reduced as a result of this Project</p> <p>The Project is also anticipated to improve water quality; restore stream connectivity, and fish passage; and convert the former impoundment into riparian wetlands</p>	<p>Use of erosion, sedimentation, and turbidity controls during construction; installation of scour protection and reinforcement of river retaining walls; implementation of a post-construction vegetation monitoring plan; and restoration of disturbed areas following construction</p> <p>Initial sediment testing was done in 2012 and the test results concluded that there was a very low likelihood of toxicity in the sediment. A sediment sampling plan has been prepared and submitted to MassDEP that includes extensive sediment sampling to definitively confirm sediment quality considerations. Sampling will occur across many areas above and below the dam, but with an emphasis on locations that were identified as having potentially mobile sediment as a result of dam removal. In the case that contaminated sediment is found, the Project team will design an appropriate removal plan in consultation with MassDEP and other state and federal agencies.</p> <p>Phase construction to minimize area disturbed at one time</p> <p>In-water work will be scheduled for low flow stream conditions with appropriate erosion and sediment controls instituted and sediment management enacted as required by MassDEP pending forthcoming Water Quality Certification permitting.</p>		<p>MassDEP Chapter 91 License</p> <p>DMF Fishway Permit</p> <p>ODS Permit</p> <p>CWA Section 404 Permit</p> <p>Wetlands Protection Act CZM Order of Conditions</p> <p>CZM Consistency Review</p>
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	<p>Due to the nature of the Project, permanent conversion of some wetland resource areas from one type to another (e.g. LUW to BVW) is unavoidable; however, the Project is anticipated to qualify as an Ecological Restoration Project (dam removal category) under wetlands regulations.</p> <p>The Project proposes to actively dredge 440 CY of material (consisting of concrete, boulders, and cobbles) and anticipates the passive release and downstream relocation of an additional 6,900 cy of sediment over time following the removal of the dam</p>			
Water Supply	None	None	N/A	None
Wastewater	None	None	N/A	None
Transportation (Traffic & Roadways)	No road closures are proposed	Equipment and materials staging will occur in close proximity to the Project work access zone in a municipal parking lot. Minimum local traffic control on a local road may be required for short periods when equipment is mobilized from the staging area into the construction work zone.	N/A	None
Energy	None	None	N/A	None

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Air Quality	<p>Temporary increase in diesel emissions during transport and operation of construction vehicles and equipment</p> <p>Temporary increase in noise levels due to equipment operation</p>	<p>When not in use, construction equipment will be shut off to limit emissions</p> <p>Management of air and noise quality during construction will be done in accordance with DEP regulations</p>	N/A	None
Solid and Hazardous Waste	<p>The Project also proposes to actively dredge 440 CY of material (consisting of concrete, boulders, and cobbles)</p>	<p>Initial sediment testing was done in 2012 and the test results concluded that there was a very low likelihood of toxicity in the sediment. A sediment sampling plan has been prepared and submitted to MassDEP that includes extensive sediment sampling to definitively confirm sediment quality considerations. Sampling will occur across many areas above and below the dam, but with an emphasis on locations that were identified as having potentially mobile sediment as a result of dam removal. In the case that contaminated sediment is found, the Project team will design an appropriate removal plan in consultation with DEP and other state and federal agencies.</p> <p>MassDEP shall be notified if oil and/or hazardous materials are found during construction in accordance with the Massachusetts Contingency Plan (310 CMR 40.00)</p> <p>The Project will not disturb asbestos containing materials</p> <p>Standard NPDES construction permit conditions will apply regarding refueling equipment, spill</p>	N/A	National Pollutant Discharge Elimination System Permit

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		<p>prevention measures, removing equipment overnight from the river.</p> <p>All construction and demolition activities will be managed in accordance with applicable Solid Waste Facilities regulations (310 CMR 16.00 and 310 CMR 19.00.</p>		
Historical and Archaeological Resources	<p>Per the State Register of Historic Places and the Inventory of Historic and Archaeological Assets of the Commonwealth, no part of the Project site is listed as an archaeological site or historical site (but MHC states that the area of potential effect includes several identified historic and archaeological resources)</p>	<p>There will be no demolition or destruction of any listed or inventoried historic or archaeological resources encountered</p> <p>PAL Inc. has already been contacted to perform a reconnaissance survey, and help to inform Project partners potential historic resources. That work is currently underway.</p>	N/A	Determination of Effect
Climate Change Adaptation and Resiliency	<p>Dam removal Restores a free-flowing system for aquatic passage</p> <p>Removal of the Ipswich Mills Dam will restore natural hydrology to the Project site. This will result in the decreased incidence of flooding for upstream and adjacent properties</p> <p>Removal of the Ipswich Mills Dam is included in the Town of Ipswich Municipal Vulnerability Program Plan</p>	N/A	N/A	MEPA Certificate

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<p>Environmental Justice</p>	<p>There are no EJ populations within the Designated Geographic Area of the Project.</p> <p>Reduces risk of dam failure and catastrophic downstream impacts anticipated with dam failure</p> <p>Reduces flood risk to vulnerable neighborhoods immediately upstream</p> <p>Reduces likelihood of harmful algal blooms</p> <p>Tests for contaminated sediment and removes contaminated sediment.</p> <p>Improves aesthetics by removing trash/debris, restoring native vegetation in river corridor</p> <p>Restores free-flowing river</p> <p>Adds significant native vegetation to create a green corridor</p> <p>Improvement of recreational access to Ipswich River and riparian corridor</p>	<p>N/A</p>	<p>N/A</p>	<p>MEPA Certificate</p>
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## 8.1 Mitigation Measures Relative to Environmental Justice Populations

The nearest EJ population to the Project is approximately 4.5 miles away, well outside of the 1-mile Designated Geographic Area of the Project. As such, no mitigation measures specific to EJ populations are required or proposed. Regardless, the Project will result in several beneficial impacts including reducing the risk of dam failure and the catastrophic downstream impacts anticipated with dam failure, reducing flood risk to vulnerable neighborhoods immediately upstream, reducing the likelihood of harmful algal blooms, removing any contaminated sediments found in the impoundment, and improving aesthetics by removing trash and debris and by restoring native vegetation in the river corridor.

## 9. Response to Comments

### 9.1 Comment Letters Received on the EENF

The MEPA office received numerous written comments on the EENF via the MEPA Public Comments Portal and via email. Comments were provided by the individuals, agencies, and organizations listed below. In some cases, the commenter remained anonymous. Copies of all comment letters are included with the MEPA Certificate in Appendix A.

- Steven Calder
- Diane Kelley
- Christopher Fauske
- Christopher Cerino
- Haley Mosher
- Jonathan Penyack
- Catherine Hone
- Margot Kelly
- Valda Winsloe
- Anonymous
- KelleyJane Kloub
- Rev. Dr. Rebecca Pugh
- Massachusetts Division of Ecological Restoration
- The Nature Conservancy
- John Doonan
- John Bruni
- Katerina Andreishcheva
- Anonymous
- Anonymous
- Jean Hubbard
- W. Denis Markiewicz
- Susan Wallingford
- Carol Bousquet
- Katherine Lindquist
- Katherine Desilva
- Nelda Quigley
- Richard McElvain and Lynda Robinson

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- Iris Doucette
- Alison Ferguson
- John Moss
- David Voci
- Lee Schofield
- Wendall Waters
- Sara Beck
- Joel Hariton
- Michael Walker
- Dan Rowland
- Lindsay Randall
- Merrimack River Watershed Council
- Carl Gardner
- Tanya Waldroup
- Peter Soffron
- Mill Pond Preservation Association
- Donna Hughes
- Plum Island Ecosystems Long-Term Ecological Research Program
- Essex County Greenbelt Association
- Michael Searles
- Christopher Davis
- David Comb
- Ingrid Barry
- Anonymous
- Ken MacNulty
- Linda Fates
- Kenneth Whittaker
- Deborah Fowler-Wheaton
- James Zabelski
- Charles River Watershed Association
- Joanna Delaney
- OARS: For the Assabet, Sudbury, and Concord Rivers
- Mass Audubon
- Massachusetts Historical Commission
- Marlene Markos
- Roger Wheeler
- Massachusetts River Alliance
- Massachusetts Water Resources Commission
- Nor'East Chapter of Trout Unlimited
- American Rivers
- Massachusetts Office of Coastal Zone Management
- Parker River Clean Water Association
- Metropolitan Area Planning Council



- Massachusetts Division of Marine Fisheries
- Massachusetts Department of Environmental Protection Waterways Program
- Massachusetts Department of Environmental Protection Northeast Regional Office

## 9.2 Response to Comments on the EENF

The following section provides responses to comments received on the EENF. Refer to Appendix A for the MEPA Certificate and comment letters.

### Donna Hughes (DH)

DH-1

**Comment:** *Our dam has been there for 400 years and has its own ecosystem. Removing it could jeopardize the current EBSCO building, putting the town at risk for liability in the millions.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. Both the partial feasibility study (completed in 2014), the full feasibility study (completed in 2019) and subsequent mitigation studies concluded there were no significant technical, legal or infrastructure risks associated with dam removal. This includes risk to the nearby EBSCO facility, which would be mitigated as part of the Project. In early October 2023, the foundation and support piers for the riverside EBSCO building 10A were examined via an interior test pit. The results showed that the foundational support beams are concrete, and therefore will remain structurally stable and not be affected by lowered water levels following dam removal. A second interior test pit is planned for Building 10, which was constructed approximately 10 years prior to building 10A. This test pit will confirm whether or not the concrete support piers are consistent between the two buildings. Going forward, EBSCO and the Project partners will be developing an adaptive mitigation strategy and monitoring plan for the abutting EBSCO buildings. Based on the significant information gathered and analyses completed to date regarding the subsurface makeup and the structural integrity of the EBSCO facility, all indications are that dam removal would not have significant impacts on the structural stability of the facility and that any such potential impacts can be mitigated as part of the Project.

DH-2

**Comment:** *There is also the danger of forever damaging the clam flats because of the possible pollutants that might be washed downstream with removal.*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing “No Significant Risk” based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to definitively confirm if there is any contaminated sediment. MassDEP requires a rigorous sediment sampling plan as part of their 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Sampling will occur across many areas above and below the dam, but with an emphasis on

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locations that were identified as having potentially mobile sediment as a result of dam removal. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

**Chris Cerino (CC)**

CC-1

**Comment:** *Fish migration takes place twice during a calendar year, Model results do not take into account Juvenile Alewife that migrate downstream in late summer and early fall when water levels are typically at their lowest level. Removing the dam would remove an oasis during low level events for these fish and other aquatic wildlife until reasonable water levels return. At the railroad bridge at low flow levels, it will be impossible for river herring to return to the ocean.*

**Response:** We know that herring will be able to navigate low flows because they have evolved with the river over many thousands of years, and are adapted to deal with drought conditions. Their genetics enable them to navigate an extremely wide range of flows and they are able to locate refuge areas during extreme droughts. Additionally, according to data collected and published by researchers at UMass Amherst (Abbott, K.M. and A.H. Roy, 2022) the impoundment experiences elevated temperatures and degraded dissolved oxygen levels in comparison to both upstream and downstream reaches during the summer. Dam removal will have minimal impact on water levels at the railroad bridge and will ultimately provide vastly improved passage for a wider range of fish species and life stages over a range of flows.

CC-2

**Comment:** *Alewives are imprinted to return to the place of birth to spawn future generations, so no spawning grounds means no future generations returning to spawn.*

**Response:** Over the past three years, the MA Division of Marine Fisheries (MA DMF) has led Alewife restocking efforts at Hood Pond in Topsfield. Alewives have been collected from the Parker River each spring and moved to the Ipswich River, specifically at Hood Pond– a prime breeding ground for Alewives. At Hood Pond, the Alewives spawn, and their offspring imprint on the water they were born in. The juveniles then grow up in the pond, go out to sea, and ideally return in a few years to the same spawning grounds. Concurrently, blueback herring have been

collected from nearby rivers and stocked in the main stem of the Ipswich River in Topsfield. The robust restocking program was the result of habitat assessment work performed in the Ipswich River and Hood Pond over several years. Those assessments determined the suitability of the site to support adults and juveniles. Ideally, restocking efforts will give the herring population a chance to grow as juvenile herring should instinctively return in the future to spawn where they were originally hatched. It is an ongoing effort to restore the herring fishery and the overall vitality of the ecology of the river. Independent of these stocking efforts river herring are returning to the river system to spawn. Removing the dam is improving access to these spawning grounds.

CC-3

**Comment:** *[referring to the Climate Resilience Design Standards Tool Project Report] The word "MAYBE" does not meet the goal of improved water quality.*

**Response:** In general, dams throughout New England, and further afield, have been documented to increase water temperature and decrease dissolved oxygen in their impounded areas. Therefore, as has occurred following other dam removals throughout the region, we anticipate that water quality upstream of the Ipswich Mills dam will improve following dam removal.

CC-4

**Comment:** *Clams will be impacted more by the release of 6900 cubic yards of sediment. There is no documentation to support that there will not be any negative effects.*

**Response:** While 6,900 cubic yards sounds like a lot, the amount of sediment impounded behind the dam is relatively small compared to the tidal sediment dynamics that dominate the lower river and to normal annual sediment loads since low head "run-of-river" dams like Ipswich Mills trap very little sediment, due to the periodic flushing provided by floods. If this relatively small amount of sediment is deemed to be clean following the completion of additional sediment sampling per the MassDEP-approved sampling plan, the regulatory authorities prefer that sediment to be naturally dispersed slowly and sporadically downstream. Areas below the dam have become sediment depleted due to the influence of the dam and passive release will help restore the sediment balance to these downstream reaches. Analyses conducted during the design and permitting process for dam removal indicate that the anticipated amount of potentially mobile sediment on an annual basis is very low (fractions of an inch) when compared to the vast area of clam flats and salt marsh over which it would be dispersed. The volumetric rate of mobile sediment released over time following dam removal is not significant enough to damage the clam beds in any way as coarse sands and gravels will settle well upstream of the clam beds and clean fine sediments are considered beneficial to the marsh and clam beds. In addition, since 1920 sea levels in Massachusetts have risen at a rate of 2.94mm per year with an even higher rate in more recent years.<sup>2</sup> The maximum depth of settled sediment in the clam beds under the "High Year 1 Mobilization Scenario" is 0.09 inches (2.286mm), a maximum year accumulation that does not even keep pace with conservative sea level rise estimates. Restoring

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<sup>2</sup> [https://tidesandcurrents.noaa.gov/sltrends/sltrends\\_station.shtml?id=8443970](https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8443970)

the natural riverine sediment transport processes are beneficial to helping the clam beds stay healthy.

CC-5

**Comment:** *While the chart above does indicate a reduced water level for 2-year flow at 4.10 ft MHW tide, it does not give us any info about MHW tide 2-year flow at 8.7 ft stillwater tide. Does this mean that at high tide, water levels would be higher under dam out conditions upstream of the existing dam? Missing information.*

**Response:** This table only reflects a small sampling of the full model results. Full model results are located on page 21 of the Feasibility Study included at Attachment A the EENF. Just above the dam at the 2-year flow during 8.7 ft stillwater tide, the water surface elevation for existing (dam-in) conditions is 11.24 ft and for potential (dam-out) conditions is 6.43 ft.

CC-6

**Comment:** *I have found no costs associated with dam liability. If the town is concerned with the failure of the dam, there are no documents that support its possible failure. The dam survived a 150-year flood event (May 2006) with no recorded damage to the dam from that flood.*

**Response:** As a jurisdictional dam, the Ipswich Mills Dam is required to be regularly inspected by a certified professional engineer. It is important to note that the two most recent inspection reports did record multiple deficiencies with the dam and associated structures. These include cracks in the right concrete abutment wall, vegetation in the mortar joints on the granite pier and around the fish ladder, and missing mortar within the spillway joints. The most recent inspection in 2020 reported the dam to be in “fair” condition, defined as “Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur.” While the dam is not likely to fail in the short term, the structural integrity of dams can often degrade rapidly, especially when maintenance and monitoring are deferred. As the owners of the dam the Town could also be held liable for any injuries that take place at the dam at any time or off site as a result of dam failure. The dam will always present some degree of risk, hazard, and liability for the Town.

CC-7

**Comment:** *Some of the documents presented by the Horsley Witten Group inc. do not accurately depict the physical properties of the dam nor do they provide accurate information relative to the actual health of the dam.*

**Response:** The design plans included in the EENF include detailed drawings of the site, including surveyed elevations. Horsley Witten did not separately assess the physical integrity of the dam outside of referencing the most recent dam inspection performed in 2020.

CC-8

**Comment:** *I have found no documentation to even suggest all alternatives to dam removal were considered or that any consideration was given to improving fish passage by creating a better*

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*fish ladder, which would achieve the number one goal set by the town, to improve fish passage and habitat.*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal and would not achieve any of the other goals of dam removal. These goals include elimination of financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

CC-9

**Comment:** *If the liability concern is related to loss of life from failure of the dam, is there any information to the likelihood of a catastrophic dam failure of the Ipswich Mills Dam which could result in loss of life? If the dam failed would the breach be immediate, or are there any estimates on length for complete dam failure? Does the town's liability insurance costs go down with the removal of the dam?*

**Response:** As a jurisdictional dam, the Ipswich Mills Dam is required to be regularly inspected by a certified professional engineer. It is important to note that the two most recent inspection reports did record multiple deficiencies with the dam and associated structures. These include cracks in the right concrete abutment wall, vegetation in the mortar joints on the granite pier and around the fish ladder, and missing mortar within the spillway joints. The most recent inspection in 2020 reported the dam to be in “fair” condition, defined as “Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur.” While the dam is not likely to fail in the short term, the structural integrity of dams can often degrade rapidly, especially when maintenance and monitoring are deferred. The dam will always present some degree of risk, hazard, and liability for the Town.

CC-10

**Comment:** *“More variability in paddling conditions as flow levels vary”, from the above statement is not necessarily a good thing, especially for inexperienced paddlers.*

**Response:** Paddling will be different in the sense that the conditions will resemble those of a river rather than a pond. Upstream, the undammed reaches of the Ipswich River are enjoyed by paddlers of all ages and experience levels and this location would offer the same opportunity. For the first time in recent history, the full length of the river through downtown Ipswich will be fully navigable, continuing out to the Great Marsh, Crane Beach, and Ipswich Bay.

CC-11

**Comment:** *I believe there will be a significant reduction of wetland acreage, from the dam site to approximately ¾ mile upstream if the dam is removed.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, recreation, and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

CC-12

**Comment:** *There has been talk about water temperatures lowering with dam removal but I have seen no study that includes information comparing water temperatures for existing and dam out conditions during low water level events.*

**Response:** Small, low head dams like the Ipswich Mills Dam artificially slow upstream water velocities and increase water surface area exposed to air and solar radiation. This results in artificially increased water temperatures (Abbott, K.A and Roy, A.H., 2022). This effect has been observed and studied at small dam impoundments across New England and the country.

CC-13

**Comment:** *At some point in the past, the decision to remove the dam was decided at the local government level, without public input. All processes and studies after that are reflective of that decision.*

**Response:** See response to CC-8 above.

**Diane Kelley (DK)**

DK-1

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**Comment:** *This Project is in severe need of a neutral analysis of the environmental impacts that would occur if the dam is removed... The negative impacts on the natural environment are not sufficiently discussed or are ignored in service of bringing back fish.*

**Response:** Both the MEPA and subsequent permitting processes are equipped with mechanisms to solicit feedback from both the public and regulatory bodies at the local, state, and federal levels. This Project is required to obtain multiple permits that are strictly defined in local, state and federal laws and regulations. The permitting process for environmental projects such as this mandates that no substantial harm is brought to any public resource (e.g., drinking water, tidelands, wetland, etc.) An SEIR has been prepared for the Secretary of EEA to perform a review of the Project under the MEPA statute, which requires projects use all feasible measures to avoid, minimize, and mitigate damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable.

DK-2

**Comment:** *An EIR could provide some context of what will happen to the wildlife, including any endangered species, as well as the impact to the natural environment that has existed on and along the river for centuries.*

**Response:** The SEIR includes a comprehensive list of agency actions and permits that will need to be sought by this Project. Massachusetts Natural Heritage and Endangered Species Program (NHESP) will be consulted during the permitting process in order to determine if the project will need to be formally reviewed for Massachusetts Endangered Species Act (MESA) compliance.

DK-3

**Comment:** *The report may also bring to light some information regarding the impacts of climate change on a river that some years has little water and some years has sufficient water.*

**Response:** An SEIR has been prepared for the Secretary of EEA. See the Section 61 Findings portion of the SEIR for the expected impacts related to Climate Change Adaptation and Resiliency.

**Steven Calder (SC)**

SC-1

**Comment:** *At least 6,900 cubic yards of sediment will be carried down to the lower tidal Ipswich River and into the Plum Island Sound during and after the dam removal. Additionally, the sediment from the bottom of a shallower river will be carried during storm events. This is an Area of Critical Environmental Concern designated by the Department of Conservation and Recreation in part because of the area being a major resource for clamming and fishing. The clam beds are often shut down after a storm event due to contamination from runoff. Contamination from these sediments will only exacerbate the effects to clam beds.*

**Response:** While 6,900 cubic yards sounds like a lot, the amount of sediment impounded behind the dam is relatively small compared to the tidal sediment dynamics that dominate the lower



river and to normal annual sediment loads since low head “run-of-river” dams like Ipswich Mills trap very little sediment, due to the periodic flushing provided by floods. If this relatively small amount of sediment is deemed to be clean following the sampling plan, the regulatory authorities prefer that sediment to be naturally dispersed slowly and sporadically downstream. Areas below the dam have become sediment depleted due to the influence of the dam and passive release will help restore the sediment balance to these downstream reaches. Analyses conducted during the design and permitting process for dam removal indicate that the anticipated amount of potentially mobile sediment on an annual basis is very low (fractions of an inch) when compared to the vast area of clam flats and salt marsh over which it would be dispersed. The volumetric rate of mobile sediment released over time following dam removal is not significant enough to damage the clam beds in any way as coarse sands and gravels will settle well upstream of the clam beds and clean fine sediments are considered beneficial to the marsh and clam beds. Restoring the natural riverine sediment transport processes are beneficial to helping the clam beds stay healthy.

SC-2

**Comment:** *Additionally, the three samples failed to be analyzed for PCBs and polyfluorinated alkyl substances (PFASs). It is generally believed that the Ipswich River does not include many manufacturing facilities. This is not true with a source approximately 1000 feet upstream from the LOW [Location of Work]. Kimball Brook is a tributary to the Ipswich River that carries sediment and runoff during storm events and flows through an industrial park. In the late 1980s an oil release was reported by an oil distributor of a spill into Kimball Brook.*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing “No Significant Risk” based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to confirm if there is any contaminated sediment. This Project has a rigorous DEP-approved sampling plan that will be implemented as a part of the 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Composite samples, made of three discrete samples, from 8 locations with potentially mobile sediment within the impoundment and 3 locations downstream of the dam, will be sent to a certified laboratory for analysis. Every composite sample will be assessed for all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged for upland reuse, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and

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shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

**Plum Island Ecosystems LTER (PIE-LTER)**

LTER-1

**Comment:** *The project is requesting an EIR waiver as detailed in the cover letter of the filing. We support the waiver request and support this project because it will improve water quality, restore essential habitat, and improve the overall resiliency of the Great Marsh and the river to climate change.*

**Response:** The Proponents acknowledge PIE-LTER's comments.

**Kate Bowditch, Essex County Greenbelt (ECGB)**

ECGB-1

**Comment:** *I am writing to express the support of Essex County Greenbelt Association (Greenbelt) for the proposed removal of the Ipswich Mills Dam on the Ipswich River in Ipswich, Massachusetts. Given the extensive environmental analyses that have been done to date, and the details provided in the Expanded Environmental Notification Form (EENF), we also support the proponent's request for a waiver of the mandatory Environmental Impact Report (EIR).*

**Response:** The Proponents acknowledge Greenbelt's comments.

ECGB-2

**Comment:** *We expect the environmental benefits of the proposed dam removal – improved water quality, fish passage, and sediment transport in particular – will be significant.*

**Response:** The Proponents agree with Greenbelt's assessment of the project.

**Kelley Jane Kloub (KJK)**

KJK-1

**Comment:** *We the people of Ipswich strongly oppose the removal of the dam. There has not been enough investigation of the effect to the environment of the entire river and the clam beds for us to get behind the removal. There are too many possibilities or probabilities in the reports and not enough definitives. Leave the dam alone. We are 100% against the removal. Leave the dam alone.*

**Response:** Both the MEPA and subsequent permitting processes are equipped with mechanisms to solicit feedback from both the public and regulatory bodies at the local, state, and federal levels. This Project is required to obtain multiple permits that are strictly defined in local, state and federal laws and regulations. The permitting process for environmental projects such as this mandates that no substantial harm is brought to any public resource (e.g., drinking water, tidelands, wetland, etc.) An SEIR has been prepared for the Secretary of EEA to perform a review of the Project under the MEPA statute, which requires projects use all feasible measures to

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avoid, minimize, and mitigate damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable.

**Massachusetts Division of Ecological Restoration (DER)**

DER-1

**Comment:** *The Massachusetts Department of Fish and Game, Division of Ecological Restoration (DER) strongly supports the Ipswich Mills Dam Removal Project. Ipswich Mills Dam Removal project is a Priority Project for our Division and DER has provided funding to the project since 2020.*

**Response:** The Proponents acknowledge DER's comments.

DER-2

**Comment:** *Removing the dam will eliminate aging infrastructure and reconnect over 49 miles of mainstream river and tributary habitat for fish, improve water quality, restore riverine functioning and nutrient transport, improve climate resiliency in the surrounding area, reduce flooding upstream, and eliminate the risk of potential flooding downstream due to catastrophic failure of the dam.*

**Response:** The Proponents agree with DER's assessment of the Project.

**Rev. Dr. Rebecca Pugh (RP)**

RP-1

**Comment:** *As we watch the birds and fish in the area, we also feel a sense of urgency, coming from our religious faith and our science education, that the dam must be removed, for the fish to be able to swim upstream to breed, so they can live well, and the birds can have food, and all of us, really, can have food and the good company of our fellow creatures who are dependent upon a flowing river.*

**Response:** The Proponents acknowledge Rev. Dr. Pugh's comments.

**The Nature Conservancy (TNC)**

TNC-1

**Comment:** *TNC enthusiastically supports the Ipswich Mills Dam Removal project. As the first dam on the river, the proposed project would restore river connectivity and natural flow connecting migratory diadromous fish to over 100 miles of upstream habitats, as well as improve passage and habitats for freshwater fish, aquatic species, and wildlife. Simultaneously, restoration of natural flows and ecosystem function would promote community well-being from reduced climate risks from flooding and droughts.*

**Response:** The Proponents acknowledge TNC's comments.

TNC-2

**Comment:** *TNC's Coastal Resilience Mapping Tool identified the Ipswich Mills Dam as one that increases the potential severity of inland flooding for which removal would minimize this risk, protect nearby life and property, and benefit aquatic and terrestrial organisms and water quality.*

**Response:** The Proponents agree with TNC's assessment of the Project.

**John Bruni (JB)**

JB-1

**Comment:** *As a river front property owner downstream from the Dam, I am concerned that removal of the Dam (after hundreds of years) will impact both the 3 stone arch bridge structures as well as riverfront private and public properties downstream from the dam location.*

**Response:** The Choate Bridge, the Green Street Bridge, and the County Street Bridge are all historically important bridges in Ipswich. The potential impacts to these crossings have been carefully considered and reviewed. Extensive models were created in order to understand how dam removal will impact water elevations, velocities, and scour in the vicinity of these bridges. In short, no infrastructure downstream of the dam will be affected by dam removal. Downstream flooding conditions and erosion potential will be unchanged as a result of dam removal. This does not mean that those downstream structures and properties do not or will not have flooding or erosion risks, merely that those risks will not change as a result of dam removal. The Choate Bridge is still recommended to be monitored post dam removal due to the historic significance of the bridge, as well as the fact that the bridge currently restricts flow during larger flow events, and will continue to do so under dam-out conditions. Following dam removal, it is predicted that sediment that is currently retained behind the dam will migrate downstream. While there are no long-term sedimentation impacts anticipated at the bridge, it is possible that small amounts of sediment may be temporarily stored under the bridge until higher flows flush it downstream. The three historic bridges are currently at risk of erosion and undermining from combined freshwater and coastal flooding events. These events will continue to occur with or without the dam because the dam provides no protection, flood control, or energy dissipation.

JB-2

**Comment:** *In order for this project to move forward, the following requirements should be mandated:*

- 1. A surety bond to reflect damage to 3 stone arch bridge structures as well as properties both private and public in the order of 500 Million dollars.*
- 2. All 3 bridges should be repaired and deemed safe for travel by a Mass Registered Civil architect with professional experience in stone arch bridge re-construction., as well as the MA Dept of Bridges*

**Response:** See response to comment JB-1 above. The Town of Ipswich acknowledges the concerns regarding the stone bridges. While these bridges are not anticipated to be impacted by dam removal, the Town is continuing to seek assistance from certified professionals and State agencies in order to prolong the lifespan of these historic bridges.

**Katerina Andreishcheva (KA)**

KA-1

**Comment:** *That little dam saved innumerable lives of river inhabitants last year, and now it will be destroyed to get grant money. Ground water table above the destroyed dam will drop, so all the plants that rely on it will suffer, and the rest of the ecosystem will follow.*

**Response:** The impact of dam removal on groundwater levels and adjacent wetlands is described in detail in the Project Feasibility Study. There are no anticipated negative impacts to these resources. Additionally, the Project will need to seek an approved Order of Conditions from the Town of Ipswich Conservation Commission which administers the State's Wetlands Protection Act.

**Handwritten Letter (HL)**

HL-1

**Comment:** *I think that I read in the paper that the question about the dam was going to be voted on at the last election as well as the town meeting. I searched my ballot and found nothing. I guess it was voted on at town meeting...*

**Response:** There was a vote at the May 2023 Town Meeting concerning the advancement of the Project through the permitting process. The item appeared as Article 14 on the May 2023 Town Meeting Warrant and passed with a vote of 314-144.

HL-2

**Comment:** *We are going to need dams too for making electricity.*

**Response:** The Ipswich Mills Dam has a hydraulic height of less than 10 feet. Low head dams such as this once generated a sufficient amount of power for the adjacent mill operations, primarily during the 1800's. However, these dams do not have the ability to supply sufficient or reliable electricity for any modern day purposes.

**Jean Hubbard (JH)**

JH-1

**Comment:** *I have not heard or read of any studies to assure the clam flats at the mouth of the river will not be destroyed. This is one major concern as clamming is the livelihood of many Ipswich residents.*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing "No Significant Risk" based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to confirm if there is any contaminated sediment. DEP requires a rigorous sediment sampling plan as part of their 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Sampling will occur across many areas above and below the dam, but with an emphasis on locations that were

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identified as having potentially mobile sediment as a result of dam removal. In the case that contaminated sediment is found, the Project team will design an appropriate removal plan in consultation with DEP and other state and federal agencies. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

JH-2

**Comment:** *Another major concern is the withdrawal of water from the river for water use in cities and towns upstream. During a drought the river above the dam is so low that by removing the dam it will turn into a mud flat.*

**Response:** Low flow conditions in the Ipswich River are indeed exacerbated by municipal and private water withdrawals outpacing the available groundwater in the watershed. These issues are complex and are currently being studied by the North Shore Resiliency Task Force. The Task Force is a group of municipalities, water suppliers, and legislators working to make sure the river has the water it needs. Droughts have and will continue to occur naturally throughout the watershed. Removal of the dam will not impact the quantity of water that flows through that reach in any way.

JH-3

**Comment:** *Upstream the ecosystem has been surviving for over 400 hundred years, what is going to happen to that.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, and recreation and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

**Linda Fates (LF)**

LF-1

**Comment:** *Initially I had what I suspect is the same concern as many residents: ugh! It will be a mud flat mess. But having learned a good deal more about the natural ebb & flow of the river, and the highly positive ecological effects on river habitat, I now feel strongly that we need to remove this dam and help restore this valued river.*

**Response:** The Proponents acknowledge Linda Fates' comments.

**W. Denis Markiewicz (WDM)**

WDM-1

**Comment:** *If fish ladders can be used at the Willowdale dam, fish ladders can be used at the Ipswich dam.*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal, and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

WDM-2

**Comment:** *Although groundwater is not actively being extracted from the impoundment range, a significant potential source of groundwater is there. With dam removal, the potential for groundwater extraction is eliminated, and this is in a time of water and weather uncertainty.*

**Response:** Currently, the Town of Ipswich gets its water from Dow Reservoir and Bull Brook Reservoir – both of which are located in the Parker River Watershed – to use for drinking water and fire suppression. The impoundment behind the Ipswich Mills Dam does not meet regulatory water quality protection criteria to be a water supply reservoir. The land area immediately surrounding the impoundment also would not meet regulatory water quality protection criteria to support groundwater wells for public drinking water withdrawals. The impact of dam removal on groundwater levels and adjacent wetlands is described in detail in the Project Feasibility Study. There are no anticipated negative impacts to these resources.

WDM-3

**Comment:** *If you read the words, the Feasibility Study indicates that the entire Ipswich wetlands will be destroyed from what it has been for centuries, to be replaced by a successor not so wet land.*



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**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, and recreation and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

WDM-4

**Comment:** *The boulder layer and the underlying rock ledge are not strictly part of the dam, and yet alteration of, the removal of the boulder layer is discussed as an aspect of dam removal.*

**Response:** Re-grading of the riverbed at the dam site is limited to a small area and will only be completed in order to restore a naturalized channel gradient through the dam reach similar to what would have existed prior to dam construction. Downstream of the current dam, there is a scour pool that has formed due to water cascading down over the dam's spillway. The proposed stream grading will primarily involve relocating boulders to repair the scour pool impacts that have occurred as a result of the dam in order to restore a naturalized channel gradient similar to what would have existed prior to the dam's impacts. Additionally, some boulders will be purposefully placed to better protect infrastructure at locations subject to potential velocity scour. The condition of the historically recorded Upper Falls will not be determined until after dam removal. If there is a natural bedrock ledge (as historic records have noted), dam removal would not alter it whatsoever. In the case the ledge is there, it would remain after dam removal, and thus produce a series of small waterfalls or rapids. Project partners want to maintain the Upper Falls as much as possible, so that residents and visitors to the town can still enjoy the sound of cascading and flowing water. The intent is simply to restore river channel conditions similar to what existed prior to the impacts of dam construction.

WDM-5

**Comment:** *The removal of the Ipswich Mills Dam would undoubtedly eliminate the opportunity for family boating within the impoundment. That would be a loss to the community.*

**Response:** Paddling will be different in the sense that the conditions will resemble those of a river rather than a pond. Upstream, undammed reaches of the Ipswich River are enjoyed by paddlers of all ages and experience levels and this location would offer the same opportunity. For the first time in recent history, the full length of the river through downtown Ipswich will be fully navigable, continuing out to the Great Marsh, Crane Beach, and Ipswich Bay.

**James Zabelski (JZ)**

JZ-1

**Comment:** *Removal of the dam will reduce the breadth and depth of the river, making it virtually impossible to easily access the water. With the addition of tidal influence, the river may be reduced to little more than a muddy trickle, preventing successful navigation along its course.*

**Response:** Hydrologic models show that the new water level will be lowered by between 1 to 6 feet, depending on specific tidal and flow conditions, relative to current conditions at the dam site, with significantly less change as you move upstream. This newly undammed stretch of river would become a freshwater tidal zone, meaning that the river will be subject to the daily rise and fall of the tides, but without significant saltwater intrusion. Removal of the dam will not impact the quantity of water that flows through that reach in any way, and this reach of river will be navigable similar to how undammed upstream reaches remain navigable during the year outside of extreme drought conditions. Water elevations will drop near the dam site and the lateral extent of the water will narrow, and conditions will be dynamic yet still be very favorable for paddling.

JZ-2

**Comment:** *What will happen to the numerous species of wildlife that live here, when the water turns from fresh to tidal?*

**Response:** Upon removal of the Ipswich Mills Dam, the upstream stretch of the river will indeed be tidally influenced. However, the actual extent of saltwater should not go far beyond where it currently is, which is well below the dam at the Lower Falls– there will be no significant saltwater intrusion upstream of the dam.

JZ-3

**Comment:** *What will happen to the various forms of plant life that have evolved to live in this freshwater environment, for the last four hundred years? Are these organisms doomed to destruction, in order to reintroduce species of fish that have been declining from this ecosystem for the last four centuries?*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve.

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The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, recreation, and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

JZ-4

**Comment:** *My family recently discovered specimens of turtle, which we believe to be Northern Red-Bellied Cooter (an endangered species protected at both the state and federal level), to be present in this precious upstream environment. Will there be any sort of inquiry or investigation conducted to ensure that Ipswich does not lose such rare creatures?*

**Response:** Massachusetts Natural Heritage and Endangered Species Program (NHESP) will be consulted in order to determine if the Project will need to be formally reviewed for Massachusetts Endangered Species Act (MESA) compliance.

JZ-5

**Comment:** *The reservoir created by the dam holds back water for use in potential fire suppression in the downtown area. Is there an alternative water supply available, should disaster strike?*

**Response:** Currently, the town of Ipswich gets its water from Dow Reservoir and Bull Brook Reservoir – both of which are located in the Parker River Watershed – to use for drinking water and fire suppression. Repairs and improvements to these existing sources are underway to secure their futures. The impoundment behind the Ipswich Mills Dam does not meet regulatory water quality protection criteria to be a water supply reservoir. The land area immediately surrounding the impoundment also would not meet regulatory water quality protection criteria to support groundwater wells for public drinking water withdrawals. The impact of dam removal on groundwater levels and adjacent wetlands is described in detail in the Project Feasibility Study. There are no anticipated negative impacts to these resources.

JZ-6

**Comment:** *Will any contaminants from old businesses, which may have leached into the local silt and soil pose a threat to downstream ecology, once dam deconstruction takes place? Like many Ipswich residents, my family depends on the health and integrity of the clam flats, to support*

*their way of life. What measures will be set in place to ensure the longevity of those vital, natural resources?*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing “No Significant Risk” based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to confirm if there is any contaminated sediment. This Project has a rigorous DEP-approved sampling plan that will be implemented as a part of the 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Composite samples, made of three discrete samples, from 8 locations containing potentially mobile sediments within the impoundment and 3 locations downstream of the dam, will be sent to a certified laboratory for analysis. Every composite sample will be assessed for all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged for upland reuse, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

JZ-6

**Comment:** *Rather than removing the Ipswich River Dam, are there any alternatives that might enhance the current construction, while preserving the already existing ecosystem? Are there any new technological applications available to both foster change, and yet act in the spirit of preserving a four hundred year-old environment?*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water

quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

### **Charles River Watershed Association (CRWA)**

#### CRWA-1

**Comment:** *CRWA has seen the success of dam removal restoring our rivers here in the Commonwealth. We worked with the Town of Bellingham and the Division of Ecological Restoration to remove the Old Mill Dam off of Pearl Street in Bellingham in 2017. Today, the Charles River is restored and if you did not know where the dam used to be, you would have no idea there was a dam there before. Fish and wildlife passage was restored and paddlers now can paddle right through this section of the Charles River without any portages.*

**Response:** The Proponents acknowledge CRWA's comments.

#### CRWA-2

**Comment:** *In these impoundments, we have recorded slower moving water, higher water temperatures, lower dissolved oxygen levels, more invasive plant species, more frequent and severe cyanobacteria blooms, and a lower biodiversity of benthic macroinvertebrates. Removing the dam would improve water quality by allowing the water to flow freely through large areas of the Ipswich River, remaining cool and oxygenated.*

**Response:** The Proponents agree with CRWA's assessment of the Project.

#### CRWA-3

**Comment:** *CRWA is excited that projects to restore rivers are happening across the Commonwealth and urges the Commonwealth to support the successful permitting process of this important beneficial ecological restoration project for the Ipswich River and co-benefit to commercial and recreational fisheries and wildlife in the Gulf of Maine.*

**Response:** The Proponents acknowledge CRWA's comments.

### **Richard McElvain (RM)**

#### RM-1

**Comment:** *To say that "the dam has no practical function" is a false statement. It is a fabulous place to walk and stop and watch the wildlife on the pond above and below the dam and take a breath and contemplate. This has a value. If we remove the dam this will be lost never to return.*

**Response:** Removing the dam will not eliminate the value of looking at the river and watching the wildlife. The viewing platforms by EBSCO and the River Walk bridge will still exist, and people will continue to be able to stop there and watch the water and the wildlife. The sound of running water will remain, due to the presence of boulders and the remnants of a natural ledge that will create small, natural rapids. Wildlife will enjoy a healthier river ecosystem, and will remain and even further flourish upon dam removal. Many other similar dam removal projects have shown that riverine ecological processes recover very quickly.

RM-2

**Comment:** *However, if we remove the dam the fish will only be able to swim maybe two more miles up the river to be stopped by the next dam at the Foote Brothers Canoe/Kayak Rental place. That dam is privately owned and is going nowhere fast. The argument that if we drop the dam “the fish will be able to swim up the 45 miles of the rest of the river to breed” is absolutely misleading.*

**Response:** For the first time ever, there is planning and funding in place to vastly improve fish passage along the entire mainstem of the Ipswich River and many of its tributaries. There are plans and funds to build a nature-like fishway (NLF) at the Foote Brothers’ Willowdale Dam in order to facilitate fish passage. Although dam removal is the most preferable option in general, for this privately owned dam this NLF will vastly improve fish passage as there is currently suboptimal passage at the Willowdale Dam. Upstream, the South Middleton Dam is slated to be removed during the summer of 2024. Removing the Ipswich Mills Dam is a critical piece to restoring the Ipswich River’s historic herring run and allowing access to the rest of the mainstem Ipswich River and many miles of tributary habitat.

RM-3

**Comment:** *If we drop the dam the lovely standing water habitat above the dam will be lost.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, recreation, and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

RM-4

**Comment:** *But the proposal feels like it is not thoroughly thought through, and they are presenting only part of the results of the removal.*

**Response:** After several rounds of study dating back to 2012 the Project proposal at this stage was determined to be ready for review for the MEPA process. Project plans could change slightly depending on input from regulatory agencies but the core goals, impacts, and stages of the Project are as detailed in the EENF.

### **John Moss (JM)**

JM-1

**Comment:** *Has the Rock Ramp Fishway, as described in NOAA literature on restoring fish passage, been considered. This would seem to be an economical way to improve fish passage without the problems of dam security, sediment pollution or lowering up stream water levels*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal, and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

### **OARS, For the Assabet, Sudbury, & Concord Rivers (OARS)**

OARS-1

**Comment:** *Restoring healthy reproducing populations of these fish, which depends on restoring fish passage at dam sites, benefits the whole of the struggling commercial Gulf of Maine fisheries.*

**Response:** The Proponents agree with OARS' assessment of the Project.

OARS-2

**Comment:** *Removing the Ipswich Mills dam will restore fish passage in a way that is effective, permanent, and cost-effective at a critical location.*

**Response:** The Proponents agree with OAR's assessment of the Project.

OARS-3

**Comment:** *...removal of this dam is of regional significance and should be accorded high priority as a climate resiliency and economic development project.*

**Response:** The Proponents acknowledge OARS' comments.

**Lee Schofield (LS)**

LS-1

**Comment:** *If we could address the problem of her being literally sucked dry during these drought's from the upstream communities the river would be even healthier than it is now*

**Response:** Low flow conditions in the Ipswich River are indeed exacerbated by municipal and private water withdrawals outpacing the available groundwater in the watershed. These issues are complex and are currently being studied by the North Shore Resiliency Task Force. The Task Force is a group of municipalities, water suppliers, and legislators working to make sure the river has the water it needs. Droughts have and will continue to occur naturally throughout the watershed. Removal of the dam will not impact the quantity of water that flows through that reach in any way.

LS-2

**Comment:** *This dam is part of our heritage and part of our history. It tells a wonderful story of first period Ipswich. Please don't erase the history that makes Ipswich so unique.*

**Response:** That concern is valid, and is a critical point in all New England mill dam removal projects. However, rivers and fish migration have their own cultural importance without dams—a rich history that spans thousands of years and includes the heritage of the original indigenous populations of the region. The current iteration of the Ipswich Mills Dam only extends back to the 1900s, meaning the dam structure is unrelated to iconic eras of historic Ipswich, like First Period architecture. For much more detailed information, we recommend reading Town Historian Gordon Harris' piece titled [“The History of the Ipswich Mill Dam, and a Natural History of the Ipswich River.”](#) Even though the dam structure itself is not registered as historic, it does represent a significant piece of the history of the town of Ipswich, as residents know it now. Project partners want to honor the history of the Ipswich River, including the services that the river provided the town with the dam and mills. In order to honor this portion of the river's history, the Project partners are working with the Ipswich Historic Commission about the different actions that can be taken to preserve the historic memory of the dam.

**MassAudubon (MA)**

MA-1

**Comment:** *This project will restore fish passage and wildlife habitat and will also provide community resilience benefits for the Town and the Commonwealth by eliminating an aging dam upstream of bridges, businesses, and homes in downtown Ipswich.*

**Response:** The Proponents agree with MassAudubon's assessment of the Project.

MA-2

**Comment:** *Mass Audubon is supportive of nature-based climate solutions, including the removal of obsolete dams, to restore natural flow regimes and ecological processes, reduce flood hazards, improve water quality, restore habitat and aquatic connectivity for fish and other aquatic life, and to restore floodplains and riparian corridors. This project is expected to result in*



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*significant restoration of ecological functions both near the project site and within the Ipswich River watershed, including within the approximately eight miles of the Ipswich River that runs through Mass Audubon's 1,955-acre Ipswich River Wildlife Sanctuary located in Topsfield and Wenham.*

**Response:** The Proponents acknowledge MassAudubon's comments.

**Massachusetts Historical Commission (MHC)**

MHC-1

**Comment:** *The MHC requests that a reconnaissance-level archaeological and historic properties survey be conducted for the project.*

**Response:** The Public Archaeology Laboratory (PAL) will be completing a reconnaissance-level archaeological and historic properties survey over the winter and spring of 2024.

**Marlene E. Markos (MM)**

MM-1

**Comment:** *The dams at this location have served many functions during this time and continue to provide vital functions to this day. It contributes importantly to the town's economy, historical culture and character of the area.*

**Response:** That concern is valid, and is a critical point in all New England mill dam removal projects. However, rivers and fish migration have their own cultural importance without dams—a rich history that spans thousands of years and includes the heritage of the original indigenous populations of the region. The current iteration of the Ipswich Mills Dam only extends back to the 1900s, meaning the dam structure is unrelated to iconic eras of historic Ipswich, like First Period architecture. For much more detailed information, we recommend reading Town Historian Gordon Harris' piece titled [“The History of the Ipswich Mill Dam, and a Natural History of the Ipswich River.”](#) Even though the dam structure itself is not historic, it does represent a significant piece of the history of the town of Ipswich, as residents know it now. Project partners want to honor the history of the Ipswich River, including the services that the river provided the town with the dam and mills. In order to honor this portion of the river's history, the Project partners are working with the Ipswich Historic Commission about the different actions that can be taken to preserve the historic memory of the dam.

MM-2

**Comment:** *The dam is neither dilapidated, crumbling, or in danger of collapse. It survived a 150 year old flood event in 2006 suffering no physical damage. It is comprised of 6'W x 20'H x 4'D granite blocks that weigh 5,000 pounds each on average. It's not going anywhere. With proper routine maintenance it will last for centuries more.*

**Response:** As a jurisdictional dam, the Ipswich Mills Dam is required to be regularly inspected by a certified professional engineer. It is important to note that the two most recent inspection reports did record multiple deficiencies with the dam and associated structures. These include cracks in the right concrete abutment wall, vegetation in the mortar joints on the granite pier

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and around the fish ladder, and missing mortar within the spillway joints. The most recent inspection in 2020 reported the dam to be in “fair” condition, defined as “Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur.” While the dam is not likely to fail in the short term, the structural integrity of dams can often degrade rapidly, especially when maintenance and monitoring are deferred. The dam will always present some degree of risk, hazard, and liability for the Town.

MM-3

**Comment:** *The water will not pass beyond the next dam it reaches. There are multiple privately owned dams a short distance up river that will not be removed which makes removing our dam of little more value than installing a better fish ladder.*

**Response:** For the first time ever, there is planning and funding in place to vastly improve fish passage along the entire mainstem of the Ipswich River and many of its tributaries. There are plans and funds to build a nature-like fishway (NLF) at the Foote Brothers’ Willowdale Dam in order to facilitate fish passage. Although dam removal is the most preferable option in general, for this privately owned dam this NLF will vastly improve fish passage as there is currently no passage at the Willowdale Dam. Upstream, the South Middleton Dam is slated to be removed during the summer of 2024. Removing the Ipswich Mills Dam is a critical piece to restoring the Ipswich River’s historic herring run and allowing access to the rest of the mainstem Ipswich River and many miles of tributary habitat.

MM-4

**Comment:** *The installation of a new fish ladder will cause far less detrimental disruption and destruction from lower water levels than dam removal.*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal, and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

MM-5

**Comment:** *[Dam removal] would leave little to no water during drought or periods of high water withdrawals.*

**Response:** Low flow conditions in the Ipswich River are indeed exacerbated by municipal and private water withdrawals outpacing the available groundwater in the watershed. These issues

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are complex and are currently being studied by the North Shore Resiliency Task Force. The Task Force is a group of municipalities, water suppliers, and legislators working to make sure the river has the water it needs. Droughts have and will continue to occur naturally throughout the watershed. Removal of the dam will not impact the quantity of water that flows through that reach in any way.

MM-6

**Comment:** *[Dam removal] has the capacity to damage or devastate the adapted and well established environments both above and below the current dam.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, and recreation and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

MM-7

**Comment:** *Until legislation is passed that addresses the disastrous excess water withdrawals, the river will remain endangered, with or without our dam.*

**Response:** See response to MM-5 above.

MM-8

**Comment:** *The studies conducted by the Horsley Witten Group fall far short of assessing the total environmental impact this project will have on the areas above the dam.*

**Response:** Both the MEPA and subsequent permitting processes are equipped with mechanisms to solicit feedback from both the public and regulatory bodies at the local, state, and federal levels. This Project is required to obtain multiple permits that are strictly defined in local, state

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and federal laws and regulations. The permitting process for environmental projects such as this mandates that no substantial harm is brought to any public resource (e.g., drinking water, tidelands, wetland, etc.) An SEIR has been prepared for the Secretary of EEA to perform a review of the project under the MEPA statute, which requires projects use all feasible measures to avoid, minimize, and mitigate damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable.

MM-9

**Comment:** *During drought or high water withdrawals much of the riverbed is dry. Lowering the water levels further will be devastating. Fish can't swim in a dry river.*

**Response:** We know that herring will be able to navigate low flows because they have evolved with the river over many thousands of years, and are adapted to deal with drought conditions. Their genetics enable them to navigate an extremely wide range of flows and they are able to locate refuge areas during extreme droughts. Additionally, according to data collected and published by researchers at UMass Amherst (Abbott, K.M. and A.H. Roy, 2022) the impoundment experiences elevated temperatures and degraded dissolved oxygen levels in comparison to both upstream and downstream reaches during the summer. Dam removal will have minimal impact on water levels at the railroad bridge and will ultimately provide vastly improved passage for a wider range of fish species and life stages over a range of flows.

MM-10

**Comment:** *Local residents voiced their concern multiple times about an area a very short distance upstream of the dam, (Third St.). They reported that when water conditions are low an oil-like slick can be seen seeping out of the exposed riverbank. This isn't observed with higher water levels.*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing "No Significant Risk" based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to confirm if there is any contaminated sediment. This Project has a rigorous DEP-approved sampling plan that will be implemented as a part of the 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Composite samples, made of three discrete samples, from 8 locations containing potentially mobile sediments within the impoundment and 3 locations downstream of the dam, will be sent to a certified laboratory for analysis. Every composite sample will be assessed for all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most

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mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged for upland reuse, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

**Roger Wheeler (RW)**

RW-1

**Comment:** *Removal of the Ipswich Dam honors the heritage of Ipswich and Essex County.*

**Response:** The Proponents acknowledge Mr. Wheeler’s comments.

**Massachusetts Rivers Alliance (MRA)**

MRA-1

**Comment:** *This project is a huge opportunity to boost the overall health of the watershed. The Division of Ecological Restoration ranks this project as having a 95% restoration benefit, among the highest in the state. Removing the Ipswich Mills Dam would dramatically improve fish passage on the Ipswich River, opening up 49 miles of river upstream for migratory species like river herring, American eel, rainbow smelt, and sea lamprey. A 2003 study estimated that the “Ipswich River is currently supporting less than 1% of its total spawning potential” for these migratory species. This is especially important for American shad, for whom dams are especially harmful, since shad do not use constructed fishways.*

**Response:** The Proponents acknowledge MRA’s comments.

MRA-2

**Comment:** *Finally, advancing this project would improve local recreational opportunities. With the dam gone, residents and visitors alike will be able to paddle from sites upstream all the way out to explore the Great Marsh and the Atlantic Ocean.*

**Response:** The Proponents agree with MRA’s assessment of the Project.

**Dan Rowland (DR)**

DR-1

**Comment:** *The proposal documents state the dam removal will have an “insignificant impact” on the [Choate] bridge. I believe this is inaccurate and should be investigated.*

**Response:** The Choate Bridge, the Green Street Bridge, and the County Street Bridge are all historically important bridges in Ipswich. The potential impacts to these crossings have been carefully considered and reviewed. Extensive models were created in order to understand how dam removal will impact water elevations, velocities, and scour in the vicinity of these bridges.

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In short, no infrastructure downstream of the dam will be affected by dam removal. Downstream flooding conditions and erosion potential will be unchanged as a result of dam removal. This does not mean that those downstream structures and properties do not or will not have flooding or erosion risks, merely that those risks will not change as a result of dam removal. The Choate Bridge is still recommended to be monitored post dam removal due to the historic significance of the bridge, as well as the fact that the bridge currently restricts flow during larger flow events, and will continue to do so under dam-out conditions. Following dam removal, it is predicted that sediment that is currently retained behind the dam will migrate downstream. While there are no long-term sedimentation impacts anticipated at the bridge, it is possible that small amounts of sediment may be temporarily stored under the bridge until higher flows flush it downstream. The three historic bridges are currently at risk of erosion and undermining from combined freshwater and coastal flooding events. These events will continue to occur with or without the dam because the dam provides no protection, flood control, or energy dissipation.

DR-2

**Comment:** *One question that I have is that 30' above the Ipswich Mills Dam is the original dam from 1637. Is this to be removed as well under this proposal? Does the town own the old dam? If it's not to be removed, would removing the Ipswich Mills dam cause the upper dam to be possibly damaged and create an uncontrolled release?*

**Response:** It is possible that remnants of a previous iteration of the dam still exist. The discovery of such dams, which are referred to as legacy dams, sometimes happens in dam removal projects. While it is unknown if the original dam still exists, if there is indeed a legacy dam found upon removal, the barrier will be assessed as necessary. Since a possible legacy dam could be in any condition, mitigation efforts will be contingent on consultation with local and state agencies.

DR-3

**Comment:** *I feel that removing the dam will release 300-plus years of silt, will cause the mooring to be buried and make the mooring field even shallower. The entire river should be dredged before any removal is attempted.*

**Response:** While 6,900 cubic yards sounds like a lot, the amount of sediment impounded behind the dam is relatively small compared to the tidal sediment dynamics that dominate the lower river and to normal annual sediment loads since low head "run-of-river" dams like Ipswich Mills trap very little sediment, due to the periodic flushing provided by floods. If this relatively small amount of sediment is deemed to be clean following the sampling plan, the regulatory authorities prefer that sediment to be naturally dispersed slowly and sporadically downstream. Areas below the dam have become sediment depleted due to the influence of the dam and passive release will help restore the sediment balance to these downstream reaches. Analyses conducted during the design and permitting process for dam removal indicate that the anticipated amount of potentially mobile sediment on an annual basis is very low (fractions of an inch) when compared to the vast area of clam flats and salt marsh over which it would be dispersed. Those assessed clam flat areas include the Upper River Mooring Areas, Middle River



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Mooring Areas, and Lower River Mooring Areas.. Under the High Year 1 Mobilization Scenario, these mooring fields would, at most, experience 0.09 inches of settled sediment. This fraction of an inch should not impact the usability of these mooring fields.

**Lindsey Randall (LR)**

LR-1

**Comment:** *History is not static. Our understanding and interpretation of the past evolve as we gain more knowledge and insights. While the dam represents a particular period in the town's history, it is important to acknowledge that our relationship with nature and our values concerning environmental sustainability are also a part of our history. Retaining the dam in its current state does not truly reflect the town's evolving values and understanding.*

**Response:** The Proponents acknowledge Lindsey Randall's comments.

**Water Resources Commission (WRC)**

WRC-1

**Comment:** *The Ipswich Flood Zoning Bylaw states the following: "In a riverine situation, the Ipswich Department of Planning and Development, besides ensuring that the Ipswich Conservation Commission has been informed, shall notify the following of any alteration or relocation of a watercourse:*

- a. *Communities of Essex, Gloucester, Topsfield, Boxford, Rowley, and Hamilton*
- b. *NFIP State Coordinator Department of Conservation and Recreation 100 Cambridge Street, Boston, MA 02114-2104*
- c. *NFIP Program Specialist Federal Emergency Management Agency, Region I"*

**Response:** The Conservation Commission has been informed of the Project and the Ipswich Department of Planning and Development will inform the other entities mentioned.

WRC-2

**Comment:** *In addition, 44CFR 65.3 requires that communities notify FEMA within 6 months of changes in the base flood elevation by submitting technical or scientific data so insurance & floodplain management can be based on current data.*

**Response:** Coordination with FEMA is a common component of dam removal projects. What level of FEMA notification and/or map revisions will be required will be determined during the forthcoming permitting phase of the Project. As discussed in the EENF submittal, no changes to downstream flood conditions are anticipated as a result of dam removal and minor improvements (reductions of flood water levels) are anticipated upstream of the dam.

**Trout Unlimited (TU)**

TU-1

**Comment:** *The Board of Directors of the Nor'East Chapter of Trout Unlimited (NETU) is writing in strong, enthusiastic, and unanimous support of the removal of this dam. Trout Unlimited is a*

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*national conservation organization of over 140,000 members dedicated to conserving, protecting, and restoring North America's cold-water fisheries and their watersheds. With approximately 400 members, NETU is Trout Unlimited's presence in northeastern Massachusetts. NETU's regular meetings are held in Ipswich, and the Ipswich River is considered one of NETU's beloved "home waters".*

**Response:** The Proponents acknowledge TU's comments.

**American Rivers (AR)**

AR-1

**Comment:** *Removal of the Ipswich Mills Dam will be a critical part of the long-standing efforts of watershed partners to restore healthy diadromous fish runs to the watershed. American Rivers has long supported protection and restoration efforts on the Ipswich River, including three listings on the national Most Endangered Rivers list due to water quality and quantity impacts.*

**Response:** The Proponents acknowledge AR's comments.

AR-2

**Comment:** *Removal of the Ipswich Mills Dam is a well planned and carefully designed effort by community and environmental-minded organizations. Time and again we see the long-term benefits of dam removals repeated and now well documented in scientific research and through public observation.*

**Response:** The Proponents agree with AR's assessment of the Project.

AR-3

**Comment:** *And the project meets goals outlined in multiple town and local planning efforts established with public input. The Great Marsh Adaptation Plan prioritizes environmental resilience and river connectivity that will be achieved through this project. The Town's 2019 MVP Plan and Hazard Mitigation Plan prioritizes improving community and environmental resilience, which is also supported through the dam removal.*

**Response:** The Proponents agree with AR's assessment of the Project.

**Merrimack River Watershed Council (MRWC)**

MRWC-1

**Comment:** *We write to you in strong support of the Ipswich Mills Dam Removal Project, as we believe it to be one of the most important projects that can improve the health of the Great Marsh.*

**Response:** The Proponents acknowledge MRWC's comments.

MRWC-2

**Comment:** *The return of anadromous fish also creates an opportunity for the dispersal of freshwater mussels, such as the alewife floater, which are dependent on migratory fish for their*

*dispersal during their larval stage. Freshwater mussels are also globally threatened and play an important role in improving water quality, with a single mussel being capable of filtering up to 15 gallons of water daily.*

**Response:** The Proponents agree with MRWC’s assessment of the Project.

**Carl Gardner (CG)**

CG-1

**Comment:** *Therefore, due to its low profile and solid construction, this dam poses no threat to life and property in the area. It is an extremely low hazard structure.*

**Response:** As a jurisdictional dam, the Ipswich Mills Dam is required to be regularly inspected by a certified professional engineer. It is important to note that the two most recent inspection reports did record multiple deficiencies with the dam and associated structures. These include cracks in the right concrete abutment wall, vegetation in the mortar joints on the granite pier and around the fish ladder, and missing mortar within the spillway joints. The most recent inspection in 2020 reported the dam to be in “fair” condition, defined as “Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur.” While the dam is not likely to fail in the short term, the structural integrity of dams can often degrade rapidly, especially when maintenance and monitoring are deferred. The dam will always present some degree of risk, hazard, and liability for the Town.

CG-2

**Comment:** *On the other hand, during periods of extremely low or non-existent river flows, the impounded waters behind the Ipswich Mills Dam, as well as the Willowdale Dam, serve as highly valuable protective buffers and wildlife havens allowing aquatic life to endure these increasingly severe dry periods. The freshwater pond and wetland ecosystem above the dam, established over more than 400 years, is a diverse habitat and should be worthy of protection for this reason.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will

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only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, and recreation and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

CG-3

**Comment:** *The added value of the Ipswich Mills Dam as an important historic, cultural and recreational resource for the community is also worth preserving.*

**Response:** That concern is valid, and is a critical point in all New England mill dam removal projects. However, rivers and fish migration have their own cultural importance without dams—a rich history that spans thousands of years and includes the heritage of the original indigenous populations of the region. The current iteration of the Ipswich Mills Dam only extends back to the 1900s, meaning the dam structure is unrelated to iconic eras of historic Ipswich, like First Period architecture. For much more detailed information, we recommend reading Town Historian Gordon Harris' piece titled [“The History of the Ipswich Mill Dam, and a Natural History of the Ipswich River.”](#) Even though the dam structure itself is not historic, it does represent a significant piece of the history of the town of Ipswich, as residents know it now. Project partners want to honor the history of the Ipswich River, including the services that the river provided the town with the dam and mills. In order to honor this portion of the river's history, the Project partners are working with the Ipswich Historic Commission about the different actions that can be taken to preserve the historic memory of the dam.

CG-4

**Comment:** *The remnants of the older fish ladder are visible as well as the current fish ladder. These two structures could be eliminated and replaced with a new nature-like fishway (NLF) that would run along that southeastern river wall, under the pedestrian bridge and through the end of the dam along the Town-owned land and terminate where it needed to be without requiring the acquisition of any permanent private property rights. As a further benefit, this NLF could be constructed with an adjacent "ramp" to safely allow for canoe or kayak portages*

**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal, and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

**Office of Coastal Zone Management (CZM)**

CZM-1

**Comment:** *Further sediment characterization information should be obtained to determine whether the sediment is suitable for the proposed release, or whether an alternative sediment management approach is warranted for the project.*

**Response:** The Project Team met with CZM and DEP staff to discuss sediment sampling in January 2024. This Project has a rigorous DEP-approved sampling plan that will be implemented as a part of the 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Composite samples, made of three discrete samples, from 8 locations containing potentially mobile sediments within the impoundment and 3 locations downstream of the dam, will be sent to a certified laboratory for analysis. Every composite sample will be assessed for all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged for upland reuse, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

**Massachusetts Department of Environmental Protection (DEP)**

DEP-1

**Comment:** *MassDEP encourages the planting of native shrubs and trees in the restoration area, not solely herbaceous plants.*

**Response:** The Project team plans to closely monitor revegetation upstream following dam removal. This area of the Ipswich River is dense with native shrubs and trees and will very likely revegetate naturally. However, if during monitoring this is seen to not be the case, an adaptive planting strategy will be implemented.

DEP-2

**Comment:** *Fill impacts in LUWW [Land Under Waterbodies and Waterways] should be quantified and provided for the permitting process.*

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**Response:** The proposed relocation of boulders and cobbles meets the Massachusetts Wetland Protection Act definition for “fill” of Land Under Waterbodies and Waterways. This proposed relocation as part of the Project will result in 170 cubic yards of fill over 3,560 square feet.

DEP-3

**Comment:** *MassDEP disagrees with the applicant’s position on page 11 of the EENF that there are no Outstanding Water Resources in the project vicinity. According to MassMapper, Designated Shellfish Growing Areas immediately abut the project area downstream of the dam.*

**Response:** In the initial filing for this Project the proponent declared that there were no Outstanding Resource Waters in the vicinity of the Project. Per the Outstanding Resource Waters layer in Massachusetts GIS MassMapper, the nearest Outstanding Resource Water is Great Marsh, which is over 3 miles downstream. The Massachusetts Department of Environmental Protection Northeast Regional Office provided comment on the EENF stating that the Designated Shellfish Area immediately downstream of the dam qualified as an Outstanding Resource Area. The proponent amends its initial assessment to concur with MassDEP NERO.

Designated Shellfish Growing Area extends from just downstream of the Ipswich Mills Dam out to Ipswich Bay. The portion of the Designated Shellfish Growing Area immediately downstream of the dam to just under 1.5 miles downstream is currently classified as “Prohibited”. Per the Division of Marine Fisheries, “Prohibited” areas are “closed to the harvest of shellfish under all conditions, except the gathering of seeds for municipal propagation programs under a DMF permit. Downstream of the “Prohibited” area is a “Conditionally Approved” area, which is “Closed some of the time due to rainfall or seasonally poor water quality or other predicable events.” It is important to note that these classifications is not permanent and can be updated pending the results of an annual review and/or evaluation completed once every three years

**Massachusetts Division of Marine Fisheries (DMF)**

DMF-1

**Comment:** *...fishways can have limitations such as reduced performance at high or low flows, poor entrance attraction, problems for downstream passage, and not efficiently passing all present species. Dam removal provides up and downstream passage for all organisms able to swim in the flow at that time and allows most or all of the river width to support a zone of passage, thereby not adding migratory delay for fish. A second important distinction is that most fishways require a significant investment in operations and maintenance. Dam removals will allow fish passage in perpetuity without long term operation or maintenance costs. In sum, DMF supports the preferred alternative (i.e. complete removal of the Mills Dam) presented by the proponents.*

**Response:** The Proponents agree with DMF’s assessment of the Project.

DMF-2

**Comment:** *To protect migrating and spawning diadromous fish present in the Ipswich River from temporary impacts from the project as proposed, DMF would likely recommend a time-of-year*

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*(TOY) restriction on in-water, silt-producing work from March 1 to June 30 and September 1 to November 15 of any given year*

**Response:** Any time of year restrictions recommended by MA DMF will be incorporated into the construction planning.

DMF-3

**Comment:** *Based on the project as currently proposed, DMF is concerned that sediment mobilization and hydrodynamic changes projected to occur in association with the Mills Dam removal could negatively affect shellfish resources downstream of the Mills Dam. To address these concerns DMF recommends the proponent coordinate with DMF biologists to develop a monitoring plan for turbidity, sedimentation, fecal coliform, and contaminants in nearby shellfish before and after the dam removal to establish baselines and assess impacts.*

**Response:** The Project Team has developed a sediment monitoring plan as part of the SEIR submittal. DMF has confirmed that both baseline and post-Project monitoring for turbidity, fecal coliform, and contaminants will be completed as part of DMF's ongoing monitoring programs. Baseline and post-Project monitoring for sedimentation will be completed by the Ipswich River Watershed Association.

DMF-4

**Comment:** *Should the project proponents decide to pursue an Ecological Restoration Limited Project Notice of Intent (ERNOI), they will require a written determination from DMF prior to submission to the Ipswich Conservation Commission as part of the ERNOI process pursuant to 310 CMR 10.11(3)&(4).*

**Response:** This is acknowledged. While the proposed Project is eligible as a full Ecological Restoration Notice of Intent, the format of the NOI has not yet been decided. For whichever format is selected, the appropriate rules and requirements will be followed.

DMF-5

**Comment:** *A DMF Fishway Construction Permit will be needed. Final design approval will occur during the DMF Fishway Construction Permit review.*

**Response:** The Proponents note the requirement of a DMF Fishway Construction Permit and will work with DMF staff during the permitting process.

**Metropolitan Area Planning Council (MAPC)**

MAPC-1

**Comment:** *Based on our understanding of the Ipswich River, the proposed project would provide many co-benefits not only to the Town of Ipswich, but to the watershed as a whole.*

**Response:** The Proponents agree with MAPC's assessment of the Project.

**Mill Pond Preservation Association (MPPA)**



MPPA-1

**Comment:** *MPPA members, including the citizens who would be most adversely affected by dam removal, feel that they have been “in the dark” about what was happening with the dam removal proposal for the better part of the last 10 years.*

**Response:** The Town of Ipswich and Project partners have held many events, discussions, hearings, and other opportunities for public input over the course of this Project. Public input is important to the success of this Project and comments are strongly encouraged even as the Project is advanced to the next stages.

MPPA-2

**Comment:** *Yet the experts, whose reports are included in the EENF appendices, in prior public presentations, admitted that they “could not guarantee that the fish would return if the Dam was removed.” And that would be with extensive and repeated restockings of the river. That uncertainty is expectable because the breeding grounds of such fish have been destroyed and there is nothing showing how new breeding grounds are likely to be successful.*

**Response:** Over the past three years, the MA Division of Marine Fisheries (MA DMF) has led Alewife restocking efforts at Hood Pond in Topsfield. Alewives have been collected from the Parker River each spring and moved to the Ipswich River, specifically at Hood Pond— a prime breeding ground for Alewives. At Hood Pond, the Alewives spawn, and their offspring imprint on the water they were born in. The juveniles then grow up in the pond, go out to sea, and ideally return in a few years to the same spawning grounds. Concurrently, blueback herring have been collected from nearby rivers and stocked in the main stem of the Ipswich River in Topsfield. The robust restocking program was the result of habitat assessment work performed in the Ipswich River and Hood Pond over several years. Those assessments determined the suitability of the site to support adults and juveniles. Ideally, restocking efforts will give the herring population a chance to grow as juvenile herring should instinctively return in the future to spawn where they were originally hatched. It is an ongoing effort to restore the herring fishery and the overall vitality of the ecology of the river.

MPPA-3

**Comment:** *To the extent that flood reduction is an environmental benefit, the assertion of dam removal reducing flood impacts is at the least greatly overstated.*

**Response:** As discussed in the EENF submittal, downstream of the dam, there will be no change to the existing flood risk upon dam removal. The Ipswich Mills Dam is a “run-of-river” dam, meaning that it does not provide flood control and that the flow of water currently going over the dam will be the same at that location following removal. People who live downstream of the dam will not experience any increase nor decrease in flood risk. During extreme flooding events when high river flows coalesce with high tide coastal flooding, the dam does not provide any protection or benefit to downtown infrastructure. Upstream of the dam, the river’s natural flood storage capacity will be restored after dam removal. Water levels upstream from the dam site will lower, making available additional floodplain storage that can mitigate future flood

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events. As discussed in the EENF, these anticipated reductions in flood levels upstream of the dam are relatively modest.

MPPA-4

**Comment:** *As described at length in the Comments filed by Denis Markiewicz, there are admitted significant impacts on, if not reductions in the amounts of, the magnificent wetlands in, around and above the Mill Pond just upstream of the dam.*

**Response:** The current dam was constructed around 1908 and previous dams likely did not fully impound the river like the current dam. For fuller historical context, prior to the most recent several centuries of dam presence, the river existed in a natural, free flowing state since glaciers retreated back north of New England some 15,000 years ago. The ponded area (impoundment) and wetlands behind the Ipswich Mills Dam will change after dam removal – water depth will decrease, and subsequently become more dynamic due to tidal influence. While this area will experience some change, the general ecosystem function will remain intact and even improve. The dam has blocked and impaired one of the rarest habitat types in all of New England: the freshwater tidal marsh. Freshwater tidal marshes are mixed herbaceous marshes which receive daily tidal water level fluctuations, but minimal actual salt water input, that occur in the freshwater reaches of coastal rivers. Removing the Ipswich Mills Dam will bring daily tidal water level changes to the reach upstream of the dam, resulting in the restoration of this rare aquatic habitat type. Dam removal will not result in any significant net loss of wetland – rather, there will primarily be a shift where areas that are currently underwater for most of the year (Land Under Water) will become Bordering Vegetated Wetland. Similarly, fish and wildlife species will only become more diverse due to the restoration of this dynamic habitat type. Dam removal will restore many river eco-services, including flood protection, fisheries restoration, and recreation and tourism. The alteration of wetlands (even for restoration purposes) is carefully reviewed in Massachusetts, so the Project must submit a Wetlands Notice of Intent via Wetlands Protection Act for local Ipswich Conservation Commission review. The Project must then receive a local Order of Conditions.

MPPA-5

**Comment:** *Further, these comments below show that there are endangered species that thrive in the Mill Pond environment. The project proponents state that no endangered species will be affected. Section 2.C. below shows that is not the case.*

**Response:** Massachusetts Natural Heritage and Endangered Species Program (NHESP) will be consulted in order to determine if the Project will need to be formally reviewed for Massachusetts Endangered Species Act (MESA) compliance.

MPPA-6

**Comment:** *That assertion was that the fish ladder here and indeed any fish ladder anytime and anywhere does not work. That is of course untrue as there are many very effective fish ladders both in Massachusetts and in other parts of the country.*

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**Response:** During the Partial Feasibility Study stage of this Project beginning around 2012, a Town-appointed committee representative of appropriate stakeholders worked in collaboration with the Town Manager, Select Board, and Town staff to assess Project alternatives. The full summary of these alternatives can be found on page 10 of the Supplemental Information submitted to MEPA. Full dam removal was selected early on as the only viable option for this location based on site constraints, continued maintenance obligations, liability, and many other factors. Any new fishway – whether artificial or nature-like – would never be as effective for fish passage as full dam removal, and would not achieve any of the other goals of dam removal. These goals include elimination of a financial and safety liability, improvement of local water quality, and improvement of community resilience as outlined in the Ipswich Community Resiliency Building Report and the Ipswich Community Development Plan.

MPPA-7

**Comment:** *The EENF essentially ignores the historic importance of the dam. This is simply wrong. Such an approach essentially ignores the very essence of the history of the Town.*

**Response:** That concern is valid, and is a critical point in all New England mill dam removal projects. However, rivers and fish migration have their own cultural importance without dams—a rich history that spans thousands of years and includes the heritage of the original indigenous populations of the region. The current iteration of the Ipswich Mills Dam only extends back to the 1900s, meaning the dam structure is unrelated to iconic eras of historic Ipswich, like First Period architecture. For much more detailed information, we recommend reading Town Historian Gordon Harris’ piece titled [“The History of the Ipswich Mill Dam, and a Natural History of the Ipswich River.”](#) Even though the dam structure itself is not historic, it does represent a significant piece of the history of the town of Ipswich, as residents know it now. Project partners want to honor the history of the Ipswich River, including the services that the river provided the town with the dam and mills. In order to honor this portion of the river’s history, the Project partners are working with the Ipswich Historic Commission about the different actions that can be taken to preserve the historic memory of the dam.

MPPA-8

**Comment:** *Although the Mill Pond and indeed the River generally is not a drinking water resource for the Town of Ipswich, due to excessive upstream withdrawals, it has been stated that the excessive upstream withdrawals will soon be mitigated by virtue of those communities moving to use of other water resources. Such a change could allow for Ipswich to make some use of this resource.*

**Response:** Currently, the town of Ipswich gets its water from Dow Reservoir and Bull Brook Reservoir – both of which are located in the Parker River Watershed – to use for drinking water and fire suppression. The impoundment behind the Ipswich Mills Dam does not meet regulatory water quality protection criteria to be a water supply reservoir. The land area immediately surrounding the impoundment also would not meet regulatory water quality protection criteria to support groundwater wells for public drinking water withdrawals. The impact of dam removal

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on groundwater levels and adjacent wetlands is described in detail in the Project Feasibility Study. There are no anticipated negative impacts to these resources.

MPPA-9

**Comment:** *The project proponent should be open and transparent about how much solid waste will be generated and what will be done with it.*

**Response:** The SEIR includes a comprehensive section on all potential environmental impacts, as well as strategies to mitigate and prevent any negative consequences from dam removal. That section covers the topic of solid and hazardous waste.

**Peter Soffron (PS)**

PS-1

**Comment:** *There are numerous studies cited throughout the Feasibility Study, however there appears to be no study done on the impact to natural resources and, in particular, shellfish.*

**Response:** Initial sediment testing was done first in 2005, and then again in 2012 with the test results from both efforts indicating that the sampled sediments qualified as posing “No Significant Risk” based on below-threshold concentrations detected for all pollutants and contaminants. During the permitting process, extensive additional sediment sampling will be performed to confirm if there is any contaminated sediment. This Project has a rigorous DEP-approved sampling plan that will be implemented as a part of the 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted. Composite samples, made of three discrete samples, from 8 locations containing potentially mobile sediments within the impoundment and 3 locations downstream of the dam, will be sent to a certified laboratory for analysis. Every composite sample will be assessed for all of the standard 401 WQC parameters as well as additional parameters for SVOCs, perchlorate, and herbicides. Sediment management in association with this Project will be guided by the results of sediment sampling and analysis. If no contamination issues are identified then the Project will move forward allowing for 100% passive release of mobile sediments. If contamination issues are identified in sediment sampling and analysis that lead MassDEP to require alternative sediment management other than passive release, but the results indicate that any contaminated sediment is non-hazardous, then portions of the most mobile sediment volume upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release may be dredged for upland reuse, as determined by MassDEP. If the sediment quality observed is deemed by MassDEP to not be suitable for upland reuse, then those portions of mobile sediments upstream of the dam identified to be in excess of appropriate MassDEP requirements for passive release would be dredged for disposal and shipped to an authorized receiving facility. If wider contamination issues are present then the Project Team will reassess. For more information on the dam and sediment implications, [see the MEPA Supplemental Information 9-28-2023 PDF from Horsley Witten.](#)

PS-2

**Comment:** *I have been led to understand that shellfish do not particularly hold on to heavy metals and therefore it is not a threat. Is this true? If any of these or other heavy metals are encountered in test bores or during dismantlement of the dam, how would they affect the present shellfishing? For each individual heavy metal, what would the procedure be to remove or isolate the heavy metal and what would both the short and long term effects be on shellfishing? Would a mandatory closure to shellfishing go into effect for particular heavy metals, and for how long would it remain restricted or closed?*

**Response:** MA Division of Marine Fisheries is closely involved in the development of sediment sampling and monitoring plans. As part of the regulatory permitting process in Massachusetts, the Project would not be able to allow passive release of any sediments that are found to have elevated levels of contaminants, including heavy metals.

PS-3

**Comment:** *The Feasibility Study suggests 2025 as the earliest start date for dam removal. Shellfishing is exceptionally good in the Ipswich River at present and it appears likely that this will still remain to be the case in 2025... Would harvesters be allowed the time needed to harvest this particularly great cycle of shellfish prior to dam removal in case a problem develops that would demand immediate closure of shellfishing? What guarantees would be given to shellfish harvesters that the dam removal would not negatively affect shellfishing? What type and degree of compensation would harvesters be rewarded in the event of shellfish destruction and/or shellfish closing?*

**Response:** The regulatory process in Massachusetts is such that the Project would not be able to proceed as proposed if there were any negative impacts to the shellfish beds. Therefore, shellfish harvesting will not be impacted by the Project once approved.

PS-4

**Comment:** *Increased sediment after dam removal would positively affect shellfish resource habitat, such as allowing marshes to build higher. However, too much sediment would suffocate shellfish. How would sediments increase?*

**Response:** While 6,900 cubic yards sounds like a lot, the amount of sediment impounded behind the dam is relatively small compared to the tidal sediment dynamics that dominate the lower river and to normal annual sediment loads since low head “run-of-river” dams like Ipswich Mills trap very little sediment, due to the periodic flushing provided by floods. If this relatively small amount of sediment is deemed to be clean following the sampling plan, the regulatory authorities prefer that sediment to be naturally dispersed slowly and sporadically downstream. Areas below the dam have become sediment depleted due to the influence of the dam and passive release will help restore the sediment balance to these downstream reaches. Analyses conducted during the design and permitting process for dam removal indicate that the anticipated amount of potentially mobile sediment on an annual basis is very low (fractions of an inch) when compared to the vast area of clam flats and salt marsh over which it would be dispersed. The volumetric rate of mobile sediment released over time following dam removal is not significant enough to damage the clam beds in any way as coarse sands and gravels will

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settle well upstream of the clam beds and clean fine sediments are considered beneficial to the marsh and clam beds. Restoring the natural riverine sediment transport processes are beneficial to helping the clam beds stay healthy.

PS-5

**Comment:** *Are shellfish classifications expected to change for N-5 (Ipswich River Estuary) as a result of dam removal. How would rainfall amounts which lead to shellfish closures be affected by dam removal? Would the 24 hour rainfall amounts needed for shellfish closures increase or decrease?*

**Response:** The regulatory process in Massachusetts is such that the Project would not be able to proceed as proposed if there were any negative impacts to the shellfish beds. Therefore, shellfish harvesting will not be impacted by the Project once approved.

PS-7

**Comment:** *How would water salinity levels below the dam area change as a consequence of dam removal... How would this affect soft shell clams and particularly razor clams who are more submissive to loss of salinity?*

**Response:** Downstream salinity levels will not change as a result of dam removal.

**Parker River Clean Water Association (PR)**

PR-1

**Comment:** *Climate change is starting to have devastating impacts in the area and ancient dams add risk to downtown areas. Flooding poses a threat to the Town of Ipswich's commerce and population center. One only need look at the recent damage caused by the catastrophic storm event in Leominster this summer and the danger posed by the downtown dam.*

**Response:** The Proponents acknowledge PRCWA's comments.

**Department of Conservation and Recreation (DCR)**

DCR-1

**Comment:** *Based on review of currently available information, implementation of the Project will likely result in improvement over existing site conditions. This Project appears to be in the interest of public safety, and successful completion will ensure compliance with dam safety regulations.*

**Response:** The Proponents agree with DCR's assessment of the Project.

DCR-2

**Comment:** *This dam removal project will require a Chapter 253 dam safety permit. The permit application must be submitted to ODS for review. ODS staff will communicate with the Proponent's design engineer as part of the permit process to ensure all required documentation is provided. After receipt of all required technical information demonstrating compliance with*

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*ODS regulations, a Chapter 253 Dam Safety Permit will be prepared and issued by ODS. ODS is available to provide additional guidance through the permitting process.*

**Response:** The Proponents recognize the importance of the Chapter 253 Dam Safety Permit, and plan on working with ODS to provide everything necessary when filing for the permit.



## SEIR Appendices

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**Appendix A:** EENF Certificate and Copy of All Comments Received

**Appendix B:** Permit-Level Design Plans

**Appendix C:** Public Archaeological Laboratory Archaeological and Historic  
Properties Reconnaissance Survey Scope of Work

**Appendix D:** 1980 Phase I Dam Safety Inspection Report National Dam Inspection  
Program

**Appendix E:** 1995 Notice of Intent and Subsequent Orders of Condition

**Appendix F:** January 2024 Office of Dam Safety Series of Public Safety Notices to  
Dam Owners

**Appendix G:** Due Diligence Report and DEP Approved Sediment Sampling Plan

Appendix A: EENF Certificate and Copy of All  
Comments Received

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October 16, 2023

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
EXPANDED ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Ipswich Mills Dam Removal  
PROJECT MUNICIPALITY : Ipswich  
PROJECT WATERSHED : Ipswich  
EEA NUMBER : 16754  
PROJECT PROPONENT : Town of Ipswich  
DATE NOTICED IN MONITOR : August 23, 2023

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.06 of the MEPA Regulations (301 CMR 11.00), I have reviewed the Expanded Environmental Notification Form (EENF), and hereby determine that this project requires the submission of a mandatory Environmental Impact Report (EIR) for the limited purpose of providing further disclosure regarding how sediment released from the project will be sampled and managed, so as to prevent the flow of potentially contaminated material into downstream areas. In accordance with 301 CMR 11.11(5), the Proponent has submitted a request that I grant a Waiver of the requirement to prepare an EIR. The Proponent requested that, if a Waiver were not granted, a Single EIR be allowed to be submitted in accordance with 301 CMR 11.06(8) in lieu of the usual two-stage Draft and Final EIR process. I hereby grant the request to file a Single EIR, which the Proponent should submit in accordance with the Scope included in this Certificate.

I note that, effective January 6, 2023, the MEPA regulations (at 301 CMR 11.01(2)(b)4.) were amended to allow for streamlined review of projects (such as here) seeking to qualify in its entirety as an Ecological Restoration Project, but not including an Ecological Restoration Limited Project under 310 CMR 10.24(8) and 10.53(4). While this streamlined process was available here, the Proponent has voluntarily opted to undergo MEPA review of the project which provides transparency and allows for

the public to comment on the proposal. I appreciate that the Proponent filed a robust EENF that includes substantial information supporting the proposed treatment of the project as a full Ecological Restoration Project; provided supplemental information as requested; and agreed to an extended comment period to allow the public to comment on the supplemental information. Nonetheless, comments from Agencies and the public continue to raise concerns about the lack of clarity about how sediment released from the project will be sampled and managed, so as to prevent the flow of potentially contaminated material into downstream areas. As this poses a potential public health risk, I am denying the request for a Waiver to allow for limited disclosures on this outstanding issue in a Single EIR.

### Project Description

As described in the EENF, the project consists of the full removal of the Ipswich Mills Dam. Major elements of the proposed project include the removal of the approximately 132-foot (ft) long, 10.5 ft high existing granite masonry spillway and its appurtenances including a portion of the fish viewing platform, a floating log boom, and the functional fish ladder that was installed in 1996. Riverbed restoration efforts will include regrading of coarse bed material including rock, boulders, and cobbles both upstream and downstream of the dam and construction of a continuous low-flow channel to promote fish passage during low-flow periods. The project also proposes to reinforce the abandoned fish ladder walls and pedestrian platform support piers downstream of the dam, and riverside retaining walls on both sides of the river upstream of the dam, as well as the installation of encapsulated soil lifts, riprap, and coir logs to stabilize and protect exposed soils and the riverside retaining walls from erosion and scour. In addition, the project proposes to retain the existing pedestrian bridge immediately downstream of the limit of work, as well as a 10-ft section of the existing viewing platform and abandoned fish ladder to protect the river-right wall.<sup>1</sup> Approximately 6,900 cubic yards (cy) of sediment within the dam impoundment is proposed to be allowed to migrate downstream naturally over time and restore sediment-deprived areas. Following construction, it is anticipated that the native seed bank will naturally restore wetland areas; however, monitoring will continue to occur on a regular basis to evaluate the establishment of native vegetation and identify new infestations of invasive species at the project site.

The project is being proposed by the dam owner, the Town of Ipswich (the Proponent), in partnership with the National Oceanic and Atmospheric Administration (NOAA), the Massachusetts Department of Fish and Game's (DFG) Division of Ecological Restoration (DER), the Ipswich River Watershed Association (IRWA), and others. The project was selected by DER as a "Priority Project" in a competitive review of solicited proposals, based on the breadth of its ecological benefits. In addition, it is anticipated that removal of the Ipswich Mills Dam would improve fish passage and habitat connectivity to approximately 186 miles of upstream mainstream river and tributary habitat.

According to the EENF, the primary goals of the project are to improve migratory fish passage and habitat; improve water quality; reduce flood hazards and increase resilience; eliminate ongoing maintenance, repair, and liability obligations; and provide recreational improvements by enabling water-based passage through the dam site.

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<sup>1</sup> River-right and river-left refer to the direction when facing downstream.

## Project Site

The project site is located at the head of tide on the Ipswich River in downtown Ipswich, approximately 3.7 miles upstream from the mouth of the Ipswich River at Ipswich Bay, and primarily consists of the Ipswich Mills Dam, its impoundment, and the immediate downstream area. The Ipswich River flows nearly 40 miles from its headwaters in Wilmington and North Andover to its mouth in Plum Island Sound, dropping approximately 115 ft in elevation along its course. Historical records show that a dam has existed in the vicinity of the project site since 1637 with the most recent version of the dam being modified to its current design in 1908. The Ipswich Mills Dam is a granite masonry dam with a 132-ft long main spillway with a structural height of 10.5 ft (including a hydraulic height of six ft), which extends across most of the width of the Ipswich River. On the river-right end of the main spillway, a granite pier extends about 45 ft into the river and contains a three ft wide stop-log spillway; a 4.5 ft wide gated outlet; a functional fish ladder that was installed in 1996; and an older, abandoned fish ladder. The area of significant hydraulic influence is limited to the area between the dam and the railroad bridge crossing (approximately a mile and a half upstream of the dam), which is generally referred to as the impoundment with the channel immediately upstream of the dam referred to as the lower impoundment.

State and local wetland resource areas located within the project area include Bank, Bordering Vegetated Wetlands (BVW), Land Under Waterbodies and Waterways (LUWW), Fish Runs, Bordering Land Subject to Flooding (BLSF), and Riverfront Area (RA). According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (Panel No. 25009C0287G, effective July 16, 2014), the project site is located within a Zone AE and Regulatory Floodway. The project site is also located within tidelands of the Ipswich River subject to the jurisdiction of M.G.L. c. 91 and the Waterways Regulations at 310 CMR 9.00.

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (15th Edition), the site is not located within Estimated or Priority Habitats of Rare Species. The project is not located in an Area of Critical Environmental Concern (ACEC). In addition, the project site does not contain any structures listed in the State Register of Historic Places or the Massachusetts Historical Commission (MHC)'s Inventory of Historic and Archaeological Assets of the Commonwealth.

As shown in the EEA EJ Mapper, the project site is not located within one mile of any Environmental Justice (EJ) Populations.<sup>2</sup> Additionally, no languages were identified as being spoken by 5% or more of Limited English Proficiency ("LEP") residents within one mile of the project site.

## Environmental Impacts and Mitigation

Potential environmental impacts associated with the project include temporary and permanent impacts to wetland resources areas including Bank (490 lf temporary and 700 lf permanent), BVW (184,800 sf permanent), LUWW/Fish Runs (35,870 sf temporary and 184,000 sf permanent), BLSF (1,730 sf temporary and 352,100 sf permanent), and RA (4,100 sf temporary and 54,500 sf permanent). The project also proposes to actively dredge 440 cy of material (consisting of concrete, boulders, and

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<sup>2</sup> The EEA EJ Mapper is available at: <https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts>

cobbles) and anticipates the passive release and downstream relocation of an additional 6,900 cy of sediment over time following the removal of the dam.

Measures to avoid, minimize, and mitigate environmental impacts include the use of erosion and sedimentation controls during construction; installation of scour protection and reinforcement of river retaining walls; implementation of a post-construction vegetation monitoring plan; and restoration of disturbed areas following construction. The project is also anticipated to improve water quality; restore stream connectivity, and fish passage; and convert the former impoundment into riparian wetlands. Due to the nature of the project, permanent conversion of wetland resource areas is unavoidable; however, as noted below, the project is anticipated to qualify as an Ecological Restoration project (dam removal category) under wetlands regulations.

### Jurisdiction and Permitting

This project is subject to MEPA review because it requires Agency Action and meets/exceeds the mandatory EIR threshold at 301 CMR 11.03(3)(a)(4) for the structural alteration of an existing dam that causes an Expansion of 20% or any decrease in impoundment Capacity. It also exceeds the ENF thresholds at 301 CMR 11.03(3)(b)(1)(b) for the alteration of 500 or more linear feet of bank along a fish run or inland bank and 301 CMR 11.03(3)(b)(1)(d) for the alteration of ½ or more acres of any other wetlands. Effective January 6, 2023, a project seeking to qualify in its entirety as an Ecological Restoration Project, but not including an Ecological Restoration Limited Project under 310 CMR 10.24(8) and 10.53(4), is not required to undergo MEPA review, provided the requirements of 301 CMR 11.01(2)(b)(4). are met. As noted, this project is anticipated to meet the definition of a (full) Ecological Restoration Project; however, the Proponent has voluntarily undertaken this EIR review to allow for additional public transparency and opportunities for public comment.

The project will require a Water Quality Certification (WQC) pursuant to Section 401 of the U.S. Clean Water Act and a Chapter 91 (c.91) License from the Massachusetts Department of Environmental Protection (MassDEP). The project will also require a Chapter 253 Dam Safety Permit from the Massachusetts Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) and a Fishway Permit from the Massachusetts Division of Marine Fisheries (DMF). In addition, the project will apply for an Order of Conditions (OOC) as an Ecological Restoration Project (under the dam removal and/or fish passage category) from the Ipswich Conservation Commission; in the case of an appeal, a Superseding Order of Conditions from MassDEP will be required.

The project will require the submittal of a Pre-Construction Notification (PCN) to the U.S. Army Corps of Engineers (ACOE) seeking authorization under the General Permits for Massachusetts in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.<sup>3</sup> The project will also require a National Pollutant Discharge Elimination System (NPDES) Construction General Permit from the U.S. Environmental Protection Agency (EPA) and the execution of a Memorandum of Agreement (MOA) with the Massachusetts Historical Commission (MHC) acting as the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800). In addition, the project may require Federal Consistency Review by the Massachusetts Office of Coastal Zone Management (CZM).

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<sup>3</sup> According to the EENF, the project will seek authorization under General Permit #10 for Massachusetts which covers Aquatic Habitat Restoration, Enhancement, and Establishment Activities.

The project has received Financial Assistance in the amount of \$364,558 from Agencies (Massachusetts Division of Ecological Restoration and the Executive Office of Energy and Environmental Affairs Dam and Seawall Program) for design and permitting, and is seeking other forms of Financial Assistance for project implementation. Therefore, MEPA jurisdiction is broad in scope and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in MEPA regulations.

#### Request for an EIR Waiver

The MEPA regulations at 301 CMR 11.11(1) state that I may waive any provision or requirement in 301 CMR 11.00 not specifically required by MEPA and may impose appropriate and relevant conditions or restrictions, provided that I find that strict compliance with the provision or requirement would:

- a. result in an undue hardship for the Proponent, unless based on delay in compliance by the Proponent; and
- b. not serve to avoid or minimize Damage to the Environment.

As stated in 301 CMR 11.11(3), in the case of a waiver of a mandatory EIR review threshold, the Secretary shall at a minimum base the finding required in accordance with 301 CMR 11.11(1)(b) on a determination that:

- a. the Project is likely to cause no Damage to the Environment; and
- b. ample and unconstrained infrastructure facilities and services exist to support the Project (in the case of a Project undertaken by an Agency or involving Financial Assistance) or those aspects of the Project within subject matter jurisdiction (in the case of a Project undertaken by a Person and requiring one or more Permits or involving a Land Transfer but not involving Financial Assistance).

The Proponent may provide evidence satisfactory to the Secretary that the Agency Action on the Project will contain terms such as a condition or restriction that will cause benefits to environmental resources or quality or infrastructure facilities or services in excess of those that would result in the absence of the waiver.

#### Request for a Single EIR

The MEPA regulations at 301 CMR 11.06(8) indicate that a Single EIR may be allowed provided I find that the EENF:

- a. describes and analyzes all aspects of the project and all feasible alternatives, regardless of any jurisdictional or other limitation that may apply to the Scope;
- b. provides a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed; and,
- c. demonstrates that the planning and design of the project use all feasible means to avoid potential environmental impacts.

Consistent with this request, the EENF was subject to an extended comment period under 301 CMR 11.05(9).

### Review of the EENF

The EENF included a project description, alternatives analysis, previous studies and design phases (including the 2019 Ipswich Mills Dam Removal Feasibility Study, Basis of Permit Level Design Report, 2020 Subsurface Investigation Technical Memorandum, and 2021 Subsurface Investigation Technical Memorandum), existing and proposed conditions plans, estimates of project-related impacts, and an identification of measures to avoid, minimize and mitigate environmental impacts. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the EENF contained an output report from the Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the “MA Resilience Design Tool”),<sup>4</sup> together with information on climate resilience strategies to be undertaken by the project.

The Proponent provided supplemental information on September 28, 2023, which included a discussion of additional MEPA thresholds met/exceeded by the project, a supplemental alternatives analysis, an additional sediment mobilization analysis, and a copy of the most recent Dam Safety Report. The comment period was extended by the Proponent on August 28, 2023 by 11 days thereby extending the close of the comment period to October 10, 2023. For purposes of clarity, all supplemental information provided by the Proponent are included in references to the “EENF,” unless otherwise indicated.

The majority of comment letters received support removal of the dam based on the potential for significant ecological benefits. However, some public comments identify concerns regarding the conversion of wetland resource areas; the removal of a structure with local historic and cultural significance; the mobilization of potentially contaminated sediment from behind the dam; and the reduction or elimination of recreational opportunities within the former impoundment. As noted above, I am issuing a Scope for Single EIR limited to the issue of sediment management.

### *Alternatives Analysis*

The EENF analyzed a series of alternatives to achieve the project’s goals of restoring migratory fish passage and connectivity for resident aquatic species while eliminating owner liability and public safety concerns due to flooding and potential dam failure. The EENF states that a No-Action Alternative was considered. However, because the dam would continue to prevent anadromous species from accessing historic spawning, foraging, and nursery areas, and would continue to artificially raise the river’s water surface elevation and thereby contribute to upstream flooding, it was dismissed as not meeting the project’s purpose and need. As described below, the EENF evaluated five alternatives (Alternative 1, Alternative 2, Alternative 3, Alternative 4, and the Preferred Alternative) to meet the project’s goal while managing impacts to wetlands.

Alternative 1 would involve the reconstruction of the existing fish ladder to better allow fish to migrate upstream of the dam. The existing fish ladder is rated as “good/passable” by DMF; however,

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<sup>4</sup> Available at: [https://resilientma.mass.gov/rmat\\_home/designstandards/](https://resilientma.mass.gov/rmat_home/designstandards/)



reconstruction is not anticipated to improve migratory fish passage, passage of other aquatic species, and overall connectivity of the river. This alternative would also result in impacts to wetland resources during construction and the dam owner would continue to be responsible for ongoing operation, maintenance, and liability associated with the dam, as well as operation and maintenance of the fish ladder. In addition, this alternative would not provide other ecological benefits such as improved water quality, reduction in the extent of upstream flooding, and the creation of new recreational opportunities. Therefore, this alternative was dismissed.

Alternative 2 would involve the partial removal of the Ipswich Mills Dam, consisting of the removal of a portion of the vertical extent of the dam across the entire width of the river. This alternative was primarily considered due to serious concerns over potential structural impacts to the EBSCO publishing company buildings from lowered water levels upstream of the dam.<sup>5</sup> Although this alternative would provide some improvement to migratory fish passage, fish would only be able to pass over the dam at high tide. In addition, this alternative would have similar, albeit reduced, impacts to wetland resources (including the conversion of LUWW to BVW) while not eliminating the liability associated with the dam or providing the same degree of water quality improvements, reduction in the extent of upstream flooding, and the creation of new recreational opportunities. Therefore, this alternative was dismissed.

Alternative 3 would involve the construction of a bypass-style nature-like fish passage around the existing dam. Although this alternative would fully restore fish passage and reduce the overall impacts to wetland resources, as compared to the Preferred Alternative, nature-like fish passages need a significant amount of space in order to achieve the proper river velocities, elevation drops, and resting habitats for migratory fish. Due to the extensive development up to both river's edges, there is no undeveloped, Proponent-owned land adjacent to the river for the construction of a nature-like fish passage. In addition, this alternative would not eliminate the liability associated with the dam or provide other ecological benefits such as improved water quality, reduction in the extent of upstream flooding, and the creation of new recreational opportunities. Therefore, this alternative was dismissed.

Alternative 4 would involve the partial removal of the Ipswich Mills Dam and construction of an in-river nature-like fishway. This alternative would entail lowering a portion of the dam and then creating several succeeding lower riffle structures downstream with intermediate pools to step the hydraulic grade down. This alternative would likely result in a significant improvement for fish passage and water quality, and reduce upstream flooding in proportion to the amount of dam removed; however, it would not eliminate the liability associated with the dam, provide a complete reduction in the extent of upstream flooding, or create new recreational opportunities at a higher cost than the Preferred Alternative. In addition, depending upon the number of hydraulic steps required to facilitate the fishway, discharge from the lowest riffle could occur relatively close to the Choate Bridge possibly resulting in an increase of erosive velocities that could impact the bridge. Therefore, this alternative was dismissed.

The Preferred Alternative (as described herein) would involve the full removal of the Ipswich Mills Dam and all appurtenances, including a portion of the fish viewing platform and the functional fish ladder that was installed in 1996. Other major elements include regrading of coarse bed material

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<sup>5</sup> As detailed in the EENF, extensive hydrogeologic studies have been performed to evaluate potential impacts to the EBSCO publishing company buildings with additional field surveys planned for late 2023. As a result of these studies, the Preferred Alternative proposes complete removal of the dam with associated lowering of water levels upstream, as described below.

including rock, boulders, and cobbles both upstream and downstream of the dam; construction of a continuous low-flow channel to promote fish passage during low-flow periods; reinforcement of the abandoned fish ladder walls and pedestrian platform support piers downstream of the dam, and riverside retaining walls on both sides of the river upstream of the dam; and installation of encapsulated soil lifts, riprap, and coir logs to stabilize and protect exposed soils and the riverside retaining walls from erosion and scour. Although the Preferred Alternative would result in both direct and indirect wetland impacts (through the conversion of the impoundment to riverine wetlands), it would fully restore fish passage, improve water quality, reduce upstream flooding, and eliminate the liability, operation, and maintenance costs for the Proponent. In addition, the Preferred Alternative would allow passage through the former dam site, creating a new recreation opportunity from existing upstream boat launches downstream to Plum Island Sound. As noted, the project is anticipated to qualify as an Ecological Restoration Project under wetlands regulations, which acknowledge the ecological benefits of dam removals notwithstanding the unavoidable alteration of wetland resource areas associated with the changes in water levels.

### *Dam Safety*

According to the EENF, the Ipswich Mills Dam is classified as an intermediate size, Significant Hazard Potential dam in “Fair” condition based on the most recent dam inspection report completed in 2020. A dam is deemed to be of Significant Hazard Potential where dam failure may cause loss of life and damage to home(s), industrial or commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important facilities. A “Fair” condition rating is assigned when significant operational and maintenance deficiencies exist, or potential deficiencies exist under unusual loading conditions that may realistically occur.

Comments provided by ODS state that the two most recent Phase I Inspection reports (inspection dates of September 4, 2020, and October 20, 2009) incorrectly indicate Ipswich Mills Dam as being categorized as a Significant Hazard Potential Dam. Rather, the Ipswich Mills Dam should be classified as a Low Hazard Potential Dam in “Fair” condition. A dam is deemed to be of Low Hazard Potential where dam failure may cause minimal property damage to others; however, loss of life is not expected. Comments also state that implementation of the proposed project will likely result in an improvement over existing conditions and that the project appears to be in the interest of public safety, such that successful completion is intended to bring the dam into compliance with the Dam Safety Regulations (302 CMR 10.00).

### *Wetlands*

As noted above, wetland resource areas are located on and adjacent to the project site. According to the EENF, the project will result in the permanent alteration of 700 lf of Bank, 184,800 sf of BVW, 184,000 sf of LUWW/Fish Runs, 352,100 sf of BLSF, and 54,500 sf of RA. The project will also result in temporary impacts to 490 lf of Bank, 35,870 sf of LUWW, 1,730 sf of BLSF, and 4,100 sf of RA. Permanent impacts will generally result from the restoration of free-flowing riverine conditions, thereby replacing existing the pond-like conditions within the lower impoundment with riparian BVW. In addition, the project proposes to actively dredge 440 cy of material (consisting of concrete, boulders, and cobbles) as a part of the dam and fishway removal, and anticipates the passive release and

downstream relocation of an additional 6,900 cy of sediment over time following the removal of the dam.

As stated above, the Ipswich Conservation Commission (or MassDEP in the case of an appeal) will review the project for its consistency with the Wetlands Protection Act (WPA), the Wetland Regulations (310 CMR 10.00) and associated performance standards including local bylaws. The project will require an OOC as an Ecological Restoration Project (under the dam removal and/or fish passage category). Ecological Restoration Projects permitted by a Restoration Order of Conditions may result in the temporary or permanent loss of wetland resource areas and/or the conversion of one resource area to another when such loss and/or conversion is necessary to the achievement of the project's ecological restoration goals.

As noted, public comments raise concerns about the substantial conversion of wetland resource areas and the potential indirect impacts resulting from such a conversion, including the potential for erosion and scour, the establishment of invasive species, and changes in recreational opportunities. Due to the nature of the project, permanent conversion of wetland resource areas is unavoidable; however, a comprehensive monitoring and restoration plan for the impacted wetland resource areas should be developed. This information should be provided in accordance with the Scope.

Comments provided by MassDEP affirm that based on the information contained in the EENF, the project appears to be eligible to apply as an Ecological Restoration Project under the WPA and Wetlands Regulations as a Dam Removal and Fish Passage project. Comments also state that the proposed re-grading of material within and around the dam footprint will likely result in fill of LUWW; however, fill of LUWW is not specifically discussed in the EENF. Comments further state that MassDEP NERO disagrees that there are no Outstanding Resource Waters in the project vicinity as there are Designated Shellfish Growing Areas that immediately abut the project area downstream of the dam. In addition, MassDEP recommends the planting of native shrubs and trees in the restoration area rather than a sole reliance on herbaceous plants should the native seed bank not reestablish.

Comments provided by DMF state that should the Proponent pursue an Ecological Restoration Notice of Intent, they will require a written determination from DMF, as to whether the proposed work requires a time-of-year (TOY) restriction and as to whether the design specifications and operational plan for the project are compatible with the passage requirements of the fish run, prior to submission to the Ipswich Conservation Commission as part of the Ecological Restoration Notice of Intent process pursuant to 310 CMR 10.11(3) & (4), respectively.

### *Waterways / Chapter 91*

As noted above, the project site is located on tidelands of the Ipswich River, subject to the jurisdiction of M.G.L. c. 91 and the Waterways Regulations at 310 CMR 9.00. The project proposes the complete removal of the Ipswich Mills Dam and its associated appurtenances which will reestablish a more natural riverine watercourse. The project also proposes to actively dredge 440 cy of material and anticipates the passive release and downstream relocation of an additional 6,900 cy of sediment overtime. Preliminary analyses of the sediment for potential contamination were performed and is discussed in the Sediment Management and Hazardous Waste section below.

The EENF evaluated potential upstream and downstream impacts on water levels resulting from the removal of the dam through the development of a one-dimensional, mixed, steady-state flow model using the ACOE Hydraulic Engineering Center River Analysis System (HEC-RAS).<sup>6</sup> HEC-RAS model simulations were run for existing and dam-out conditions under high and low tide and various river flow scenarios, including 2-year storm, 10-year storm, 25-year storm, 50-year storm, 100-year storm, 500-year storm, 5% exceedance, 50% exceedance, and 95% exceedance.<sup>7</sup> While the removal of the dam will not alter the discharge of water moving through the former dam and impoundment area, water surface elevations upstream of the dam will decrease at a range of flow volumes due to the lowering of the downstream controlling elevation (top of the dam spillway). Although the EENF does not contain a comprehensive comparison of pre- and post-removal water levels, it does contain the following figure which compares pre- and post-removal water surface elevations at low tide under three different flow conditions at different stations along the modeled area (inclusive of both upstream and downstream of the dam):

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<sup>6</sup> According to the EENF, one dimensional HEC-RAS models are well-suited for situations such as this where hydraulic changes occur predominantly in one-dimension (i.e., from upstream to downstream along the centerline of the channel).

<sup>7</sup> Exceedance probabilities are generally the inverse of a return period such that a 5% exceedance indicates that flow volumes will exceed that quantity only 5% of the time (e.g., a 100-year storm event is equivalent to a 1% annual change exceedance probability).

**Table 6. Predicted water surface elevations at low tide for existing and dam-out conditions (ft NAVD88)**

River station	100-year flow and normal depth		25-year flow and normal depth		2-year flow and normal depth	
	Existing (ft)	Dam Removed (ft)	Existing (ft)	Dam Removed (ft)	Existing (ft)	Dam Removed (ft)
11787	21.29	21.29	17.07	17.07	13.00	13.00
10867	21.31	21.31	16.96	16.96	12.79	12.79
10689	20.58	20.58	16.04	16.04	12.33	12.32
10657	Railroad bridge					
10625	15.71	15.59	11.46	11.46	11.85	9.75
10513	16.76	16.67	15.20	14.62	12.04	10.94
9865	16.64	16.55	15.10	14.49	11.99	10.84
9283	16.37	16.27	14.88	14.20	11.89	10.62
7408	15.69	15.56	14.28	13.20	11.59	10.62
5359	15.21	15.04	13.90	12.48	11.44	8.26
3900	14.69	14.49	13.54	11.74	11.34	7.07
3682	14.64	14.43	13.50	11.66	11.33	6.93
3469	14.59	14.38	13.46	11.51	11.31	6.63
3260 (EBSCO building)	14.51	14.29	13.40	11.38	11.30	6.48
3072	14.24	14.21	13.15	11.30	11.24	6.36
3063	14.19	-	13.06	-	11.22	-
3051 (Dam)	14.19	-	13.06	-	11.22	-
3041	14.19	14.15	11.22	11.13	7.03	6.28
3020	14.07	14.13	10.74	11.08	6.05	6.22
2998	14.11	14.11	10.98	10.98	6.09	6.09
2990	Pedestrian bridge					
2934	14.08	14.08	10.93	10.93	6.06	6.06

As detailed above, it is anticipated that significant changes in water levels upstream of the dam will be limited to the lower impoundment immediately upstream of the dam, which will experience an approximately 4.8 ft decrease in water levels during a 2-year storm event at low tide, an approximately 1.9 ft decrease in water levels during a 25-year storm event at low tide, and a 0.03 ft decrease in water levels during a 100-year storm event at low tide. These trends are generally consistent across all storm events and exceedance probabilities modeled. Downstream of the dam, water levels are not expected to change by more than 0.75 ft for modeled flow conditions during a 2-year storm event at low tide. In addition, because the Ipswich Mills Dam is a run-of-river dam with no flood storage capacity, outflow from the dam would still equal inflow even with the proposed dam removal, resulting in no anticipated change in flow downstream of the immediate project area. To confirm this assumption, an unsteady flow hydraulic model was developed to evaluate fish passage, scour, and flooding during a 100-year flood event. The results indicated that there would be minimal to no changes between existing and proposed (post-dam removal) water surface elevations downstream of the Ipswich Mills Dam. Therefore, no

impacts are anticipated for downstream structures, including the pedestrian bridge immediately downstream of the dam and the Choate Bridge approximately 700 ft downstream of the dam.

Comments provided by the MassDEP Waterways Regulation Program (WRP) state that based on the information contained in the EENF, the removal of the dam and associated fill may be eligible for approval under 310 CMR 9.05(3)(m); however, since the project also includes dredging and placement of fill, associated with the regrading of the riverbed, within flowed tidelands, a c.91 license will be required. Comments further state that despite the extensive history of modifications to the dam, only a single c.91 approval of modifications by the Massachusetts Department of Public Works (DPW) in 1973 is referenced in the EENF. Therefore, the Proponent will be required to create an authorization history that includes a list of previously issued legislative and/or regulatory approvals. In addition, comments also note the need to identify the existing and historic high and low water marks, proposed dredging, filling and structures in plan and cross-sectional views. The Proponent should confer with the MassDEP WRP in order to confirm the extent of the project within jurisdiction and evaluate the project relative to the applicable provisions of 310 CMR 9.00.

#### *Public Benefit Determination (PBD)*

Consistent with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts, c. 168, § 8) (the Act), as codified in M.G.L. c. 91, § 18B, I must conduct a Public Benefit Review for projects in tidelands that are required to file an EIR.

The legislation states the following regarding the PBD:

“In making said public benefit determination, the secretary shall consider the purpose and effect of the development; the impact on abutters and the surrounding community; enhancement to the property; benefits to the public trust rights in tidelands or other associated rights, including, but not limited to, benefits provided through previously obtained municipal permits; community activities on the development site; environmental protection and preservation; public health and safety; and the general welfare; provided further, that the secretary shall also consider the differences between tidelands, landlocked tidelands and great pond lands when assessing the public benefit and shall consider the practical impact of the public benefit on the development.”

The Single EIR should describe how the project complies with the PBD (301 CMR 13.00) criteria.

#### *Fisheries*

According to the EENF, the Ipswich River watershed historically supported significant populations of migratory fish. However, current herring runs are significantly reduced, due in part to the habitat conditions created by the dam, and it is estimated that the Ipswich River is currently supporting less than 1% of its total spawning potential. As noted above, it is anticipated that removal of the dam would improve fish passage and habitat connectivity to approximately 186 miles of upstream mainstream river and tributary habitat. Restoring fish passage would allow migratory fish to reach the Ipswich River watershed from the ocean, provide more available freshwater habitat, and facilitate an increased population of species historically present in the Ipswich River.

As noted in comments provided by DMF, the Ipswich River currently provides essential habitat for diadromous fish species including the American eel (*Anguilla rostrata*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), rainbow smelt (*Osmerus mordax*), white perch (*Morone americana*), and sea lamprey (*Petromyzon marinus*). The current Denil ladder at the Ipswich Mills Dam provides passage for alewife, blueback herring, and sea lamprey but excludes passage of other diadromous species. Rainbow smelt spawning habitat is located immediately downstream of the dam to the cove below the County Street bridge. The Ipswich River also contains productive habitat for soft shell clam (*Mya arenaria*) with the nearest soft shell clam habitat, mapped by DMF, located approximately one mile downstream of the Ipswich Mills Dam in shellfish growing area N5.7, classified as “Prohibited.” The nearest harvestable soft shell clam flats (Gould Creek Clam Flats) are located approximately one and a half miles downstream of the dam in shellfish growing area N5.0, classified as “Conditionally Approved.”

Comments provided by DMF state that the proposed dam removal will improve diadromous fish connectivity in the Ipswich River by removing the head of tide dam, thereby opening up the lower section of the river to all diadromous fish. Further, removal of the Ipswich Mills Dam is a key component of cooperative efforts to improve diadromous fish habitat and passage throughout the watershed, including a nature like bypass at the next dam upriver and a new fishway on Howlett Brook, a tributary of the Ipswich River with large amounts of suitable habitat for river herring and American eel. In addition, to protect migrating and spawning diadromous fish present in the Ipswich River from temporary impacts from the project as proposed, comments recommend a TOY restriction on in-water, silt-producing work from March 1 to June 30 and September 1 to November 15 of any given year.

#### *Sediment Management and Hazardous Waste*

According to the EENF, one potential short-term impact of dam removal is the release of sediment that has accumulated behind the structure. Following removal, softer/more mobile sediments currently retained behind the dam will migrate downstream, begin to fill in voids in currently sediment deprived locations, and continue to migrate downstream until they are deposited in locations where the flow energy regime is supportive of deposition. Based on H&H modeling of flow velocities, mobilized sediment is predicted to settle along three general zones:

- Within the first 1,000 ft downstream of the dam, between the Choate Bridge and the County Street Bridge, coarse sediment that is impounded immediately behind the dam may settle after flood events, primarily by infilling of the existing voids between larger cobbles and boulders and along the banks.
- In the cove immediately downstream of the County Street Bridge and the lower falls, both fine and coarse sediment is anticipated to settle out due to the lower velocities. Tidal influence in this area is also anticipated to redistribute any sediment deposited here over a much broader area over time.
- Along the 3.1-mile course of the Ipswich River downstream of the cove, fine and coarse sediment is expected to gradually transport along this large section of the river before ultimately reaching Plum Island Sound and the Atlantic Ocean. This most downstream depositional area represents the low elevation, main stem of the river that receives essentially full tidal influence and will, therefore, be inundated for significant portions of most days.

Settlement of mobilized sediment was evaluated primarily to estimate potential impacts to the clam flats located downstream of the Ipswich Mills Dam. Based on the results of the model, the clam flats are predicted to experience the least amount of concentrated sediment settling, with a maximum annual depth of 0.09 inches of sediment expected to accumulate. Therefore, the EENF states that impacts to the clam flats along the Ipswich River are expected to be negligible following dam removal.

As stated in the EENF, sediment in the dam impoundment was sampled and tested in 2005 by the United States Geological Survey (USGS) and subsequently in 2012 by the IRWA for Total Heavy Metals, Semi Volatile Organic Compounds (SVOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) Volatile Organic Compounds (VOCs), Extractable Petroleum Hydrocarbons (EPHs), and other physical characteristics. Based on the results of these analyses, the EENF states that the sediments found within the impoundment have a very low likelihood of toxicity when viewed independently and in relation to other dams across Massachusetts. However, more extensive sediment sampling and analyses have not been conducted to date but are anticipated to be conducted as part of the Section 401 WQC and Section 404 environmental permitting process. As noted above, the EENF includes a very preliminary sediment quality assessment stating that the sediments found behind the Ipswich Mills Dam have a very low likelihood of toxicity, based on the review of data from five sediment cores collected behind the dam in two sampling events in 2012 as part of the preliminary assessment. Given public health implications, I am requiring further information on a sediment sampling plan in a Single EIR.<sup>8</sup>

Comments provided by CZM state that the Licensed Site Professional (LSP) report included in the preliminary assessment in the EENF recommended further characterization of the sediment immediately upstream of the dam as these are likely to be the quickest sediments to mobilize and discharge to the environment or tidal waters of the Ipswich River following removal of the dam, and as the location of the former Ipswich Mills, may exhibit different contamination levels than the sites sampled upstream of the former mill. The LSP report also recommended additional sampling downstream of the impoundment, including the meander or cove between Country Street and Turkey Shore Road, as a significant volume of sediment from street sanding has accumulated within this vicinity including fine material from organic matter and possibly discharges from the former mills; the report also recommended upstream samples to evaluate material that is moving through the system. Comments state that further sediment characterization information should be obtained to determine whether the sediment is suitable for the proposed release, or whether an alternative sediment management approach is warranted for the project. Comments provided by DMF state that based on the project as currently proposed, DMF is concerned that sediment mobilization and hydrodynamic changes projected to occur in association with the Ipswich Mills Dam removal could negatively affect shellfish resources downstream of the dam. To address these concerns DMF recommends the Proponent coordinate with DMF biologists to develop a monitoring plan for turbidity, sedimentation, fecal coliform, and contaminants in nearby shellfish areas before and after the dam removal to establish baselines and assess impacts. As noted above, public comments share Agency concerns about the quality and quantity of sediment anticipated to be released from within the impoundment. In particular, comments highlight the need for additional sediment sampling to fully evaluate whether contaminants are present within the impoundment, and if so, how they will be managed in the case of dam removal. In

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<sup>8</sup> Two prior dam removal projects (EEA#16233 Whitney Pond Dam Removal and EEA#16226 Becker Pond Dam Removal) were similarly required to submit a Single EIR to present additional information relative to sediment management issues.



addition, comments raise concerns regarding the potential impacts on the shell fishing areas and mooring fields downstream of the dam. This should be addressed in accordance with the Scope.

### *Historic and Archaeological Resources*

According to the EENF, the Ipswich Mills Dam is not itself a historic property, as it is not currently listed and has not been determined to be eligible for listing in the National Register of Historic Places (“the National Register”), State Register of Historic Places (“the State Register”), or the Inventory of Historic and Archaeological Assets of the Commonwealth (“the Inventory”). However, the Ipswich Mills Dam is immediately adjacent to, but not included within the bounds of two historic properties listed in the National Register and the State Register: the Ipswich Mills Historic District (MHC #IPS.I) which was listed July 9, 1996, and the South Green District (MHC #IPS.J) which was listed September 17, 1980.

The EENF specifically evaluated potential project related impacts to the set of former mill buildings located at the west end of the Ipswich Mills Dam, which are currently owned and occupied by the EBSCO publishing company. These buildings are listed in the National Register as the Ipswich Mills Hosiery Manufacturing Company (MHC #IPS.356) which also contribute to the significance of the Ipswich Mills Historic District (MHC #IPS.I). Due to the age of construction, concerns primarily focused on the potential presence of timber pilings beneath the buildings that could be exposed to atmospheric oxygen following removal of the dam and the resulting lowering of groundwater levels.<sup>9</sup> Under the dam-out scenario, support piles could be exposed by up to a maximum of approximately 7.7 ft, based on the assumption of water levels falling to the grade of the existing river bed downstream of the dam (i.e., an essentially dry river), and the groundwater levels beneath the buildings mimicking that same water level decline. The potential presence of timber pilings beneath the buildings has been evaluated since 2016 through a series of programs that included in-river test pits; landside test pits at the building exterior; monitoring well installations at the building exterior; and exterior and interior geophysical investigations. Based on the investigations conducted to date, the EENF indicates that the exterior walls and at least some interior columns are supported by footings with direct contact with competent, non-compressible soils or rock; however, at least some of the interior columns appear to be supported by concrete grade beams underlain by piles or support piers of unknown material type. While the results indicate a low probability that the buildings are supported by timber pilings, an internal test pit exploration program is planned for late 2023 to definitively determine whether the interior structural supports are concrete or timber and, if they are timber, what their condition and susceptibility to rot may be.

In 2017, the Proponent contracted the Public Archaeology Laboratory, Inc. (PAL) to develop a Cultural Resources Summary Report (“the Summary Report”) for the removal of the Ipswich Mills Dam to assist in the development of the Ipswich Mills Dam Removal Feasibility Study. According to the Summary Report, there are two recorded pre-contact Native American sites and six recorded post-contact archaeological sites on the east side of the river within approximately 600 ft of the Ipswich Mills Dam between the river and County Street, including an Unnamed Site (MHC #19-ES-101), Ipswich Cove Archaeological Site (MHC #19-ES-853), Rachel Haffield Homestead Site (MHC #IPS-HA-52), and Samuel Dutch Homestead Property (MHC #IPS.26).

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<sup>9</sup> According to the EENF, exposure to atmospheric oxygen can result in accelerated fungal rot and decay of historic timber pilings thereby undermining the structural integrity of the building foundation.

The project intends to seek federal funding for project implementation and will be required to demonstrate compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800). Comments provided by MHC request that a reconnaissance-level archaeological and historic properties survey be conducted for the project in order to identify and document historic and archaeological resources and archaeologically sensitive areas that might be affected by the project. Comments note that a State Archaeologist's Permit will be required for the survey pursuant to 950 CMR 70.

### *Water Supply*

According to the EENF, the limit of potential water level impact from dam removal is immediately upstream of the railroad bridge and extending out 1,000 feet to either side of the river. Based on a review of Board of Health records, the EENF states that there are no public water supply sources within the potential dam-removal impact area and there is a low likelihood of potential impacts to private water wells. The EENF also evaluated how far upstream tidal influence on water levels would extend after removal of the dam, and whether there would be salinity impacts to drinking water wells. The tidal hydraulic influence is expected to extend to around Upper River Road which is over two miles downstream from Ipswich's Winthrop Well No. 2, which is the farthest downstream of any active public water supply along the Ipswich River. Therefore, no impacts on private or public water supplies are anticipated as a result of the dam removal.

Comments provided by MassDEP NERO state that the EENF did not contain information on the upstream extent along the Ipswich River that would experience a drop in water level elevation due to removal of the dam; however, the EENF did note that the Willowdale Dam is located 4.6 miles upstream from the Ipswich Mills Dam. Comments state that as a worst case, the Willowdale Dam would prevent a drop in river water levels from propagating any farther upstream and the Willowdale Dam itself is several miles downstream from any public surface water intakes on the Ipswich River. Comments further state that only active public groundwater supply downstream of the Willowdale Dam is the Winthrop Well No. 2, which is approximately 300 ft from the riverbank, and is recorded as being 56 ft deep.<sup>10</sup> Therefore, MassDEP NERO concludes that that removal of the Ipswich Mills Dam will not impact any public surface water supplies and is unlikely to have a significant impact upon Winthrop Well No. 2 due to the drop in river level adjacent to the well.

### *Climate Change*

#### *Adaptation and Resiliency*

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the EENF, the project has a "High" exposure rating based on the project's location for the sea level rise/storm surge, extreme precipitation (urban flooding), extreme precipitation (riverine flooding) and extreme heat climate parameters. The project location also scores "High" in ecosystem benefits. The primary assets for this project are natural resources; therefore, the project received a

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<sup>10</sup> Comments provided by MassDEP NERO state that the Winthrop No. 1 tubular wellfield that is located approximately 2,000 feet downstream from Well No. 2; however, it is designated as inactive.

standard recommendation of a 20-yr (5%) return period design storm as of 2030 for sea level rise/storm surge and a 25-yr (4%) return period design storm as of 2030 for extreme precipitation, which were provided as a consideration for users and not a formal standard.

The MA Resilience Design Tool output indicates that the project site is located within the predicted mean high-water shoreline by 2030, is exposed to the 1% annual coastal flood event as early as 2030, and is located within the 0.1% annual coastal flood event within the project's useful life. These factors are indicated in the Tool as contributing to the "High" exposure for the sea level rise/storm surge climate parameter. According to the EENF, water levels below the dam are typically dominated by tidal influence; therefore, in the absence of the dam, the hydraulic tidal influence is predicted to extend upstream to Upper River Road (approximately 4,350 ft upstream of the existing dam).

The MA Resilience Design Tool output indicates that the site has a history of riverine flooding and is located in the current 100-year FEMA floodplain. These factors are indicated in the Tool as contributing to the "High" exposure for the extreme precipitation (riverine flooding) parameter. The USGS maintains a flow and stage gauge on the Ipswich River approximately 4.6 miles upstream of the Ipswich Mills Dam and maintains water surface elevation and discharge data from June 1930 to present. According to the USGS data, monthly mean flows between 1930 and 2009 range from 42.0 cubic feet per second (cfs) in August to 446 cubic feet per second in March, with the highest recorded flow of 4,600 cfs occurring on May 16, 2006. As noted above, a hydrologic and hydraulic (H&H) analysis was conducted to evaluate flood conditions downstream during the 100-year flood event, analyze flow velocities through the project area to identify potential scour and erosion risks, assess upstream and downstream water surface elevations during a range of flow conditions to ensure water levels and flow velocities will remain favorable to fish passage, and an assessment of fish passage performance across a range of typical fish passage flows. Based on the model, flood levels under dam-out conditions are predicted to decline relative to existing conditions throughout the upstream impoundment to the railroad bridge. Similarly, the model predicts a minimal change in the flood profile downstream of the dam which is primarily controlled by the constriction caused by the Choate Bridge; however, the results do predict a slight, localized increase in water levels between the dam and pedestrian bridge for both the 2-year and 100-year events, which likely reflects a change from varied, turbulent flow under existing conditions to smoother, more stable flow following removal. According to the EENF, this localized increase predicted by the model may not be actualized but any increase water levels is not anticipated to increase flood risk to adjacent or downstream properties. In addition, the removal of the dam will eliminate the existing impoundment which will allow floodwaters to rise and spread out uniformly within the newly created riparian zone, unlike under current conditions. As noted above, this change from an impoundment to a more uniform flow of water means that the project is not anticipated to result in significant changes in water surface elevations downstream of the dam and is anticipated to decrease associated flooding risks both upstream and downstream.

#### *Greenhouse Gas Emissions (GHG)*

This project is subject to review under the May 2010 MEPA GHG Policy and Protocol (GHG Policy) because it exceeds thresholds for a mandatory EIR. The GHG Policy includes a de minimis exemption for projects that are expected to produce minimal GHG emissions. GHG emissions associated with this ecological restoration project will be limited to the construction period and are de minimis. Therefore, the Proponent was not required to submit a GHG analysis in conjunction with the EENF.

*Construction Period*

According to the EENF, the project is expected to commence in 2026 and is anticipated to be completed in 2027. Dam removal will occur in vertical and horizontal increments beginning west of the active fishway near the center of the dam. Starting towards the center of the dam is intentional in order to ensure that flow stays concentrated in the middle of the river and does not lead to erosion during the dam removal process. Flow and sediment transport will be observed during for potential negative downstream impacts before proceeding with the following increment. At the two ends where the dam meets the river walls, the dam will be sawcut vertically to create clean edges. Temporary construction access and staging will also be needed for project implementation. Construction equipment and materials staging would occur in the municipal parking lot across South Main Street from the project site on river-right. Access to the project site will be provided from South Main Street through the Town's existing easement to the viewing platform. Following complete removal of the dam, coarse bed material including rock and large boulders located upstream and downstream of the dam will be regraded to form a more natural profile and support good fish passage conditions under a variety of flow conditions.<sup>11</sup> In areas immediately adjacent to the dam, where sediments are anticipated to be exposed, encapsulated soil lifts will be installed to protect the riverside retaining walls from potentially increased river velocities in these areas during some flow conditions.<sup>12</sup> Stone support will be installed on the toe of the slopes for the soil lifts in order to further protect them and the upgradient retaining walls against erosion. Further upstream, where newly exposed soils are not expected to be subject to higher river velocities, the new BVW will be stabilized with coir logs.

All construction and demolition activities should be managed in accordance with applicable MassDEP's regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11). I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). If oil and/or hazardous materials are found during construction, the Proponent should notify MassDEP in accordance with the Massachusetts Contingency Plan (310 CMR 40.00). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle construction and demolition (C&D) debris to the maximum extent.

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<sup>11</sup> The EENF states that approximately 170 cy of boulders and cobbles will be relocated on-site during the regrading process.

<sup>12</sup> An encapsulated soil lift is a stabilization method that encases soil with erosion control blankets and coir fiber blocks or rolls to build terraces to restore a stable bank.

## SCOPE

### Project Description and Permitting

The Single EIR should describe any changes to the project since the filing of the EENF, including any changes to environmental impacts associated with such changes. The Single EIR should include an updated list of required Permits, Financial Assistance, and other state, local and federal approvals and provide an update on the status of each of these pending actions. The Single EIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. The Single EIR should provide additional details on the existing c.91 approval by the former DPW in 1973 as well as the authorization history of the modifications to the dam, to the extent such information is available. The Proponent is encouraged to confer with the MassDEP WRP in order to confirm the extent of the project within jurisdiction and evaluate the project relative to the applicable provisions of 310 CMR 9.00. The Single EIR should describe how the project complies with the PBD (301 CMR 13.00) criteria.

The Single EIR should include site plans for existing and post-development conditions. Plans should clearly identify buildings, impervious areas, wetland resource areas, historic and archaeological assets, and stormwater and utility infrastructure. Plans should include datums relative to the location of each of the proposed project components, and the narrative should describe the total permanent and temporary impacts on resource areas resulting from the proposed project. Consistent with MassDEP comments, the Single EIR should address whether the proposed re-grading within or adjacent to the former dam footprint constitutes "filling" of LUWW, and should reevaluate whether there are any Outstanding Resource Waters in the vicinity of the project.

The Single EIR should provide an update on the status of the reconnaissance-level archaeological and historic properties survey, requested by MHC. To the extent the survey has been completed by the time the Single EIR is filed, the Single EIR should attach the results of the reconnaissance-level archaeological and historic properties survey. The Single EIR should discuss the timeline of construction activities and how construction will be timed to avoid both time-of-year (TOY) restrictions.

### Sediment Management

Prior to submission of the Single EIR, the Proponent should consult with MassDEP and CZM to develop a proposed sediment sampling plan and should provide the sampling plan in the Single EIR together with the results of any sediment analysis completed by the time of the Single EIR. The Single EIR should discuss the potential contamination present within the impoundment and in upstream and downstream areas. The Single EIR should discuss how the Proponent intends to identify whether there are any Threshold Effects Concentration (TEC) exceedances or Probable Effects Concentration (PEC) exceedances based on the sediment sampling plan and/or sediment analysis. To the extent that the results indicate contamination at or above the Massachusetts Contingency Plan (MCP) thresholds, the Single EIR should discuss how the project will manage sediments in accordance with the MCP and detail changes in the proposed sediment management methodology described in the EENF. The Single EIR should commit to the implementation of a post-construction monitoring program that addresses sediment

transport, channel and bank stability, and invasive species monitoring and management. The Single EIR should provide a copy of the post-construction monitoring plan if finalized, or, alternatively, a conceptual discussion of its main components.

Mitigation and Draft Section 61 Findings

The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ Populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

Responses to Comments

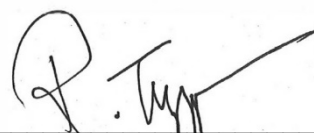
The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the Single EIR should include a comprehensive response to comments that specifically address each issue raised in the comment letter; references to a chapter or sections of the Single EIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate.

Circulation

In accordance with 301 CMR 11.16(3), the Proponent should circulate the Single EIR to each Person or Agency who commented on the EENF, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the Single EIR to commenters in a digital format (e.g., CD-ROM, USB drive), by directing commenters to a project website address, or electronically. However, the Proponent must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. A copy of the Single EIR should be made available for review in the Ipswich Public Library.

October 16, 2023

Date

  
Rebecca L. Tepper

Comments received:

Comments submitted on the MEPA Public Comments Portal

8/23/2023 Steven Calder  
8/23/2023 Diane Kelley  
8/23/2023 Christopher Fauske  
8/23/2023 Christopher Cerino (supplemental comments submitted on 10/8/2023)  
8/24/2023 Haley Mosher  
8/24/2023 Jonathan Penyack  
8/25/2023 Catherine Hone  
8/25/2023 Margot Kelly  
8/26/2023 Valda Winsloe  
8/28/2023 Anonymous  
8/31/2023 KelleyJane Kloub  
9/1/2023 Rev. Dr. Rebecca Pugh  
9/1/2023 Massachusetts Division of Ecological Restoration (DER)  
9/2/2023 The Nature Conservancy (TNC)  
9/3/2023 John Doonan  
9/4/2023 John Bruni  
9/6/2023 Katerina Andreishcheva  
9/7/2023 Anonymous  
9/7/2023 Anonymous  
9/11/2023 Jean Hubbard  
9/12/2023 W. Denis Markiewicz (supplemental comments submitted on 9/28/2023)  
9/14/2023 Susan Wallingford  
9/18/2023 Carol Bousquet  
9/18/2023 Katherine Lindquist  
9/18/2023 Katherine Desilva  
9/18/2023 Nelda Quigley  
9/19/2023 Richard McElvain and Lynda Robinson  
9/19/2023 Iris Doucette  
9/20/2023 Alison Ferguson  
9/21/2023 John Moss  
9/23/2023 David Voci  
9/23/2023 Lee Schofield  
9/24/2023 Wendall Waters  
9/24/2023 Sara Beck  
9/26/2023 Joel Hariton  
10/3/2023 Michael Walker  
10/5/2023 Dan Rowland (supplemental comments submitted on 10/5/2023)  
10/5/2023 Lindsay Randall  
10/6/2023 Merrimack River Watershed Council (MRWC)  
10/9/2023 Carl Gardner (supplemental comments submitted on 10/9/2023)  
10/10/2023 Tanya Waldroup

10/10/2023 Peter Soffron  
10/10/2023 Mill Pond Preservation Association (MPPA)

Comments submitted by email

8/21/2023 Donna Hughes  
8/25/2023 Plum Island Ecosystems Long-Term Ecological Research Program (PIE-LTER)  
8/28/2023 Essex County Greenbelt Association  
8/31/2023 Michael Searles  
8/31/2023 Christopher Davis  
9/8/2023 David Comb  
9/9/2023 Ingrid Barry  
9/11/2023 Anonymous  
9/11/2023 Ken MacNulty  
9/12/2023 Linda Fates  
9/12/2023 Kenneth Whittaker  
9/13/2023 Deborah Fowler-Wheaton  
9/16/2023 James Zabelski (supplemental comments submitted on 9/16/2023)  
9/19/2023 Charles River Watershed Association (CRWA)  
9/20/2023 Joanne Delaney  
9/21/2023 OARS: For the Assabet, Sudbury, and Concord Rivers  
9/25/2023 Mass Audubon  
9/27/2023 Massachusetts Historical Commission (MHC)  
9/30/2023 Marlene Markos  
10/2/2023 Roger Wheeler  
10/4/2023 Massachusetts Rivers Alliance  
10/5/2023 Massachusetts Water Resources Commission (WRC)  
10/6/2023 Nor'East Chapter of Trout Unlimited (NETU)  
10/6/2023 American Rivers  
10/10/2023 Massachusetts Office of Coastal Zone Management (CZM)  
10/10/2023 Parker River Clean Water Association (PRCWA)  
10/10/2023 Metropolitan Area Planning Council (MAPC)  
10/10/2023 Massachusetts Division of Marine Fisheries (DMF)  
10/10/2023 Massachusetts Department of Environmental Protection (MassDEP) Waterways Program  
10/10/2023 Massachusetts Department of Environmental Protection (MassDEP) Northeast Regional Office (NERO)

RLT/NJM/njm



**ENF for potential removal of the Ipswich dam.**

Donna Hughes <djhughes1947@gmail.com>

Mon 8/21/2023 10:48 AM

To:MEPA (EEA) <mepa@mass.gov>

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

To the secretary of Energy and Environmental Affairs, While I understand the desire to return the river to its natural state, I am opposed to it in this case. Our dam has been there for 400 years and has its own ecosystem. Removing it could jeopardize the current EBSCO building, putting the town at risk for liability in the millions. There is also the danger of forever damaging the clam flats because of the possible pollutants that might be washed downstream with removal .Please notify me of any site visits. There are just too many risks involved with removal , in my opinion. Thank you for your consideration. Donna Hughes 26 Howe St. Ipswich, Ma. 01938

Sent from my iPhone

The EENF notification form dated August 2023, cover letter (submitted by the Horsley Witten Group on behalf of the Town of Ipswich), states the removal of the Ipswich Mills Dam is based on meeting the criteria of five goals as noted below:

First and foremost,

**1- improved fish passage and habitat**

**2- improved water quality**

**3- flood reduction**

**4- liability removal**

**5- recreational improvements**

In my report I will quote false or misleading information from the latest EENF, and I will respond by giving references and quotes from sources of accurate information and based on logical thinking, my opinion.

### **Goal 1- improved fish passage and habitat**

“Fish Passage:

Model results indicate that predicted water **surface profiles and flow velocities through the former dam location during low flows will be favorable to fish passage** (Table 3-5). The flows modeled were calculated by taking into account records **over the entire migration period from March through June.”**

*ref.1*

Ipswich Mills Dam Removal Feasibility Study Ipswich, Massachusetts March 2019 page 25, which is part of *ref.1*

Response:

Fish migration takes place twice during a calendar year, Model results do not take into account Juvenile **Alewife that migrate downstream in late summer and early fall** when water levels are typically at their lowest level. Removing the dam would remove an oasis during low level events for these fish and other

aquatic wildlife until reasonable water levels return. At the railroad bridge at low flow levels, it will be impossible for river herring to return to the ocean.

“Recent studies indicate that juvenile river herring may begin to leave nursery grounds as early as late June, although the greater numbers remain in ponds and lakes until the fall season.” [ref6](#)

Historic records show that river herring, more specifically Alewife, swam upriver to spawn in the millions. **“Over a million alewife swam upstream to Wenham Lake as late as the 1890’s, before the water superintendent petitioned the legislature to close the lake, which eliminated the anadromous population.”** [ref. 4.](#)

The alewife's historic spawning grounds of Wenham Lake and Norwood Pond are no longer because there is no access via Miles River which has been reduced today to a flowing wetland. The sources of the river have been blocked at Wenham Lake and Norwood Pond.

Alewives are imprinted to return to the place of birth to spawn future generations, so no spawning grounds means no future generations returning to spawn.

“Alewives continue upriver towards ponds and lakes to spawn. As a rule, they spawn in slack water.” [ref. 6](#)

The first fish passage was built in 1747, as was told to me by a local historian.

A better fish ladder would achieve the number one goal set by the town of improved fish passage and habitat.

Ipswich Mills fish ladder is a Denil style fish ladder, and **it does allow passage of river herring but:**

**“the largest disadvantage to this fishway is that higher velocities are encountered due to the steeper slope and fish must traverse the entire fishway in one pass without a resting area.”** [Ref.5](#)

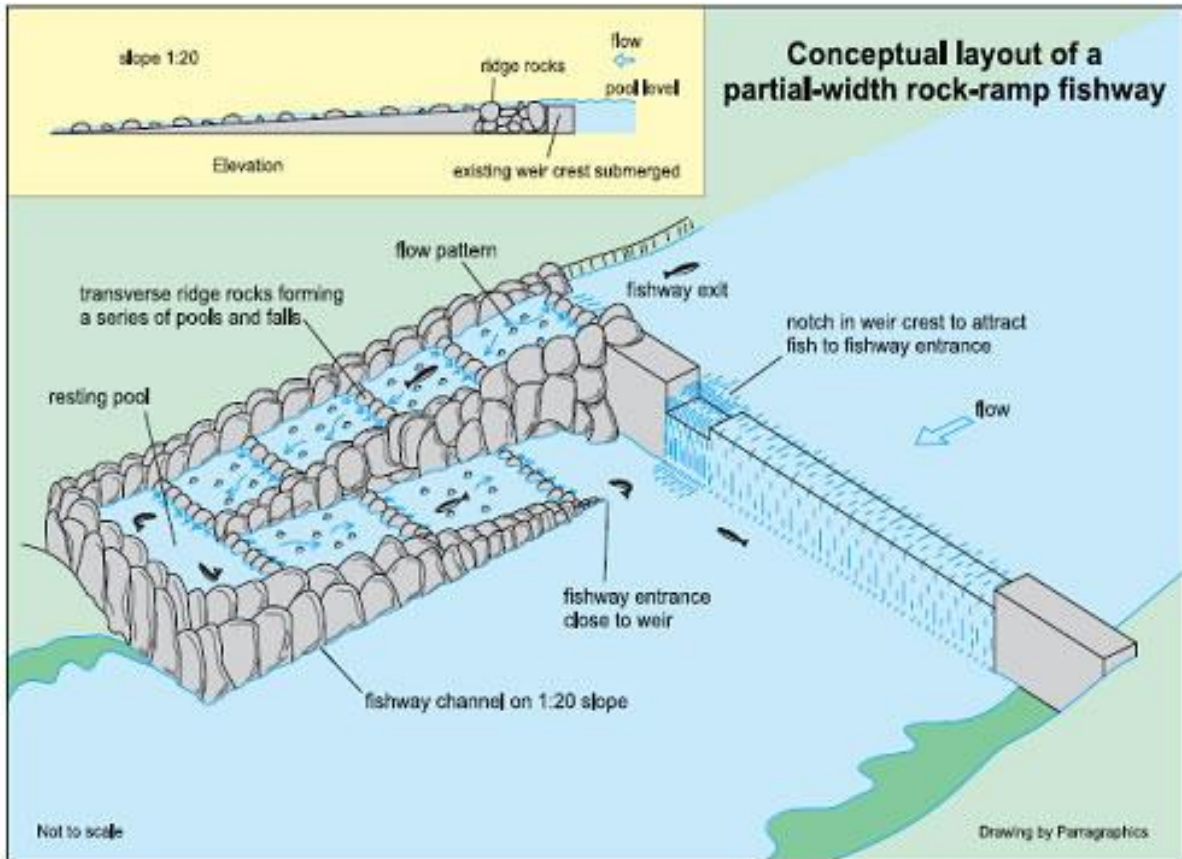
LET'S JUST SAY- NOT AN IDEAL FISH LADDER!

A redesigned fish passage:

**Nature-like Fishways (rock ramps and bypass channels)**

**A nature-like fishway is a broad term for several styles of structures constructed with natural materials, with rock being the most common. Nature-like fishways have proven effective for a wide range of fish species with varying swimming abilities (DVWK 1996; 2002; Gaboury et al. 1995). The purpose of these nature-like fishways is to simulate natural river channels. In addition to improving fish passage past dams, nature-like fishways provide benefit for many aquatic organisms. Figures below exhibit conceptual layouts of various natural fishways. Aadland (2010) described the advantages of emulating natural channel geomorphology and materials in a fishway as:**

1. Fish react to complex current and bathymetry cues, and channels similar to natural channels are less likely to cause disorientation than channels that are not.
2. Natural channel design allows fishways to provide important spawning habitat as well as passage.
3. Use of natural substrates, rather than concrete or other smooth materials, provides roughness and interstitial spaces that allow **small fishes and benthic invertebrates to pass** and, in many cases, colonize the fishway.
4. A fishway built with natural channel design techniques provides habitat that in some cases may be rare due to reservoir inundation.



*Conceptual Layout of a Partial-Width Rock Ramp Fishway (Source: Thorncraft and Harris 2000)*

Ref.5

A new and improved fish ladder should allow passage up and downstream of more aquatic wildlife including mammals.

## Goal 2- improved water quality

Project Inputs	
<b>Core Project Information</b>	
Name:	Ipswich Mills Dam Removal
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2026
Location of Project:	Ipswich
Estimated Capital Cost:	\$644,700
Who is the Submitting Entity?	City/Town Ipswich Frank Ventimiglia (frankv@ipwichma.gov)
Is this project identified as a priority project in the Municipal Vulnerability Preparedness (MVP) plan or the local or regional Hazard Mitigation Plan (HMP)?	Yes
Is this project being submitted as part of a state grant application?	No
Which grant program?	
What stage are you in your project lifecycle?	Permitting
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	This project proposes to remove the Ipswich Mills Dam. Goals of the project include improving fish passage and habitat, improving water quality, flood reduction, liability removal, and recreational improvements. This project will require a MEPA certificate, a Chapter 91 license, a Water Quality Certification, and a MA Office of Dam Safety Determination/Permit.
Project Submission Comments:	
<b>Project Ecosystem Service Benefits</b>	
<b>Factors Influencing Output</b>	
<ul style="list-style-type: none"> <li>✓ This is an ecological restoration project</li> <li>✓ Project provides flood protection through nature-based solutions</li> <li>✓ Project reduces storm damage</li> <li>✓ Project protects fisheries, wildlife, and plant habitat</li> </ul>	
<b>Factors to Improve Output</b>	
<ul style="list-style-type: none"> <li>✓ Incorporate nature-based solutions that improve water quality</li> </ul>	
<b>Is the primary purpose of this project ecological restoration?</b>	
Yes	
<b>Project Benefits</b>	
Provides flood protection through nature-based solutions	Yes
Reduces storm damage	Yes
Recharges groundwater	No
Protects public water supply	No
Filters stormwater using green infrastructure	No
Improves water quality	Maybe
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	Yes
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	No
Provides cultural resources/education	No
<b>Project Climate Exposure</b>	
Is the primary purpose of this project ecological restoration?	Yes
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	Yes
Does the project site have a history of riverine flooding?	Yes
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	No

Page 10 of 11

See from above:

Climate Resilience Design Standards Tool Project Report Page 10 of 11

Project Submission Comments:

Project Benefits:

**“Improves water quality \_\_\_\_\_ Maybe”** from above

Climate Resilience Design Standards Tool Project Report page 10 which is in [ref.1](#)

Response:

The word “MAYBE” does not meet the goal of improved water quality.

Furthermore:

“Sessile communities are more susceptible to sediment impacts than fish which can adjust quickly to changes in turbidity and bedload. Further investigation into the volume of fine sediment stored over the whole length of the impoundment is necessary before short-term impacts can be fully assessed. Timing the Ipswich Mills Dam removal so that sediment is released well ahead of fish migration periods will help to minimize impacts to migratory fish.”

1.0 INTRODUCTION page 22 part of ref.1

**“An additional 6,900 cubic yards of sediment will meet the dredge definition due to the passive release of sediment from the impoundment and downstream relocation following the removal of the dam”.** EENF- Project narrative- dredging, PDF page 78 part of ref.1

Basically, fish can get out of the way clams cannot! Clams will be impacted more by the release of 6900 cubic yards of sediment. There is no documentation to support that there will not be any negative effects.

### 3- flood reduction

Table 3-4. Predicted flood water elevations for existing and dam-out conditions (ft NAVD88)

River station	100-year flow and 8.7 ft stillwater tide		100-year flow and 4.10 ft MHW tide		2-year flow and 4.10 ft MHW tide	
	Existing (ft)	Dam Removed (ft)	Existing (ft)	Dam Removed (ft)	Existing (ft)	Dam Removed (ft)
11787	21.29	21.29	21.29	21.29	13.00	13.00
10867	21.31	21.31	21.31	21.31	12.79	12.79
10689	20.58	20.58	20.58	20.58	12.33	12.32
10657	Railroad bridge					
10625	15.79	15.69	15.71	15.59	11.85	9.75
10513	16.81	16.74	16.76	16.67	12.04	10.95
9865	16.70	16.62	16.64	16.55	11.99	10.84
9283	16.44	16.35	16.37	16.27	11.89	10.62
7408	15.79	15.67	15.69	15.56	11.59	9.44
5359	15.32	15.18	15.21	15.04	11.44	8.27
3900	14.82	14.66	14.69	14.49	11.34	7.11
3682	14.77	14.60	14.64	14.43	11.33	6.97
3469	14.73	14.56	14.59	14.38	11.31	6.68
3260 (EBSCO)	14.66	14.48	14.51	14.29	11.30	6.54
3072	14.42	14.41	14.24	14.21	11.24	6.43
3063	14.39	-	14.19	-	11.22	-
3051 (Dam)	14.39	-	14.19	-	11.22	-
3041	14.38	14.35	14.19	14.15	7.03	6.34
3020	14.29	14.33	14.07	14.13	6.05	6.28
2998	14.32	14.32	14.11	14.11	6.17	6.17
2990	Pedestrian bridge					
2934	14.30	14.30	14.08	14.08	6.14	6.14
2717	14.25	14.25	14.03	14.03	6.04	6.04
2701	14.25	14.25	14.03	14.03	6.04	6.04
2522	14.21	14.21	13.99	13.99	5.82	5.82
2387	14.06	14.06	13.84	13.84	5.79	5.79
2306	13.36	13.36	13.12	13.12	5.62	5.62
2302	Choate Bridge					
2264	10.65	10.65	10.27	10.27	5.32	5.32

ref.1

Ipswich Mills Dam Removal Feasibility Study Ipswich, Massachusetts March 2019 page 27, which is part of ref.1

Response:

The dam has very little influence on the 100-year flood water elevations up or down stream as indicated in the chart above.

Flooding below the dam in 2006 was not because of the dam but rather the restrictive nature of the Choate bridge itself.



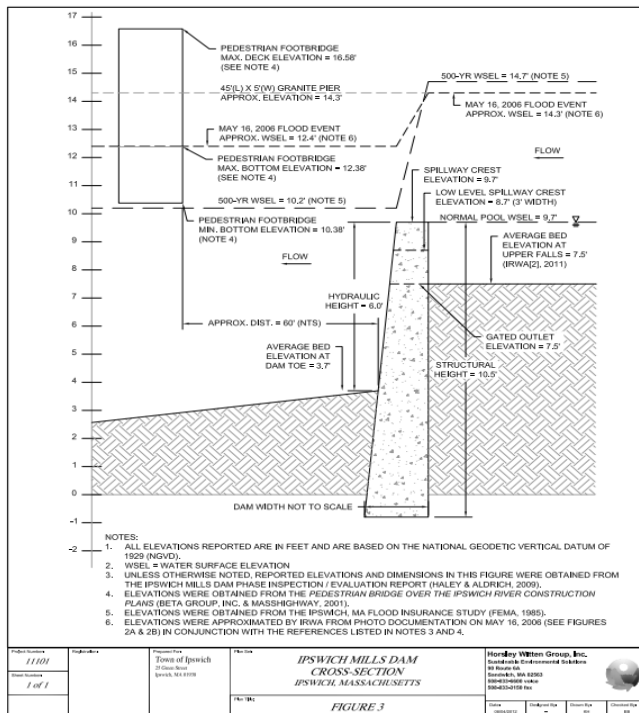
While the chart above does indicate a reduced water level for 2-year flow at 4.10 ft MHW tide, it does not give us any info about MHW tide 2-year flow at d 8.7 ft stillwater tide. **Does this mean that at high tide, water levels would be higher under dam out conditions upstream of the existing dam?** Missing information.

#### 4- liability removal

Response:

I have found no costs associated with dam liability. If the town is concerned with the failure of the dam, there are no documents that support its possible failure. The dam survived a 150-year flood event (May 2006) with no recorded damage to the dam from that flood. *Ref 3*

Some of the documents presented by the Horsley Witten Group inc. Do not accurately depict the physical properties of the dam nor do they provide accurate information relative to the actual health of the dam. See below document:



*Ref.1*

**Ipswich Mills Dam does not look like the above diagram that was drawn by the Horsley Witten Group inc.**

The Exeter River Great Dam Removal Feasibility and Impact Study Final Technical Report goes into great detail on costs for all options that were considered before the towns people decided on the best way forward.

Below is one example of such information:

Table ES-1. Initial Construction and Mitigation Costs

Alternative	Design, Permitting and Construction	Infrastructure and Environmental Mitigation	Total
Alt A - No Action	-	\$550,000	\$550,000
Alt B - Dam Removal	\$732,150	\$512,608	\$1,244,758
Alt F - Partial Removal	\$1,338,630	\$912,608	\$2,251,238
Alt G - Stabilize in Place	\$418,000	\$565,000	\$983,000
Alt H - Dam Modification	\$1,016,000	\$795,200	\$1,811,200

Table ES-2. Total Costs including O&M and Replacement (30 Year Analysis)

Alternative	Initial Cost	O&M and Replacement Costs	Total
Alt A - No Action	\$550,000	-	\$550,000
Alt B - Dam Removal	\$1,244,758	\$0	\$1,244,758
Alt F - Partial Removal	\$2,251,238	\$385,170	\$2,636,408
Alt G - Stabilize in Place	\$983,000	\$181,894	\$1,164,894
Alt H - Dam Modification	\$1,811,200	\$616,724	\$2,427,924

Ref Z

I have found no documentation to even suggest all alternatives to dam removal were considered or that any consideration was given to improving fish passage by creating a better fish ladder, which would achieve the number one goal set by the town, to improve fish passage and habitat. If the town is concerned that someone would get hurt on or around the dam site would that not apply to all town properties? Reasonable safety measures are in place at the dam site.

If the liability concern is related to loss of life from failure of the dam, is there any information to the likelihood of a catastrophic dam failure of the Ipswich Mills Dam which could result in loss of life? If the dam failed would the breach be immediate, or are there any estimates on length for complete dam failure? Does the towns liability insurance costs go down with the removal of the dam?

The design of the dam would seem to indicate that unlike a concrete dam, its failure would not happen all at once.

## 5- recreational improvements

Project Inputs	
<b>Core Project Information</b>	
Name:	Ipswich Mills Dam Removal
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2026
Location of Project:	Ipswich
Estimated Capital Cost:	\$644,700
Who is the Submitting Entity?	City/Town Ipswich Frank Ventimiglia (frankv@ipwichma.gov)
Is this project identified as a priority project in the Municipal Vulnerability Preparedness (MVP) plan or the local or regional Hazard Mitigation Plan (HMP)?	Yes
Is this project being submitted as part of a state grant application?	No
Which grant program?	Permitting
What stage are you in your project lifecycle?	Yes
Is climate resiliency a core objective of this project?	No
Is this project being submitted as part of the state capital planning process?	Yes
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	This project proposes to remove the Ipswich Mills Dam. Goals of the project include improving fish passage and habitat, improving water quality, flood reduction, liability removal, and recreational improvements. This project will require a MEPA certificate, a Chapter 91 license, a Water Quality Certification, and a MA Office of Dam Safety Determination/Permit.
Project Submission Comments:	
<b>Project Ecosystem Service Benefits</b>	
<b>Factors Influencing Output</b>	
<ul style="list-style-type: none"> <li>✓ This is an ecological restoration project</li> <li>✓ Project provides flood protection through nature-based solutions</li> <li>✓ Project reduces storm damage</li> <li>✓ Project protects fisheries, wildlife, and plant habitat</li> </ul>	
<b>Factors to Improve Output</b>	
<ul style="list-style-type: none"> <li>✓ Incorporate nature-based solutions that improve water quality</li> </ul>	
<b>Is the primary purpose of this project ecological restoration?</b>	
Yes	
<b>Project Benefits</b>	
Provides flood protection through nature-based solutions	Yes
Reduces storm damage	Yes
Recharges groundwater	No
Protects public water supply	No
Filters stormwater using green infrastructure	No
Improves water quality	Maybe
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	Yes
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	No
Provides cultural resources/education	No
<b>Project Climate Exposure</b>	
Is the primary purpose of this project ecological restoration?	Yes
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	Yes
Does the project site have a history of riverine flooding?	Yes
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	No

See from above:

Climate Resilience Design Standards Tool Project Report Page 10 of 11

Project Submission Comments:

Project Benefits:

**“Provides recreation**

**No”**

Climate Resilience Design Standards Tool Project Report page 10 which is in Ref.1

“Recreation:

**Based on the assumptions made for this study**, it will be possible to paddle past the former dam site, creating a **new opportunity for boats to pass directly from the existing boat launches downstream to the estuary and vice versa**. Even if bedrock is found beneath the dam at a higher elevation than assumed here, modeling suggests that the increased tidal range will help facilitate upstream and downstream movement **at least twice a day during high tide**. With the dam removed, boating hazards associated with the dam will be eliminated, though the bedrock may be challenging to navigate depending on the water levels and tide. At the upstream end of the impoundment, **portage may be required underneath the railroad bridge during low water periods**. **Other high spots on the bed within the impoundment may also present challenges for paddlers and could require portage during very low flows and low tide**. Overall, **there is no evidence to suggest that the river through the former impoundment will not remain usable for paddlers**. A primary **impact of dam removal will be more variability in paddling conditions as flow levels vary with changes in discharge and tidal conditions**. Impacts should be reconsidered as the design progresses with access modifications and portage provisions incorporated as necessary to allow for access over a range of flow and tidal conditions.”

Ipswich Mills Dam Removal Feasibility Study Ipswich, Massachusetts March 2019 page 29, which is part of ref.1

Response:

Project Submission Comments from the above chart, states “Project Benefits: **Provides recreation No”**, that says it all.

The first words in the above statement **“based on the assumptions made for this study,”** I have to ask who was qualified to make that assumption? The discussion on the fate of the dam and the future of the river itself should not be made on assumptions but based on facts. We all know the old saying....

**“More variability in paddling conditions as flow levels vary”**, from the above statement is not necessarily a good thing, especially for inexperienced paddlers. I would consider that to be more of a liability than an asset.

As someone who has paddled The Ipswich River for over 50 years, most boaters I believe will have limited access **once a day for a 2-hour period either side of high tide at best** if high tide happens during hours that coincide with normal boating hours. **“a new opportunity for boats to pass directly from the existing boat launches downstream to the estuary and vice versa”**, trying to paddle up stream in this area will be very similar to trying to make your way upstream in the area just east (downstream) of the Mill Road bridge. Most boaters will be unsuccessful, leaving them vulnerable to capsizing while sideways as they try to reverse direction. Most boaters to me means canoes and kayaks, and maybe tubers. and I think only a small percentile of those boaters will be able to navigate upstream most of the time. Under the railroad bridge is already challenging during low flow periods and will only get worse with the dam out.

### **Personal thoughts and observation:**

I believe there will be a significant reduction of wetland acreage, from the dam site to approximately  $\frac{3}{4}$  mile upstream if the dam is removed. This is only based on my observations; an independent environmental impact study needs to be done on the reduction of wetlands.

There has been talk about water temperatures lowering with dam removal but I have seen no study that includes information comparing water temperatures for existing and dam out conditions during low water level events. The picture below of a turtle (one of many turtles with growth on their shells observed this summer all along the river) showing algae growth on its shell which I believe is connected to last year's low water level event that created higher water temperatures. Will lower water levels created by removing the dam have this same effect on the

turtles?



## Summary:

The town of Ipswich has not met any of its five goals that it set for dam removal. There is no documentation to even suggest that all options were studied (i.e., a redesigned fish ladder), before dam removal was decided to be the best option.

Efforts like the town of Exeter NH, (**Exeter River Great Dam Removal Feasibility and Impact Study Final Technical Report - NHDES Dam #082.01**) [ref 7](#) is a good example of what the townspeople need and deserve before any decision can be made about the future of the Ipswich Mills Dam and The Ipswich River itself.

No technical information has been documented that would lead to the necessity of dam removal. The information presented to the public is incomplete and only presents one side of a complex issue. The Horsley Witten Group inc. are only representing the Town of Ipswich for the purpose of dam removal only, and their documents and diagrams are reflective of that. There has been no documented representation of any other parties that will be affected by the decision to remove the dam, including the residents along the river that are directly affected by upstream flooding if the dam is there or not.

At some point in the past, the decision to remove the dam was decided at the local government level, without public input. All processes and studies after that are reflective of that decision.

I am requesting for the state prepare an Environmental Impact Study so it will be known as to what damage the dam removal will have to the existing environment. Once the dam is gone, there's no going back. So, without hard evidence that there will be no or little negative impact on the current environment, **the dam should remain intact, and a new fish ladder** should be built to better serve the inhabitants of our river.

Please do not let the town of Ipswich bypass any processes or environmental impact studies that will negatively affect the Ipswich River or its sessile population downstream, no waivers!

Document prepared by

*Christopher Cerino*

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See references on the next page



- ref 1           Horsley Witten Group  
Ipswich Mills Dam Removal Expanded Environmental Notification  
Form Ipswich, Massachusetts August 2023
- ref 2           Horsley Witten Group  
Ipswich Mills Dam Removal Expanded Environmental Notification  
Form Ipswich, Massachusetts June 2023
- ref 3.           IPSWICH MILLS DAM PHASE I INSPECTION/EVALUATION REPORT  
September 4, 2020
- ref 4           Historic Ipswich.net- The Miles River
- ref 5           U.S. Army Corps of Engineers- Fish passage= types and methods-  
upstream
- ref 6           Status of River Herring on the North Shore of Massachusetts  
Tim Purinton, Frances Doyle and Dr. Robert D. Stevenson  
2003
- ref 7           Exeter River Great Dam Removal Feasibility and Impact Study  
Final Technical Report - NHDES Dam #082.01

MEPA submittal 10-08-2023 EEA No. 16754 – Ipswich Mills Dam Removal Project

Below is reference quoted from:

<https://www.ipswichriver.org/wp-content/uploads/2021/10/2020-Report-Card-1.pdf>

The Ipswich River Watershed 2020 River Health Index

Water Quality Challenges on page 2:

“Many parts of the watershed experience low flows in summer due to groundwater withdrawals. Water withdrawals deplete streamflow, impairing the rivers’ ecology by causing a loss of critical habitat for aquatic life along with an increase in water temperature and a decrease in dissolved oxygen. Critical habitat for fish and other aquatic life occurs along the river bank and in shallow rocky riffle zones. When flows drop below the channel margins, these are the first areas to dry up, after which point the river can be reduced to a series of pools. Fish and other aquatic life become stressed under these conditions and must either move to more suitable areas if possible or perish. Certain species of fish that would normally be expected to be found in the Ipswich River under normal conditions are absent or isolated to certain sections of the river. Unlike fish, benthic, aquatic macroinvertebrates that depend on riffle habitats, cannot move so easily, making them ideal indicators of aquatic life health. **Low flows, even for short periods of time can have long-term impacts on aquatic life and the state of the river.**”

“Water temperature directly affects many aspects of water quality. Water temperatures rise in the summer, but low flows will raise temperatures even more. Increased water temperatures in the summer are brought on by low flows and climate change. **Studies by the U.S. Geological Survey (USGS) and the Massachusetts Division of Fisheries and Wildlife have found that the Ipswich River’s fisheries have been degraded by low-flow problems and the River has experienced a decrease in biodiversity due to the loss of river dependent fish species** (Armstrong et al., 2001). The study identified critical aquatic habitats and recommended minimum flows necessary to preserve those habitats.”

River Health Index on page 5 shows Results from August and September in the Upper and Lower Watershed sites of 0, with 1-20 being very poor or grade F, and June and July scores of poor and very poor for the Lower Watershed.

Quote from page 2: “**Low flows, even for short periods of time can have long-term impacts on aquatic life and the state of the river.** “

Using that logic reducing the amount of water anywhere in the river will negatively affect the health of the fish population as well as the benthic, aquatic macroinvertebrates.

Information from:

<https://www.mass.gov/doc/2022-integrated-list-of-waters-appendix-15-ipswich-river-basin-and-coastal-drainage-area-assessment-and-listing-decision-summary/download>

Appendix 15 Ipswich River Basin and Coastal Drainage Area Assessment and Listing Decision Summary page 94 state the 11 miles of Ipswich River (MA92-15) two of the three top impairments (dewatering and dissolved oxygen) are due to “**Baseflow Depletion from Groundwater Withdrawals.**”

Lowering water levels will further impair baseflow, dissolved oxygen and increase water temperatures during summer months.

From:

IPSWICH RIVER WATERSHED 2000 WATER QUALITY ASSESSMENT REPORT

<https://www.mass.gov/files/documents/2016/08/wl/92wqar.pdf>

On page 77:

“The report also acknowledges that the seasonal loss of river flow due to watershed withdrawals is a critical issue that must be addressed before the depleted status of anadromous fish can be improved (Reback et al. in preparation).”

From:

Status of River Herring on the North Shore of Massachusetts

Tim Purinton, Frances Doyle and Dr. Robert D. Stevenson

2003

States on page 9:

IV. Threats

“Water level changes due to competing demands for surface waters also may be an important factor in herring decline and dam management. A USGS study in the Ipswich River and an independent consultant study in the Parker River show that natural flows are impaired by water withdrawals. Water withdrawals have become more pronounced as the region’s population has grown in the past two decades. In the Parker River this may attribute to the steady estimated run decline since the 1970s, as other threats have remained seemingly constant.

**Juvenile success is especially susceptible to change in natural flows, limited flows may change predation pressure, mortality during out migration, and water quality indicators.”**

Also:

**“Ironically mill ponds may offer some increased spawning habitat for alewife,”**

VII. Restoration Priorities and Recommendations

on page 17:

**“Without suitable habitat enhancing fish passage reaps little benefit and may serve only to raise expectations and create a false sense of progress and improvement.”**

Taken from:

Assessment of Habitat, Fish Communities, and Streamflow Requirements for Habitat Protection, Ipswich River, Massachusetts, 1998–99

<https://pubs.usgs.gov/wri/wri01-4161/pdf/reportbody.pdf>

“Modification of streamflow is one of the most widespread human disturbances of stream environments (Ward and Stanford, 1983; Bain and others, 1988), and the effects of flow modification can devastate the aquatic communities of headwater streams and streams with small drainage basins (Simon, 1999). It can take multiple years for a stream’s ecosystem to recover from a drying episode.

**Consequently, a stream that dries out frequently, such as the Ipswich River, can remain in a continual state of recovery. The first requirement for the optimal production of stream fish and other aquatic life is an adequate supply of water for the entire year (Wickliff, 1945).”**

As can be seen over and over is that The Ipswich River is severely stressed by excessive water withdrawals, until this is properly resolved anything that further reduces the fish's ability to survive should not be allowed to happen.

Christopher Cerino

Ipswich



Nicholas.Moreno@mass.gov

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## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Christopher	<b>Address Line 1</b> 93 High Street	<b>Organization</b> --
<b>Comments Submit Date</b> 8-23-2023	<b>Last Name</b> Fauske	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> --	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** The dam no longer serves a function

## Comments

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The dam has no purpose and now simply obstructs water flow and damages the ecosystems on both sides of it. Fish and other aquatic wildlife as well as otters, beavers, etc. are too often trapped one side or the other. Upriver from the dam the ecosystem is sadly depleted. Additionally, removing the dam would expand recreational and tourism opportunities, enhancing the economic vitality of a struggling downtown.

## Attachments

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## Ipswich Dam Removal Project

This provides comments on the necessity for the preparation of an Environmental Impact Report associated with the removal of the Ipswich dam in Ipswich, Massachusetts.

This project is in severe need of a neutral analysis of the environmental impacts that would occur if the dam is removed. To date, all the reports and meetings have totally focused on the perceived benefits that may occur. The negative impacts on the natural environment are not sufficiently discussed or are ignored in service of bringing back fish. The dam has been in place for centuries and the draining of the river will impact the shape of the river and the wildlife that has made the river its home for so long. This includes the otter and beaver population and the wide variety of bird life.

An EIR could provide some context of what will happen to the wildlife, including any endangered species, as well as the impact to the natural environment that has existed on and along the river for centuries. The report may also bring to light some information regarding the impacts of climate change on a river that some years has little water and some years has sufficient water.

As an abutter to the river, I suggest that we plan for the best but prepare for the worst. Once the dam has been removed, it will be too late to discover negative impacts to the river that were never discovered, never contemplated, and never mitigated.

I request the preparation and completion of an Environmental Impact Report.

Diane Kelley 

15 Second Street

Ipswich, MA 01938

August 23, 2023

**Comments on the “Ipswich Mills Dam Removal, Expanded Environmental Notification Form” dated August 2023 and prepared by Horsley Witten Group, Inc.**

The Expanded Environmental Notification Form (EENF) is being submitted to avoid a full Environmental Impact Report (EIR). This comment letter request the Massachusetts Environmental Policy Act Office require the town to submit a full EIR for the following reasons:

The Town of Ipswich failed to fully evaluate the effects of releasing the sediment impacted by the dam removal to the downstream natural resources including ecological and fishery resources. The report has not reported the full quantity of sediment and the associated contamination. The Project Narrative (PN) of the EENF describes the dredging of material in the location of work (LOW) of “440 cubic yards of material (concrete, boulders, and cobbles)” (PN, p. 16, ¶ 1). Additionally, “6,900 cubic yards of sediment will meet the dredge definition due to the passive release of sediment from the impoundment and downstream relocation.” (Id.)

The attached reports failed to fully evaluate the amount of sediment being released as a result of the project from the railroad bridge to the dam. For example, the 2019 Ipswich Mills Dam Removal Project, Feasibility Study (2019 FS) states, “[f]urther upstream, there appears to be potentially mobile sediment stored along the bed of the channel, but depths and sediment volume are unknown at this time and may require additional investigation.” (2019 FS, p. 22, ¶1). Therefore, the 6,900 cubic yards of sediment is likely a gross under estimate.

At least 6,900 cubic yards of sediment will be carried down to the lower tidal Ipswich River and into the Plum Island Sound during and after the dam removal. Additionally, the sediment from the bottom of a shallower river will be carried during storm events. This is an Area of Critical Environmental Concern designated by the Department of Conservation and Recreation in part because of the area being a major resource for clamming and fishing. The clam beds are often shut down after a storm event due to contamination from runoff. Contamination from these sediments will only exacerbate the effects to clam beds.

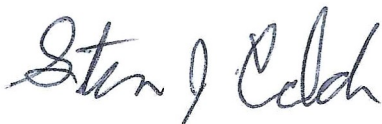
The Ipswich Mills Dam Partial Feasibility Study dated 2014 (2014 PFS) and the 2019 FS reported sediment sampling. Three samples were taken by Clean Soils Environmental Ltd. The 2014 PFS and the 2019 FS each state that “preliminary sediment quality assessment opined that the sediments found behind the Ipswich Mills Dam have a very low likelihood of toxicity when viewed independently and in relation to other dams across Massachusetts.” This is not an evaluation by an ecological or human health risk assessor. The opinion is only a comparison to other dams.

Additionally, the three samples failed to be analyzed for PCBs and polyfluorinated alkyl substances (PFASs). It is generally believed that the Ipswich River does not include many manufacturing facilities. This is not true with a source approximately 1000 feet upstream from the LOW. Kimball Brook is a tributary to the Ipswich River that carries sediment and runoff during storm events and flows through an industrial park. In the late 1980s an oil release was reported by an oil distributor of a spill into Kimball Brook.

For the reasons summarized above more sediment sampling is needed to fully assess the impact to the environment and a EIR should be required by the Town of Ipswich.

Thank you,

Steven J. Calder  
15 Second Street  
Ipswich, MA 01938  
August 23, 2023







Nicholas.Moreno@mass.gov

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## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Haley	<b>Address Line 1</b> 42 Labor in Vain Road	<b>Organization</b> --
<b>Comments Submit Date</b> 8-24-2023	<b>Last Name</b> Mosher	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> mosherhs@gmail.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** For Removal of Dam

## Comments

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I am writing to support the removal of the Ipswich Mills Dam. The dam was installed in a period before we properly understood the significant effect it would have upon the local environment. And while it at one point provided power to the nearby mills it has not functioned that way in nearly 100 years. The dam currently is a liability to the town and the property interests of a few should not outweigh the benefit to both the rest of the citizens of the town and the restoration of the river.

## Attachments

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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Jonathan	<b>Address Line 1</b> 24 Mulholland Dr	<b>Organization</b> --
<b>Comments Submit Date</b> 8-24-2023	<b>Last Name</b> Penyack	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> drshaws@gmail.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

Topic: Support for Ipswich Mills Dam Removal

## Comments

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I am an Ipswich resident, and I support the removal of the Ipswich Mills Dam.

This project will help restore natural, tidal water flow upstream through the next dam.

## Attachments

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## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Catherine	<b>Address Line 1</b> 29 UPPER RIVER RD	<b>Organization</b> The Monarch Gardener
<b>Comments Submit Date</b> 8-25-2023	<b>Last Name</b> Hone	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> katebanks75@gmail.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** In support of the removal of the Ipswich Mills Dam

## Comments

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I am am Ipswich riverfront abutter and have been in this home since 2011. We have 91 feet of riverfront and use the river almost every day. Studies show that our stretch of the river will see the most change, and we support this. A return to a more natural state, improving fish passage, improving climate resiliency and solving the issue of dam safety are all more important that keeping a useless head-of-tide dam that is impeding flow.

## Attachments

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August 25, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: Nicholas.Moreno@mass.gov

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno:

Thank you for the opportunity to comment on the Ipswich Mills Dam Removal project. I represent the Plum Island Ecosystems Long-Term Ecological Research program which is funded by the National Science Foundation. This is a collaborative scientific research project which has been studying the Great Marsh and its watersheds for over 30 years. We'd like to speak in favor of the Ipswich Mills Dam Removal project by pointing out some important ecological benefits.

We believe that removing the dam will improve water quality in the river, especially during summer when there will be increased dissolved oxygen concentrations and reduced water temperatures in the river. This, along with the removal of the dam as a barrier will help restore diadromous fish migration as well as improve the connectivity for resident fish. The current fish ladder only allows a small fraction of the fish to make it upstream of the dam. Removing the dam will support efforts to restore healthy herring, rainbow smelt and American shad populations to New England rivers.

Importantly, for the downstream marshes, dam removal will restore the natural transport of sediments. There will be less sediment retained due to deposition in the reservoir, and more will be delivered downstream to the estuary. This sediment helps marshes keep up with sea-level rise. Our work and that of others has shown that suspended sediment delivery to the Great Marsh is very low and is one factor making it difficult for the marshes to keep up with sea level rise.

We expect that without the dam there will also be an expansion of tidal freshwater wetlands. This is one of the rarest wetland habitats in Massachusetts.

The project is requesting an EIR waiver as detailed in the cover letter of the filing. We support the waiver request and support this project because it will improve water quality, restore essential habitat, and improve the overall resiliency of the Great Marsh and the river to climate change.

Sincerely,

*Anne Giblin*

Anne Giblin  
Lead PI PIE-LTER



Nicholas.Moreno@mass.gov

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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Valda	<b>Address Line 1</b> 31 Woods Lane	<b>Organization</b> Retired
<b>Comments Submit Date</b> 8-26-2023	<b>Last Name</b> Winsloe	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> valdaw@yahoo.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** In favor of removing the dam

## Comments

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As an ordinary citizen in Ipswich, I am commenting in favor of removing the dam. In 2006, I was impacted by the so-called Mother's Day Flood in Ipswich, and was forced to leave my home while repairs were made to my flooded out heating system, electrical panel, floors and walls. I saw the river water rise behind the dam and spill out over the roadway, and down the hill toward my property. I believe that if the dam were not there, the flooding from the river may have been more widely spread out and shallower, saving a lot of damage. Additionally, I am persuaded that the natural health of the river and the habitat of the creatures who live there will be improved if the dam is removed.

## Attachments

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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> --	<b>Address Line 1</b> --	<b>Organization</b> --
<b>Comments Submit Date</b> 8-28-2023	<b>Last Name</b> --	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> --	<b>Zip Code</b> 01938-1946	

## Comment Title or Subject

**Topic:** Ipswich dam removal process should continue

## Comments

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Hello, I am writing as one of the majority of voters at Ipswich town meeting in favor of dam removal. We put it to a vote. The outcome was clear. The potential benefits are worth the effort. Please proceed with all necessary investigation and permitting processes, despite a vocal minority.

## Attachments

## Update Status

Status

SUBMIT

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August 28, 2023

Nicholas Moreno, MEPA Analyst  
Executive Office of Energy and Environmental Affairs  
100 Cambridge Street, 9th Floor  
Boston, MA 02114

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno,

I am writing to express the support of Essex County Greenbelt Association (Greenbelt) for the proposed removal of the Ipswich Mills Dam on the Ipswich River in Ipswich, Massachusetts. Given the extensive environmental analyses that have been done to date, and the details provided in the Expanded Environmental Notification Form (EENF), we also support the proponent's request for a waiver of the mandatory Environmental Impact Report (EIR).

Greenbelt is the land trust for Essex County. Since our founding in 1961, we have permanently protected more than 19,000 acres of land, much of it in the Ipswich River watershed. Our land conservation work is often focused on protecting valuable water resources, including drinking water supplies, wetland resources, river ecosystems and marshlands. We have frequently partnered with municipalities, including the Town of Ipswich, to protect land that is critical for the protection of water resources. We are a direct abutter to the Ipswich River and many of its tributaries, and maintaining the river's water quality, streamflow and ecosystem health is a priority for our organization.

Greenbelt has carefully reviewed the EENF for this project, and we do not believe additional review through MEPA is necessary. We expect the environmental benefits of the proposed dam removal – improved water quality, fish passage, and sediment transport in particular – will be significant. We are confident that the potential negative impacts of dam removal have been evaluated, that significant negative impacts are unlikely, and that monitoring and mitigation plans are in place to protect the environment as the project advances. The additional sediment quality sampling and analyses to occur as part of the permitting process for Section 401 Water Quality Certification and Section 404 Clean Water Act permitting will further ensure there is no unanticipated downstream contamination.

Please do not hesitate to contact me should you have any questions.

Sincerely,



Kate Bowditch, President

Conserving local farmland, wildlife habitat, and scenic landscapes since 1961.





Christopher P. Davis  
65 The Fairways  
Ipswich, MA 01938

August 31, 2023

Via email

Nicholas Moreno, MEPA Analyst  
MEPA Office  
Executive Office of Energy & Environmental Affairs  
100 Cambridge St., 9<sup>th</sup> Floor  
Boston, MA 02114

Re: Ipswich Mills Dam Removal, Ipswich MA: EEA No. 16754

Dear Mr. Moreno

I appreciate the opportunity to comment on the proposed Ipswich Mills Dam removal project. As a career environmental professional, an Ipswich resident, and a member of the board of the Ipswich River Watershed Association, I strongly support the removal of this dam, which serves no useful purpose and adversely affects the river's ecology and biodiversity.

The Ipswich Mills Dam no longer generates electric power or serves any other purpose. It is a historic relic owned by the Town of Ipswich, which imposes various potentially significant risks and costs on the Town. It creates unnatural ponded conditions and unnaturally warm water in the upstream stretch of the River in Ipswich. As a run of river dam, it provides no flood control benefits, and creates the risk of upstream flooding in extreme precipitation events that are increasingly common due to climate change.

The dam has serious negative ecological impacts. It obstructs and largely prevents the upstream migration of various species of fish, which would be rapidly restored when the dam is removed. The current fish ladder is largely ineffective and few fish manage to negotiate it to migrate upstream or downstream. It also obstructs the passage of other native wildlife (such as the young beaver and otter that recently became stranded there and had to be rescued and relocated).

Removing the dam would restore the natural flow of the river and reduce flooding risk. It would create (or re-create) healthy tidal wetlands that would provide ecologically important habitat to numerous species. Restoring migration by herring and other ecologically important fish species would aid the recovery of their populations and benefit local coastal fisheries.

Removing the dam would also have recreational benefits to the many people (including me) who kayak and canoe on the river, who could now paddle to the mouth of the river into the ocean.

Contrary to the largely unfounded claims of opponents of the dam's removal, removing the dam would have minimal, if any, adverse effects. Based on extensive impact and feasibility studies, dam removal would not adversely impact the adjacent EBSCO buildings or other nearby structures. It also is unlikely to have any material adverse effect on property values of abutting properties. It would restore natural flow conditions to the river. And removal of the dam would not affect municipal water supplies dependent on the river.

Removal of this dam is one of the highest priorities of IRWA and other groups concerned with the health of our rivers. Dam removals in other states have had significant near-term environmental benefits. Removing this dam could serve as a valuable demonstration project for other proposed dam removals in the Commonwealth. The benefits and costs of removing this dam have been extensively researched, studied and analyzed, demonstrating significant net benefits. No further investigations are needed to support the permitting of this project.

For these reasons, I strongly support the removal of this dam. Thank you for considering my comments.

Sincerely,

Christopher P. Davis



Nicholas.Moreno@mass.gov

[Dashboard](#) > [View Comment](#)

# View Comment

## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> KelleyJane	<b>Address Line 1</b> 65 MITCHELL RD	<b>Organization</b> --
<b>Comments Submit Date</b> 8-31-2023	<b>Last Name</b> Kloub	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> mrskloub@yahoo.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

Topic: Ipswich Mills Dam

## Comments

Rich text editor toolbar: Undo, Redo, Bold, Italic, Underline, Link, Font Face (Segoe UI), Font Size (10 pt), Text Color, Background Color, Subscript, Superscript, Text Color, Text Background Color, Paragraph, Bulleted List, Numbered List, Indent, Outdent, Link, Print.

We the people of Ipswich strongly oppose the removal of the dam. There has not been enough investigation of the effect to the environment of the entire river and the clam beds for us to get behind the removal. There are too many possibles or probables in the reports and not enough definitives. Leaves the dam alone. We are 100% against the removal. Leave the dam alone.

## Attachments

## Update Status

Status

Accepted [dropdown arrow]

SUBMIT

## Share Comment

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August 31, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, Suite 900  
Boston, MA 02114  
Via email: Nicholas.Moreno@mass.gov

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Nicholas:

I write in strong support of the Ipswich Mills Dam Removal project and look forward to your thorough and considerate MEPA review process that I trust will culminate in a certificate being awarded for this worthy environmental project.

As you may know, the Ipswich River was named one of the ten most endangered rivers in the United States in 2021. Removing the Ipswich Mills Dam will not only benefit the community by reducing flood risk and maintenance liability, but it will also have a significant positive impact on the ecological health of the Ipswich River and the surrounding wetlands. Dam removal will deliver immediate benefits for downstream storm resilience and provide upstream river connectivity for both migratory fish and wetland mammals as cited in The Great Marsh Adaptation Plan. The restoration of diadromous fish migration and increasing connectivity for resident fish will support efforts to restore healthy fish populations in the region. The removal of the dam is a critical step towards achieving a more environmentally sustainable future.

Thank you for your work at EEA and for your consideration of the Ipswich Mills Dam removal project.

Sincerely,

Michael Searles



Massachusetts Department of Fish and Game

## Division of Ecological Restoration

**Invested in Nature and Community**

*Beth Lambert, Director  
Hunt Durey, Deputy Director*



**Maura T. Healey**

*Governor*

**Kimberley Driscoll**

*Lieutenant Governor*

**Rebecca L. Tepper**

*Secretary*

**Thomas K. O'Shea**

*Commissioner*

September 1, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: Ipswich Mills Dam Removal, Ipswich

Dear Mr. Moreno:

The Massachusetts Department of Fish and Game, Division of Ecological Restoration (DER) strongly supports the Ipswich Mills Dam Removal Project. Ipswich Mills Dam Removal project is a Priority Project for our Division and DER has provided funding to the project since 2020. DER has been participating on the technical team guiding design, permitting, and eventual implementation. The technical team includes the Town of Ipswich (owner), the National Oceanic and Atmospheric Administration (NOAA), Ipswich River Watershed Association (IRWA), and Horsley Witten Group.

This project will remove the Ipswich Mills dam, a "head of the tide" dam, which historical records indicate has existed in some capacity since 1637; however, the current iteration of the dam was substantively altered in 1908. Removing the dam will eliminate aging infrastructure and reconnect over 49 miles of mainstream river and tributary habitat for fish, improve water quality, restore riverine functioning and nutrient transport, improve climate resiliency in the surrounding area, reduce flooding upstream, and eliminate the risk of potential flooding downstream due to catastrophic failure of the dam. Restoring fish passage allows migratory fish to reach the Ipswich River watershed from the ocean, provides more available freshwater habitat, and will facilitate an increased population of species historically present in the Ipswich River such as alewife, blueback herring, American shad, rainbow smelt, and sea lamprey.

The project has undergone extensive engineering review and study that is summarized in the EENF. The primary purpose of the project is to restore valuable aquatic resources, and in doing so reverse ecological impairments along the Ipswich River. The Restoration Project is consistent with the Executive Office's Dam Removal in Massachusetts: A Guide for Project Proponents; DEP's Dam Removal and the Wetlands Regulations; and DEP's regulations for Ecological Restoration and Ecological Restoration Limited Projects. The local, state, and federal permits required for this project will result in thorough substantive review by regulators, as well as provide multiple additional opportunities for public input and comment.

The collective benefits of this work will have a profound positive impact locally, on the Ipswich River Watershed, as well as the Gulf of Maine and the Atlantic Ocean. Fish passage, along with other ecological, economic, and

social benefits that are associated with dam removal, is a top priority for DER as well as several state, federal, and local groups working collaboratively on the Ipswich Mills Dam Removal project.

We appreciate this opportunity to comment during this MEPA process. For questions about this project, please contact the DER project manager, Chris Hirsh at [Chris.Hirsch@mass.gov](mailto:Chris.Hirsch@mass.gov). For questions from the date of this letter until October 9, 2023, please contact the temporary DER project manager, Melissa Riley at [Melissa.Riley2@mass.gov](mailto:Melissa.Riley2@mass.gov). Please do not hesitate to contact me directly at 617-455-2209 with any questions.

Sincerely,

A handwritten signature in blue ink that reads "Beth Lambert". The signature is written in a cursive style with a long, sweeping tail on the letter "t".

Beth Lambert, Director





The Nature Conservancy in Massachusetts  
20 Ashburton Place, Suite 400  
Boston, MA 02108

tel [617] 532.8300  
[nature.org/massachusetts](https://nature.org/massachusetts)

September 1, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno:

Thank you for the opportunity to comment on the *Ipswich Mills Dam Removal* project. The Nature Conservancy (TNC) is an international, nonprofit conservation organization with a mission to protect the lands and waters on which all life depends at a pace and scale that addresses the dual crises of climate change and biodiversity loss. Our strategies are guided by science, including a robust analysis of resilient and connected landscapes—the priority places best suited for enabling plants and animals to adapt to climate change and for deploying the power of nature to protect communities.

TNC enthusiastically supports the *Ipswich Mills Dam Removal* project. As the first dam on the river, the proposed project would restore river connectivity and natural flow connecting migratory diadromous fish to over 100 miles of upstream habitats, as well as improve passage and habitats for freshwater fish, aquatic species, and wildlife. Simultaneously, restoration of natural flows and ecosystem function would promote community well-being from reduced climate risks from flooding and droughts.

TNC's *Northeast Aquatic Connectivity Project* ranks the Ipswich Mills Dam in the top 10% of dams in the Northeast for restoration of stream connectivity for anadromous species. It also scores in the top 10% of state dams with greatest ecological benefit from dam removal in MA Division of Ecological Restoration's *Restoration Potential Model*. Both upstream and downstream of the dam and impoundment are comprised of *Biomap* Aquatic Core Habitat—the most structurally and functionally intact freshwater ecosystems in the state with highest fish and freshwater mussel diversity, strongest anadromous fish runs, aquatic rare species habitat, and habitats identified by TNC as most resilient to a warming climate.

TNC's *Coastal Resilience Mapping Tool* identified the Ipswich Mills Dam as one that increases the potential severity of inland flooding for which removal would minimize this risk, protect nearby life and property, and benefit aquatic and terrestrial organisms and water quality. Due to its location in downtown Ipswich, the dam has been classified as a Significant Hazard dam, and removal eliminates the risk of dam failure with impacts to public safety, downstream flooding, costly property damage, and Town liability. Furthermore, removal will create additional recreational opportunities enabling paddlers to navigate natural flows and explore diverse habitats downstream to the Great Marsh and the ocean.

This is an exciting project and comes at a time of unprecedented funding for restoring aquatic connectivity, fish passage, and enhancing community resilience to climate change impacts, such as flooding hazards. Additionally, it builds on a federal grant the project partners received in 2022 to address fish passage at four upstream dams, presenting an opportunity to realize holistic watershed restoration with extensive ecosystem and regional community co-benefits. Strategic removal of such dams in MA is vital to support both regional and national efforts to restore healthy herring, rainbow smelt, and American shad populations.



TNC in MA is dedicated to these same goals and has prioritized protecting and improving the health and resilience of rivers and lands by focusing on a watershed approach in our organizational 2030 goals.

We support the proponent's request for a waiver of the mandatory EIR under 301 CMR 11.11 as the project has been well-documented as an ecological restoration project intended to restore natural hydrology, improve fish passage, habitat, and water quality, and increase flood storage. Additionally, community engagement has been an important part of this project for a decade.

Thank you for this opportunity to comment. If you have any questions or need additional information, please feel free to contact me at [mgabriel@tnc.org](mailto:mgabriel@tnc.org).

Sincerely,

A handwritten signature in blue ink that reads "Marea Gabriel". The signature is written in a cursive, flowing style.

Marea Gabriel  
Freshwater Manager  
The Nature Conservancy



Nicholas.Moreno@mass.gov

[Dashboard](#)(javascript:void(0);) > [View Comment](#)(javascript:void(0);)

# View Comment

## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> John	<b>Address Line 1</b> 158 Topsfield Road	<b>Organization</b> --
<b>Comments Submit Date</b> 9-3-2023	<b>Last Name</b> Doonan	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> JohnADoonan@aol.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** Removal benefits us and the river

## Comments

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A project such as this will benefit the community, lower the town's liability and as past and future studies have/will show, it will also benefit the river. That is notable especially in light of the particular site of this dam vis-a-vis the tides. After all, the fish were here first.

## Attachments

## Update Status

Status

SUBMIT

## Share Comment

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Nicholas.Moreno@mass.gov

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# View Comment

## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Katerina	<b>Address Line 1</b> 100 Colonial Drive	<b>Organization</b> Citizen of Ipswich
<b>Comments Submit Date</b> 9-6-2023	<b>Last Name</b> Andreishcheva	<b>Address Line 2</b> apt 20	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> andzeish@yahoo.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** After the dam removal freshwater ecosystem above the dam will be destroyed

## Comments

↶ ↷ **B** *I* U Segoe UI 10 pt **A**  $X_2$   $X^2$  **t****t** **T****T** Paragraph

I take a lot of nature pics, and the difference pre-2015 and after is staggering. In recent years every approved project seems to aim to destroy as many trees and as much wildlife habitat as possible. This dam removal will be no exception. Because the trees that were planted to shade the asphalt from the sun were removed all over Massachusetts we will have more and more dry years (we had 2 major droughts in past 4 years, right on the ocean shore). Please take a look (attached) how the river looks during the dry summer - below and above the Ipswich dam. That little dam saved innumerable lives of river inhabitants last year, and now it will be destroyed to get grant money. Ground water table above the destroyed dam will drop, so all the plants that rely on it will suffer, and the rest of ecosystem will follow. And I don't know what to do to save them. If you can stop it, please help.

## Attachments

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[IMG\\_0030.jpg](#)(null)

[68512652661.jpg](#)(null)

## Update Status

Status

Accepted

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Nicholas.Moreno@mass.gov

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## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> --	<b>Address Line 1</b> --	<b>Organization</b> --
<b>Comments Submit Date</b> 9-7-2023	<b>Last Name</b> --	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> --	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> --	<b>Zip Code</b> --	

## Comment Title or Subject

**Topic:** Get rid of the dam

## Comments

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There is no need for the dam anymore, we need to restore the river.

## Attachments

## Update Status

Status

SUBMIT

## Share Comment

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Nicholas.Moreno@mass.gov

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## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> --	<b>Address Line 1</b> --	<b>Organization</b> --
<b>Comments Submit Date</b> 9-7-2023	<b>Last Name</b> --	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> --	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> --	<b>Zip Code</b> --	

## Comment Title or Subject

Topic: Support the Dam Removal

## Comments

↶ ↷ **B** *I* U Segoe UI 10 pt **A**  $X_2$   $X^2$  **t**<sub>t</sub> **T**<sub>T</sub> Paragraph

It is high time that this dam be removed. Those who want to save it are only concerned with the visual aesthetics, ad do not care about the environment.

## Attachments

## Update Status

Status

SUBMIT

## Share Comment

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## Ipswich Mills Dam Removal, Ipswich MA

Dave Comb <dcomb@cellsignal.com>

Fri 9/8/2023 2:48 PM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

Cc: wayne castonguay <wcastonguay@ipswichriver.org>; Chris Davis <cpdavis01982@gmail.com>; Ken MacNulty <ken.macnulty@verizon.net>

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September 9, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno,

Thank you for the opportunity to comment on the Ipswich Mills Dam Removal project. I am fully in favor of removing the Ipswich Mills Dam. I have been on the Ipswich River Watershed Association's board for 10 years. I joined their board with a dream of being a witness to a free flowing river. Once we are able to remove all its barriers that have been in place for hundreds of years, Nature will do what she does best and our communities and the ecology of the river will benefit tremendously. This is a once in a lifetime opportunity and the benefits of removing the dam include the following:

### **Community benefits:**

- Dam removal is a permanent solution that requires no ongoing maintenance and subsequent costs to the town.
- Owning the dam imposes upkeep and maintenance expenses to both the Town and residents.
- Removal is the most cost-effective way for the Town to achieve maximum ecological restoration (i.e. over other alternatives like partial removal, improved fishways, etc).
- Eliminates risk of catastrophic dam failure and downstream flooding, especially since the dam is actively in need of repair.
- Restores natural floodplain upstream of the dam and reduces flood risk.
- Restores the natural river and its small rapids, which creates additional recreational opportunities.
- Improves recreation by removing a continuity barrier and thus enabling paddlers to go all the way out to the mouth of the river into the Great Marsh and Atlantic Ocean .

- The 2019 MVP Plan - Community Resiliency Building Report and the Town of Ipswich Hazard Mitigation Plan 2019 Update prioritize community and environmental resilience, and thus support removal of the Ipswich Mills Dam .
- The dam is classified as a Significant Hazard dam in “fair” condition and was noted by a 2020 report from the Office of Dam Safety as having multiple deficiencies in the dam structure.

**Ecological benefits:**

- Increased dissolved oxygen and reduced water temperatures in summer, natural transport and distribution of sediments, restoration of diadromous fish migration, increased connectivity for resident fish, supports freshwater shellfish life cycle).
- Marsh areas are anticipated to experience cyclical water level fluctuations as a result of downstream tidal fluctuations, the resulting wetlands may be characterized as tidal freshwater wetlands, one of the rarest wetland habitats in Massachusetts.
- The drop in water level of the current impoundment post-removal will allow for the banks of the river to revegetate with native species and resemble the natural riparian habitat found further upstream in the watershed.
- The Great Marsh Adaptation Plan prioritizes environmental resilience and restoring river connectivity supports removal of the Ipswich Mills Dam.
- Supports national and regional efforts to restore healthy herring, rainbow smelt, and American shad populations.
- The dam and it’s fish ladder attached to it, only allows a small fraction of native diadromous fish to make it upstream of the dam.

Sincerely,  
David Comb  
1 Norton’s Point  
Manchester MA,01944

--

David Comb  
Cell Signaling Technology  
32 Tozer Rd.  
Beverly, MA 01915  
Cell # 978-578-4614  
<http://www.cellsignal.com>

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## EEA No. 16754 – Ipswich Mills Dam Removal Project

Ingrid Barry <mib.tlb3@gmail.com>

Sat 9/9/2023 8:51 AM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Mr. Moreno,

I am a resident of Danvers, MA and a member of the Ipswich River Watershed Assoc. I would like to let you know that I am in favor of the Ipswich Mills Dam Removal Project. Returning the river to its natural state will be beneficial for nature and those of us living in the watershed area.

Thank you for your consideration,

Ingrid Barry  
3 Riding Club Road  
Danvers, MA 01923  
978-774-8159

## We need to keep the dam

There are people in this town that seem to want to put the last nail in the coffin of Ipswich.

I fell in love with the town about 40 years ago. It was a beautiful affordable town that was very walkable for young mothers and young school children. We could buy anything we needed right in town. We had Woolworths, clothes store (Hills) news paper store, drug store and even a donut shop, pizza + roast beef sandwiches as well as a grocery store. For entertainment we had a bowling alley and a theater. The prettiest place to walk was over the bridge and watch the water and the birds and the dam where we could read about the fish ladder.

Now the only reason to go down town is the bank and the bridge and dam to watch the birds and the water. Pretty sad there isn't much left to do downtown. I think that I read in the paper that the question about the dam was going to be voted on at the last election as well as the town meeting.

I searched my ballot and found nothing. I guess it was voted on at town meeting but we all know that older people are not able to go to the town meeting but they make every effort to go out and vote — Was that the purpose?

If you want to look toward the future with the government talking about windmills and solar ~~no~~ gas or oil or co we are going to need dams too for making electricity. As everything is becoming electric — Please do not kill our beautiful scenic town and our future for no reason —



Nicholas.Moreno@mass.gov

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# View Comment

## Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Jean	<b>Address Line 1</b> 37 Washington St	<b>Organization</b> None
<b>Comments Submit Date</b> 9-11-2023	<b>Last Name</b> Hubbard	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> jbh356@aol.com	<b>Zip Code</b> 01938	

## Comment Title or Subject

**Topic:** Ipswich Mills Dam Removal

## Comments

↶ ↷ **B** *I* U Segoe UI 10 pt **A**  $X_2$   $X^2$  **t** **T** Paragraph

I am very concerned about the talk on removing the Ipswich Mill Dam. I have not heard or read of any studies to assure the clam flats at the mouth of the river will not be destroyed. This is one major concern as clamming is the livelihood of many Ipswich residents. Another major concern is the withdrawal of water from the river for water use in cities and towns upstream. During a drought the river above the dam is so low that by removing the dam it will turn into a mud flat. Upstream the ecosystem has been surviving for over 400 hundred years, what is going to happen to that. This has to be the worse idea to ever come along. Please leave the dam in place.

There are to many unknowns and once this dam is removed it will be to late. Please do not allow this project to go forward. Instead let's figure out a way to keep the dam and build a new and better fish ladder. Thank you Jean Hubbard

## Attachments

## Update Status

Status

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## Ipswich Mills Dam Removal Project - EEA No. 16754

ken.macnulty@verizon.net

Mon 9/11/2023 4:20 PM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

Cc: 'Wayne Castonguay' <wcastonguay@ipswichriver.org>; 'Chris Barenfeld' <ifarmllc@gmail.com>; 'Chris Davis' <cpdavis01982@gmail.com>; 'dave comb' <dcomb@cellsignal.com>; 'Deb Logan' <deb@county-road.com>; 'diane dixon' <diane@dixonnet.com>; 'Don Pearson' <don@champear.net>; 'Heiter, Dan' <heiter@neb.com>; 'Judy Schneider' <judydschneider@gmail.com>; 'julia casto' <jcasto2011@yahoo.com>; 'Ken Whittaker' <kenneth.f.whittaker@gmail.com>; 'Kim Honetschlager' <khonet08@gmail.com>; 'Lauren Fitzgerald' <lfitz4378@gmail.com>; 'Linda Fates' <lindafates@icloud.com>; 'Mike Searles' <saleratus774@gmail.com>; 'paul charos' <pcharos33@gmail.com>; 'richard howard' <richardfhoward@gmail.com>; 'Tinger, Brian' <Tinger@neb.com>; 'Tracy Sopchak' <tsopchak@ipswichriver.org>; Neil Shea <nshea@ipswichriver.org>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Mr. Moreno

I am writing to you to indicate my strong support for the removal of the Ipswich Mills Dam.

What is most significant is that today this out-of-date dam serves no purpose. And yet, without the dam there are a myriad of advantages to both the river and its surroundings as well as the citizens of Ipswich. The advantages to the river and its wildlife include:

- Natural habitat conditions and river processes will be restored by removing artificial ponded habitat and stagnant water upstream
- The river will better be able to handle upstream flooding – a growing concern given more frequent occurrences of weather extremes related to climate change
- An important ecosystem for migratory fish populations, especially those that travel between the sea and fresh water during their life cycles will be restored
  - Overall, expert opinion supports this dam removal as it offers high restoration value for removal as compared to other dams

For the citizens of Ipswich it means:

- As the owners of the dam the citizens of Ipswich face an on-going financial liability for the dam's maintenance costs. Currently, the dam needs \$36,000 in repairs and is currently out of compliance. Such costs will only continue to increase as the dam ages further
- The dam adds liability and public safety risk to the town for any downstream damage if the dam were to fail
- Simply put, removing the dam eliminates these unnecessary costs and risks for the citizens of Ipswich

In addition, the more technical aspects of this dam removal question have been well documented through studies dating back to 2015 conducted by a range of experts with technical and specialized knowledge. It is time to act on this body of work and remove the dam!

Sincerely,

Ken MacNulty

Board President

Ipswich River Watershed Association



September 12, 2023

Nicholas Moreno  
Massachusetts Executive Office of Environmental Affairs  
MEPA Office  
100 Cambridge St., 9<sup>th</sup> Floor  
Boston, MA 02114

via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Dear Mr. Moreno;

As a committed environmental professional and vocal advocate/frequent participant in activities on the Ipswich River I stand in favor of the proposed removal of the existing dam in downtown Ipswich (i.e., the Ipswich Mills Dam Removal Project.) This support comes in large part from my decades of experience in a broad range of environmental protection projects and activities. I have practiced for more than a decade as an environmental remediation engineering consultant (having received my doctoral degree in environmental engineering in 1980) , as an environmental attorney at several prestigious law firms in Boston, and more recently as a conservation agent in the city of Gloucester and Town of Essex, I am a long-standing member of the Conservation commission in the Town of Wenham, a town dependent on the Ipswich for its water supply and which hosts a substantial stretch n of the that river. I strongly encourage you to support and approve the proposed removal of the subject dam

Naturally, as part of your deliberations you must balance the benefits of the proposed action against the risks and negative impacts. Here that task is eased by the fact that there few if any obvious or lurking “downsides” of dam removal. The dam currently serves no useful purpose for the Town of Ipswich, the use for which it was constructed (power generation) no longer relevant and the dam provides little utility for flood control ,water storage or any other significant environmental benefit, Indeed as the Town of Ipswich has noted, it poses a potential liability to the town in the event of failure . In addition it could remain a long term sink for town resources and a potential drain on municipal funds to accomplish likely necessary future repairs' costs which are likely to increase greatly in future years. Indeed, preservation of the dam cannot be reasonably supported on both environmental/habitat and economic bases.

Contrast this lack of negative impact on economic or environmental grounds to the profound environmental advantages associated with dam removal . These benefits include restoring the river to its natural functions and reestablishing healthy habitat in an area where ere industrial and residential over-development have negatively impacted the riverine environment for centuries., The numerous studies conducted in support of this project, a number of which I have reviewed, show the strong likelihood of improvement in anadromous fish passage and habitat for a number of stressed species, re-establishment of the “natural cycle “ of river, particular advantages to freshwater species who have long been negatively impacted by dealing with an aging and awkward fish run, ( note here that I have been involved in a number of projects which have attempted to create or improve fish runs on the north shore. In almost all cases, then results have been extremely disappointing with an exceedingly low



fish count. Completion of this project could provide a massive boost to these efforts of fish population enhancement. Recreationally, environmentally and economically the natural habitat and activity functions should and must be restored. Notwithstanding all the other environmental benefits of the dam removal, as documented in the various expert reports, removal of the dam will go a long way towards providing that boost,

In addition, not only will this dam removal project meet all criteria for dam removal pursuant to 310 CMR10.13(2), and other provisions of MEPA, it is predicted to substantially expand Bordering Vegetated Wetland Habitat, critical for flood storage and again, healthy habitat preservation.

The proposed dam removal goes a long way to reversing the negative impacts and depletions of many years of industrial and developmental neglect, if not downright environmental abuse. The population of Ipswich has supported the project, the environmental community has sought for and welcomed it, and the technical experts have clearly joined their voices in establishing the numerous environmental benefits (and absence of negative impacts) associated with it. Again, I strongly urge you to favorably review this project and let the dam removal begin. Citizens of the North Shore and Cape Ann, the overall habitat, thereof, various recreational interests, wetland and flood control resources, clean water supply advocates and a range of naturally migrating fish species, will be well served by the effort.

Thank you for this opportunity to respond.

Very truly yours;

Kenneth F. Whittaker Ph.D., P.E., J.D  
7 Enon Road Wenham, MA

## Ipswich Mills Dam Removal Project - EEA No. 16754

Linda Fates <lindafates@icloud.com>

Tue 9/12/2023 8:35 AM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Mr. Moreno,

As an Essex County resident of 48 years and more specifically, an Ipswich resident since 2005, I have come to understand and appreciate the importance of removing the Ipswich Mills dam.

Initially I had what I suspect is the same concern as many residents: ugh! It will be a mud flat mess. But having learned a good deal more about the natural ebb & flow of the river, and the highly positive ecological effects on river habitat, I now feel strongly that we need to remove this dam and help restore this valued river.

And furthermore, my initial fears about our town's aesthetics have been completely put to rest. Other towns that faced similar decisions and removed dams that served no productive or positive purpose have shown us that nature rises to the occasion. Indigenous plant life grows pretty quickly to create a new river bank that is far more natural and overall healthy.

The extremes of our fluctuating weather that swing from drought conditions to rains so heavy that the ground cannot fully absorb the water give us an additional imperative to restore the Ipswich River.

I hope you will give these arguments strong consideration. Many thanks,

Linda Fates

Linda Fates

Lindafates@icloud.com

48 Skytop Road

Ipswich MA 01938

Typed with thumbs from my iPhone

Public Comment on  
Ipswich Mills Dam Removal Project

EEA No. 16754

Submitted to:

Massachusetts Environmental Policy Act Office

W. Denis Markiewicz

Ipswich, MA

September 12, 2023

## Ipswich Dam Removal Public Comments

A proposal to remove the Ipswich Mills Dam is under consideration. Part of the review process includes the solicitation of public comment. The following document is submitted in response to the request for public comment.

The organization of the Public Comments is as follows. A number of topics associated with the question of dam removal were examined. A brief introduction and summary conclusion of the examination of these topics is given, followed by a detailed discussion and conclusions for each topic.

### Contents

- 1.0 Introduction and Summary Conclusions
- 2.0 Ipswich dam history, fish passage, fish demise
  - 2.1 Discussion: Ipswich dam history, fish passage, fish demise
  - 2.2 Conclusions: Ipswich dam history, fish passage, fish demise
- 3.0 Modern fish ladder
  - 3.1 Discussion: Modern fish ladder
  - 3.2 Conclusions: Modern fish ladder
- 4.0 Ipswich Wetlands
  - 4.1 Discussion: Ipswich Wetlands
  - 4.2 Conclusions: Ipswich Wetlands
- 5.0 Ground Water at the Impoundment
  - 5.1 Discussion: Ground Water at the Impoundment
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- 6.0 Ipswich Upper Falls
  - 6.1 Discussion: Ipswich Upper Falls
  - 6.2 Conclusions: Ipswich Upper Falls
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  - 7.1 Discussion: Recreation
  - 7.2 Conclusions: Recreation
- 8.0 References

## **1.0 Introduction and Summary Conclusions**

I am an Ipswich resident. I love living in our beautiful area, I love the New England stone walls, I love going to visit the Ipswich dam. The Riverwalk area is a cultural icon, an outdoor museum, nature on display with the water going over the dam in the various seasons. I was sad to hear of plans to remove the dam and so I looked into it. One of the first things I learned is that Ipswich is home to a spectacular area of wetlands along the river impoundment. The area is recognized in the Feasibility Study (2019) including a long list of wildlife inhabitants. It is one thing to read about but another to visit these spectacular areas of vegetation. Although the wetlands are right here, right near a developed area of Ipswich, the wetlands are extensive, dense and impenetrable. The Feasibility Study also clearly indicates that the wetland area will be subject to environmental damage as the result of reduced water levels following the removal of the dam. But the removal of the dam is all about the restoration of the migratory fish population to reported historic levels. On the positive side one learns that the dam removal proposal is based on the idea that fish ladders will be used at the Willowdale dam, which is 4.9 miles upstream for the Ipswich Mills Dam. This is very good news because it indicates that the goals of fish restoration do not depend on removal of the Mills Dam. If fish ladders can be used at the Willowdale dam, fish ladders can be used at the Ipswich dam. And this confidence is supported by some spectacular results that have been achieved with fish ladders. Looking further into the potential effects of dam removal, there are a number of additional factors to consider. Although groundwater is not actively being extracted from the impoundment range, a significant potential source of groundwater is there. With dam removal, the potential for groundwater extraction is eliminated, and this is in a time of water and weather uncertainty. And against statements to the contrary, anyone looking at the situation would conclude that the opportunity for family boating within the impoundment would be eliminated with the removal of the dam. These and other factors need to be considered but there is room for a positive outcome.

The overarching conclusion of this Public Comment is that we can have it all. We can return the fish to the glory days and we can avoid the environmental damage caused by dam removal by embracing a modern fish ladder approach. We can have the fish and we can preserve the iconic Ipswich Mills Dam as well. All we need do is step up to the opportunity.

## **2.0 Ipswich dam history, fish passage, fish demise**

### **2.1 Discussion: Ipswich dam history, fish passage, fish demise**

In order to comment on the proposal for the removal of the Ipswich Mills Dam, it is important to understand how we got to where we are today. A detailed account of past history is provided in Ipswich Dam Removal Feasibility Study, Cultural Resources Summary (2017). The

discussion here draws directly on the information provided in the Cultural Resources Summary and looks at the history of the Ipswich dam and the related history of fishways and fisheries.

The first Ipswich dam was constructed about 1637, likely from logs and stones. The dam was located at the Upper Falls, which is a series of natural falls that is often commented upon in the various Feasibility Studies. It is interesting to note that the Upper Falls itself was not a serious impediment to the stream fish that were reported to be in abundance. The fish that swam upstream to the spawning grounds are described as being in the millions. It is also interesting to note that the 1637 dam was apparently not an impediment to passage, although no information is given in the Cultural Resources Summary about any possible fishway associated with the first Ipswich dam.

The harvesting of the stream fish at the dam was advanced in 1674 when a stone fish weir was constructed at "the Falls". My understanding is that a portion of the fish were trapped below the dam before going up the river. It is reported that the fish were collected in great numbers. Thousands of barrels of alewives were collected each year on the Ipswich River above Choate Bridge, which would be below the dam. Apparently, the harvesting of fish from the Ipswich and other rivers was so successful that the impact on fish populations was noticeable. It is stated that petitions were circulated in 1768 for fish protection, and that in 1788 the first law protecting alewives was passed. There followed in the 1820's laws requiring fishways with specified construction at factory dams.

A couple of things are interesting to note. While the fish population declined in time, the fish were remarkable in the size of their original numbers and in their resiliency with so many fish being harvested, with poor fish passage, and yet the fish populations went on for 200 years.

There is no mention in the Cultural Resources Summary of any fishway at the original Ipswich dam, or of any impact of the fishway laws on the original Ipswich dam. About 1827 a new dam was built at the Upper Falls in Ipswich. This dam was larger and more substantial than the initial dam, and continued to be upgraded in size in the 1830's. Importantly, in 1845, the Massachusetts General Court passed legislation mandating " a good and sufficient passage-way for fish at the Ipswich dam." It can only be concluded that what there was previously in Ipswich was found to be inadequate.

So by 1845, the question of fish passage in Ipswich has the attention of the legislature. But this was 175 years after the fish weir was installed. It is recorded that in about 1880 there were further reconstructions of the Ipswich dam and that a fishway to allow for passage of alewives had been installed.

But the judgement is made by the Cultural Resources Summary that “Despite the court’s efforts to maintain fish passage at the industrial dams, ... the importance of stream fisheries ... was basically defunct by the 1880’s.”

To finish the story, it is said that the Ipswich Mills Dam was rebuilt in 1908, and that a fishway that was previously destroyed was replaced in 1919.

There are lessons to be learned from the Cultural Resources Summary. What is presented in the Summary is an overwhelming picture of (1) classical unregulated over fishing, and (2) an all too typical slow and ineffectual regulatory response to the identified problem of inadequate fish passage. Given the presence of the Ipswich Mills Dam, things could have been different and can be different now with modern fish ladder technology.

## **2.2 Conclusions: Ipswich dam history, fish passage, fish demise**

The Cultural Resources Summary gives us a picture of the relationship between the status of the fish population and the actions that were taken, or not taken, to protect the fish from decline. What is presented in the Cultural Resources summary is an overwhelming picture of (1) classical unregulated over fishing, and (2) an all too typical slow and ineffectual regulatory response to the identified problem of inadequate fish passage.

The society could see the decline in the fish population. The dates of the fish legislation show how slow the regulators were to act, to place requirements on the mill owners for improved fish passage. And this inability to deal with the problem went on for a very long time. It is noted in the Ipswich Mills Dam Removal Study (2018) that “The fact that the Ipswich Mills Dam did not have any functional fish passage between 1906 and 1996 probably eliminated the bulk of the anadromous fish pool.”

The historic demise of migrating fish in the Ipswich River can be attributed most prominently to the lack of fish passage ways. That is something that can be definitively addressed with modern fish ladder technology.

Table 1. The history of dam construction at the Ipswich Mills Dam is shown along with the history of legislative action on fish passage and limited dates of fishway installations.

Dam	Fish and Fishways
1637 First Ipswich dam	
	1674 Fish weir installed
	1768 Petitions requesting fish protection
	1788 First law for alewife protection
	1820's Fishway construction regulations
1827 New Ipswich dam	
1830's Dam upgrades	
	1845 Legislation mandate fishway
1880 Dam reconstructions	1880 Fishway installed for alewives
	Judgement: 1880 Fisheries defunct (Cultural Summary)
1908 Ipswich dam rebuilt	
	1919 New fishway, restoration attempt

“ ... the Ipswich Mill dam did not have any functional fish passage between 1906 and 1996 ... ”

Quotation reference: Ipswich Mills Dam Removal Study – Task 1 Summary June 30, 2017; Revised May 2018

Table information reference: Report: Ipswich Mills Dam Removal Feasibility Study, Cultural Resources Summary, February 21, 2017, Public Archaeology Laboratory



### **3.0 Modern Fish Ladder**

#### **3.1 Discussion: Modern Fish Ladder**

The idea of fish restoration is to get the fish up the entire river, and this includes past the Willowdale dam that is 4.9 miles upstream from the Ipswich Mills Dam. The Mills Dam removal proposal is counting on fish ladders at the Willowdale dam. There is work on fish ladders at the Willowdale dam that will not be reported here, but the following makes an interesting story. The details may be different than the Ipswich Mills Dam but the story is the same.

In 1729 the Damariscotta Mill blocked the alewife corridor between Damariscotta River and Damariscotta Lake. A fish ladder was built. Over the years it fell into disrepair. It was restored over a period of 10 years and came online again in 2017. It now allows passage of over 1 million alewives a year, and the additional harvest of 200,000 to 500,000 for bait for the Maine lobster industry.

If Maine can do this, Massachusetts can do this as well.

By the way, it is said that Damariscotta means “place of abundance of alewives.”

Ref. [www.atlasobscura.com/articles/fish-ladder-maine-lobster-industry](http://www.atlasobscura.com/articles/fish-ladder-maine-lobster-industry)

#### **3.2 Conclusions: Modern Fish Ladder**

A fundamental assumption of the proposed Mills Dam removal is the use of fish ladders at the Willowdale dam, which is 4.9 miles upstream from the Ipswich Mills Dam. Obviously, the numbers of fish that need to pass the Willowdale dam is the same as the numbers of fish that will pass the Mills Dam. And yet, at Willowdale, the plan is that this can be accomplished with fish ladders. If this can be done at the Willowdale dam, the same can be done at the Mills Dam. There are examples of modern fish ladders successfully providing passage to very large numbers of fish. The example of the Damariscotta Mill dam and Modern Fish Ladder should give us confidence and inspiration that the job can be done.

### **4.0 Ipswich Wetlands**

#### **4.1 Discussion: Ipswich Wetlands**

Wetlands: general comments

To gain some insight into the question of the dam removal, I went to the mass.gov GIS maps of the Ipswich River, within the impoundment and somewhat beyond. The impoundment of the Ipswich River extends approximately 1.5 miles upstream of the Mills Dam to about the location of the railroad trestle. The influence of the dam and the impact of dam removal will be seen

primarily within the impoundment. Regarding general features of the river it is noted that within the impoundment there are a number of distinct bends in the river with the result of making the effective width of the river bed much greater than in the immediately upstream areas where the river is relatively straight. These bends are correlated with the presence of extensive wetland areas.

Available GIS maps give the boundaries of properties along the river. A property map and an overlay with the wetland locations given by DEP is shown at the end of this document. It is seen that in the impoundment there are extensive wetlands bordering the river. Within the impoundment there is a full range of wetland types going from forest/shrub wetlands to extensive wet areas completely without trees. This is distinctly not the case almost immediately beyond the railroad trestle.

In order to understand the situation, I made a number of excursions and attempts to see the various Ipswich wetlands. It is not an easy task. The wetlands indicated on the GIS map are areas of limited visibility from surrounding upland areas. This is partly the result of the proximity of the railroad line. Attempts to approach the wetlands from the side of the river adjoining higher ground have proven interesting. I will identify two wetland areas of primary interest. The first is at River Bend on the IRWA property and the second is further downstream at parcel 54A-038A-0 where there is a large wetland meadow open area. An attempt to get into these areas and see what the wetlands are like showed just how dense and impenetrable vegetation can be. There are no paths into these areas. The areas, although essentially close to downtown Ipswich, are as effectively remote and inaccessible as any area can be. The attempt to see, to experience, these areas gave me a sense of how unusual and unique these areas of intense vegetation are. There is certainly nothing else like this near Ipswich with possible exception of areas in the Ipswich Wildlife Sanctuary or the Audubon Conservation Area, but even compared to these areas, the Ipswich wetlands are intense.

The first area of interest is at Riverbend on the property of the IRWA. There is a loop trail in the highland portion of the property, and along the lower edge of the trail is a placard that describes the Floodplain Forest. The Floodplain Forest is best described by the words on the placard in front of you as you face the entanglement, the words that are reproduced here.

#### Floodplain Forest: Plaque at IRWA Site

“You are standing next to a swamp white oak floodplain forest community. These habitats occur along rivers and streams that flood regularly. Floodplain forest are one of the rarest and most important habitat types in Massachusetts, since most have been lost to development and agriculture. This particular 10+ acre floodplain forest is one of the most healthy and intact in Essex county.

Floodplain forests are important because:

- They store water during floods, and help filter pollutants, improving water quality. This floodplain forest helps protect downtown Ipswich during floods.
- The overhanging tree canopy in floodplain forests maintains cool waterways in the summer, which helps species such as brook trout and river herring.
- Floodplain forests are home to a rich diversity of wildlife and provide critical travel corridors for animals to move from one habitat to another.
- Damp soils create rich habitats for insects and amphibians which become prey for birds such as barred owl and heron, for mammals such as otter, mink, and raccoon, and for reptiles such as snakes and turtles. “

The Swamp White Oak Floodplain Forest is one of the gems of the Ipswich Wetlands. It occupies a large area of the upper reach of the impoundment where, presumably, the increased water levels resulting from the dam are not the greatest, and yet over the centuries the Swamp White Oak Forest has established itself as a unique area of wetland, dependent on the extra water levels that the dam provides. The Swamp White Oak Forest is a recognized wetland.

The second Ipswich Wetland area to be described is quite different from the Floodplain Forest in that there are essentially no large mature trees in the area, being an area that transitions from shrub at the border to a large very wet area of vegetation. There are some paths on the periphery of this area in the higher lands where there are also trees. In my limited attempts to see the wetland up close, I did not encounter any descriptive plaque as I did for the floodplain forest, but the area is majestic. This is the Ipswich Wetland Meadow. Between the area of low water-logged vegetation and the area of trees at the bordering higher land is a zone of intense high brush, bushes and small trees that is incredibly dense.

These wetlands are there because the dam is there. These centuries old wetlands are there because there have been dams at the Mills Dam site for centuries.

Wetlands: Feasibility Study (2019) section 2.2, Ecological Assessment, quotation

“The area in and around the current impoundment supports abundant wildlife populations. Semi-aquatic animals commonly seen in the water and the riparian area include mammals (e.g. beaver, muskrat, river otter), birds (e.g. blue heron, wood duck, mallard duck, kingfisher, Canada goose), and reptiles (e.g. painted turtle, musk, turtle, snapping turtle). The impoundment also has considerable populations of unionid freshwater mussels. Rare animal species (including endangered, threatened, special

concern and watch list) that have been documented in the Ipswich River watershed include bridle shiner, piping plover, least tern, least bittern, golden-winged warbler, pied-billed grebe, coopers hawk, northern harrier, salamanders ( spotted, blue-spotted, marbled, and four-toed), eastern pond mussel, box turtles (spotted, Blandings and eastern) , and a number of invertebrates.”

#### Wetlands: Comment on Feasibility Study section 2.2

The Ipswich wetlands are a dense and impenetrable area along the river above the dam for the length of the impoundment. The Ecological Assessment of the Feasibility study attests to the abundant and diverse wildlife population in the area as a result of the wetland conditions and isolation of the area. A large range of species is identified as prevalent in the area. This wildlife population has developed over the centuries due to the favorable wetland conditions. It is a pleasure to see all this in Ipswich.

#### Wetlands: Feasibility Study (2019)section 2.3, Potential Ecological impacts from Dam Removal, quotation

“Wetland delineation by the Massachusetts Department of Environmental Protection (Mass DEP, 2009) shows areas of deep marsh, shallow marsh, wooded swamp, and shrub swamp bordering the main channel through the impoundment reach upstream for the Ipswich Mills Dam. In the longer-term following dam removal, normal water levels will fall, and it is likely that some of the shallow water wetland areas will evolve into a different type of wetland, or potentially also upland habitat at the highest elevations. “

#### Wetlands: Comment on Feasibility Study section 2.3

The Ipswich wetlands are shown on national maps such as the National Wetland Inventory and on Massachusetts DEP maps, showing the extent of the wetlands along the path of the river and the variety of wetland types represented in the Ipswich wetlands. The Feasibility Study recognizes the Ipswich wetlands and the large range of wetland types in the impoundment, from the wet deep marsh through areas like the Swamp Oak Forest. The Feasibility Study also recognizes that with dam removal water levels will fall, and the wetland areas will be changed as a result, with the different types of wet lands, the different levels of wetland, each becoming less wet or evolving into upland habitats entirely. The Feasibility Study conveys that change as inevitable. The change is described in the Feasibility Study as the replacement of one ecology with another. For example, the Swamp Oak Forest may cease to be a wetland and be replaced with upland forest.

But change in the environment that occurs with the elimination of one ecology to be replaced by another does not hide the fact that destruction has occurred. And the change that is projected to occur here is change that is caused by the change in water levels, a direct and anticipated result of dam removal, and this change will be felt throughout the entire impoundment area. The change in vegetation over time will inevitably be reflected in a change in the wildlife population, in that wonderful list of species that is attracted to and flourishes in the wetlands now. If you read the words, the Feasibility Study indicates that the entire Ipswich wetlands will be destroyed from what it has been for centuries, to be replaced by a successor not so wet land.

#### **4.2 Conclusions: Ipswich Wetlands**

The Ipswich Wetlands that border the impoundment of the Ipswich River are not just simply wetlands. These wetlands are spectacular examples of pristine, dense, special areas full of vegetation and wildlife. And it is amazing that these so special areas can be so close to development in Ipswich and yet be so inaccessible.

The Feasibility study (2019) recognizes the wetlands of Ipswich and the wildlife supported therein, and the whole range of wetland types that are represented. The feasibility study also recognizes that, with decreased water levels from dam removal, the wetlands will be damaged. The more wet wetlands will become less wet and evolve into different types of wetland. The least wet types of wetland will likely evolve into upland habitat. We will lose wetlands in the process, and that may well include areas like the Swamp Oak Forest. The wild populations including rare animal species will be forced to change with the wetland areas.

The Ipswich Wetlands are an ecological jewel that would be diminished and changed by the removal of the Ipswich Mills Dam. This should not be allowed to happen and can be prevented by the use of fish ladders to provide fish passage at the Ipswich Mills Dam.

#### **5.0 Ground Water at the Impoundment**

##### **5.1 Discussion: Ground Water at the Impoundment**

Comments on Feasibility Study (2019) 5.0 Task 4 section 5.3 Drinking Water Wells

The Feasibility Study reports on a survey that was made by the IRWA on drinking water wells within the impoundment reach. The approach taken was to look for existing wells that might suffer damage due to dam removal and the potential impact was declared to be minimal.

But the dam does contribute, and probably significantly, to the ground water levels in the reach of the impoundment which is about 1.5 miles. Ipswich is typically in water restrictions in the

warmer months and there is a serious long term water shortage here. The dam does increase ground water levels and this is a potential resource. The removal of the dam damages this resource in two ways, one the amount of water potentially available for extraction and two the threat of salinity.

In particular, the Feasibility Study 5.3 contains the following conclusion: quotation

“Any potential impacts felt by private wells (known or unknown) as a result of dam removal could be mitigated by connecting to town water.”

What this statement says is that it is acceptable to destroy a source of drinking water if the water can be obtained from another source. Is that how our water policy works? Is that how we evaluate potential damage to our water sources, actions that would eliminate a water supply are OK as long as there is another water source available? I would be surprised if that were the case.

The removal of the dam clearly eliminates potential sources of drinking water. We should not sacrifice the ground water resource by removal of the dam.

## **5.2 Conclusions: Ground Water at the Impoundment**

There is no disagreement that the Ipswich Mills Dam contributes significantly to the ground water levels in the proximity of the impoundment. While ground water is not presently being used in active wells, it remains a potentially precious resource in times of water and weather uncertainty. The removal of the Mills Dam would seriously, significantly reduce the ground water levels in the area in time and may even result in a degree of salinity in certain areas.

The ground water within the reach of the impoundment of the Ipswich Mills Dam is a valuable potential resource that would be eliminated by removal of the dam. That should not be allowed to happen.

## **6.0 Ipswich Upper Falls**

### **6.1 Discussion: Ipswich Upper Falls**

Comments on Feasibility Study Existing Conditions Summary 2.1

In the various studies and reports prepared to look at the removal of the Ipswich Mills Dam, it is stated that there was a series of natural waterfalls on the Ipswich River known as the Upper Falls, and that these falls were located just upstream from the present location of the Mills Dam. The Upper Falls are described as a natural location in the river where millions of fish swam upstream each year to spawn. The Upper Falls were a well known feature of the river

that continued to be a presence well into the industrial era, being affectionately called Farley's Falls after one of the mill owners.

The existence of the falls in the Ipswich River has continued to be known and of interest in modern times. The falls are described as being a rock ledge in the Feasibility Study (2014) report. The report indicates "It is expected that in the absence of the dam, the height of the rock ledge will be a primary factor determining normal or low water surface elevations." (2014 pg. ES-2) In a real sense, the Mills Dam is hiding a waterfall that is present in the Ipswich River, the Upper Falls.

In the Feasibility Study (2019) considerable attention is devoted to the geological structure of the Ipswich falls which is now described as a boulder surface on top of an impenetrable rock ledge. The depth of the boulder surface has been of great interest.

In recent studies, there is no mention of falls in the Ipswich River at the site of the dam. The word "falls" is not used. Rather, now that the composition of the feature and the depth of the boulder layer has been determined, the talk is about grading, a mechanical redistribution of the boulder layer to smooth the profile of the river bed. When you think about it, if the objective is passage of fish up the river, a waterfall is not something you want to deal with, not something you want to recognize as being present. And if you can avoid recognizing that a waterfall is present, it gives the opportunity to remove the waterfall along with the dam without having to recognize that the waterfall was ever there.

The boulder layer and the underlying rock ledge are not strictly part of the dam, and yet alteration of, the removal of the boulder layer is discussed as an aspect of dam removal. If one thinks about it, there are two separate activities here, two separate projects. One project is the removal of the Ipswich Mills Dam, the other project is the reconfiguration of the existing river bed through the removal of the boulder surface and the remnants of the Upper Falls. The boulder layer would be shifted, graded to fill the step in elevation in front of the rock ledge, eliminating the falls and providing a more smooth river bed for fish passage. It is easy to understand the motivation for reconfiguring the river bed if the objective is fish passage. But is the removal of a natural falls and the reconfiguration of a river bed to facilitate fish movement allowed?

## **6.2 Conclusions: Ipswich Upper Falls**

Having read the Feasibility Study (2019), the conclusion is a question. It appears that the dam removal project is assuming that an aspect of the project includes reconfiguration of the existing river bed, specifically by grading to remove the boulder field and the remnants of the Upper Falls, with the purpose of removing the step in elevation that was historically present in the Upper Falls. The question is this, is that generally understood to be part of the dam removal

proposal? and second, do we generally go around removing waterfalls by grading to improve fish passage?

The dam removal proposal appears to include the reconfiguration of the river bed and the removal of the historic Upper Falls. If the dam removal proceeds, is that the intention?

## **7.0 Recreation**

### **7.1 Discussion: Recreation**

Comments on Feasibility Study (2019) 3.0 Task 2 section 3.3 Recreation

Family boating on the Ipswich River within the impoundment is largely centered on the River Bend area. Kayaks are available at the IRWA boat launch. The impoundment normally offers excellent boating conditions of mild current and ample water depth. Beyond the impoundment, presently there is essentially no family boating on the river until above the Willowdale dam. The reasons are easily seen by a glance at the river above or below the present impoundment.

The Feasibility Study states: quotation

“Overall, there is no evidence to suggest that the river through the former impoundment will not remain useable for paddlers.”

In truth, the most casual observation indicates that family boating in the present impoundment will be eliminated by removal of the dam.

### **7.2 Conclusions: Recreation**

The removal of the Ipswich Mills Dam would undoubtedly eliminate the opportunity for family boating within the impoundment. That would be a loss to the community.

## **8.0 References**

1. Ipswich Mills Dam Partial Feasibility Study (2014)
2. Report: Ipswich Mills Dam Removal - Feasibility Study: Cultural Resources Summary, February 21, 2017, Public Archaeology Laboratory
3. Ipswich Mills Dam Removal Study – Task 1 Summary June 30, 2017; Revised May 2018
4. Ipswich Mills Dam Removal Feasibility Study (2019)
5. Ipswich Mills Dam Removal Feasibility Study (2019), Attachment 4 Task 1 Existing Conditions Summary Memorandum



6. Modern fish ladder: [www.atlasobscura.com/articles/fish-ladder-maine-lobster-industry](http://www.atlasobscura.com/articles/fish-ladder-maine-lobster-industry)

Figure 1. Ipswich River from Mills Dam to railroad trestle, property map. (GIS DEP)

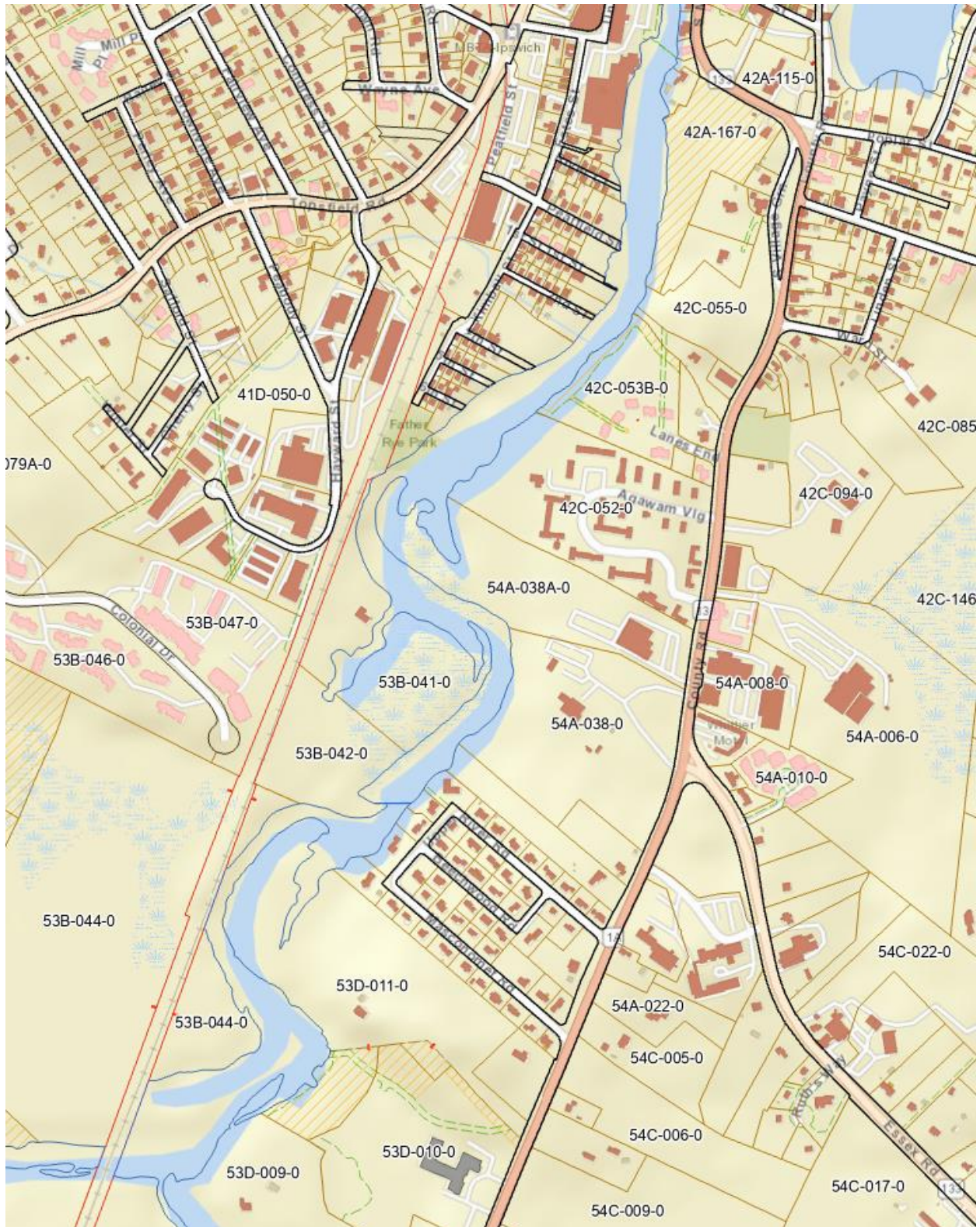




Figure 2. Ipswich River from Mills Dam to railroad trestle, wetlands overlay map. (GIS DEP)



Additional  
Public Comment on  
Ipswich Mills Dam Removal Project

EEA No. 16754

Submitted to:

Massachusetts Environmental Policy Act Office

W. Denis Markiewicz

Ipswich, MA

September 28, 2023

## Ipswich Dam Removal Public Comments: Ipswich Wetlands

A proposal to remove the Ipswich Mills Dam is under consideration. Part of the review process includes the solicitation of public comment. The following is submitted in response to the request for public comment.

In a previous Public Comment, I stated concern for a number of potential negative impacts of the proposed dam removal including the negative impact on the Ipswich Wetlands. First it was emphasized that the Ipswich Wetlands are not just some patch of damp ground, but rather an extensive spectacular area of many 10's of acres of dense pristine wetland. The wetlands and associated wildlife are recognized in the Feasibility Study (2019) as well as the fact that a reduction in water level with dam removal will have a negative impact on the wetlands. The extent of the reduction in wetlands from dam removal is, however, not well described and is possibly minimized in the Feasibility Study Report. I got to thinking about the reduction of water levels and came up with the following description to help understand the situation.

The expected reduction in water level in the area of the impoundment due to dam removal is stated to be 4 feet. (Neil Price, online call in public comment session.) Now imagine standing on the floor and placing your hand flat at the level of 4 feet. Further imagine that this is the height of the land at the very edge of the river, and that the water in the river comes up to just the height of the land. That would make the land a very wet wetland. Now imagine a 4 foot drop in the height of the water in the river, which would now put the water at the level of the floor. The land is now 4 feet above the water, and from the position of your hand above the floor it is possible to see the height of the river bank that would result. In fact, if one goes by the river in places where accessible, where there are no wetlands, a river bank of 4 feet is actually quite large compared to the height of the river bank that exists in many areas. A river bank of 4 feet implies an area of large trees and woody shrubs along the river. These areas are not wetlands.

The conclusion is that the reduction of 4 feet in the height of water in the river will leave surrounding wetlands in a condition where they will not be wetlands at all. This applies to the most wet of the present wetlands and applies more strongly to the less wet of the present wetlands. The conclusion is that the Ipswich Wetlands will be completely eliminated as wetlands by the removal of the Ipswich Mills Dam.

It is possible to achieve the objective of restoring the fish population up the Ipswich River and at the same time preserving our pristine Ipswich Wetlands. Fish ladders are being used successfully to provide fish passage at many dam locations, and given the inevitable wetland destruction from the removal of the Mills Dam, using a fish ladder at the Ipswich Mills Dam site would appear to be an imperative.

**EEA No. 16754 – Ipswich Mills Dam Removal Project**

Deb F-W &lt;dmf1818@gmail.com&gt;

Wed 9/13/2023 10:28 AM

To: Moreno, Nicholas (EEA) &lt;Nicholas.Moreno@mass.gov&gt;

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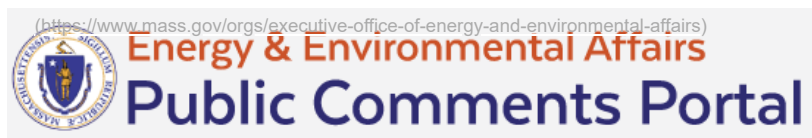
Hello,

I am writing in **support** of the Ipswich Mills Dam Removal Project.

I grew up in Ipswich before moving away after college, and when my husband and I were house hunting I knew there was nowhere else I'd like to live. We moved here in 2005. We live near downtown and walk on the Riverwalk by the dam daily. I would love to see the removal go forward to restore the natural state of the river and allow for the unimpeded passage of fish and other wildlife.

Thank you,  
Deborah Fowler-Wheaton  
3 River Court  
Ipswich  
978-578-0213





Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Susan	<b>Address Line 1</b> 13 Juniper Street	<b>Organization</b> Resident
<b>Comments Submit Date</b> 9-14-2023	<b>Last Name</b> Wallingford	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> swallingford@comcast.net	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Ipswich dam removal

**Comments**

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I strongly agree that the Ipswich river dam should be removed. Its original purpose is no longer relevant and the area's biodiversity and balance have been negatively affected. I volunteered as a fish counter at the dam one year and I only recorded one being seen. It was disturbing to hear that besides fish, turtles, beavers, otters, and other animals cannot go upriver. I haven't heard of any good reason keep the dam. I appreciate all the time, dedication, and hard work of everyone doing the research and community outreach. Please, let's return the Ipswich river to its original state.

Thank you !

**Attachments**

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## ref EEA No 16754 Ipswich Mills Dam Removal Project

James Zabelski <zabelskijames@gmail.com>

Sat 9/16/2023 1:31 PM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

To the office of the Massachusetts Environmental Policy Act,

The Ipswich River Dam is responsible for a wondrous, natural gift enjoyed by my family for five generations. For the seniors, adults, children and grandchildren of my family It has provided a place of refuge, relaxation and recreation at our very doorstep.

The Ipswich River Dam, in its current incarnation, creates a unique and idyllic environment for both summer and winter activities, including: fishing, swimming, kayaking and canoeing, boating, ice skating and ice fishing to name just a few. These pastimes are enjoyed not only by members of my family, but members of my immediate neighborhood, the Ipswich community at large and the countless relatives and friends fortunate enough to share in our joy of this beautiful environmental space. The Town of Ipswich recently installed a dock, along this portion of river, to assist in the launching and retrieval of watercraft. This new feature has led to increased numbers of people being able to enjoy the Ipswich River in a very tangible way. Removal of the dam will reduce the breadth and depth of the river, making it virtually impossible to easily access the water. With the addition of tidal influence, the river may be reduced to little more than a muddy trickle, preventing successful navigation along its course.

The flora and fauna found in the area are incredibly unique and diverse. The dam's presence allowed these species to exist here, defining the environment, shaping the lives of residents and the local community for almost four centuries. The stretch of the river upstream of the dam is almost as old as the town itself, and in a very real way, a change to this environment is a change to the very fabric of Ipswich. It is the plant and wildlife species present here that continue to draw the interest and appreciation of residents and nature enthusiasts alike.

My great concern, in fact my fear, is that all of this is about to change, and not for the better. I am faced with a number of questions concerning the future of this beautiful stretch of world just outside my window.

What will happen to the numerous species of wildlife that live here, when the water turns from fresh to tidal? What will happen to the various forms of plant life that have evolved to live in this freshwater environment, for the last four hundred years? Are these organisms doomed to destruction, in order to reintroduce species of fish that have been declining from this ecosystem for the last four centuries? My family recently discovered specimens of turtle, which we believe to be Northern Red-Bellied Cooter (an endangered species protected at both the state and federal level), to be present in this precious upstream environment. Will there be any sort of inquiry or investigation conducted to ensure that Ipswich does not lose such rare creatures?

In addition, not all of my concerns focus solely on the ecological ramifications of the dam's removal,

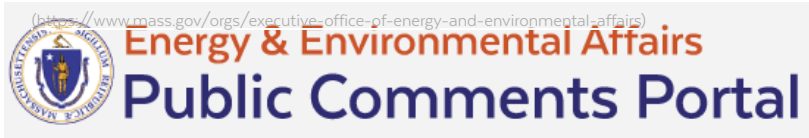


but practical implications as well. The reservoir created by the dam holds back water for use in potential fire suppression in the downtown area. Is there an alternative water supply available, should disaster strike? Will any contaminants from old businesses, which may

have leached into the local silt and soil pose a threat to downstream ecology, once dam deconstruction takes place? Like many Ipswich residents, my family depends on the health and integrity of the clam flats, to support their way of life. What measures will be set in place to ensure the longevity of those vital, natural resources?

Rather than removing the Ipswich River Dam, are there any alternatives that might enhance the current construction, while preserving the already existing ecosystem? Are there any new technological applications available to both foster change, and yet act in the spirit of preserving a four hundred year-old environment? Will my children and grandchildren be able to know the Ipswich River, the way five generations of my family have known it? I hope so. Thank you for your time and consideration of my comments.

Jim Zabelski



Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> James	<b>Address Line 1</b> 16 peatfield st	<b>Organization</b> --
<b>Comments Submit Date</b> 9-16-2023	<b>Last Name</b> Zabelski	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> zabelskijames@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Save the Dam

**Comments**

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The Ipswich River Dam is responsible for a wondrous, natural gift enjoyed by my family for five generations. For the seniors, adults, children and grandchildren of my family it has provided a place of refuge, relaxation and recreation at our very doorstep.

- Attachments**
- [turtle.jpeg](#)(null)
  - [large turtle.jpeg](#)(null)
  - [Ipswich River Dam.txt](#)(null)

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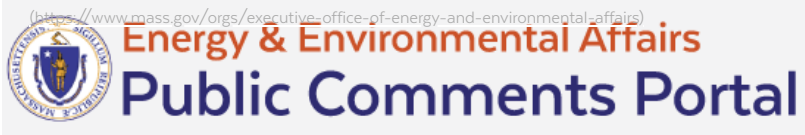
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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Carol	<b>Address Line 1</b> 27 Green St., #2	<b>Organization</b> --
<b>Comments Submit Date</b> 9-18-2023	<b>Last Name</b> Bousquet	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> clbousquet@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

**Topic:** Remove the Ipswich Mills Dam

**Comments**

I am extremely concerned about CLIMATE CHANGE and wish to support the removal of the Ipswich Mills Dam. The Ipswich River was recently declared one of America's Most Endangered Rivers®. A coastal river running from Burlington to the Atlantic Ocean, it flows through suburbs and farms before emptying into the Great Marsh and Atlantic Ocean. Not only is it the main source of drinking water for 350,000 people and businesses in 14 communities, including Beverly and Salem, but it also provides excellent recreation opportunities. This magnificent river is drying up due to unsustainable water use practices, worsened by the climate crisis. Freeing the river is one step toward fortifying it into the future. This dam must be removed. The science supports it.

**Attachments**

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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Katherine	<b>Address Line 1</b> 85 Kittery Ave	<b>Organization</b> --
<b>Comments Submit Date</b> 9-18-2023	<b>Last Name</b> Lindquist	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> klindquist8@gmail.com	<b>Zip Code</b> 01969	

**Comment Title or Subject**

Topic: Approve Removal of the Ipswich Dam

**Comments**

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The Ipswich River, called the Great River by early colonists, is now an Endangered River and a shadow of its former self. It's been a resource that has fueled the settlement and economic development of the many communities along its banks. From fisheries to powering mills to being a primary source of drinking water for over 350,000 people, the Ipswich has served us well over hundreds of years. However, it's a resource that has reached its giving capacity; it's time for people to nurture its health and ensure its future. Taking down the Ipswich dam, which now serves to vital purpose, will free the flow of the Ipswich, which is limited to a trickle, if that, in years with low rainfall. It will allow fish and the ecosystems dependent on its flow to recover. And, it will serve to bolster the climate resiliency of its watershed against increasingly unpredictable weather patterns. If we fail to take common-sense, pragmatic steps now, we risk endangering one of the region's most vital resources.

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<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Nelda	<b>Address Line 1</b> 17 Pine Road	<b>Organization</b> --
<b>Comments Submit Date</b> 9-18-2023	<b>Last Name</b> Quigley	<b>Address Line 2</b> Beverly	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> neldaquigley@gmail.com	<b>Zip Code</b> 01915	

**Comment Title or Subject**

Topic: Ipswich Mills Dam - Urgent action needed!

**Comments**

"I am extremely concerned about CLIMATE CHANGE and wish to support the removal of the Ipswich Mills Dam. The Ipswich River was recently declared one of America's Most Endangered Rivers®. A coastal river running from Burlington to the Atlantic Ocean, it flows through suburbs and farms before emptying into the Great Marsh and Atlantic Ocean. Not only is it the main source of drinking water for 350,000 people and businesses in 14 communities, including Beverly and Salem, but it also provides excellent recreation opportunities. This magnificent river is drying up due to unsustainable water use practices, worsened by the climate crisis. Freeing the river is one step toward fortifying it into the future. This dam must be removed. Science supports it."

**Attachments**

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September 19, 2023

*Via Email*

Nicholas Moreno, Environmental Analyst  
MEPA Office  
Executive Office of Energy and Environmental Affairs  
100 Cambridge Street, Suite 900  
Boston, MA 02114  
[Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

**Re: Ipswich Mills Dam Removal Project, EEA No. 16754**

Dear Mr. Moreno:

Thank you for the opportunity to comment on the Ipswich Mills Dam Removal Project described in the Expanded Environmental Notification Form that was published in the Environmental Monitor on August 23, 2023.

We are writing on behalf of Charles River Watershed Association (CRWA) to offer our perspectives on the ecological impacts of the Ipswich Mills Dam, and the benefits of removing it.

CRWA has seen the success of dam removal restoring our rivers here in the Commonwealth. We worked with the Town of Bellingham and the Division of Ecological Restoration to remove the Old Mill Dam off of Pearl Street in Bellingham in 2017. Today, the Charles River is restored and if you did not know where the dam used to be, you would have no idea there was a dam there before. Fish and wildlife passage was restored and paddlers now can paddle right through this section of the Charles River without any portages.

#### *Improve Water Quality*

CRWA monitors water quality throughout our own watershed, and sees the effects of dams on various water quality parameters and issues. While we do not have data outside of our watershed, our data from the Lakes District and the Lower Basin of the Charles River show the negative impacts of dams on water quality. In these impoundments, we have recorded slower moving water, higher water temperatures, lower dissolved oxygen levels, more invasive plant species, more frequent and severe cyanobacteria blooms, and a lower biodiversity of benthic macroinvertebrates. Removing the dam would improve water quality by allowing the water to flow freely through large areas of the Ipswich River, remaining cool and oxygenated.

**Charles River Watershed Association**

41 West Street, Floor 8 Boston, MA 02111 t 617 540 5650 [www.crwa.org](http://www.crwa.org)

### *Reconnect a Large Section of the Ipswich River and Tributaries*

Removing the Ipswich Mills Dam would reconnect over 49 miles of mainstem and tributaries of the Ipswich River for migratory fish. This would be a vast improvement. Connectivity is also critical for resident fish to be able to pass into the river and tributaries providing additional spawning grounds and opening access to cool, free flowing sections of the river. Additionally, improved water quality will further foster a more hospitable habitat for fish to thrive.

### *Address Sediment Accumulation*

Removing the dam would have the co-benefit of eliminating sediment collection behind the dam going forward. Accumulated sediment can further reduce dissolved oxygen levels and, depending on the rate of accumulation, can bury new plant growth as it occurs. The sediment currently accumulated behind the dam would be addressed as a part of the dam removal process. Removing the dam will create additional healthy benthic (river bottom) habitat to support native plants and creatures that are an important part of a healthy river ecosystem.

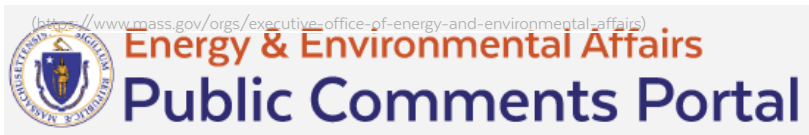
CRWA is excited that projects to restore rivers are happening across the Commonwealth and urges the Commonwealth to support the successful permitting process of this important beneficial ecological restoration project for the Ipswich River and co-benefit to commercial and recreational fisheries and wildlife in the Gulf of Maine. The Charles River, Ipswich River and many other coastal rivers in Massachusetts are connected through these inspiring annual migrations of fish. Projects like the Ipswich Mills Dam help support these fisheries and local communities and build resilience for a changing climate. Thank you again for the opportunity to comment.

Sincerely,



Robert Kearns

Climate Resilience Specialist



Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Iris	<b>Address Line 1</b> 37 Mineral St	<b>Organization</b> --
<b>Comments Submit Date</b> 9-19-2023	<b>Last Name</b> Doucette	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> iris.doucette@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Ipswich Mill Dam Removal Project

**Comments**

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I've lived in Ipswich for 4 + years now. First impression upon viewing the dam and walking on the river walk was very lovely. It is still lovely, however our manmade structure has served it's purpose and it's time to free the river. The river is in trouble, we must allow the natural forces of rivers to prevail. Where dams have been removed has proven beneficial to rivers and wildlife. It will be hard to say goodbye to an old friend, however we must do so. The time is now, the future will require informed conservation, science based and ecologically sound.

Thank you for this opportunity to express my point of view.

Iris Doucette

**Attachments**

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## EEA No. 16754 – Ipswich Mills Dam Removal Project

Richard McElvain <richardmcelvain@gmail.com>

Tue 9/19/2023 11:21 AM

To: Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

**DO NOT REMOVE THE IPSWICH MILLS DAM.**

The cry “Free the River!” sounds impressive and a cause we should all rally behind in a heartbeat, but in fact the circumstance is more complicated than a slogan.

First, let us say, the river does not seem particularly enslaved to me. It flows. It is beautiful. It is described as one of the cleanest rivers in the state. We live on the river. It greets us every morning. It is an important part of our lives.

Amid all the strum and dram of the discussions we must not forget or discount the fact that the Mill Dam is one of the most beautiful places in downtown Ipswich. It predates the footbridge that arches before it. The sound of falling water offers primal solace. This beauty has a value that we must include in the equations.

To say that “the dam has no practical function” is a false statement. It is a fabulous place to walk and stop and watch the wildlife on the pond above and below the dam and take a breath and contemplate. This has a value. If we remove the dam this will be lost never to return.

But what about the poor fish who can barely climb the fish ladder? This is a legitimate concern. However, if we remove the dam the fish will only be able to swim maybe two more miles up the river to be stopped by the next dam at the Foote Brothers Canoe/Kayak Rental place. That dam is privately owned and is going nowhere fast. The argument that if we drop the dam “the fish will be able to swim up the 45 miles of the rest of the river to breed” is absolutely misleading. They will just be trading places to be frustrated.

One of the things we have often heard quoted is “the removal of the mill dam must have zero effect on the environment”. Clearly the removal of the dam is going to make a significant impact on the environment upstream and downstream of the dam. Some positive. Some not so.

The dam was created 100 plus years ago to serve the mills. In doing that, the river created a “pond” of standing water just upstream of the dam. During the 100 years nature has embraced this pond and created a habitat, different from a running river. A running river is one kind of habitat. Standing water is still another habitat. They both have their advantages. They are quite different in how they serve the flora and fauna of our region. For instance, frogs breed in standing water, not running water. Many birds and animals and fish can live and hunt and breed well in standing water in ways that they cannot in running water. Many grasses and flowers flourish in standing water and are washed away in running water.

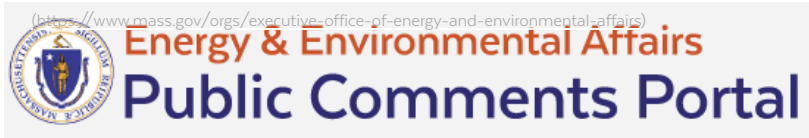
If we drop the dam the lovely standing water habitat above the dam will be lost.

So, it seems to us this fever cry of “free the river” has a false ring. Removing the dam is a complicated question, for the citizens of Ipswich and for the animals and trees, grasses and flowers surrounding it.

The parties calling for dropping the dam are very organized and aggressively selling the idea to the citizenry with maps and videos and meetings. And we think they are honorable people trying to do what they feel is best for the river. But the proposal feels like it is not thoroughly thought through, and they are presenting only part of the results of the removal. It seems to us there are many advantages to leaving the dam alone. We would love to hear articulate voices specifying the cons of the dam removal because they certainly exist.

Peace

Richard McElvain and Lynda Robinson  
22 Turkey Shore Road  
Members IRWA



Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Alison	<b>Address Line 1</b> 63 South Main St.	<b>Organization</b> NOAA
<b>Comments Submit Date</b> 9-20-2023	<b>Last Name</b> Ferguson	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> 9nine.dark.moons@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

**Topic:** In favor of dam removal & I rescued > 100 turtles last year trying to reach the freshwater above the dam

**Comments**

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My husband and I live directly on the Ipswich River, right between the fish ladder walkway and the Riverwalk Bridge. We've lived here since 2009 (him) and 2012 (me). Our living room windows, bedroom windows, and deck look directly down on the fish ladders. We are in 100% favor of removing the Ipswich Mills dam.

During the recent droughts, turtles have gotten stuck in the (new) fish ladder, between the wooden baffles, in their quest to reach the freshwater above the dam. If I hadn't climbed down into the fish ladder and physically moved them to the freshwater above the dam, they would have died in the fish ladder. I rescued about 60 turtles from the fish ladder between July & October of 2022. The turtles included snapping turtles, musk turtles, and painted turtles. They ranged in size from about 20 pound snappers to tiny babies that fit in the middle of my palm. I also walked along the top of the (dry) dam multiple times a day with a large net, and scooped up at least 40 more turtles from the salt water below the dam. They would paddle back and forth along the bottom of the dam all day long, trying to find a way up to the freshwater above. I also had a large frog literally leap into my net. He seemed much happier in the freshwater above the dam. I have photos of most of my rescues.

Throughout my 11 years living here, I have seen many animals using the fish ladder to travel from the tidal water below the dam to the freshwater above the dam. This includes beavers, otters, turtles, water snakes, minks, frogs, & even cormorants. I have photos of many of them using the fish ladder.

It is our firm belief that removing the dam will help restore the ecosystem, allow river herring to reach their spawning grounds, allow paddlers to move freely along the River, & allow all animals, from fish to minks, to have free access to the freshwater above the Ipswich Mills Dam.

I've worked for NOAA Fisheries Service in Gloucester, MA since 1993, in the Analysis and Program Support Division. My work has never involved the dam or anything related to dam removal. I am submitting this comment as a resident of Ipswich.

**Attachments**

**Update Status**

**Status**

Accepted ▼ SUBMIT

---

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## Support for the Ipswich Mills Dam removal project

Joanne Delaney <joannemdelaney@gmail.com>

Wed 9/20/2023 11:40 AM

To: nshea@ipswichriver.org <nshea@ipswichriver.org>; Frank Ventimiglia <frankv@ipswichma.gov>; Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

**CAUTION:** This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

To Whom It May Concern,

Please enter these comments into the official MEPA record for the Ipswich Mills Dam removal project.

I support the Ipswich Mills Dam removal project because it will improve ecology and health of the river in many areas, and there are no detrimental biological impacts identified from removal. Removing the dam will decrease maintenance costs and importantly, liability to the town if it fails. The town is already facing multiple critical and significantly expensive infrastructure improvements from public safety to school buildings to water supply; we don't need to add dam maintenance and liability from failure to that list. Removing the dam may improve flood control but will not negatively affect it. Removal of the dam will clearly change aesthetics of the river upstream of the dam, however, it doesn't mean changes will be bad. I will find these changes beautiful as they will represent a more natural ecosystem.

The remaining issue for dam removal therefore appears to be concern about recreational access, notably will the restored river be paddleable. We know from engineering studies and modeling that a damless river will be shallower and narrower upstream of the dam, with these effects becoming more minimized as you move upstream. We will only know what a restored river will truly look like after the dam is removed and the river has 1-2 years to recover. However, when considering recreational access, I urge decisionmakers to consider the following observations, made as someone who regularly paddles the Ipswich River upstream of the Ipswich Mills Dam (I paddled this area of the river over 30 days in 2021). Right now, there is very limited recreational access to the river above the dam except for residents that live on that stretch of river, IRWA members/guests, or people who are committed enough to put in upstream (e.g., Winthrop Street bridge) and portage several obstructions and get through several sets of small falls/rapids to get downstream. Removing the dam will increase access to a broader set of users, including paddlers putting in at Town Wharf and paddling upstream. Furthermore, the stretch of river from Winthrop Street to the dam can be impassible in sections depending on water level (such as just downstream of Mill Road Bridge) and number of strainers. Shallowing of the river at the lower sections near the dam isn't going to significantly affect what is already a tricky section of river to paddle that often has impassable or challenging sections. Water withdrawals from the river are being addressed as part of a separate, extremely important process. Water usage affects recreational access and must be addressed to continue to improve the health of this highly threatened river. However, low flows due to water withdrawals and climate change should not be conflated with dam removal. Both water withdrawal modifications AND dam removal are needed to make the Ipswich River healthy again.

Lastly, I support dam removal because the process has been thorough and inclusive, and has not been rushed. The long feasibility and planning process have logically led to dam removal. None of the studies have found any reason to NOT proceed with the project.

Thank you for considering these comments in the MEPA review process.

Sincerely,  
Joanne Delaney  
12 Kinsman Ct.  
Ipswich, MA



Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> John	<b>Address Line 1</b> 12 1st. St	<b>Organization</b> --
<b>Comments Submit Date</b> 9-21-2023	<b>Last Name</b> Moss	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> jpmossjr@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Ipswich Mills Dam Removal

**Comments**

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Has the Rock Ramp Fishway ,as described in NOAA literature on restoring fish passage, been considered. This would seem to be an economical way to improve fish passage without the problems of dam security, sediment pollution or lowering up stream water levels

**Attachments**

**Update Status**

Status

Accepted

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**FOR THE ASSABET SUDBURY & CONCORD RIVERS**

23 Bradford Street · Concord, MA 01742

978 · 369 · 3956

[office@oars3rivers.org](mailto:office@oars3rivers.org)

[www.oars3rivers.org](http://www.oars3rivers.org)

September 20, 2023

Nicholas Moreno, MEPA Analyst  
Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: Comment Letter on EEA #16754, Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno,

Thank you for the opportunity to comment on the Ipswich Mills Dam Removal project. We strongly support this project in the Ipswich River watershed which has several key nexus points with the SuAsCo watershed. OARS is the watershed organization for the Sudbury-Assabet-Concord watershed, a tributary to the Merrimack River watershed. The Merrimack River and the Ipswich River are both gateways to the spawning areas for migratory fish that must travel from the Gulf of Maine into freshwater spawning areas. The Ipswich Mills dam completely blocks this essential migration path. Restoring healthy reproducing populations of these fish, which depends on restoring fish passage at dam sites, benefits the whole of the struggling commercial Gulf of Maine fisheries. Restoring the natural populations of these fish benefits both inland and marine recreational fisheries and strengthens the resilience of riverine and aquatic habitats and an array of wildlife, from bald eagles to freshwater mussels to otters.

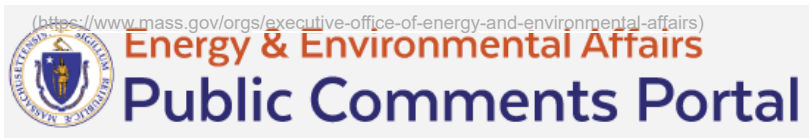
Removing the Ipswich Mills dam will restore fish passage in a way that that is effective, permanent, and cost-effective at a critical location. Because of its location blocking tidal waters it is the keystone dam that will unlock many miles of upstream habitat and restore tidal freshwater wetlands which are rare and of especially high ecological value. Removing this dam will also restore free flowing conditions which improves water quality by reducing stagnation and allow public boating the full access between the river and the estuary and ocean. For these reasons, removal of this dam is of regional significance and should be accorded high priority as a climate resiliency and economic development project.

Please don't hesitate to contact me if you have any questions.

Yours sincerely,

A handwritten signature in black ink, appearing to read "A. Juma", with a long, sweeping underline that extends to the left.

Alison Field-Juma  
Executive Director



Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> David	<b>Address Line 1</b> 21 Newmarch Street	<b>Organization</b> -please select-
<b>Comments Submit Date</b> 9-23-2023	<b>Last Name</b> Voci	<b>Address Line 2</b> --	<b>Affiliation Description</b> Proponent
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> davevoci@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Support for Ipswich River Mills Dam Project

**Comments**

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I am writing in support of the Ipswich River Mills dam Removal due to the many ecological and community benefits associated with this important project. I live in Ipswich, and my education includes a BS in Fisheries Biology from UMass Amherst. I am currently a commercial clam digger here in Ipswich, and much of my free time is spent fishing, hunting, bird watching, and foraging in the marshes and adjacent woodlands of the river and Ipswich Bay. I am very passionate in my belief that we need to be responsible stewards of these incredible ecosystems. Having paid close attention to this topic over the course of many years, it is clear to me that the enormous amount of data collected during the many studies undertaken for this project clearly support removal of the dam for several key reasons, but I will focus on three:

1. Removal of the dam is a critical step towards at least a partial recovery of the diadromous fish species that historically thrived in the Ipswich River. While several challenges would still exist, such as low water due to overuse by upstream municipalities, and additional dams upstream, this project will undoubtedly serve as a rallying point to address these additional challenges. Furthermore, the entire upstream portion of the river up to the Willowdale dam would now be available for a subset of these species as potential spawning area.
2. The dam is owned by the town and poses very substantial financial liability and risk. Like all man-made structures, dams require maintenance and will eventually fail outright. The costs of upkeep and maintenance will be a long term burden to current and future taxpayers of Ipswich.
3. Overall health of the river and the marsh area downstream will improve due to increased habitat diversity, repair of natural nutrient transport, and enhanced ability for all species to move upstream and downstream of the tidal zone.

One final very important point should be mentioned. The Ipswich River and all of us who live in the watershed are very fortunate to have an incredibly effective, world class advocate for the river; the IRWA. With the amazing support of the IRWA, tirelessly fighting for the river, especially on the political front, this project will truly have a chance to cascade into a river success story we can all be very proud of.

**Attachments**

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Status

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Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Lee	<b>Address Line 1</b> 33 Newbury road	<b>Organization</b> --
<b>Comments Submit Date</b> 9-23-2023	<b>Last Name</b> Schofield	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> l.schofieldiii@gmail.com	<b>Zip Code</b> 01969	

**Comment Title or Subject**

Topic: Ipswich mills dam removal

**Comments**

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The Ipswich Dam, what a beautifully well built Dam, it has definitely withstood the test of time. It could probably go another 300 years if we let it. I say let's save the dam. Why ruin such a lovely piece of architecture. It even looks beautiful without the wonderful majestic Ipswich river flowing over its granite structure. This happens more often during drought's. Which could probably be mitigated by stopping or curtailing communities upstream from drawing so much water from the river especially during drought's. I would venture to say that the Ipswich river had abundance amounts of water flowing down stream during the early period of Ipswich before the build up of many towns and communities along its banks it's definitely not the river's fault that it struggles. If we could address the problem of her being literally sucked dry during these drought's from the upstream communities the river would be even healthier than it is now. The echo system that has thrived during the early period could thrive again and there would be no need to deconstruct this historic dam. When I walked over the river walk bridge this past summer on my way to "old Ipswich days" just because of this awesome historic dam. I said to myself what a beautiful site it was to see hear and feel the roar of the thunderous Ipswich river coming over the head wall making its way through the historic town of Ipswich. Now think of what I just wrote in reference to "old Ipswich days" doesn't this beautiful granite dam depict and resemble "old Ipswich days" just like the Whipple house and the Choate bridge down stream and the many first period houses that make up this wonderful town. This dam is part of our heritage and part of our history. It tells a wonderful story of first period Ipswich. Please don't erase the history that makes Ipswich so unique.

**Attachments**

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Status

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Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Sara	<b>Address Line 1</b> 16 Pemberton Road	<b>Organization</b> --
<b>Comments Submit Date</b> 9-24-2023	<b>Last Name</b> Beck	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> sjbeck@gmail.com	<b>Zip Code</b> 01983	

**Comment Title or Subject**

**Topic:** Remove the Dam!

**Comments**

Please remove the dam for the sake of the fish and the health of the Ipswich River. It will also be wonderful to be able to paddle through downtown Ipswich.

Thank you,  
Sara

**Attachments**

**Update Status**

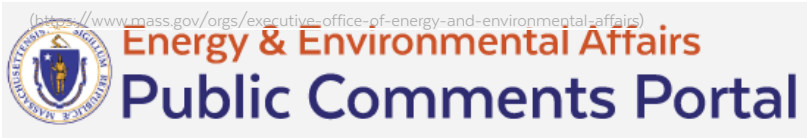
**Status**

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Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Wendall	<b>Address Line 1</b> --	<b>Organization</b> --
<b>Comments Submit Date</b> 9-24-2023	<b>Last Name</b> Waters	<b>Address Line 2</b> --	<b>Affiliation Description</b> --
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> wendallinthewild@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Remove the Ipswich Mills Dam

**Comments**

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The dam should be removed. It does not serve its original purpose anymore and it poses many dangers to wildlife that cannot get over it. I have found many snapping turtles stuck in fish ladder. Solve two problems by getting rid of the dam and restoring that section of the river. The Riverwalk will still be a beautiful place.

**Attachments**

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Status

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September 25, 2023

Secretary Rebecca Tepper  
Executive Office of Energy and Environmental Affairs  
Attn: MEPA Office, Nicholas Moreno  
100 Cambridge Street, Suite 900  
Boston, MA 02114

Via email: [nicholas.moreno@mass.gov](mailto:nicholas.moreno@mass.gov)

Re: **EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA**

Dear Secretary Tepper and Mr. Moreno:

On behalf of Mass Audubon, we are writing in support of the request for a waiver of an Environmental Impact Report (EIR) under 301 CMR 11.11(5) for the proposal by the Town of Ipswich (the Town) to remove the Ipswich Mills Dam. This project will restore fish passage and wildlife habitat and will also provide community resilience benefits for the Town and the Commonwealth by eliminating an aging dam upstream of bridges, businesses, and homes in downtown Ipswich. The removal of obsolete dams, such as the Ipswich Mills Dam, is increasingly important in light of the effects of climate change, including changes in precipitation patterns, and the benefits resulting from restored connectivity along stream corridors.

As you know, the Secretary may waive an EIR if preparation of the EIR would result in “undue hardship” to the project proponent or would “not serve to avoid or minimize damage to the environment” as described under 301 CMR 11.11(1). Furthermore, we understand that when mandatory EIR review thresholds have been exceeded, the Secretary may grant a waiver of the EIR as described under 301 CMR 11.11(2) based on determination that preparation of an EIR would not provide increased benefit to the project and the environment. The scientific and engineering analysis included in the EENF for the proposed Ipswich Mills Dam Removal provides ample basis for a finding that preparation of an EIR would not serve to avoid or minimize damage to the environment or provide any benefit.

The Ipswich Mills Dam (ID# MA00231) ranks among the top five percent of the nearly 3,000 dams assessed in DER’s 2017 Restoration Potential Model scoring system. This Model incorporates elements such as the length of river miles opened upstream of the dam with removal, the type of habitats that are reconnected, and where the dam is located within the river to estimate and compare ecological benefits associated with dam removals across the Commonwealth. This dam scores high in the model due primarily to its position as a head-of-tide dam, as well as the over 45 miles of upstream river connectivity potentially gained through dam removal. Additionally, the anticipated restoration of tidal freshwater wetlands — one of the rarest wetland habitats in Massachusetts — along with studies predicting significant improvements in dissolved oxygen levels, summer water temperatures, and diadromous fish passage, support the overwhelming environmental benefits of this project.

Mass Audubon is supportive of nature-based climate solutions, including the removal of obsolete dams, to restore natural flow regimes and ecological processes, reduce flood hazards, improve water quality, restore habitat and aquatic connectivity for fish and other aquatic life, and to restore floodplains and riparian corridors. This project is expected to result in significant restoration of ecological functions both near the project site and within the Ipswich River watershed, including within the approximately eight miles of the Ipswich River that runs through Mass Audubon's 1,955-acre Ipswich River Wildlife Sanctuary located in Topsfield and Wenham. This project is also supported as a Priority Project by experts at the Division of Ecological Restoration who have decades of ecological restoration experience, including extensive experience with other dam removal projects.

This project triggers mandatory EIR threshold under 301 CMR 11.03(3), for structural alteration of an existing dam and for alterations to inland bank and bordering vegetated wetlands. The dam is a run-of-river dam and does not provide any flood storage or protection, and dam removal will eliminate the risk of catastrophic dam failure and downstream flooding, as well as repair and maintenance expenses for the Town and residents. Project partners have already engaged in extensive outreach to gain input from Town officials, non-profits, and local residents. The permitting processes associated with this project will provide additional oversight and opportunities for public input. Permits required include 401 Water Quality Certificate (Department of Environmental Protection), Wetland Protection Act Notice of Intent/Order of Conditions (West Boylston Conservation Commission), Section 106 Historical Certificate (Mass Historic Commission), and Section 404 dredge and fill Permit (U.S. Army Corps of Engineers).

Thank you for considering these comments, and we look forward to seeing this project move forward toward implementation.

Sincerely,



E. Heidi Ricci  
Director of Policy and Advocacy  
[hricci@massaudubon.org](mailto:hricci@massaudubon.org)  
208 South Great Road  
Lincoln, MA 01773  
781-259-2172



Carole McCauley  
North Shore Regional Director  
[cmccauley@massaudubon.org](mailto:cmccauley@massaudubon.org)

Cc: Neal Price, Horsley Witten  
Division of Ecological Restoration  
Ipswich Conservation Commission  
Ipswich River Watershed Association



Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Joel	<b>Address Line 1</b> 12 Willowdale Road	<b>Organization</b> --
<b>Comments Submit Date</b> 9-26-2023	<b>Last Name</b> Hariton	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> jhariton@hotmail.com	<b>Zip Code</b> 01983	

**Comment Title or Subject**

Topic: Support the health of the Ipswich River

**Comments**

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I have been actively involved in protecting the health of the Ipswich River for over 20 years. It flows near my home in Topsfield and the Howlett Brook at the end of my property is a significant tributary.

For years I have been working to inform my neighbors of the opportunity to bring back the herring run that existed for thousands of years, and ended in the 1600s when dams, including the Ipswich Mills Dam, were built that greatly inhibited their travel. Now we have a chance to restore that natural annual event that supports and enhances the entire ecosystem around the river.

The removal of the Ipswich Mills Dam will be the most substantial step to achieving that goal.

The Ipswich River is listed as one of the top ten endangered rivers in the United States, mostly because of over-withdrawals. By removing the dam, the river achieves more resiliency to cope with variations of rainfall exacerbated by climate change. This dam must be removed. Science supports it.

**Attachments**

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Status

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**The Commonwealth of Massachusetts**  
William Francis Galvin, Secretary of the Commonwealth  
Massachusetts Historical Commission

September 27, 2023

Secretary Rebecca Tepper  
Executive Office of Energy & Environmental Affairs  
Attn: Nicholas Moreno, MEPA Unit  
100 Cambridge Street, 10th Floor  
Boston, MA 02114

Dear Secretary Tepper:

RE: Ipswich Mills Dam Removal, Ipswich, MA. MHC# RC.73659. **EEA #16754.**

Staff of the Massachusetts Historical Commission (MHC) have reviewed the Environmental Notification Form (ENF) submitted for the project referenced above and have the following comments.

The ENF indicates that the project anticipates permitting from the US Army Corps of Engineers, US Environmental Protection Agency, Massachusetts Department of Environmental Protection, Massachusetts Division of Marine Fisheries, and the Massachusetts Office of Dam Safety, and funding from the Massachusetts Division of Ecological Restoration, and the Executive Office of Energy & Environmental Affairs Dam and Seawall Program.

The ENF includes a study report prepared by the Public Archaeology Laboratory, Inc. in February 2017. The ENF includes preliminary design plans prepared Horsley Witten Group, Inc. in August 2023, including the access and staging plan that assists to understand the locations of the project work areas.

The project area of potential effect includes several identified historic and archaeological resources, some officially designated by inclusion in the National Register of Historic Places and/or the State Register of Historic Places.

The MHC requests that a reconnaissance-level archaeological and historic properties survey be conducted for the project. The goal of the survey is to identify and document historic and archaeological resources and archaeologically sensitive areas that may be affected by the project. The survey will provide recommendations to further identify, evaluate, and consider feasible project alternatives to avoid, minimize, or mitigate any project related adverse effects to significant historic and archaeological resources. A qualified and regionally experienced cultural resource consulting firm will submit a State Archaeologist's field investigation permit application for the survey (950 CMR 70).

Project planners should provide the project information to the Ipswich Historical Commission and to interested Native American Tribes. Any comments pertaining to historic and archaeological resources should be provided to the involved federal and state agencies with copies provided to the MHC.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71), and MEPA (301 CMR 11). If you have questions, please contact Edward L. Bell, State Historic Preservation Officer and Senior Archaeologist, or Joshua Dorin, Preservation Planner, at the MHC.

Sincerely,



Brona Simon  
State Historic Preservation Officer  
Executive Director  
State Archaeologist  
Massachusetts Historical Commission

xc:

Stephen Crane, Town of Ipswich  
David Weeden, Mashpee Wampanoag Tribe  
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)  
Tammy R. Turley, US Army Corps of Engineers  
Kenneth W. Moraff, US EPA  
Beth Lambert, Div. Ecological Restoration  
William Hinkley, EEA Dam and Seaway Program  
David S. Robinson, Massachusetts Board of Underwater Archaeological Resources  
Neal Price, Horsley Witten Group, Inc.  
Ipswich Historical Commission





Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> KATHERINE	<b>Address Line 1</b> 174 High Street	<b>Organization</b> Self
<b>Comments Submit Date</b> 9-18-2023	<b>Last Name</b> DESILVA	<b>Address Line 2</b> Ipswich Village, Suite 105	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> pumpkinvinesllc@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

**Topic:** Concern over Native Wildlife and our Natural Waterways

**Comments**

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I strongly support the removal of Ipswich Mills Dam, as the Ipswich River has been designated one of America's Most Endangered Rivers. The dam, owned by the Town of Ipswich, is situated just 3.7 miles upstream from the river's mouth in downtown Ipswich. It acts as a formidable barrier between fresh river water and saltwater, posing a significant ecological threat to native wildlife, particularly migratory fish species. Despite its historical purpose in powering mills, the dam currently serves no functional role. While a fishway was installed in 1995, it fails to effectively assist certain migratory species like rainbow smelt and American shad. Removing this dam, ranked in the top 5% of dams in Massachusetts for restoration potential, would open up 49.19 miles of critical habitat and eliminate a head-of-tide barrier. This action is essential for the preservation of our natural waterways and the well-being of native wildlife.

**Attachments**

**Update Status**

Status

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## Ipswich Dam Removal EEA No. 16754

mmdoyle100@aol.com <mmdoyle100@aol.com>

Sat 9/30/2023 8:51 PM

To:Moreno, Nicholas (EEA) <Nicholas.Moreno@mass.gov>

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

September 30,2023

Dear Mr. Moreno,

Thank you for the opportunity to register my concerns regarding the Ipswich Mills Dam Removal Project, EEA #16754 which are as follows:

### Historical Value & Current Function :

The historical value of the dam has not been considered nor valued by IRWA in any way in their desire to remove the dam. Ipswich was incorporated as a town in 1634. Dams of some sort have existed in place since 1635. Updates to the dam were done in 1827,1880 and 1908. The dams at this location have served many functions during this time and continues to provide vital functions to this day. It contributes importantly to the town's economy, historical culture and character of the area.

The dam tells our story: Colonists used the river for food,trade, and timber where a dam played an integral role in their survival; the importance of the mills and dam to our multi-national ethnic immigrant population after 1900 providing them with much needed work; it powered the mill that enabled us to contribute to our national war effort by manufacturing proximity fuses for the military.

Today,the dam with its flowing waterfall, serves as one of the highlights in our community vision for the revitalization of our downtown and economy. It is the star attraction of our Riverwalk which connects us to the South Green Historic Area and provides a must needed meditative space overlooking the river. The dam is bordered by 2 nationally designated historic areas: Ipswich Mills Historic District and Brown Stocking Mill Historic District. Our town's own designated historic districts of South Green, Meetinghouse Green and the East End all border the river, adjacent to or just below the dam.The dam serves a far greater purpose in historical value than simply powering a mill. it is part of our identity.

### Dam Condition:

The dam is neither dilapidated,crumbling,or in danger of collapse. It survived a 150 year old flood event in 2006 suffering no physical damage. It is comprised of 6'W x 20'H x 4'D granite blocks that weigh 5,000 pounds each on average. It's not going anywhere. With proper routine maintenance it will last for centuries more.

### Fish Ladder vs Dam Removal :

Neither the town of Ipswich or IRWA seriously considered alternatives to removing the dam to restore fish passage. IRWA sought grants that awarded the most money rather than what would be most beneficial to the river. Fish passage is being used as a "hook" to gather support for dam removal.

Their claim that the removal of the Ipswich Mills Dam will open up 49.19 miles of habitat just isn't true. The water will not pass beyond the next dam it reaches. There are multiple privately owned dams a short distance up river that will not be removed which makes removing our dam of little more value than installing a better fish ladder. The installation of a new fish ladder will cause far less detrimental disruption and destruction from lower water levels than dam removal. The current ladder was installed in 1995. The town of Topsfield and IRWA just celebrated the installation of a brand new fish ladder at Howlett Brook which is a major tributary to the Ipswich River. Irwa is in contact with owners of the Willowdale Dam owners at Foote Bros. Canoe. It has been said that a fish ladder is soon to be installed there. Ipswich should follow suit.

Removal of the dam will lower water levels further through Bradley Palmer State Park, Willowdale Forest, and the Topsfield Wildlife Sanctuary. This would leave little to no water during drought or periods of high water withdrawals. This has the capacity to damage or devastate the adapted and well established environments both above and below the current dam.

### Most Endangered List :

The Ipswich River has been placed on a most endangered rivers list. It gets that designation, not by the presence of the Ipswich River Mill Dam, but rather due to extreme low water flow caused by the unimpeded and under regulated withdrawal of water by 14 municipalities. Reports clearly state that this is the # 1 causative agent.

Ninety percent of water use in the Ipswich River watershed is exempt from any state conservation requirements. Until legislation is passed that addresses the disastrous excess water withdrawals, the river will remain endangered, with or without our dam. This is a fact.

### Environmental Impact Study:

It is of utmost importance to not grant a waiver of an environmental impact study to the Town of Ipswich. The reasons for this are many and extremely important to our environment.

#1 - The studies conducted by the Horsley Witten Group fall far short of assessing the total environmental impact this project will have on the areas above the dam.

Dam removal will further lower water levels above the dam. Navigation is extremely difficult now because of low water flow and the vast amount of obstructions caused by downed trees and the like. During drought or high water withdrawals much of the riverbed is dry. Lowering the water levels further will be devastating. Fish can't swim in a dry river.

#2 - Local residents voiced their concern multiple times about an area a very short distance upstream of the dam, (Third St.). They reported that when water conditions are low an oil like slick can be seen seeping out of the exposed riverbank. This isn't observed with higher water levels. They reported that that area had been used by some residents in the past to dump trash etc. Neither the town or members of the dam removal teams batted an eye. They asked no questions about it or seemed at all concerned about possible contaminants. How can this not be of concern to those purporting to care about the health of the river? I do not have full confidence in the completeness or veracity of their studies.

#3 - The existing environment above the dam will most assuredly be altered and not necessarily in a good way. Further lowering of water levels will disrupt the ecosystem that has adapted and evolved over the last 388 years. The area above supports a diverse, rich environment for fauna, flora and recreation. It will be negatively affected by further lowering of water that dam removal will cause.

#4 - Dam removal may have widespread implications that go far beyond the immediate area below the dam. The environs just below the dam aren't clearly out of the woods either. The bridges, (Choate, County St, Green St), the walls of existing buildings and of the fish ladder will need to be continually monitored for possible damage due to silt sediment, contamination, and debris. There is no guarantee that no destruction or damage to anything down river will occur and how far it will actually go.

There hasn't been one study done beyond the current Choate Bridge. There needs to be a complete environmental impact study which includes what impact dam removal may have on our clam beds, the Great Marsh, flood plains and the endangered flora and fauna that exist just a mile below the dam. This is an extraordinarily environmentally sensitive area that should not be ignored. What consequence will it have 2.5 miles further at the mouth of the river where it joins Ipswich Bay, Plum Island Sound, Crane's Beach and the Atlantic Ocean?

I strongly urge that a waiver of the Environmental Impact Study be denied to the Town of Ipswich concerning the removal of the Ipswich Mills Dam.

Sincerely,  
Marlene E. Markos

October 2, 2023

To: Nicholas Moreno

## **Removal of the Ipswich Dam honors the heritage of Ipswich and Essex County.**

Early colonial writings, mentioning the fishery of the Ipswich and other rivers, extol the importance of the fish to the survival of the local inhabitants. An 1867 Ipswich Bulletin paper references an early local history manuscript that in 1637 “shad and alewives were taken in immense quantity were used to feed the ground” (1). In summary, a thousand fish per acre sufficed to grow corn at 3 times the normal yield.

Not only supplying a reliable year round source of food, the fishing could provide some winter income and was of great benefit to agriculture in the summer. The nearshore coastal fishery was greatly dependent on the free flowing rivers which provided critical habitat for the robust reproduction of herring, alewives, and shad. Historical accounts relate to, how at times in winter and fall, larger ground fish like cod pursued the alewives and herring close to the shores. All an individual needed to capture these life giving fish was a small boat. When the dams blocked the rivers and eliminated the sea run fishes, the nearshore cod and other ground fish moved away where only larger fishing boats could pursue them (2). Early newspaper accounts give testimony of numerous legislative bills requiring dam owners to not obstruct the passage of fish in the towns along the Ipswich River and other rivers from Connecticut to Maine. (3,4,5)

The battle for fish access to inland waters spanned many generations and the records of legislation or attempted legislation provides testimony to this great effort to battle the greed of the mill dam owners. This ongoing struggle to restore the anadromous fish is a heritage that we can be proud of. Failure to remove the dam continues a dark and destructive side of the history of Ipswich.

The bounty of fish provided an independence of living that was important to the physical and mental health of the Yankee soul. That independence was eroded away by the mill dams.

Easy access to the fisheries by the individual, a source of food that delivered itself even well inland, was in direct competition with the mill owners want for cheap labor. When the citizenry was sleek and well fed from a diet of high quality fish and money was to be had from their sale, motivation to work for pennies an hour in the often cold, or hot, and dangerous conditions of a mill disappeared. The destruction of the fishery was a hidden tax on the common people for the benefit of a few.

The mill owners centuries long custom of denying the sea run fishery and thus enhancing hunger and low paying servitude was cousin to slavery. The stone blocks of the Ipswich dam are a monument to this dark side of Ipswich's and New England's heritage.

### **Removal of the Ipswich provides a multitude of ecological benefits.**

The “save the dam heritage of Ipswich” mindset positions the aged dam and its impounded stagnated waters against the overall ecological, climate mitigating, and economic value that a free flowing river can provide to Ipswich citizens. When the dam is removed, the streams of the 155 square mile Ipswich River watershed will serve again as a working two way nutrient conveyor belt between the land and the sea. The herring, alewives and shad will deposit their roe on the river or a pond bottom. The young larval fish consume microscopic plants and animals and upon their return to the sea, in turn, some will provide food for the larger fishes and marine mammals. In the river, the roe and the immature fish are continually subject to predation by a multitude of species of the fish, mammal, bird, reptilian, amphibian, and insect orders. Their nutrients are transferred to the land and plants. (6,7) Studies tell us that trees in watersheds open to sea-run fish can be taller, wider and have larger foliated crowns (8). The added tree growth will remove more CO<sub>2</sub> from the atmosphere.

More silica and other nutrients from additional dead plant matter will return to the sea fueling the growth of plankton like microscopic silica shelled diatoms. The diatoms are an important mediator of climate change as they convert CO<sub>2</sub> gas to carbon and oxygen at an unparalleled efficiency. They are responsible for at least 20% of the oxygen we consume and they sequester carbon in the ocean depths in addition to being the most vital foundation of the marine food chain. We know well the atmosphere cooling dimethyl sulphide gas or “the smell of the sea” that diatoms and other plankton release. A NASA study has concluded that phytoplankton numbers which includes diatoms are down in the Gulf of Maine by 65% in the last two decades (9). The Ipswich River is relatively small but anything that can be done to help restore vital nutrients to

reverse this catastrophic decline in phytoplankton populations should happen as soon as possible.

Before dams blockaded New England's rivers, millions of sea run fish funneled into coastal embayments and the river estuaries where they were pursued by larger fish. When the great energy of predatory fish pursuing migratory fish into estuaries stir the shallow bottom sediments, they make available clouds of silica releasing sediments and nutrients to fuel more diatom growth (10). Removing the Ipswich dam will help restore nature's energy and the high flux of nutrients to the Ipswich River's coastal embayment and the fishery bounty that it creates.

The dam changes the chemical, physical, and biological integrity of the water before it enters the estuary. During the typically low flow periods of summer, the water stagnated in the impoundment behind the dam is subjected to long time periods of solar energy absorption and warming. The oxygen concentration in the water column decreases as the temperature rises. The chemistry of the less oxygenated sediments reduces the water quality of the river water. The stagnated water excludes organisms which filter the dissolved organic matter contained in the water. When the river is free flowing, the cooler water moves quickly through the system and will contain less light blocking dissolved organic matter.

Roger Wheeler

10 Ryan Avenue, Ipswich, Ma 01938

email: [friendsofsebago@yahoo.com](mailto:friendsofsebago@yahoo.com)

#### References:

1. Ipswich Bulletin February 2, 1867 p2 **History of Ipswich**
2. Inquiry into the decree of the food-fishes, Spencer Baird, Commissioner, United States Bureau of Commercial Fisheries, Report of the Commissioner 1872-1873, p.xl
3. The Recorder (Greenfield, Massachusetts March 28, 1803 "An act to regulate the taking of alewives in several streams leading from Ipswich River to Pritchards Pond in Topsfield."

4. Portland Gazette April 1, 1805 “An act to prevent the destruction of alewives and other fish in Ipswich River, and promote the increase of the same.”
5. The Pittsfield Sun March 25, 1830 p2 “In addition to the Acts to prevent the destruction, provide a passage, and regulate the taking of Alewives and other Fish in Ipswich River.”
6. [http://www.web.uvic.ca/~reimlab/reimchen\\_ecoforestry.pdf](http://www.web.uvic.ca/~reimlab/reimchen_ecoforestry.pdf)
7. James Helfield, Robert J. Naiman, **Effects of Salmon-Derived Nitrogen on Riparian Forest Growth and Implication for Stream Productivity**, Ecology , September, 2001
8. [www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view\\_article&articles\\_id=407](http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=407)  
Anne Post, Why Fish Need Trees and Trees Need Fish
9. <https://www.nasa.gov/feature/esnt/2022/nasa-funded-study-gulf-of-maine-phytoplankton-productivity-down>
10. Timor Katz et al., **Groundfish overfishing, diatom decline, and the marine silica cycle: Lessons from Saanich Inlet, Canada, and the Baltic Sea cod crash**
11. American Geophysical Union, Fall Meeting 2016, abstract #B13A-0558 <https://ui.adsabs.harvard.edu/abs/2016AGUFM.B13A0558A/abstract>





Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Michael	<b>Address Line 1</b> --	<b>Organization</b> --
<b>Comments Submit Date</b> 10-3-2023	<b>Last Name</b> Walker	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> --	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> mfw@pinkmantis.com	<b>Zip Code</b> --	

**Comment Title or Subject**

Topic: Support Removal of Ipswich Mills Dam

**Comments**

I support the removal of the dam primarily for ecological reasons, and because it cannot legally proceed if it will adversely impact shellfishing downriver. The removal will contribute to a healthy marsh ecosystem downriver, improving its resilience and ability to accrete the sediment it needs to remain so. Habitats upriver will also benefit.

**Attachments**

**Update Status**

Status

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# MASSACHUSETTS Rivers Alliance

11 Curtis Avenue, Somerville, MA 02144  
617-714-4272 • [massriversalliance.org](http://massriversalliance.org)

October 4, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
[Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno,

On behalf of the Massachusetts Rivers Alliance, thank you for the opportunity to comment on the Ipswich Mills Dam Removal project. Mass Rivers is a statewide organization with 85 member groups and over 1,000 individual supporters dedicated to protecting and restoring the rivers and streams of the Commonwealth. We strongly support removing the Ipswich Mills Dam.

This project is a huge opportunity to boost the overall health of the watershed. The Division of Ecological Restoration ranks this project as having a 95% restoration benefit, among the highest in the state.<sup>1</sup> Removing the Ipswich Mills Dam would dramatically improve fish passage on the Ipswich River, opening up 49 miles of river upstream for migratory species like river herring, American eel, rainbow smelt, and sea lamprey. A 2003 study estimated that the “Ipswich River is currently supporting less than 1% of its total spawning potential” for these migratory species.<sup>2</sup> This is especially important for American shad, for whom dams are especially harmful, since shad do not use constructed fishways.<sup>3</sup> The 2019 feasibility study also reports that turtles, resident fish, and other freshwater organisms will have improved movement once the dam is removed.<sup>4</sup>

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<sup>1</sup> Division of Ecological Restoration. [Dam Removal and Ecological Benefit Estimation Tool](#).

<sup>2</sup> Horsley Witten Group. [Ipswich Mills Dam Feasibility Study](#). Page 8. March 2019.

<sup>3</sup> Division of Fisheries and Wildlife. [American Shad](#).

<sup>4</sup> Horsley Witten Group. [Ipswich Mills Dam Feasibility Study](#). Page 26. March 2019.

This project also boosts local climate resilience by restoring upstream floodplain, and removes the risk of catastrophic flooding from dam failure (in 2020, the dam was rated as a “Significant Hazard Potential” due to its location in the center of downtown).<sup>5</sup> This is increasingly important as the region continues to experience more severe storm events as an impact from climate change.

Finally, advancing this project would improve local recreational opportunities. With the dam gone, residents and visitors alike will be able to paddle from sites upstream all the way out to explore the Great Marsh and the Atlantic Ocean.

In addition to our support for removing the Ipswich Mills Dam, Mass Rivers supports granting the project an EIR waiver, as it qualifies as both an ecological restoration project under Wetland Protection Act regulations (310 CMR 10.04), and as a dam removal project under 310 CMR 10.13 (2), since the project actively improves the environment rather than harm it.

Thank you for considering these comments. Please don’t hesitate to reach out if you have questions or if Mass Rivers may provide any additional information.

Sincerely,

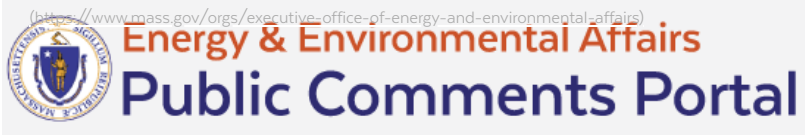
A handwritten signature in black ink, appearing to read 'K. Lange', with a stylized flourish at the end.

Katharine Lange  
Policy Director  
Massachusetts Rivers Alliance

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<sup>5</sup> Town of Ipswich. [Ipswich Mills Dam Frequently Asked Questions](#). Page 2. September 2023.





Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Dan	<b>Address Line 1</b> 8 washington st	<b>Organization</b> --
<b>Comments Submit Date</b> 10-5-2023	<b>Last Name</b> Rowland	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> danjaneusa@netscape.net	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Silt affecting Mooring field

**Comments**

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 Paragraph ▼ ▼

I am commenting on the effects on the mooring field below the Ipswich Mills Dam. The Mooring field below the dam is very shallow at the time of low tide. I feel that removing the dam will release 300-plus years of silt, will cause the mooring to be buried and make the mooring field even shallower. The entire river should be dredged before any removal is attempted.

**Attachments**

**Update Status**

Status

Accepted ▼

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THE COMMONWEALTH OF MASSACHUSETTS  
WATER RESOURCES COMMISSION  
100 CAMBRIDGE STREET, BOSTON MA 02114

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October 5, 2023

Secretary Rebecca L. Tepper  
Executive Office of Energy and Environmental Affairs  
Attn: Nick Moreno, MEPA Office  
100 Cambridge Street, Suite 900  
Boston, Massachusetts 02114

Re: MEPA File No. 16754 – Ipswich

Dear Secretary Tepper:

The Water Resources Commission (WRC) staff has reviewed the Expanded Environmental Notification Form (EENF) submitted by the Town of Ipswich for the Ipswich Mills Dam Removal.

As proposed, the Project involves activities within a 100-year floodplain as delineated on the current effective Flood Insurance Rate Map (FIRM) for Essex County, dated July 16, 2014. In its role as the state coordinating agency for the National Flood Insurance Program (NFIP), I submit the following comments on behalf of the WRC.

WRC's Flood Hazard Management Program (FHMP), under agreement with the Federal Emergency Management Agency (FEMA), is the state coordinating agency for the NFIP. As such, the FHMP provides technical assistance to communities that participate in the NFIP related directly to the program and also related to floodplain management in general. Communities that participate in the NFIP are required by FEMA, as a condition of their participation, to regulate development within the 100-year floodplain in a manner that meets or exceeds the minimum standards established by FEMA, located at 44 CFR 60.3. Participating communities such as Ipswich are required to adopt the NFIP requirements through locally enforceable measures. In Massachusetts, many of the requirements contained in 44 CFR 60.3 are enforced through existing state regulations such as the State Building Code (780 CMR) and Wetlands Protection Act regulations (310 CMR 10.00). Communities typically adopt the remainder of the requirements as part of a zoning ordinance or other locally enforceable measure. Ipswich has a zoning ordinance with a Floodplain District section that has been accepted by FEMA as meeting their requirements under the NFIP.

In our role as NFIP coordinator, the FHMP offers comments on the proposed Project's relationship to many of the above regulations and requirements. The FHMP does not administer any of these requirements and therefore does not provide official determinations as to compliance with them; rather, our comments are provided as an overview of the requirements and the documentation that the FHMP believes may be necessary to demonstrate compliance with these requirements.

Based on information submitted with the EENF the project site is located in an AE zone and regulatory floodway and will remove an existing dam and fish passage to restore ecological flow conditions. The Ipswich Flood Zoning Bylaw states the following:

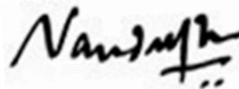
“In a riverine situation, the Ipswich Department of Planning and Development, besides ensuring that the Ipswich Conservation Commission has been informed, shall notify the following of any alteration or relocation of a watercourse:

- a. Communities of Essex, Gloucester, Topsfield, Boxford, Rowley, and Hamilton
- b. NFIP State Coordinator Department of Conservation and Recreation 100 Cambridge Street, Boston, MA 02114-2104,
- c. NFIP Program Specialist Federal Emergency Management Agency, Region I”

In addition, 44CFR 65.3 requires that communities notify FEMA within 6 months of changes in the base flood elevation by submitting technical or scientific data so insurance & floodplain management can be based on current data.

Please note that the mailing addresses of the NFIP State Coordinator and the FEMA Region I office have changed. You can contact the current NFIP State Coordinator, Joy Duperrault at 857.286.0326 or [joy.duperrault@mass.gov](mailto:joy.duperrault@mass.gov), and the NFIP Program Specialist for FEMA Region 1, Chris Markesich at 617.832.4712 or [christopher.markesich@fema.dhs.gov](mailto:christopher.markesich@fema.dhs.gov).

Thank you for the opportunity to comment on the EENF. If you have any questions regarding these comments, or to request additional information or coordination with the FHMP, please contact Nadia Madden at (857) 261-1813 or at [nadia.madden@mass.gov](mailto:nadia.madden@mass.gov).



Vandana Rao, PhD  
Executive Director, MA Water Resources Commission

cc: Nadia Madden, Department of Conservation and Recreation  
Eric Carlson, Department of Conservation and Recreation  
Joy Duperrault, Department of Conservation and Recreation  
Ipswich Department of Planning and Development





October 6, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: Nicholas.Moreno@mass.gov

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno:

Thank you for the opportunity to comment on the Ipswich Mills Dam Removal project. The Board of Directors of the Nor'East Chapter of Trout Unlimited (NETU) is writing in strong, enthusiastic, and unanimous support of the removal of this dam. Trout Unlimited is a national conservation organization of over 140,000 members dedicated to conserving, protecting, and restoring North America's cold-water fisheries and their watersheds. With approximately 400 members, NETU is Trout Unlimited's presence in northeastern Massachusetts. NETU's regular meetings are held in Ipswich, and the Ipswich River is considered one of NETU's beloved "home waters".

NETU's focus is on river restoration in the region and, therefore, we are in support of the removal of the Ipswich Mills Dam for ecological reasons alone. However, we are also cognizant of the long list of community benefits of dam removal as well.

**Ecological benefits of removal of the Ipswich Mills Dam include:**

- Restoration of the natural interaction between fresh and salt water in the Ipswich River and its estuary. As a "head of tide" dam that blocks/impedes the natural ebb and flow of salty tide water and fresh river water, the Ipswich Mills Dam is particularly harmful to this sensitive and rare brackish environment. Dam removal will fully restore this natural connection between fresh and saltwater habitats and, hence, the linkage between the Ipswich River and the Atlantic Ocean.
- Submerged areas in the artificial impoundment that are currently shown as deep marsh and existing backwater areas are likely to remain as shallow water wetland habitat. Following dam removal, and given that these areas are anticipated to experience cyclical water level fluctuations as a result of downstream tidal fluctuations, the resulting wetlands may be characterized as tidal freshwater wetlands, one of the rarest wetland habitats in Massachusetts.
- Very significant restoration of ecological functions in the Ipswich River and Ipswich River watershed (increased dissolved oxygen and reduced water temperatures in summer, natural transport and distribution of

sediments and nutrients, restoration of diadromous fish migrations, increased connectivity for resident fish, increased support for freshwater shellfish life cycles).

- The drop in water level of the current impoundment post-removal will allow for the banks of the river to revegetate with native plant species and resemble the natural riparian habitat found further upstream in the watershed. Previous dam removals have shown how rapidly and effectively natural vegetation becomes established in areas that were once impounded.
- The Great Marsh Adaptation Plan prioritizes environmental resilience and restoring river connectivity, and thus supports removal of the Ipswich Mills Dam.
- Dam removal supports national and regional efforts to restore healthy river herring, rainbow smelt, and American shad populations.
- The dam has a functioning - but inefficient - Denil fishway attached to it that only allows a small fraction of native diadromous fish to swim upstream past the dam.

**Community benefits of removal of the Ipswich Mills Dam include:**

- Dam removal is a permanent solution that requires no ongoing maintenance and subsequent, recurring costs to the Town of Ipswich (the Town).
- Owning the dam imposes upkeep and maintenance expenses to both the Town and residents.
- Removal is the most cost-effective way for the Town to achieve maximum ecological restoration (i.e. over other alternatives like partial removal, improved fishways, etc).
- Eliminates risk of catastrophic dam failure and downstream flooding, especially since the dam is actively in need of repair. The dam is classified as a Significant Hazard dam in “fair” condition and was noted by a 2020 report from the Office of Dam Safety as having multiple deficiencies in the dam structure.
- Restores natural floodplain upstream of the dam and reduces flood risk.
- Restores the natural river and its small rapids, which creates additional recreational opportunities.
- Improves recreation by removing a continuity barrier and thus enabling paddlers to travel all the way out to the mouth of the Ipswich River into the Great Marsh and the Atlantic Ocean.
- The 2019 Municipal Vulnerability Plan - Community Resiliency Building Report and the Town of Ipswich Hazard Mitigation Plan 2019 Update prioritize community and environmental resilience, and thus support removal of the Ipswich Mills Dam.

Thank you for your consideration of our strong, enthusiastic, and unanimous support of the removal of the Ipswich Mills Dam.

Sincerely,

Board of Directors  
Nor'East Chapter, Trout Unlimited



October 6, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno:

American Rivers is very pleased to support the Ipswich Mills Dam Removal project. American Rivers' mission to protect wild rivers, restore damaged rivers and conserve clean water for people and nature has never been more necessary or more urgent. Our northeast-based staff works across the region to support our state and local partners to identify and implement priority restoration projects.

Removal of the Ipswich Mills Dam will be a critical part of the long-standing efforts of watershed partners to restore healthy diadromous fish runs to the watershed. American Rivers has long supported protection and restoration efforts on the Ipswich River, including three listings on the national Most Endangered Rivers list due to water quality and quantity impacts. We have supported the South Middleton Dam removal through design funding and look forward to seeing that project moving forward.

Removal of the Ipswich Mills Dam is a well planned and carefully designed effort by community and environmental-minded organizations. Time and again we see the long-term benefits of dam removals repeated and now well documented in scientific research and through public observation. Removing the Ipswich Mills Dam will provide benefits to water quality, migratory fish, and public safety through elimination of outdated infrastructure that is a flood risk.

Dam removal is a permanent solution with lasting benefits that requires no ongoing maintenance. The Ipswich Dam is a significant hazard dam in "fair" condition with multiple deficiencies as noted by the Office of Dam Safety 2020 Report. In the last several months, alone, we have seen the impacts of climate change in stronger storms and increased rainfall. Aging infrastructure like the Ipswich Mill Dam is at increased risk and indeed dams have breached during these recent storms in Massachusetts. The Ipswich River and the surrounding estuary and rivers are already known for recreational paddling. This dam removal extends those opportunities for the public, creating a connected river all the way to the Great Marsh and the ocean.

These benefits cannot be fully achieved with a dam repair and fishway. Dams impact natural flows and inundate habitat that would be tidal wetlands and impacting water temperature and quality. And even the best fishways have limited success passing fish when compared to a free-flowing river, which allows for passage of the full complement of naturally occurring aquatic species across their life cycle. It is exciting to consider a river that can support critical efforts to restore river herring, rainbow smelt, and American shad.

American Rivers also supports the request for a waiver of an Environmental Impact Report (EIR) under 301 CMR 11.11(5) for this project. American Rivers has worked on dam removals across Massachusetts and the country for the past two decades and time and again we see the benefits conveyed by stream restoration through dam removal. Based upon the scientific and engineering analysis to date, preparation of an EIR for this project would not serve to avoid or minimize damage to the environment, nor would its preparation provide increased benefit to the project or the environment. The established permitting associated with this project will already ensure public and regulator input as well as a mechanism for application of conditions to ensure compliance with laws and regulations. And the project meets goals outlined in multiple town and local planning efforts established with public input. The Great Marsh Adaptation Plan prioritizes environmental resilience and river connectivity that will be achieved through this project. The Town's 2019 MVP Plan and Hazard Mitigation Plan prioritizes improve community and environmental resilience, which is also supported through the dam removal.

Reconnecting and restoring the health of the Ipswich River through removing the Ipswich Mills Dam is the realization of years of thoughtful planning, community input, and scientific study. To see the project ready to move towards implementation is truly exciting.

Sincerely,

A handwritten signature in black ink that reads "Amy Singler". The signature is written in a cursive, flowing style.

Amy Singler  
*American Rivers, Director, River Restoration  
Northeast Region, Northampton MA, 413-343-7440*



October 5, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)  
Re: Ipswich Mills Dam Removal, Ipswich EEA #16754

Dear Nicholas Moreno,

Since 1976, the Merrimack River Watershed Council (MRWC) has worked to improve and protect the health of the Merrimack River watershed, including the Great Marsh estuary. We write to you in strong support of the Ipswich Mills Dam Removal Project, as we believe it to be one of the most important projects that can improve the health of the Great Marsh. The Great Marsh is a designated Area of Critical Environmental Concern, the largest salt marsh in the region, and a critical link on the Atlantic flyway.

The removal of the Ipswich Mills Dam is an excellent ecological restoration opportunity. The dam is a head-of-tide dam, therefore it not only blocks diadromous and resident species migration, it interrupts tidal processes. A dam has been at this location since the early colonial era, and the opportunity to restore tidal interconnectivity to one of the contributing rivers of the Great Marsh estuary is a great benefit to the commonwealth. By restoring tidal exchange, the conditions for the restoration of tidal freshwater marshes are made possible, one of the rarest wetlands in Massachusetts.

The removal of this dam will open up 186 miles of upstream habitat for diadromous fish. Diadromous fish play a critical role in cycling nutrients between marine, freshwater and terrestrial landscapes. The diadromous species benefiting from this removal include Atlantic sturgeon, short-nose sturgeon, striped bass, rainbow smelt, river herrings, shad, American eel, and sea lamprey – all of which play important ecological roles, have a long history of cultural importance dating back thousands of years and have seen a precipitous decline in the last three hundred years. The restoration of the herring species has a tremendous ecological and economic impact, as these species are a source of forage for important sport and marine fisheries from the Canadian Maritimes to the Carolinas.

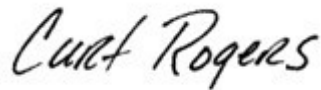
The return of anadromous fish also creates an opportunity for the dispersal of freshwater mussels, such as the alewife floater, which are dependent on migratory fish for their dispersal during their larval stage. Freshwater mussels are also globally threatened and play an important role in improving water quality, with a single mussel being capable of filtering up to 15 gallons of water daily.

Due to the studies and analyses completed by the project team and included in this EENF, I believe that this project meets the EIR waiver thresholds in 301 CMR 11.11(3) and qualifies as an ecological restoration project under the Wetlands Protection Act (310 CMR 10.04) and will be able to meet all criteria for a dam removal project as defined in 310 CMR 10.13(2). This project fulfills the intent of the act and will lead to a net creation of wetlands. Community engagement is critical in all dam removal projects, and the project team has been active and creatively engaging with the public. The project has deep community support as demonstrated by the passing of Article 14 at the May 9, 2023 town meeting, which expresses support for the Ipswich Select Board to pursue any and all necessary permits for this project.

Besides the ecological benefits inherent in the project, the removal of the dam will increase the community's resiliency by decommissioning unnecessary infrastructure, thus removing the risk of catastrophic failure and the need for continued maintenance, and by increasing the flood storage capacity of the reach of river immediately upstream from the dam.

This project is a unique opportunity to have an ecological impact on an international scale and improve local resiliency in a permanent way, both of which are critical in our current era of climate change. Thank you for the opportunity to provide comments on this project, and please feel free to contact me at 978-655-4742 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Curt Rogers".

Curt Rogers  
Executive Director



Nicholas.Moreno@mass.gov

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# View Comment

### Comment Details

<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Carl	<b>Address Line 1</b> 9 Woods Ln	<b>Organization</b> --
<b>Comments Submit Date</b> 10-9-2023	<b>Last Name</b> Gardner	<b>Address Line 2</b> Ipswich, MA. 01938	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> carlegardner@gmail.com	<b>Zip Code</b> 01938	

### Comment Title or Subject

Topic: Ipswich Mills Dam removal impacts and full examination of alternatives

### Comments

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To the MEPA/EEA #16754 Review Team:

My family and I have resided in Ipswich's historic central village since 1984. The Ipswich River's physical presence is part of our daily life. When my 3 children were younger, our friends and families all enjoyed canoeing and kayaking the Ipswich above and below the dam. Typically, we would paddle downstream from Winthrop Street or from the State boat launch at East Street. The kids also participated in school sponsored canoeing outings through the Mass Audubon Ipswich River Wildlife Sanctuary. We were also thrilled when the pedestrian bridge was finally constructed, connecting South Main Street to the downtown. It has become an integral part of our community and an easy way to admire the historic, cultural and environmental resources on display in around the Ipswich Mills Dam.

I have witnessed at least 5 extreme environmental events that have stressed the Ipswich River system (in addition to it's chronic problem with excessive public water supply withdrawals). Three major flood events and, at least, two major droughts (2016 & 2022). The low head Ipswich Mills Dam came through all three flood events fully intact. It's low profile allowed most of the flood waters to pass over the dam unimpeded. Any detention created was able to harmlessly spread out across a wide expanse of public/private open space (5.8 acre Sally's Pond parcel) and portions of the South Main Street Memorial Green. On the opposite bank, the EBSCO property was situated high enough to contain the floodwater flows. Below the dam, parking areas flooded but with no great consequence other than temporary basement flooding. This would likely occur with or without the dam. Therefore, due to it's low profile and solid construction, this dam poses no threat to life and property in the area. It is an extremely low hazard structure. On the other hand, during periods of extremely low or non-existent river flows, the impounded waters behind the Ipswich Mills Dam, as well as the Willowdale Dam, serve as highly valuable protective buffers and wildlife havens allowing aquatic life to endure these increasingly severe dry periods. The freshwater pond and wetland ecosystem above the dam, established over more than 400 years, is a diverse habitat and should be worthy of protection for this reason.

The added value of the Ipswich Mills Dam as an important historic, cultural and recreational resource for the community is also worth preserving.

There is a way to balance all of the environmental objectives with the greater public interests while still preserving the multiple beneficial functions/uses of the Ipswich Mills Dam and Pond. I do not believe all alternatives have been thoroughly examined.

It has been stated that the most recent version of the fish ladder (circa early 1990's) is inadequate to allow the passage of a wide variety of migratory fish species. Whether this is completely accurate or not, we do know that the design of "fishways" to successfully bypass low-head dams has improved dramatically since the 1990's. These new designs are commonly referred to as "nature-like fishways" (NLF's). Please refer to the attached publication dated May 2016, entitled: "Federal Interagency Nature-Like Fishway Passage Design Guidelines for Atlantic Coast Diadromous Fishes" by Turner, Haro & Towler. These wider fishways are intended to more accurately imitate natural water flows, often using rocks and boulders, over more gradual gradients, to facilitate greater success for fish passage. For example, for blueback herring the recommended design parameters are as follows: minimum channel width 5 ft.; minimum pool depth 2 ft.; minimum pool length 10 ft.; maximum slope 1:20; maximum velocity 6 ft/sec.; weir opening 2.25 ft., weir depth 1 ft. This is just one example, but looking across all parameters for selected target species one can adapt these design elements for the optimal outcome.

(Continued as separate comment)

### Attachments

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### Update Status

Status

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Nicholas.Moreno@mass.gov

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Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Carl	<b>Address Line 1</b> 9 Woods Ln	<b>Organization</b> --
<b>Comments Submit Date</b> 10-9-2023	<b>Last Name</b> Gardner Jr	<b>Address Line 2</b> Ipswich, MA. 01938	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> carlegardner@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Ipswich Mills Dam - investigation of alternatives

**Comments**

Continued from previous comments submitted today 10/09/23.

I do not profess to be a Registered Professional Engineer, but I do understand the basic principles described in this Guideline. Therefore, one can estimate that for a low-head, 6 foot high dam such as this, you would need an estimated 120 linear feet to construct an NLF under the example cited. (As stated earlier, this geometry might change depending upon the range of fish species targeted).

If you study the cover photo on the Feasibility Study, it provides an excellent view of the area below the dam, facing South Main St. The remnants of the older fish ladder are visible as well as the current fish ladder. These two structures could be eliminated and replaced with a new nature-like fishway (NLF) that would run along that southeastern river wall, under the pedestrian bridge and through the end of the dam along the Town-owned land and terminate where it needed to be without requiring the acquisition of any permanent private property rights. As a further benefit, this NLF could be constructed with an adjacent "ramp" to safely allow for canoe or kayak portages. Finally, a new nature-like fishway in this location would allow for seasonal observations of any restored fish migrations from the pedestrian bridge above, encouraging citizens and school children to more easily witness this unique natural process.

Thank you for your consideration of this important information.

**Attachments**

**Update Status**

Status

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THE COMMONWEALTH OF MASSACHUSETTS

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

OFFICE OF COASTAL ZONE MANAGEMENT

100 Cambridge Street, Suite 900, Boston, MA 02114 • (617) 626-1200

MEMORANDUM

TO: Rebecca L. Tepper, Secretary, EEA  
ATTN: Nicholas Moreno, MEPA Office  
FROM: Lisa Berry Engler, Director, CZM  
DATE: October 10, 2023  
RE: EEA-16754, Ipswich Mill Dam Removal; Ipswich

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Expanded Environmental Notification Form (EENF), noticed in the *Environmental Monitor* dated August 23, 2023, and offers the following comments.

**Project Description**

According to the EENF, the Town of Ipswich, partnering with the Ipswich River Watershed Association and the Massachusetts Department of Ecological Restoration (DER), is proposing a wetland restoration project to remove the Ipswich Mills Dam and restore the natural river hydrology to improve fish passage/habitat, improve water quality, provide flood reduction, reduce liability, and provide recreational improvements. Construction elements of the proposed project include dam removal, stabilization, and regrading. The dam is proposed to be removed slowly in vertical and horizontal increments to allow for the gradual release of water from the impoundment and will start towards the center of the dam to ensure that flow stays concentrated in the middle of the river and does not lead to erosion during the dam removal process. Flow and sediment transport will be observed for potential negative downstream impacts before proceeding with the following increment. Most of the horizontal extent of the dam is also proposed to be removed with the exception of the two furthest edges necessary to ensure continued stability of riverside retaining walls. The river walls are not proposed to be removed. In addition to the dam, a floating log boom and the existing fishway will also be removed. Dam debris is proposed to be removed from the river at regular intervals. As a result of this project 184,000 square feet (sf) of land under water bodies and waterways will be converted to bordering vegetated wetlands (BVW). The newly exposed sediments will be susceptible to erosion and some of this is intended to beneficially migrate downstream to replenish areas that are currently sediment-starved downstream of the dam. In areas immediately adjacent to the existing dam encapsulated soil lifts will be installed to protect the riverside retaining walls from potentially increased river velocities in these areas during some flow conditions. Stone support will be installed on the toe of the slopes for the soil lifts to further protect them and the upgradient retaining walls against erosion. Farther upstream, where newly exposed soils are not expected to be subject to higher river velocities, the new BVW will be stabilized with coir logs to stabilize the soils to allow native seeding to occur. Approximately 170 cubic yards (cy) of coarse bed material, including rock and large boulders which have accumulated upstream and downstream from the existing dam location, will be regraded to form a more natural profile and support improved fish passage conditions under a variety of flow conditions. In addition to the permanent conversion of land under water and waterways and fish runs to bordering vegetated wetlands, the EENF states that the proposed project will have permanent direct impacts to 30 linear feet (lf) and indirect impacts of 700 lf of the inland bank, and permanent indirect impacts of 352,100 sf to Bordering Land Subject to Flooding and 54,5000 sf to Riverfront Area. The project will include 440 cy of material removal for the dam and spillway removal and rock relocation and approximately 6,900 cy of sediment will be released to naturally redistribute downstream.



## **Project Comments**

The Ipswich Mills dam removal is an important ecological restoration project that will restore or improve fish passage and habitat connectivity to the approximately 186 miles of upstream mainstream river and tributary habitat of the Ipswich River. It is a Priority Project for DER and has involved significant assessment, planning, and design work by many partners for approximately a decade to date to inform the proposed project design.

According to the EENF, the proposed project includes the release of 6,900 cy of sediment from behind the dam to the downstream areas of the river. The EENF includes a very preliminary sediment quality assessment stating that the sediments found behind the Ipswich Mills Dam have a very low likelihood of toxicity, based on the review of data from five sediment cores collected behind the dam in two sampling events in 2012 as part of the preliminary assessment. The EENF states that the data from both sampling events indicate that the sediment is below applicable ecological impact benchmark limits, but does not include any additional or more recent sediment gradation or chemical testing analysis to demonstrate that the sediments are suitable for release, and no additional information was included in the supplemental information provided to MEPA during the comment period for the project. The Licensed Site Professional (LSP) report included in the preliminary assessment in the EENF recommended further characterization of the sediment immediately upstream of the dam as these are likely to be the quickest sediments to mobilize and discharge to the environment or tidal waters of the Ipswich River following removal of the dam, and as the location of the former Ipswich Mills, may exhibit different contamination levels than the sites sampled upstream of the former mill. The LSP report also recommended additional sampling downstream of the impoundment, including the meander or cove between Country Street and Turkey Shore Road, as a significant volume of sediment from street sanding has accumulated within this vicinity including fine material from organic matter and possibly discharges from the former mills, and upstream samples to evaluate material that is moving through the system. Further sediment characterization information should be obtained to determine whether the sediment is suitable for the proposed release, or whether an alternative sediment management approach is warranted for the project.

## **Federal Consistency Review**

The proposed project may be subject to CZM federal consistency review, and if so, must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Sean Duffey at [sean.duffey@mass.gov](mailto:sean.duffey@mass.gov), or visit the CZM website at [www.mass.gov/federal-consistency-review-program](http://www.mass.gov/federal-consistency-review-program).

LE/kg

cc: Jill Provencal, MassDEP  
Daniel Padien MassDEP  
Christine Hopps, MassDEP  
Kathryn Glenn, CZM



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

Northeast Regional Office • 150 Presidential Way Woburn, MA 01801 • 978-694-3200

Maura T. Healey  
Governor

Kimberley Driscoll  
Lieutenant Governor

Rebecca L. Tepper  
Secretary

Bonnie Heiple  
Commissioner

October 10, 2023

Rebecca L. Tepper, Secretary  
Executive Office of  
Energy & Environmental Affairs  
100 Cambridge Street  
Boston MA, 02114

RE: Ipswich  
Ipswich Mills Dam Removal  
EEA# 16754

Attn: MEPA Unit

Dear Secretary Tepper:

The Massachusetts Department of Environmental Protection Northeast Regional Office (MassDEP-NERO) has reviewed the Expanded Environmental Notification Form (EENF) for the proposed Ipswich Mills Dam Removal project in Ipswich. MassDEP provides the following comments.

## Wetlands

The project proposes full removal of the dam in vertical and horizontal increments, beginning river west of the active fishway, near the center of the dam. Testing suggests that sediments behind the dam are at a low risk of toxicity. The project is considered a high priority for the Town of Ipswich in their Municipal Vulnerability Preparedness Plan, as well as by the Department of Ecological Restoration. The Project is eligible as an Ecological Restoration (ER) Project under Wetlands Protection Act as a Dam Removal and Fish Passage project.

The EENF notes that “hydraulic and hydrologic modeling was used during the design of the proposed project to ensure that peak flood events do not worsen flood elevations at downstream infrastructure. This modeling predicted water surface elevations downstream of the project

unchanged during the 100-year flood. Upstream flood conditions are modeled to be improved by the proposed project.”

These are the issues identified for the permitting process.

**Resource Area Impacts**

Jurisdictional Area	Resource	Impacts	Comments
<i>Inland Resource Areas</i>			
Bank		490 lf temporary within LOW -30 lf permanent within LOW -700 lf overall	
Bordering Wetlands (BVW)	Vegetated	+6,790 sf within LOW +184,800 sf overall	
Land Under and Waterways (LUWW)	Waterbodies	35,870 sf temporary within LOW -6,790 sf permanent within LOW -184,000 sf overall	Permanent conversion to BVW. Dredge quantified, but not fill.
Bordering Land Flooding (BLSF)	Subject to	1,730 sf within LOW (temporary) -352,100 sf overall	Also, a FEMA Regulatory Floodway.
Riverfront Area		4,100 sf within LOW (temporary) -54,500 sf overall	
<i>Coastal Resource Areas</i>			
Anadromous Fish Run		-6,790 sf within LOW -184,800 sf overall	permanent conversion to BVW

“Restoration” of the new BVW area (former LUWW) is proposed to be passive. If native vegetation does not establish on its own, native wetland seed will be added. MassDEP encourages the planting of native shrubs and trees in the restoration area, not solely herbaceous plants. The new BVW area will be monitored for colonization by invasive plant species. New inland Bank will be constructed using fabric covered soil lifts planted with red osier dogwood slips. The toe of Bank will be protected with 1 – 2-foot diameter boulders, as recommended after a completion of a hydrology and hydraulics analysis that identified a scour risk in the vicinity of the post-removal dam area.

The EENF and the EENF narrative (page 78 of the PDF) note that 440 cubic yards of concrete, boulders, and cobbles will be “directly excavated” (dredged) from the project’s Limit of Work (LOW) within LUWW. In addition, 6,900 cubic yards of sediment are noted to be passively “dredged” as sediment is released from the impoundment and areas downstream of the dam after its removal, for a total of 7,340 cubic yards of dredge. The proposed dredge footprint will be 120 ft maximum length, 20 ft maximum width, and 7.4 ft maximum depth direct removal in the LOW.

This re-grading will likely result in fill of LUWW; however, fill of LUWW is not specifically discussed in the EENF or associated narrative. Fill impacts in LUWW should be quantified and provided for the permitting process.

MassDEP disagrees with the applicant's position on page 11 of the EENF that there are no Outstanding Water Resources in the project vicinity. According to MassMapper, Designated Shellfish Growing Areas immediately abut the project area downstream of the dam. Although shellfish harvesting is currently prohibited in this location, 310 CMR 10.04 defines Shellfish Growing Area as: "land under the ocean, tidal flats, rocky intertidal shores and marshes and land under salt ponds when any such land contains shellfish. Shellfish growing areas include land that has been identified and shown on a map published by the Division of Marine Fisheries as a shellfish growing area *including any area identified on such map as an area where shellfishing is prohibited...*". The applicant should reference this issue the permitting process.

## **Drinking Water**

The March 2019 "Ipswich Mills Dam Removal Feasibility Study" included as an attachment to the EENF evaluated how far upstream tidal influence on water levels would extend after removal of the dam, and whether there would be salinity impacts to drinking water wells. The tidal hydraulic influence was expected to extend to around Upper River Road in Ipswich. This upstream limit is over two miles downstream from the Town of Ipswich's Winthrop Well No. 2, which is the farthest downstream of any active public water supply along the Ipswich River.

The EENF states that the purpose of the dam is to raise the water level elevation to provide a power source. Evaluation of the water levels after dam removal in the feasibility study focused on the change in flood level elevations in the vicinity of the dam, both upstream and downstream. MassDEP did not find information in the EENF on the upstream extent along the Ipswich River that would experience a drop in water level elevation due to removal of the dam. However, the feasibility study referred to the Willowdale Dam in Ipswich being 4.6 miles upstream from the Ipswich Mills Dam. MassDEP presumes that as a worst case, the Willowdale Dam would prevent a drop in river water levels from propagating any farther upstream. As the Willowdale Dam is several miles downstream from any public surface water intakes on the Ipswich River, MassDEP concludes that removal of the Ipswich Mills Dam will not impact any public surface water supplies.

The only active public groundwater supply downstream of the Willowdale Dam is Ipswich's Winthrop Well No. 2. There is also the Winthrop No. 1 tubular wellfield that is approximately 2,000 feet downstream from Well No. 2; however, it is designated as inactive. Winthrop Well No. 2 is about 300 feet from the river bank, and is listed in MassDEP records as being 56 feet deep. It appears unlikely that the drop in river level adjacent to the well due to dam removal would have a significant impact upon the well.

The MassDEP appreciates the opportunity to comment on this proposed project. Please contact [Kristin.Divris@mass.gov](mailto:Kristin.Divris@mass.gov) at (508) 887-0021 for further information on wetlands issues. If you have any general questions regarding these comments, please contact me at [John.D.Viola@mass.gov](mailto:John.D.Viola@mass.gov) or at (857) 276-3161.

Sincerely,

**This final document copy is being provided to you electronically by the  
Department of Environmental Protection. A signed copy of this document  
is on file at the DEP office listed on the letterhead.**

John D. Viola  
Deputy Regional Director

cc: Brona Simon, Massachusetts Historical Commission,  
Eric Worrall, Kristin Divris, Jill Provencal, Alicia Geilen, Melissa Balcourt, Jim Persky,  
MassDEP-NERO



# Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Maura T. Healey  
Governor

Kimberley Driscoll  
Lieutenant Governor

Rebecca L. Tepper  
Secretary

Bonnie Heiple  
Commissioner

## Memorandum

**To:** Nicholas Moreno, Environmental Analyst, MEPA

**From:** Alice Doyle, Waterways Regulation Program, MassDEP

**Cc:** Daniel J. Padien, Program Chief, Waterways Regulation Program, MassDEP

**Re:** Comments from the Chapter 91 Waterways Regulation Program  
EEA #16754 – Expanded Environmental Notification Form  
Ipswich Mills Dam Removal, Ipswich River, Ipswich, Essex County

**Date:** October 10, 2023

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The Department of Environmental Protection Waterways Regulation Program (the “Department”) has reviewed the Expanded Environmental Notification Form (EENF) #16754 and supplemental information submitted by Horsley Witten Group, Inc. on behalf of the Town of Ipswich (the “Proponent”) for removal of the Ipswich Mills Dam and appurtenant structures (the “project site”). The dam consists of a 132-foot wide main spillway constructed of granite block and concrete, a log boom, and two fish ladders.

### Chapter 91 Jurisdiction

The project is located within tidelands of the Ipswich River, subject to jurisdiction pursuant to M.G.L. Chapter 91 and 310 CMR 9.00 (c.91). The EENF (Appendix A – Cultural Resources Summary) includes a detailed history of the project site from approximately 1635 through the Town’s acquisition of the current dam in 1982. Despite the extensive history of modifications to the dam described, only a single c.91 approval of modifications by the Massachusetts Department of Public Works in 1973 is referenced.

While the removal of the dam and associated fill, may be eligible for approval under 310 CMR 9.05(3)(m), the project also includes dredging and placement of fill and structures within flowed tidelands requiring a c.91 license.



### **Regulatory Review**

The EENF acknowledges that the project will require a c.91 license. Based on the Department's review of the EENF, no substantive concerns were identified. The EENF includes only a single partial reference to a c.91 approval by MassDPW in 1973. The license application should include a list of previously issued legislative and/or regulatory approvals to facilitate review.

The Proponent is encouraged to confer with the Department prior to submitting a c.91 license application, in order to confirm the extent of the project within jurisdiction and evaluate the project relative to the applicable provisions of 310 CMR 9.00. The license application should identify the existing and historic high and low water marks, proposed dredging, filling and structures in plan and cross-sectional views. The application must identify any work within jurisdiction located on private property, as the application is required to be signed by the applicant and the landowner(s) if other than the applicant.

If you have any questions regarding the Department's comments, please contact Alice Doyle at [alice.doyle@mass.gov](mailto:alice.doyle@mass.gov).



# The Commonwealth of Massachusetts

## Division of Marine Fisheries

(617) 626-1520 | [www.mass.gov/marinefisheries](http://www.mass.gov/marinefisheries)



MAURA T. HEALEY  
Governor

KIMBERLEY DRISCOLL  
Lt. Governor

REBECCA L. TEPPER  
Secretary

THOMAS K. O'SHEA  
Commissioner

DANIEL J. MCKIERNAN  
Director

October 10, 2023

Rebecca L. Tepper, Secretary

Massachusetts Executive Office of Energy and Environmental Affairs

ATTN: MEPA Office, Nicholas Moreno, MEPA Analyst

100 Cambridge Street, Suite 900

Boston, MA 02114

Via email: [Nicholas.Moreno@mass.gov](mailto:Nicholas.Moreno@mass.gov)

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Secretary Tepper:

Thank you for the opportunity to comment on the Expanded Environmental Notification Form (EENF) submitted by the Town of Ipswich for the Ipswich Mills Dam Removal project. The Massachusetts Division of Marine Fisheries (DMF) supports the removal of the Ipswich Mills Dam because it will substantially enhance the access and habitat for diadromous fish.

Below the Mills Dam, the Ipswich River currently provides essential habitat for diadromous fish species including American eel (*Anguilla rostrata*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), rainbow smelt (*Osmerus mordax*), white perch (*Morone americana*), and sea lamprey (*Petromyzon marinus*). The current Denil ladder at the Mills Dam provides passage for alewife, blueback herring, and sea lamprey but excludes passage of other diadromous species. Rainbow smelt spawning habitat is located immediately downstream of the dam to the cove below the County Street bridge. The Ipswich River also contains productive habitat for soft shell clam (*Mya arenaria*). The nearest soft shell clam habitat is mapped by DMF approximately one mile downstream of the Mills Dam in shellfish growing area N5.7, classified as Prohibited. The nearest harvestable soft shell clam flats (Gould Creek Clam Flats) are located approximately one and a half miles downstream of the Mills Dam in shellfish growing area N5.0, classified as Conditionally Approved.

As an agency with management jurisdiction over many diadromous species, we have provided technical assistance on many projects in the region that have sought to enhance and restore habitat and passage for migratory fish. The proposed dam removal will improve diadromous fish connectivity in the Ipswich River by removing the head of tide dam on the river, thereby opening up the lower section of the river to all diadromous fish. Further, removal of the Ipswich Mills Dam is a key component of cooperative efforts to improve diadromous fish habitat and passage throughout the watershed, including a nature like bypass at the next dam upriver and a

new fishway on Howlett Brook, a tributary of the Ipswich River with large amounts of suitable habitat for river herring and American eel.

At the MEPA site visit on September 14<sup>th</sup>, a citizen asked why the Town could not achieve the same results by building a new fishway rather than removing the dam. DMF works with dam owners in Massachusetts to provide passage and this often entails a fishway. When possible, we recognize and advise owners that removal is the best option for migratory fish and aquatic life. There are several important distinctions between what a fishway can provide and what dam removal can. Fishways can and do provide passage for fish around dams. However, fishways can have limitations such as reduced performance at high or low flows, poor entrance attraction, problems for downstream passage, and not efficiently passing all present species. Dam removal provides up and downstream passage for all organisms able to swim in the flow at that time and allows most or all of the river width to support a zone of passage, thereby not adding migratory delay for fish. A second important distinction is that most fishways require a significant investment in operations and maintenance. Dam removals will allow fish passage in perpetuity without long term operation or maintenance costs. In sum, DMF supports the preferred alternative (i.e. complete removal of the Mills Dam) presented by the proponents.

DMF is satisfied that the information provided in the EENF is sufficient to assess potential impacts to fisheries resources at and adjacent to the project site and thus does not oppose a waiver of the EIR requested by the project proponents.

To protect migrating and spawning diadromous fish present in the Ipswich River from temporary impacts from the project as proposed, DMF would likely recommend a time-of-year (TOY) restriction on in-water, silt-producing work from March 1 to June 30 and September 1 to November 15 of any given year [1].

Based on the project as currently proposed, DMF is concerned that sediment mobilization and hydrodynamic changes projected to occur in association with the Mills Dam removal could negatively affect shellfish resources downstream of the Mills Dam. To address these concerns DMF recommends the proponent coordinate with DMF biologists to develop a monitoring plan for turbidity, sedimentation, fecal coliform, and contaminants in nearby shellfish before and after the dam removal to establish baselines and assess impacts.

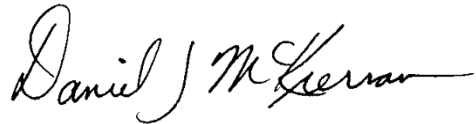
Should the project proponents decide to pursue an Ecological Restoration Limited Project Notice of Intent (ERNOI), they will require a written determination from DMF prior to submission to the Ipswich Conservation Commission as part of the ERNOI process pursuant to 310 CMR 10.11(3)&(4).

A DMF Fishway Construction Permit will be needed. Final design approval will occur during the DMF Fishway Construction Permit review.

DMF has been involved for multiple years to help develop a better understanding of what the Ipswich Mills Dam Removal would provide for the Ipswich River and the diadromous fish under

our jurisdiction. Addressing this barrier will help sustain and rebuild fish stocks and enhance the status of saltwater recreational fisheries in northern coastal Massachusetts. Thank you for considering our comments. Questions may be directed to Forest Schenck at [forest.schenck@mass.gov](mailto:forest.schenck@mass.gov).

Sincerely,



Daniel J. McKiernan  
*Director*

DM/bg/fs/bc/mc/sd

Cc.

N. Price, Horsley Witten Group, Inc  
N. Shea, Ipswich River Watershed Association  
P. Maniccia, USACE  
P. Bordonaro, MA CZM  
K. Shaw, NOAA Fisheries  
B. Gahagan, DMF  
B. Chase, DMF  
M. Campbell, DMF  
R. Joyce, DMF

References:

[1] Evans, NT, KH Ford, BC Chase and JJ Sheppard (2011). Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Technical Report DMF TR-47.



SMART GROWTH AND REGIONAL COLLABORATION

October 10, 2023

Rebecca Tepper, Secretary  
Executive Office of Energy & Environmental Affairs  
Attention: MEPA Office – Nicholas Moreno, MEPA # 16754  
100 Cambridge Street, Suite 900  
Boston, MA 02114

Re: EEA No. 16754, EENF - Ipswich Mills Dam Removal, Ipswich MA

Dear Secretary Tepper:

The Metropolitan Area Planning Council (MAPC) regularly reviews proposals deemed to have regional impacts. The Council reviews proposed projects for consistency with MetroFuture, the regional policy plan for the Boston metropolitan area, the Commonwealth's Sustainable Development Principles, consistency with Complete Streets policies and design approaches, as well as impacts on the environment.

MAPC has reviewed the Expanded Environmental Notification Form for the Ipswich Mills Removal proposed by the Town of Ipswich and offers the following comments. For context, MAPC prepared the FEMA Hazard Mitigation Plan for the Town of Ipswich in 2019, and at the time we reviewed the ongoing planning for dam removal and included this dam in the Risk Assessment section of the *Ipswich Hazard Mitigation Plan 2019 Update*, which was approved by MEMA and FEMA. In a previous 2012 project funded by a DEP 604B grant, MAPC prepared the Ipswich River Resource Management Plan, which identified a dozen site-specific sources of Non-Point Source pollution, and prepared preliminary engineering designs for Green Infrastructure mitigation projects. Beyond specific projects like these, MAPC has long been involved in regional discussions and collaborations about both water quality and water quantity of the Ipswich River.

Based on our understanding of the Ipswich River, the proposed project would provide many co-benefits not only to the Town of Ipswich, but to the watershed as a whole. Perhaps the most significant benefit is the restoration of fisheries habitat that has historically been severely impacted by the dam. Opening up fish access at this most downstream dam would allow the restoration of fisheries far upstream on both the mainstem and tributaries of the Ipswich River, making this a project of regional significance. There have been many dam removals in other Massachusetts communities to achieve this goal, but removal of the Ipswich Mills Dam would provide this benefit over a larger watershed area than most other dam removals to date. The project would support national and regional efforts to restore healthy herring, rainbow smelt, and American shad populations.

In addition to opening up the watershed to fish passage for diadromous fish species, the project would provide significant restoration of ecological functions in the watershed upstream of the dam, including increased dissolved oxygen and reduced water temperatures in summer, natural transport and distribution of sediments, increased connectivity for resident fish, support of the freshwater shellfish life cycle.

Having completed the town's *Hazard Mitigation Plan* and participated in their Municipal Vulnerability Preparedness workshop, it is clear to MAPC that another significant benefit will be mitigation of the potential hazard of failure of this 1635 dam. DCR classifies this dam as a Significant Hazard Dam in "fair" condition, and it was noted in a 2020 report from the Office of Dam Safety that there are multiple deficiencies in the dam structure. Increased extreme rainfall events in the future driven by climate change would only put more stress on the dam, perhaps more than it was historically designed for in a previous era.



SMART GROWTH AND REGIONAL COLLABORATION

The project would also restore natural floodplain upstream of the dam, which would further reduce flood risk.

From an operational and financial perspective, dam removal would be a permanent solution that requires no ongoing maintenance and subsequent costs to the town. Based on the EENF's alternatives analysis, dam removal is the most effective way for the Town to achieve maximum ecological restoration, compared to other alternatives such as partial dam removal or retaining the dam with improved fishways.

Given the substantial and detailed analysis provided by the 1,000+ page EENF, in addition to the Supplemental Information provided by the Town's consultant on September 28, the function of an Environmental Impact Report has effectively been provided by the EENF. There appears to be little benefit from requiring additional review, so MAPC supports the Town's request for a waiver of the EIR requirement. If, however, a Waiver cannot be granted by the Secretary, MAPC would support the option of a Single EIR.

Thank you for the opportunity to review and comment on this important project.

Sincerely,

Martin Pillsbury  
Environmental Planning Director

Cc: Carolyn Britt, Town of Ipswich

## EEA No. 16754 – Ipswich Mills Dam Removal Project

### COMMENTS OF MILL POND PRESERVATION ASSOCIATION<sup>1</sup>

The Mill Pond Preservation Association (“MPPA”) hereby submits comments on behalf of its members and other residents and river recreationalists that would be adversely affected by the removal of the Ipswich Mills Dam (hereinafter referred to as the “Dam”).

The Expanded Environmental Notification Form (“EENF”) filed with MEPA on August 14, 2023, as discussed at length below, is flawed and incomplete and must be rejected. At its core, the Dam Removal proposal proclaims benefits, the achievement of which is uncertain. Further, in several cases, the asserted benefits are unquantified or insignificant. At the same time, the proposal has totally failed to consider the absolutely certain and significant detrimental effects of dam removal. Stakeholders whose interests are represented by MPPA have at least until the last couple weeks<sup>2</sup> been afforded only the most cursory opportunity to be heard, so it is not surprising that there has been no consideration of the detrimental impacts of removal of the Dam, including elimination of the Mill Pond and associated wetlands. MPPA files these comments to seek consideration of such detrimental impacts and to protect the interests of its members and indeed, of the existing healthy and thriving environment which is the Mill Pond upstream of the Dam.

#### **1. No Waiver of Environmental Impact Report Filings Should Be Granted**

In filing its EENF, the Town of Ipswich (the “Town”) also states that it will seek an Ecological Restoration Order of Conditions (“EROC”) under the Massachusetts Wetlands Protection Act and that in case of denial of such status and the accompanying exemption from MEPA permitting, it requests a waiver of the Mandatory Environmental Impact Report (“EIR”) filing. For reasons briefly noted below (and to be expanded upon once the request for the EROC is filed), the EROC should be denied. And MEPA should refuse to waive the EIR requirements that may better show the shortcomings of the Town’s proposal to remove the Dam and which will better allow for consideration of the concerns of MPPA members.

The Town acknowledges that the existing regulatory scheme in Massachusetts would require filing of a full EIR. (EENF page 2). The point of an EIR, of course, is to provide the

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<sup>1</sup> Mill Pond Preservation Association is an unincorporated group of environmentalists, fishermen, outdoor enthusiasts, paddlers, residents (new and multi-generational) of the area that would be adversely impacted by dam removal, citizens concerned with Ipswich history and river abutters whose water access, viewshed and property values will be adversely affected should the Town prevail in its proposal to remove the historic Ipswich Mills Dam. At the time of submission of these comments, the individual members are: Cheryl and Benjie Gorniewicz, Julie Martineau, Denis Markiewicz, Chris Cerino, Carl Gardner, Cynthia Brown, Kristen and Grahame Ledson, Diane Kelly and Steve Calder, Leigh and Bill Stewart, Cory and Cody Hulbert and Eric, Michael, Greg, and Mary Krathwohl.

<sup>2</sup> On September 19, 2023, the Select Board held a Special Meeting at which for this author’s best knowledge was the first time stakeholders other than the project proponents were allowed to present their views to the Select Board regarding the proposal to remove the Dam without time constraints. Virtually all other “public engagement sessions” have been project proponents describing the proposed project and the benefits that they hope will result.

Commonwealth a better basis upon which to assess whether a project will be beneficial or detrimental to the environment and interested stakeholders. The Town is wrong in its assertion that no benefits would result from going through a full EIR process and that it would be an undue hardship on the Town.

To the extent that the EIR process may allow for consideration of points of view other than those of advocates for removal of the Dam, that is a good thing, albeit one that until very recently has not occurred.<sup>3</sup>

As a final reason for waiver of the EIR requirement, the project proponents state that the project “has nearly a decade-long history of commitment to public outreach and feedback solicitation”. MPPA strongly disagrees. MPPA members, including the citizens who would be most adversely affected by dam removal, feel that they have been “in the dark” about what was happening with the dam removal proposal for the better part of the last 10 years. Though presentations have been made as stated in the EENF, there has been only the most minimal solicitation of feedback from citizens (i.e. 3 minute statements at a couple public meetings and a short answer survey). Thus, the EENF’s assertion of a commitment to solicitation of feedback (much less inclusion in consideration and exploration of relevant issues as was done in Exeter NH), at least from the residential river front abutters, is a huge exaggeration, and seriously misleading. Accordingly, to the extent that MEPA considers solicitation of feedback as a basis for waiver of the EIR requirement, the waiver must be denied.

The Town makes its entire proposal, virtually assuming environmental benefits, without showing the likelihood of achieving those benefits, while at the same time ignoring or denying any costs and detriments to the environment, and ignoring negative effects on residents and the general public, resulting from removal of the dam. Additionally, most of the non-environmental benefits asserted by the Town are marginal at best and in many ways significantly exaggerated. In any event the non-environmental “benefits” (to the extent there really are any benefits) are far outweighed by the very certain detriments of dam demolition. **Indeed, the dam demolition advocates have totally ignored the detriments that will result from any dam removal. As discussed in greater detail below, these detriments include the following: destruction of wetlands, significant adverse alteration of a 300 year old thriving ecosystem, elimination of the Mill Pond which is the preferred habitat for an endangered species of turtle [see below] that the removal advocates evidently missed, significant adverse effects on river abutters’ viewsheds and property values, significant reduction in recreational opportunities [e.g. probably 80% reduction in swimming and paddling opportunities and 100% elimination of upstream frozen river recreation such as skating and cross country skiing] and elimination of a very significant historical icon for the Town. At the very least, there must be an impartial**

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<sup>3</sup> See footnote 2 above. The point is that members of MPPA over a year ago requested the Town Select Board to initiate a broad project review involving stakeholders like the town of Exeter NH did. MPPA members more recently have specifically requested the Select Board to allow for a presentation by such members. No specific response by the Town was made for many months until the lightly publicized September 19 meeting, despite the Town having met several times with representatives of the Dam removal advocates. As was recognized by the Town Finance Committee in late 2022, no sound decision should be made only on the assertions of advocates on behalf of a proposed action.



**decision by a well-informed administrative, judicial, or other public body that truly considers** the likelihood of achieving the sought-after benefits and weighs the certain detriments against the (probability weighted) benefits.

Also, the EENF suggests that the modest reduction in impoundment should not be the basis for requiring an EIR. However, these Comments and many others show that the reduction in the impoundment will eliminate the Mill Pond and will greatly affect nearby wetlands and river abutters. Thus, the reduction in impoundment is a very significant action with very significant impacts on many.

If purported environmental benefits are to be the basis for a waiver of the more robust EIR process, the Town must make a more complete and compelling showing of environmental benefits. Instead, its showing is conclusory at best and entirely general and non-site specific. With respect to some of its asserted benefits, the Town's own presentation (both in the EENF and in other public statements) undercuts such assertions. For example, in the EENF Narrative, the Town asserts that removal of the Dam would result in an improvement in water quality. Yet, in the Climate Resilience Design Standards Tool Project Report (p.10 -- page 59 of the online pdf version of the filing) portion of the EENF, the Town vacillates, stating only that the project would "MAYBE" improve water quality. Nowhere does it specify any current problem with water quality or any specific improvement in any measurable metric.<sup>4</sup>

Similarly, the Town makes much of the benefits to diadromous fish populations generally throughout the EENF and especially notably in the more recent publicity statements seeking to garner public support for the removal of the Dam. Yet the experts, whose reports are included in the EENF appendices, in prior public presentations, admitted that they "could not guarantee that the fish would return if the Dam was removed." And that would be with extensive and repeated restockings of the river. That uncertainty is expectable because the breeding grounds of such fish have been destroyed and there is nothing showing how new breeding grounds are likely to be successful. Further, such restocking is not free. Even now, in the advocates' full court press to gain public approval, the informational website – [www.ipswichmills.com](http://www.ipswichmills.com) – referenced on the Town website, only states that fish typically return in other cases, without seeking to show that the situation for Ipswich is truly comparable to other locations whose success the advocates tout. Indeed, MPPA members understand that at least in a couple of the successful returns of such fish (Exeter NH and Plymouth MA) there were both huge numbers of fish seeking to get past the dam that was ultimately removed and there were established breeding grounds. But here there is no showing about the numbers of fish waiting at the foot of the dam in Ipswich compared to those other locations which supposedly provide support for the Town's assertion. In fact, in the case of the dam removal project frequently cited by the Town and other dam removal advocates, Exeter

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<sup>4</sup> The September 28, 2023 Supplement to the EENF attempts to provide something more than vague generalizations about improved water quality by providing more verbiage without hard numbers. That filing asserts a benefit of reducing eutrophication without any showing of any existing eutrophication. Indeed, the EENF includes some data on dissolved oxygen measurements which show very little problem with the dam in place. Indeed, it would only be an issue when there was no flow over the dam or through a fishway and in that case of low water levels, without the dam there would be minimal water in the current Mill Pond area which in the view of MPPA is a far worse situation. See Second Comments of Chris Cerino filed 10/08/2023.

New Hampshire, there is ample public record evidence that in Exeter, there were thousands upon thousands of fish waiting at the dam, unable to go upstream. In Ipswich, there are but a few.<sup>5</sup> Perhaps the destruction of other upstream breeding grounds in the Ipswich River has forever discouraged the fish from returning. Perhaps the striped bass so plentiful in the waters at the mouth of the Ipswich River, as a fierce predator of the herring, have forever changed the patterns of the migratory fish. Whatever the cause, without some quantification of the numbers of fish that would return, or at least a scientifically shown high probability of their return, it is irresponsible to trade certain detrimental effects of dam removal (discussed below) for an aspirational goal that is uncertain to be achieved.

To the extent that that flood reduction is an environmental benefit, the assertion of dam removal reducing flood impacts is at the least greatly overstated. The Town specifically states that there is NO flood reduction benefit downstream of the dam because the dam is a run of the river dam. It states that removal of the dam will create a new (and MPPA asserts artificial and unnatural) flood plain that will absorb some flood waters. While that is true, it is just the area that is now underwater which is entirely within existing river banks. Further, once the river level increases up to that non-flooding level, the impact of increased river volumes will be the same as it is now. Water levels to that extent pose no flood risk. In fact, because of the long existence of the Mill Pond, most development is behind the reach of even significant floods. EENF Attachment C2 (online copy p 41) which shows no structures within the flooding area. So yes, in lower level flooding circumstances, the flood waters will first fill the areas emptied by dam removal, but at any significant flood levels, the flood plain created by dam removal will have been filled and the benefits will be immaterial. Note that at the current levels, well short of flood conditions, the water goes over the dam. In a future flood, the water will be going over the dam as well – just in greater volumes<sup>6</sup>.

The other benefits asserted by the Town (liability, cost and recreational) are not environmental benefits and are insignificant or non-existent, as discussed further below. Indeed, some of those effects are actually detriments and are addressed below, as we understand that the determination of need for an EIR will not rest on such considerations.

On the other hand, the environmental detriments are at the least significant enough to merit a more complete review. As described at length in the Comments filed by Denis Markiewicz, there are admitted significant impacts on, if not reductions in the amounts of, the magnificent wetlands in, around and above the Mill Pond just upstream of the dam. Indeed, the EENF itself states that 184,800 square feet of wetlands will be altered. EENF p. 2. This appears to be currently land under water, but even more significant is the magnificent wetlands that are described in the

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<sup>5</sup> It seems ironic to MPPA that removal advocates cite the small number of fish at the Ipswich dam in support of the request for removal. Indeed, such small numbers of fish at the foot of the dam now suggests that successful return of such fish after removal of the dam is not very likely at all. At the least, there are significant questions (who pays for restocking, how much restocking and how long must such restocking occur) that must be answered before destroying the dam proceeds.

<sup>6</sup> The Town cannot have it both ways: if it is truly a “modest reduction in impoundment” as the Town asserts in support of its waiver request, then it stretches credulity to assert that dam removal will have significant flood reduction benefits.

Comments of Denis Markiewicz. Those wetlands begin about .3 mile upstream of the dam and continue at least to the railroad bridge. The EENF does not seem to address those wetlands and the impact on those wetlands, but as Mr. Markiewicz notes, the earlier studies state that such wetlands will be subject to lower water levels and thereby converted to some other form of habitat. What could be lost from the reduced water levels is not addressed in the EENF. It would be irresponsible to assume that that impact on those wetlands is not negative and is not significant. The Secretary should therefore require an EIR. 301 CMR 11.03 (2) (B) 1. d.

Further, these comments below show that there are endangered species that thrive in the Mill Pond environment. The project proponents state that no endangered species will be affected. Section 2.C. below shows that is not the case. For that reason alone, an EIR should be required. 301 CMR 11.03 (2) (B). Further, given the vociferous opposition by most<sup>7</sup> town residents that live on or near the river, the conversion of submerged areas in their back yard into tidal mudflats is a significant environmental detriment. Further, the clear negative impact on the access of riverfront abutters to the natural resource that is the river, is by definition an “environmental burden” under the MEPA regulations. 301 CMR 11.02. Again, this is another reason for at least full consideration of all impacts through filing of an EIR and balancing of benefits and detriments.

Perhaps through the EIR process, all interested parties, regardless of their predisposition would be able to see if the likelihood and significance of benefits resulting from removal of the Dam, would truly outweigh the detriments of removal of the Dam. As to the asserted undue hardship on the Town, it is far from clear that any Town funds would have to be expended. Indeed, there have been very significant grants that are funding the permitting process and in fact are supporting the extensive efforts to convince the residents of Ipswich that removal of the Dam is a good thing. To the extent that the EIR process requires a bit more time – that is entirely appropriate given that such a significant and permanent decision should be made upon a full consideration of all factors and impacts and not merely on the assertions of dam removal advocates. To be clear -- there will be no restoration of the Mill Pond after the fact, should the asserted benefits of the removal of the Dam prove to be less than promised, or heaven forbid insignificant or non-existent.

For all these reasons the Town’s request for a waiver of the EIR filing requirement is without merit and must be rejected. An EIR would help address some of these issues that have to date been addressed only in a conclusory manner or in an end result driven fashion. In the absence of a judicial approach where assumptions and assertions can be tested by discovery and cross examination and potential rebuttal by experts not under the direction and supervision of dam removal advocates, the best approach would be to establish some neutral third party to conduct and administer future studies and reports.

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<sup>7</sup> Some riverfront residents have expressed their support, but to MPPA’s best knowledge, those removal advocates were downstream of the dam or so far upstream as to suffer no material impact from dam removal and the significant reductions of water levels.

## **2. The EENF Is Incomplete, Insufficient and in some cases Incorrect**

### **A. General Project Description --Mitigation Measures**

The EENF's assertion that the project is positive and beneficial is sadly lacking in specifics and ignores many detriments that would result from dam removal. Therefore, MPPA seeks here to detail the detriments of dam removal and point out questions that the EENF has not addressed sufficiently.

As to mitigation measures, because of the serious impact on river abutters, mitigation measures must be added to any approvable project. Specifically, river abutters now have unconstrained, convenient access to the water at all times of the day from their own dry land property. The Town admits that this will change. The river level will be reduced by about 5.6 feet – at mean high water (EENF Attachment C 4). Note that this water level reduction is an estimate by dam removal advocates that has not been tested by a neutral party. MPPA members have observed that the distance between the top of the dam and the base, at least sometimes, exceeds 5.6 feet, so MPPA questions that assertion. Indeed, the form states that the height of the dam is 8.8 feet. EENF p. 2 (web page 9). Whether the river level of the Mill Pond is reduced 5.6 feet or more, river abutters will have to cross muddy, mucky wetlands for varying distances, depending on the steepness of the river bank above and below current water levels. In many cases, there are sharp rocks that will impede such access and in some cases there are dumped items that will now be visible and potentially impeding access and which must be removed by the Town at the cost of the Town, as part of the Project. Also, because the Project would impede river abutters' access, there must be some mitigation measures employed. Should the dam be removed, MPPA at this point suggests granite steps and walking path to the low water point for every river abutter that requests such. Simply put, it is unfair and possibly illegal to place the costs/detriment of dam demolition –i.e. the resultant reduction in water level and creation of mudflats in river abutters' backyards – only on the few people so impacted. Any proposal must specify the cost of mitigation and what the source of funds would be for such mitigation.

Also, contrary to assertions by the Town, the distancing of the river from river abutters' living space and the creation of new mudflats (euphemistically labelled "tidal wetlands"), where previously there was open water and the concomitant adverse affect on river abutters' viewsheds, water access etc. all has a negative impact on property values. Should the Town make reasonable offers to mitigate such impacts (though the adverse impact on viewshed would remain) through a fair re-valuation process, it may avoid significant expense of numerous tax abatement requests and potential appeals. Interestingly, the dam advocates assert on the website to which the Town directs people seeking information on dam removal (the "FAQ Website") that dam removal has even improved property values. Yes, one out of a couple dozen studies cited did make that conclusion, but it was for the wholly dissimilar situation of the Kennebec River, where the properties closer to

that river had lower valuations for reasons not explored by the study<sup>8</sup>. Not only is that the opposite situation from what is the case in Ipswich where the riverfront properties uniformly have higher valuations than non-riverfront properties, but in the case of the Kennebec the reasons for such a change in valuations, had it been investigated, might well have been a reduced risk (or perceived reduced risk) of flooding **damage** – a situation that evidence shows is not the case in Ipswich. Here there is no increased risk of flooding damage upstream or downstream due to dam preservation. See, EENF Attachment C2 which shows no structures within the flooding area. Many of the other studies cited on the FAQ Website concerning the impact of lowering water levels of waterfront properties, concluded on a rigorous basis that there was a negative impact on property values ranging from small, but material, to very significant.<sup>9</sup> Those impacts, which might well be uncovered in tax abatement litigation, should be quantified and weighed before any decision to demolish the dam proceeds.

Not only is the likelihood of reduced property values a problem for the Town coffers in terms of tax revenues and tax abatement litigation costs, it is a potentially very significant and inequitable problem for individual riverfront property owners. To MPPA's best knowledge, there has not been a single property owner abutting the Mill Pond that has spoken in support of dam removal. And of course, there have been many speaking against dam removal. That in itself is compelling evidence that people do not want to live (and therefore pay current market prices) along side of mudflats. The resulting property value implications on an individual basis could be extremely serious. For example, a recent purchaser of riverfront property on the Mill Pond (River Court, Peatfield and 1<sup>st</sup> through 6<sup>th</sup> Streets) might have important reasons to move (besides not wanting to live with their diminished access and viewsheds) or to refinance. Diminished property values could seriously hinder such a citizen's ability to refinance to access funds for important medical or family reasons or to move for such reasons.

## **B. General Project Description –Alternatives**

The Town has not conducted any meaningful studies of alternatives to the proposed demolition and removal of the historic dam. In the EENF, the Town simply references an unsupported assertion made by the dam removal advocate in a 10 year old study. That assertion was that the fish ladder here and indeed any fish ladder any time and any where does not work. That is of course untrue as there are many very effective fish ladders both in Massachusetts and in other parts of the country. Indeed, at the September 19, 2023 Special Meeting of the Select Board citizens described some very successful fish ladders in western Massachusetts (e.g. Mr. Purington's citation of the herring festival). Also, in Washington state and elsewhere fish ladders/fishways allow for both electricity production and a thriving salmon industry. The EENF gave no consideration to more recent developments in fishways or to other alternatives such as sloped/ridged cascades that would allow for fish migration and retention of some water in the

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<sup>8</sup> Likely the reason was that the Kennebec in that area had industrial or sewer pollution that made riverfront property less desirable.

<sup>9</sup> Unfortunately, it is such an approach to presentation of information on potential dam removal that has MPPA very concerned. Other citizens may not have the interest or inclination to look behind the assertions of benefits to see that at least in some cases, the reality "behind the curtain" is not at all what it appears to be in the statements of environmental and other benefits.

current Mill Pond in case of low water when there is no fish migration. The conclusory assertion from 10 year old study that such an approach would be too expensive is a wholly insufficient basis to suggest that there is no compromise possible where the dam can remain, and fish proponents can also try their luck at reintroduction of the herring and shad.<sup>10</sup>

The Town's September 28, 2023 supplemental filing (the "Supplement") attempts to address such deficiencies, but again is conclusory and inadequate. That supplement seemingly mixes 10 year old conclusions with current advocacy positions, so it is difficult (especially with the abbreviated time for review and analysis) to ascertain what consideration has been made currently. Nevertheless, MPPA notes that the supplement states that the alternative of partial dam removal with a natural fishway achieves most of the Town's goals, but to a lesser degree than full dam removal. The supplement ultimately discards that alternative with the statement that project opponents would probably oppose such an alternative anyway. Perhaps if the project proponents actually sat down and worked on a collaborative basis with MPPA<sup>11</sup> and others who have been reviewing and analyzing the situation and possibilities, a middle ground solution could be found and agreed upon. Indeed, more than one person has publicly suggested that there could be a compromise solution. However, MPPA has seen no evidence to date that removal advocates would be willing to actually work with concerned citizens and seek a middle ground. The alternative of no dam removal but with installation of a natural fishway is rejected out of hand by the Supplement, purportedly because funds would not be available and the Town does not control sufficient real estate. MPPA disagrees. As discussed in greater detail by the Comments of Carl Gardner, filed on or about October 9, 2023, it appears that such an alternative could be feasible – perhaps a portion of the Mill Pond which is currently under water could be used. In any case, some real consideration and analysis must be conducted before the making the conclusion that nothing can be done other than full removal.<sup>12</sup>

With a full consideration of all the costs and consideration of the plentiful grant monies available, it may well be that such a middle ground approach would be a reasonable alternative to the drastic demolition proposal that would leave no portion of the dam.<sup>13</sup> Indeed, the comments

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<sup>10</sup> It is clear that reintroduction of herring and shad is the primary benefit sought. However, there are many who question the likelihood that such reintroduction can be achieved. The bald assertion that reintroduction has worked in other places is a wholly inadequate given the certain detriments that result from dam removal. MPPA does not have the fishcount data that removal advocates have gathered to date in the efforts to stock upstream possible new spawning grounds so MPPA cannot comment on the viability, but there really must be more evidence of likely success before consideration of such the drastic and permanent action of dam removal is taken.

<sup>11</sup> Again, MPPA notes the process used in Exeter New Hampshire (so often cited by dam removal advocates). Had such a collaborative, inclusive process been employed in Ipswich, MPPA would not have to raise the questions in this document.

<sup>12</sup> Again, MPPA strongly recommends that such consideration of alternatives be done on a collaborative open basis which will facilitate buy-in by those, like MPPA, that have made serious study of the river condition, the studies to date and the full range of certain impacts of dam removal.

<sup>13</sup> Amazingly, the Town proposes not only to demolish the dam, but to regrade and remove rocks, gravel, etc. that were not part of the dam in an amount that depending on weight would fill about 40 dump trucks. EENF page 10; EENF Narrative online copy pp 77-78. MPPA asks: what could be further from an "ecological restoration." The affected residents certainly do not want the artificial dredging of the bottom of the river that serves no purpose and can hardly be characterized as restoring a natural state.

filed to MEPA by Chris Cerino provide a good start on what should be a thorough alternatives analysis.

### **C. Rare Species**

Here again the EENF ignores, overlooked, or simply missed facts known to the people that actually live along the Mill Pond area of the river. Specifically, the Mill Pond that the proposed dam removal will destroy is home to at least one endangered species – the red-bellied cooter turtle. According to state websites this turtle does best in an environment exactly as now exists above the dam – ponded water. Attached to these comments are pictures of a red bellied cooter on site at the shore of the existing Mill Pond. See Attachment 1. Ryan Zabelski, whose father, James Zabelski, lives near the Mill Pond took these pictures. The presence of a red bellied cooter in the Mill Pond in itself shows the need for a neutral party’s study of the effects of the proposed dam removal and destruction of the current and centuries old habitats, as proposed by the Town. Whether or not the Mill Pond has been included in rare species maps is not the point – we have hard evidence of an endangered species living in the Mill Pond. There must be a thorough consideration of the potential impact on that endangered turtle of dam demolition. Indeed, discovery of an endangered species by local residents suggests that any prior studies of this issue were flawed, incomplete, or just a rush to the desired conclusion that demolition of the dam is a good thing.

### **D. Historic Resources**

To the credit of its authors, the EENF does admit that the dam “abuts the Ipswich Mills Survey Area”. However, the EENF proceeds to treat historical implications of dam demolition as a non-issue. This area is a Federal designated historic district. **The EENF essentially ignores the historic importance of the dam. This is simply wrong. Such an approach essentially ignores the very essence of the history of the Town. Without the dam, there would be no Ipswich Mills, no Ipswich Mills Historic District and the Town as we know it would be very different. To demolish this central historic icon not only offends the sensibilities of many Town residents, but it undercuts the very principles of historic preservation. And for the will-o-the-wisp benefit of increasing a couple fish species, this is a travesty.**

### **E. Wetlands**

See page 4 above. Lower river levels will permanently alter significant wetland resources and the project proponent does not address this in the EENF. This is yet another reason the EROC and EIR waiver must be denied.

### **F. Water Resources**

Although the Mill Pond and indeed the River generally is not a drinking water resource for the Town of Ipswich, due to excessive upstream withdrawals, it has been stated that the excessive upstream withdrawals will soon be mitigated by virtue of those communities moving to use of other water resources. Such a change could allow for Ipswich to make some use of this resource. To the extent that the dam is removed, the possibility of taking advantage of the water saved by the dam would be lost. Certainly, additional water sources could be helpful in cases of droughts such as in 2022.

### **G. Solid and Hazardous Waste**

Page 4 of the EENF states that disposal of solid waste will be up to the contractor. The project proponent should be open and transparent about how much solid waste will be generated and what will be done with it. To do anything less is the anti-thesis of the great environmental benefit that this project is being marketed as. To the extent that there is any solid or hazardous waste, simply moving it from an undisturbed location to some other place is certainly not consistent with an environmentally beneficial project and may be environmentally detrimental. Presumably, an EIR would provide sufficient information on this question for stakeholders to determine the best approach, rather than leaving it to a contractor.

### **H. Consistency with Land Use**

Page 6 of the EENF states that the proposed project “will not impact adjacent lands”. Perhaps the river abutters joining these comments are not adjoining the dam location, but they are “very near” to the dam location and they most definitely are affected by removal of the dam as described throughout these comments. That impact will be significant and adverse in terms of river access and esthetics. MPPA asserts that the total lack of consideration of these impacts in the EENF merits its rejection. In any event, an EIR and a full and fair weighing of actual, known and quantified benefits and detriments is necessary before the drastic action of dam demolition proceeds.

## **CONCLUSION**

While some MPPA members have the very real and personal concern about what dam demolition would mean for their viewsheds and river access, they and the many MPPA members who do not live directly on the Mill Pond have very serious concerns about impacts of dam removal on the Mill Pond’s beautiful, centuries old environment and ecosystem and the flora and fauna that constitutes that ecosystem. MPPA believes that a full and fair review is necessary to determine whether the asserted benefits (especially when weighted for likelihood of achieving them) outweigh the unquestionable detriments. Perhaps preparation of an EIR and a collaborative approach seeking results that are truly best for all stakeholders can yield some consensus, but MPPA asserts that nothing short of that will achieve consensus. Indeed, scientific studies are peer reviewed before being accepted as gospel. And in the context of law and society, we all accept that differing viewpoints be considered. It is to these ends that MPPA asserts that an EIR is necessary and that a fair and full consideration of all detriments be weighed and likelihood of asserted benefits be quantified.

MPPA appreciates the consideration of this submission and hopes that it will lead to a determination of what is best for Ipswich and the environment.

Respectfully submitted,

MILL POND PRESERVATION ASSOCIATION



October 10, 2023

ATTACHMENT 1



























Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Peter	<b>Address Line 1</b> 3 Quay Road	<b>Organization</b> none
<b>Comments Submit Date</b> 10-10-2023	<b>Last Name</b> Soffron	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> petersoffron@yahoo.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

Topic: Ipswich Mills Dam Removal

**Comments**

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- Natural Resource Impact Study - There are numerous studies cited throughout the Feasibility Study, however there appears to be no study done on the impact to natural resources and, in particular, shellfish. Seeing that the Ipswich shellfish industry produces 3 million dollars in direct annual harvest to harvesters, which in turn generates 12 million dollars annually to our nearby community, I am surprised to find that no study has been performed on this subject. I would like to question why a natural resource study has not been performed and if there is one planned for the near future?
- Heavy Metals - A number of heavy metals have been identified in the Feasibility Study, such as: cadmium, chromium, copper, lead, mercury, nickel, zinc, arsenic, iron, and manganese. I have been lead to understand that shellfish do not particularly hold on to heavy metals and therefor it is not a threat. Is this true? If any of these or other heavy metals are encountered in test bores or during dismantlement of the dam, how would they affect the present shellfishing? For each individual heavy metal, what would the procedure be to remove or isolate the heavy metal and what would both the short and long term effects be on shellfishing? Would a mandatory closure to shellfishing go into effect for particular heavy metals, and for how long would it remain restricted or closed?
- Start Time - The Feasibility Study suggests 2025 as the earliest start date for dam removal. Shellfishing is exceptionally good in the Ipswich River at present and it appears likely that this will still remain to be the case in 2025. If so, would the dam removal start date be able to extend to the future, and by how much into the future, if in fact this remains the case? Would harvesters be allowed the time needed to harvest this particularly great cycle of shellfish prior to dam removal in case a problem develops that would demand immediate closure of shellfishing? How much time could the project be held on hold in order to harvest shell stock?
- Guarantee - What guarantees would be given to shellfish harvesters that the dam removal would not negatively affect shellfishing? What type and degree of compensation would harvesters be rewarded in the event of shellfish destruction and/or shellfish closing?
- Sediments - Increased sediment after dam removal would positively affect shellfish resource habitat, such as allowing marshes to build higher. However, too much sediment would suffocate shellfish. How would sediments increase? Would sediment increases be expected during dam removal and for how long afterwards? Would sediment increases be proportional to significant rainfall events after dam removal? If so, for how long?
- Classification - Are shellfish classifications expected to change for N-5 (Ipswich River Estuary) as a result of dam removal. How would rainfall amounts which lead to shellfish closures be effected by dam removal? Would the 24 hour rainfall amounts needed for shellfish closures increase or decrease?
- Salinity - How would water salinity levels below the dam area change as a consequence of dam removal. What characteristic changes to salinity result? Would salinity levels decline overall? Permanently or just during significant rainfalls or neither? How would this affect softshell clams and particularly razor clams whom are more submissive to loss of salinity?
- PCB's and PAH's - How would discoveries or increases in PCB's (Polychlorinated Biphenyls) and/or PAH's (Polycyclic Aromatic Hydrocarbons) effect shellfish and the ability to harvest shellfish?

**Attachments**

**Update Status**

Status

Accepted SUBMIT

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PO Box 798  
Byfield, MA 01922



www.Parker-River.org  
978-462-2551

October 10, 2023

Nicholas Moreno, MEPA Analyst  
Massachusetts Executive Office of Energy and Environmental Affairs  
MEPA Office  
100 Cambridge Street, 9th Floor  
Boston, MA 02114  
Via email: Nicholas.Moreno@mass.gov

Re: EEA No. 16754 - Ipswich Mills Dam Removal, Ipswich MA

Dear Mr. Moreno:

On behalf of the Parker River Clean Water Association (PRCWA), I am pleased to provide this letter of support for the removal of the Ipswich Mills Dam. Our two watershed groups share a commonality in depleted flow levels that cause great harm to the ecological habitat of the Great Marsh. PRCWA and IRWA partner in sharing water quality data as part of IRWA's QAPP certified Riverwatch program.

This dam represents a significant barrier preventing fish passage to the upper parts of the Ipswich River basin. Indeed, these unnatural barriers are part of the reason why American Rivers considers the Ipswich River as one of the most "Endangered Rivers" in the nation.

Climate change is starting to have devastating impacts in the area and ancient dams add risk to downtown areas. Flooding poses a threat to the Town of Ipswich's commerce and population center. One only need look at the recent damage caused by the catastrophic storm event in Leominster this summer and the danger posed by the downtown dam.

PRCWA believes MEPA should grant a waiver from any required EIR, since the risk to the environment is negligible and the project is designed to avoid negative impacts. Waiving an EIR would allow the project to move to the next phase in the long process and allow for the much-needed restoration of the Ipswich River.

Sincerely,

A handwritten signature in blue ink that reads "George M. Comiskey". The signature is written in a cursive style.

George Comiskey, President PRCWA



Nicholas.Moreno@mass.gov

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# View Comment

Comment Details			
<b>EEA #/MEPA ID</b> 16754	<b>First Name</b> Tanya	<b>Address Line 1</b> 9 Abbott Lane	<b>Organization</b> resident
<b>Comments Submit Date</b> 10-10-2023	<b>Last Name</b> TanyaWaldroup	<b>Address Line 2</b> --	<b>Affiliation Description</b> Individual
<b>Certificate Action Date</b> 10-10-2023	<b>Phone</b> --	<b>State</b> MASSACHUSETTS	<b>Status</b> Opened
<b>Reviewer</b> Moreno, Nicholas	<b>Email</b> tanyakim24@gmail.com	<b>Zip Code</b> 01938	

**Comment Title or Subject**

**Topic:** In support of the removal of the Ipswich Mills Dam

**Comments**

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As an Ipswich resident and 26-year employee of New England Biolabs, I have spent many years learning about the Ipswich River, admiring the river and the dam, and paddling on the river. I understand that many residents are afraid it will diminish the beauty and the history downtown, but the dam removal is much more important than that. It is a relic that is no longer serving its original industrial purpose, a barrier to fish migration and a man-made barrier to the natural ecology of Ipswich and the many towns the river flows through. As we enter a new era of climate change, we must prioritize restoring and protecting nature wherever and however we can. This summer I volunteered to count herring at the dam. Seeing how very few fish actually utilize the ladders it became obvious to me that the dam is doing more harm than good. The Ipswich River has been home to alewife and blueback herring, American shad, rainbow smelt, sea lamprey, Atlantic sturgeon, and Atlantic salmon in the past. The dam prevents these migratory fish from moving upstream to spawn, and downstream to return to the sea, where they are a critical part of the food chain for species in the Gulf of Maine including striped bass, bluefin tuna, cod, bluefish, and marine mammals. Removing the dam will restore water temperature and dissolved oxygen levels to better support these important populations, as well as enable a more gradual and natural transition to and from salt water. The dam is hampering biodiversity and has far reaching effects when you consider its significance in the food chain. Dam removal is also supported by the Wetlands Protection Act, another significant environmental improvement of returning to natural conditions. Reading the studies of other Massachusetts dam removals such as Exeter, Bellingham and Pepperell, that have revitalized wildlife populations subsequent to dam removal show that the risk is minimal for such a reward. I hope we can move forward with removing the dam and educating the portion of the public that are not aware that this is a tried and tested strategy that has years of research, and science supporting it. They need to be reassured that flooding risks will actually be minimized and not increased by removing the dam, and the liability and cost of maintaining the antiquated dam compound the environmental reasons that make removing the dam sensible.

**Attachments**

**Update Status**

**Status**

Accepted SUBMIT

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October 12, 2023

Secretary Rebecca L. Tepper  
Executive Office of Energy and Environmental Affairs  
MEPA Office, Attn: Nicholas Moreno  
100 Cambridge Street, Suite 900  
Boston, Massachusetts 02114

Re: EEA #16754 Ipswich Mills Dam Removal (Ipswich) EENF

Dear Secretary Tepper:

The Department of Conservation and Recreation (“DCR”) Office of Dam Safety (“ODS”) has reviewed the Expanded Environmental Notification Form (“EENF”) for the Ipswich Mills Dam Removal Project (the “Project”) located in Ipswich, submitted by the Horsley Witten Group, Inc. on behalf of the Town of the Town of Ipswich (the “Proponent” and “Dam Owner”).

From information presented in the EENF, ODS understands the Project’s scope of work includes removal of the full vertical extent of the dam for most the dam’s length. At each end of the dam, a short segment of the existing dam will be retained to maintain stability of the existing riverside retaining walls. To safeguard against erosion due to the potential for increased flow velocities under certain conditions, the riverside retaining walls in the vicinity of the dam will also be buttressed by encapsulated soil lifts supported by rip rap.

Ipswich Mills Dam, which is subject to ODS jurisdiction, is classified as a Low Hazard Potential<sup>1</sup> Dam in Fair condition. A dam is deemed to be of Low Hazard Potential where dam failure may cause minimal property damage to others. Loss of life is not expected. A Fair condition rating is assigned when significant operational and maintenance deficiencies exist, or potential deficiencies exist under unusual loading conditions that may realistically occur.

Based on review of currently available information, implementation of the Project will likely result in improvement over existing site conditions. This Project appears to be in the interest of public safety, and successful completion will ensure compliance with dam safety regulations.

This dam removal project will require a Chapter 253 dam safety permit. The permit application must be submitted to ODS for review. ODS staff will communicate with the Proponent’s design engineer as part of the permit process to ensure all required documentation is provided. After receipt of all required technical information demonstrating compliance with ODS regulations, a Chapter 253 Dam Safety Permit

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<sup>1</sup> The two most recent Phase I Inspection reports (inspection dates: September 4, 2020 and October 20, 2009) incorrectly indicate Ipswich Mills Dam is categorized as a Significant Hazard Potential Dam.



will be prepared and issued by ODS. ODS is available to provide additional guidance through the permitting process.

DCR appreciates the opportunity to comment on this project. Please contact David Ouellette at (617)549-3553 or [david.ouellette@mass.gov](mailto:david.ouellette@mass.gov) with any questions or to request additional information or coordination with ODS.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Arrigo". The signature is fluid and cursive, with a large initial "B" and a stylized "A".

Brian Arrigo  
Commissioner

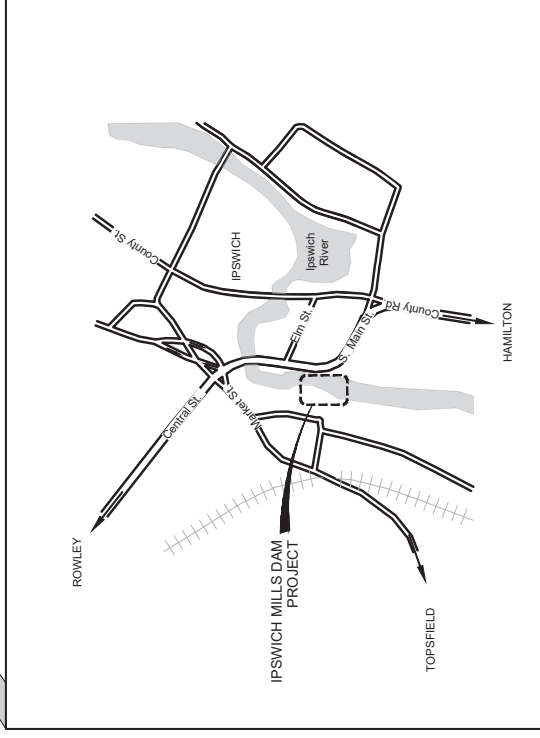
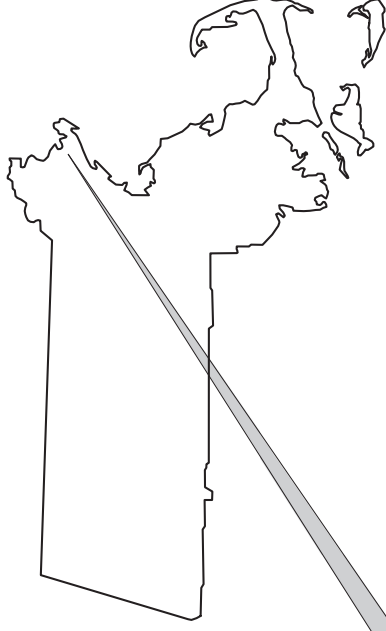
cc: Priscilla Geigis, Patrice Kish, Peter Mulcahy, Robert Lowell, Dam Safety File

## Appendix B: Permit Level Design Plans

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**LOCATION MAP  
STATE OF MASSACHUSETTS**

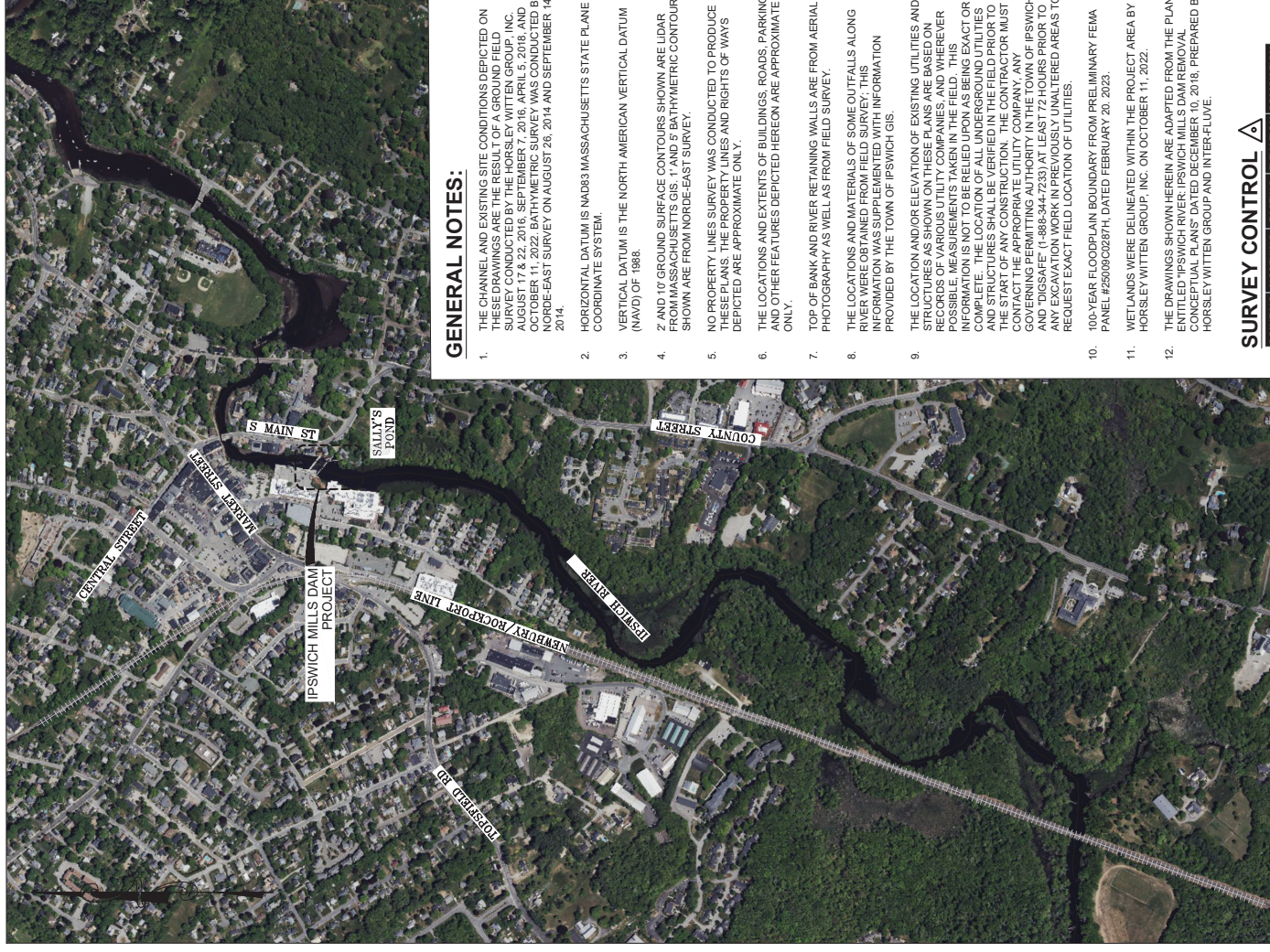


**VICINITY MAP**

NOT TO SCALE

Sheet Number	Sheet Title
1	PROJECT LOCATION AND SHEET INDEX
2	EXISTING CONDITIONS PLAN (1)
3	EXISTING CONDITIONS PLAN (2)
4	RIVER PROFILE & CONSTRUCTION NOTES
5	DAM REMOVAL ACCESS AND STAGING PLAN
6	DEMOLITION PLAN AND PROFILE
7	CROSS SECTIONS AND RESTORATION DETAILS
8	RESTORATION AND STABILIZATION PLAN

**IPSWICH RIVER  
IPSWICH MILLS DAM REMOVAL  
PERMIT-LEVEL DESIGN PLANS  
TOWN OF IPSWICH, MASSACHUSETTS**  
AUGUST 2023



**SITE MAP**  
SCALE: 1" = 500'

**GENERAL NOTES:**

1. THE CHANNEL AND EXISTING SITE CONDITIONS DEPICTED ON THESE PLANS ARE BASED ON THE SURVEY CONDUCTED BY HORSLEY WITTEN GROUP, INC. ON AUGUST 17 & 22, 2016, SEPTEMBER 7, 2016, APRIL 5, 2018, AND OCTOBER 11, 2022. BATHYMETRIC SURVEY WAS CONDUCTED BY NORDEAST SURVEY ON AUGUST 26, 2014 AND SEPTEMBER 14, 2014.
2. HORIZONTAL DATUM IS NA83 MASSACHUSETTS STATE PLANE COORDINATE SYSTEM.
3. VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
4. 2' AND 10' GROUND SURFACE CONTOURS SHOWN ARE LIDAR FROM MASSACHUSETTS GIS. 1' AND 5' BATHYMETRIC CONTOURS SHOWN ARE FROM NORDEAST SURVEY.
5. NO PROPERTY LINES SURVEY WAS CONDUCTED TO PRODUCE THESE PLANS. PROPERTY LINES AND RIGHTS OF WAYS DEPICTED ARE APPROXIMATE ONLY.
6. THE LOCATIONS AND EXTENTS OF BUILDINGS, ROADS, PARKING, AND OTHER FEATURES DEPICTED HEREON ARE APPROXIMATE ONLY.
7. TOP OF BANK AND RIVER RETAINING WALLS ARE FROM AERIAL PHOTOGRAPHY AS WELL AS FROM FIELD SURVEY.
8. THE LOCATIONS AND MATERIALS OF SOME OUTFALLS ALONG WITH THE EXISTING AND PROPOSED UTILITY LOCATIONS AND INFORMATION WAS SUPPLEMENTED WITH INFORMATION PROVIDED BY THE TOWN OF IPSWICH GIS.
9. THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS ARE BASED ON THE INFORMATION PROVIDED BY THE TOWN OF IPSWICH GIS. HOWEVER, INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR MUST OBTAIN ALL NECESSARY PERMITS FROM THE TOWN OF IPSWICH, MASSACHUSETTS, AND THE STATE OF MASSACHUSETTS, INCLUDING THE GOVERNING PERMITTING AUTHORITY IN THE TOWN OF IPSWICH, AND "DIGSAFE" (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNALTERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
10. 100-YEAR FLOODPLAIN BOUNDARY FROM PRELIMINARY FEMA PANEL #26080202874, DATED FEBRUARY 20, 2023.
11. WETLANDS WERE DELINEATED WITHIN THE PROJECT AREA BY HORSLEY WITTEN GROUP, INC. ON OCTOBER 11, 2022.
12. THE DRAWINGS SHOWN HEREIN ARE ADAPTED FROM THE PLANS ENTITLED "IPSWICH RIVER: IPSWICH MILLS DAM REMOVAL CONCEPTUAL PLANS" DATED DECEMBER 10, 2018, PREPARED BY HORSLEY WITTEN GROUP AND INTER-FLUVE.

**SURVEY CONTROL**

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
4	3073206.49	832935.12	8.50	STV/PK
13	3072876.37	835005.14	11.52	SPK/SET
10	3073200.82	832725.98	6.05	SPK

Revisions

Rev	Date	By	Appr	Description

**Horsley Witten Group, Inc.**  
Sustainable Environmental Solutions  
90 Route 6A  
Sandwich, MA 02563  
WWW.HORSLEYWITTEN.COM  
508-833-6600 voice  
508-833-3150 fax

Plan Title:  
**IPSWICH MILLS DAM REMOVAL  
PERMIT-LEVEL DESIGN PLANS  
IPSWICH, MASSACHUSETTS**

Plan Title:  
**PROJECT LOCATION AND SHEET INDEX**

Prepared For:  
Town of Ipswich  
90 Route 6A  
Sandwich, MA 02563  
Phone: (508) 833-6600  
Fax: (508) 833-3150  
Date: September 7, 2016

Survey Provided By:  
**Horsley Witten Group, Inc.**  
90 Route 6A  
Sandwich, MA 02563  
Phone: (508) 833-6600  
Fax: (508) 833-3150  
Date: September 7, 2016

Registration:

Project Number: 16041  
Sheet: 1 of 8  
Sheet Number: C-1



Registration:  
Survey Provided By:  
Horsley Witten Group, Inc.  
90 Route 6A  
Sandwich, MA 02563  
Phone: (508) 833-6600  
Fax: (508) 833-3150  
Date: September 7, 2016

Prepared for:  
25 Green Street  
Town of Ipswich  
Ipswich, MA 01938  
978-356-6600

Plan Title:  
**EXISTING CONDITIONS PLAN (1)**  
IPSWICH MILLS DAM REMOVAL  
PERMIT-LEVEL DESIGN PLANS  
IPSWICH, MASSACHUSETTS

Plan Set:  
Date: AUGUST 2023  
Designed By: JWP  
Checked By: JWP  
Drawn By: JWP  
Horsley Witten Group, Inc.  
Sustainable Environmental Solutions  
90 Route 6A  
Sandwich, MA 02563  
Phone: (508) 833-6600  
Fax: (508) 833-3150

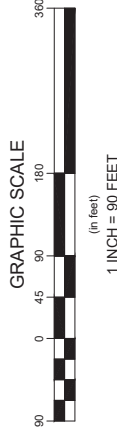
Revisions

**EXISTING LEGEND**

---	PARCEL BOUNDARY
---	FLOOD
---	FEMA ZONE AE FLOODPLAIN BOUNDARY
---	INLAND BANK
---	IMHC HISTORIC DISTRICT
---	NORDEAST SURVEY 1' CONTOUR
---	NORDEAST SURVEY 5' CONTOUR
---	LIDAR 2' CONTOUR
---	LIDAR 10' CONTOUR
---	THALWEG CENTERLINE ALIGNMENT
---	HW SURVEY TRANSECT
---	ACCUMULATED COARSE AGGREGATE
---	ACCUMULATED FINE SEDIMENT
---	WATER LINE
---	SANITARY SEWER LINE
---	BROOK / STREAM
---	WETLAND BOUNDARY
---	WETLAND FLAG
---	SURVEY-LOCATED OUTFALL
---	GIS-LOCATED OUTFALL
---	12" PVC
---	OUTFALL

NOTE: WETLAND RESOURCE AREAS IDENTIFIED WITHIN THE LIMIT OF WORK INCLUDE INLAND BANK AND LAND UNDER WATER BODIES AND WATERWAYS (LUWW) BORDERS VEGETATED WETLAND (BWW) WAS NOT PRESENT AT THE SITE.

2. LUWW IS SHOWN AS THE AREA INTERIOR TO THE DELINEATED INLAND BANK.





Registration:  
 Survey Provided By:  
 Horsley Witten Group, Inc.  
 90 Route 6A  
 Southwick, MA 02563  
 Phone: (508) 833-6800  
 Fax: (508) 833-3150  
 Date: September 7, 2016

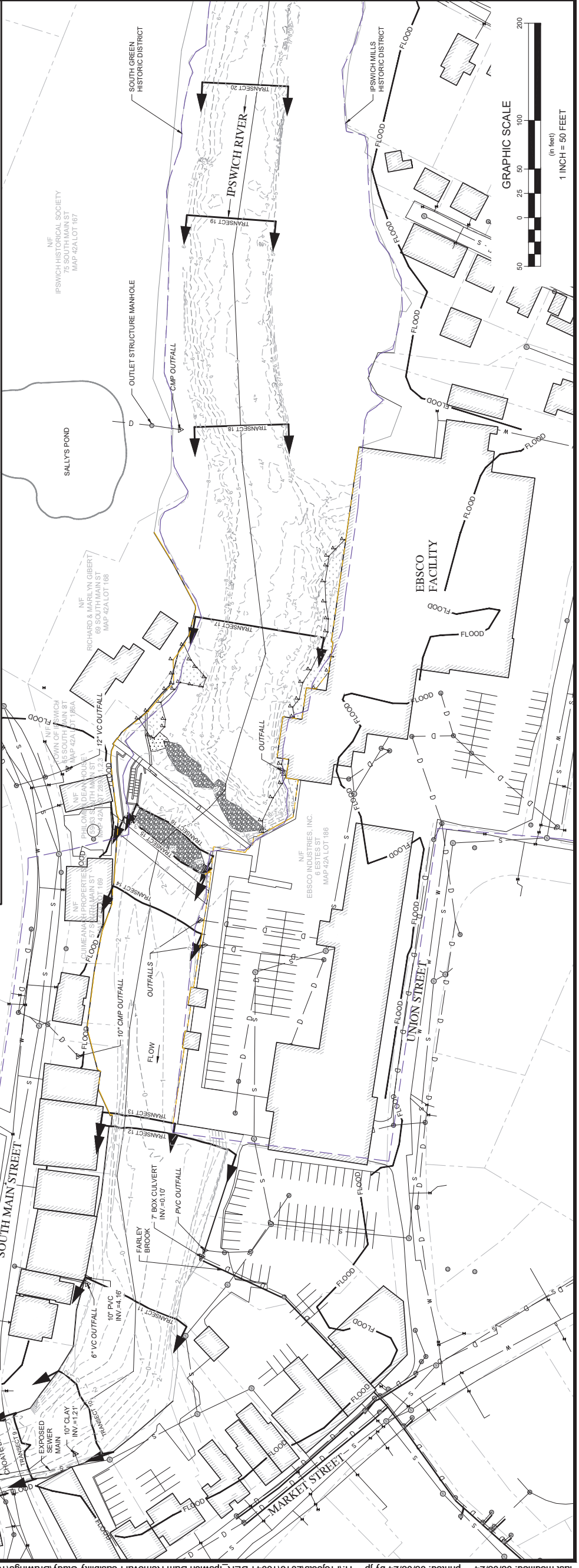
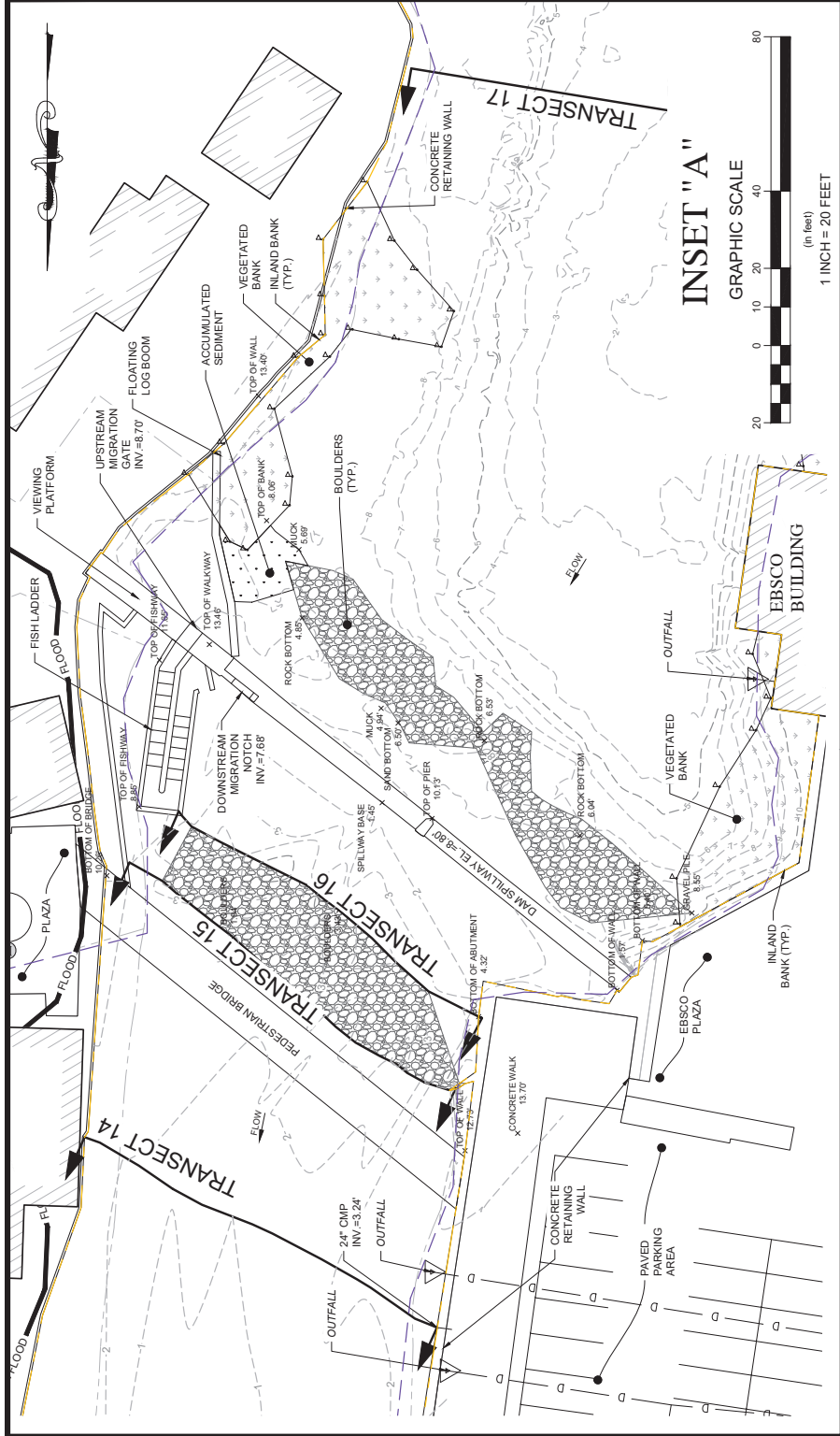
Prepared For:  
 Town of Ipswich  
 25 Green Street  
 Ipswich, MA 01938  
 978-256-6600

Plan Title:  
**IPSWICH MILLS DAM REMOVAL  
 PERMIT-LEVEL DESIGN PLANS  
 IPSWICH, MASSACHUSETTS**

Plan Set:  
**EXISTING CONDITIONS PLAN (2)**

Date: AUGUST 2023  
 Designed By: JWP  
 Drawn By: JWP  
 Checked By: JWP  
 Rev. Date: By: Appr. Description:  
 Revisions:

Horsley Witten Group, Inc.  
 Sustainable Environmental Solutions  
 90 Route 6A  
 Southwick, MA 02563  
 Phone: (508) 833-6800  
 Fax: (508) 833-3150







**C - 5**

Sheet Number: 5 of 8  
Project Number: 16041

**DRAFT**  
NOT FOR CONSTRUCTION

Registration:  
Survey Provided By: Horsley Witten Group, Inc.  
Sandwich, MA 02563  
Phone: (508) 833-3150  
Fax: (508) 833-3150  
Date: September 7, 2016

Prepared For: Town of Ipswich  
25 Green Street  
Ipswich, MA 01938  
Phone: (978) 358-6600  
Fax: (978) 358-6600

Plan Title: **IPSWICH MILLS DAM REMOVAL PERMIT-LEVEL DESIGN PLANS**

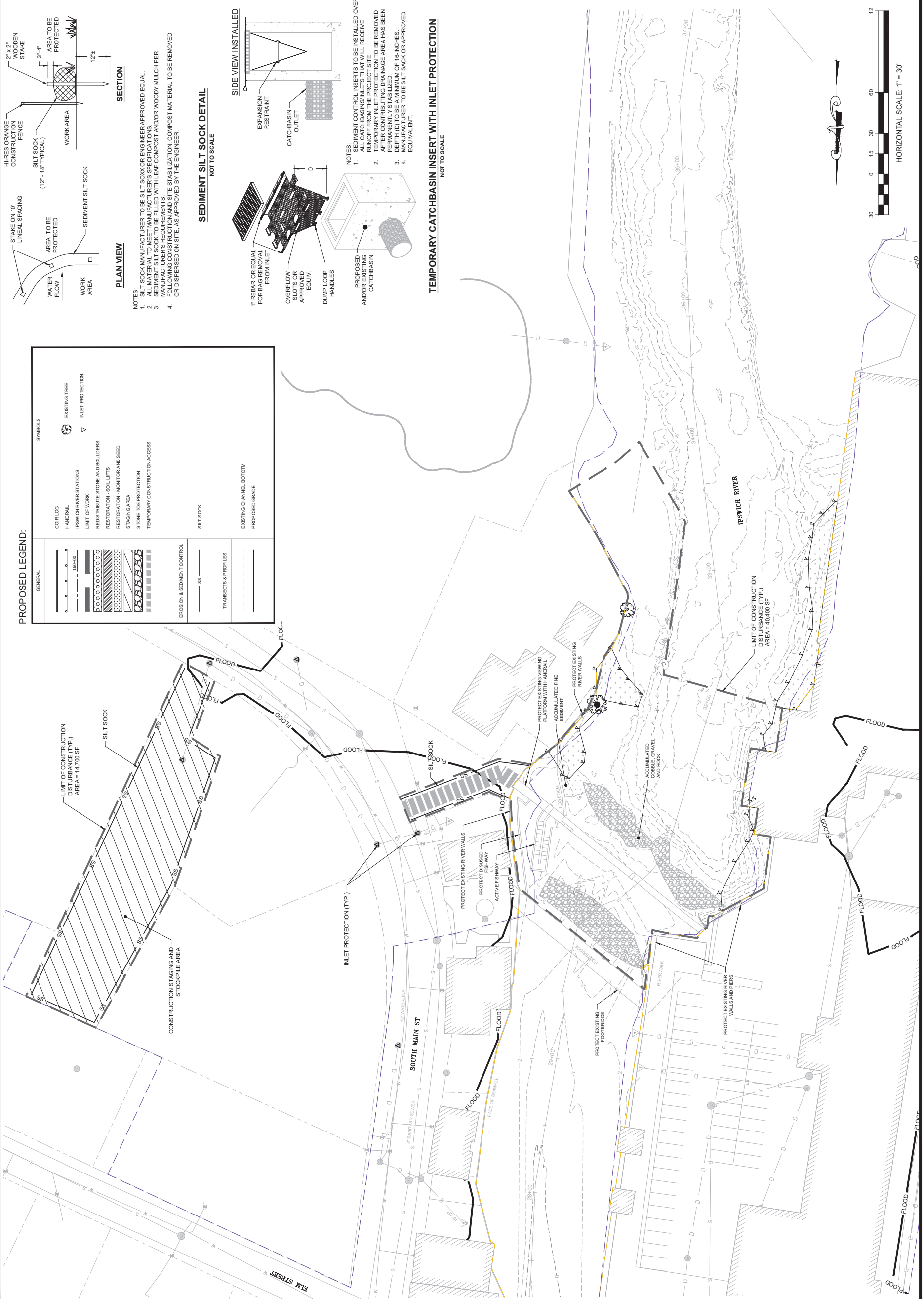
Plan Set: **DAM REMOVAL ACCESS AND STAGING PLAN**

Date: AUGUST 2023  
Designed By: JWP  
Drawn By: JWP  
Checked By: NP

Horsley Witten Group, Inc.  
Sustainable Environmental Solutions  
90 Route 6A  
Sandwich, MA 02563  
508-833-6600 voice  
508-833-3150 fax

Revisions

Rev	Date	By	Appr	Description

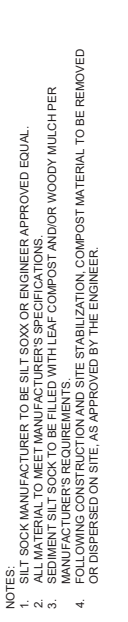


**TEMPORARY CATCHBASIN INSERT WITH INLET PROTECTION**  
NOT TO SCALE



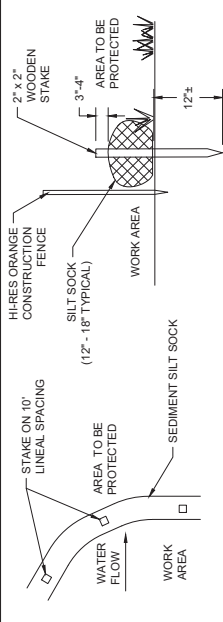
- NOTES:
1. SEDIMENT CONTROL INSERTS TO BE INSTALLED OVER ALL CATCHBASIN INLETS THAT WILL RECEIVE OVERFLOW FROM APPROVED EQUIV.
  2. TEMPORARY INLET PROTECTION TO BE REMOVED AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.
  3. DEPTH (D) TO BE A MINIMUM OF 16-INCHES.
  4. MANUFACTURER TO BE SILT SOCK OR APPROVED EQUIVALENT.

**SEDIMENT SILT SOCK DETAIL**  
NOT TO SCALE

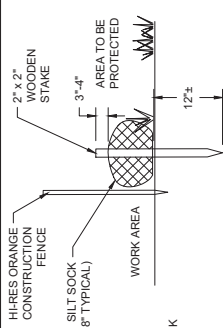


- NOTES:
1. SILT SOCK MANUFACTURER TO BE SILT SOCK OR ENGINEER APPROVED EQUAL.
  2. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
  3. SEDIMENT SILT SOCK TO BE FILLED WITH LEAF COMPOST AND/OR WOODY MULCH PER MANUFACTURER'S REQUIREMENTS.
  4. MANUFACTURER'S REQUIREMENTS FOR SITE STABILIZATION, COMPOST MATERIAL TO BE REMOVED OR DISPERSED ON SITE, AS APPROVED BY THE ENGINEER.

**PLAN VIEW**



**SECTION**

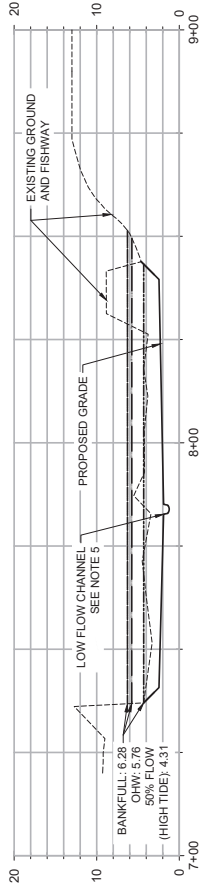


**PROPOSED LEGEND:**

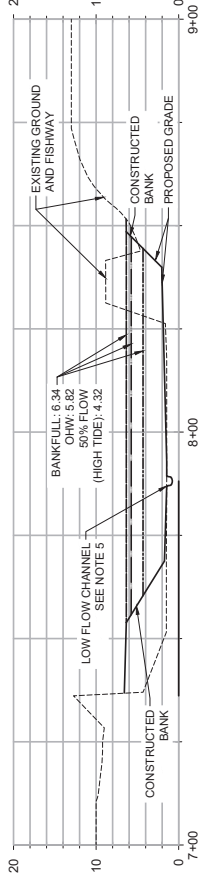
GENERAL		SYMBOLS	
	COIR LOG		EXISTING TREE
	HANDRAIL		INLET PROTECTION
	IPSWICH RIVER STATIONS		STONE TOE PROTECTION
	LIMIT OF WORK		TEMPORARY CONSTRUCTION ACCESS
	REDISTRIBUTE STONE AND BOULDERS		SILT SOCK
	RESTORATION - SOIL LIFTS		EXISTING CHANNEL BOTTOM
	RESTORATION - MONITOR AND SEED		PROPOSED GRADE
	STAGING AREA		
	EROSION & SEDIMENT CONTROL		
	TRANSECTS & PROFILES		



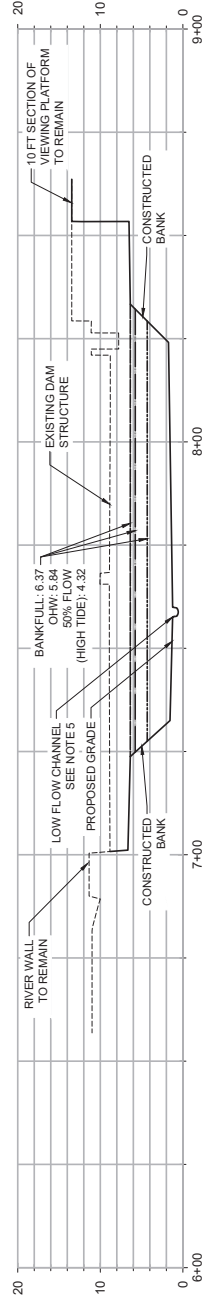




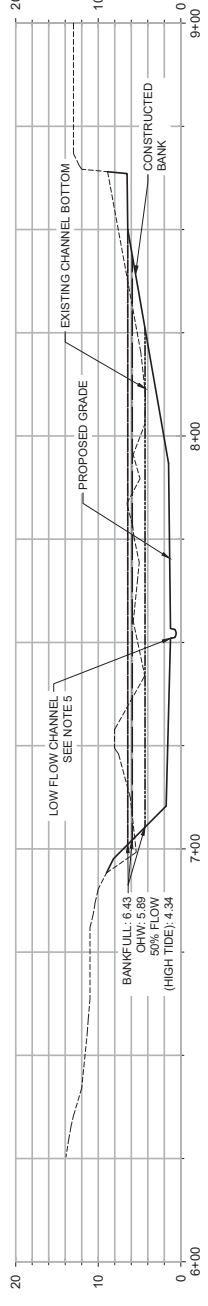
1 GRADING SECTION STA. 30+20



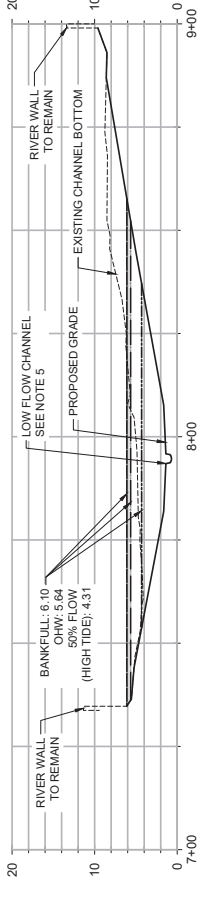
2 GRADING SECTION STA. 30+41



3 GRADING SECTION STA. 30+51



4 GRADING SECTION STA. 30+72



5 GRADING SECTION STA. 31+02

**GRADING SECTIONS**  
 HORIZONTAL SCALE: 1 INCH = 20 FEET  
 VERTICAL SCALE: 1 INCH = 10 FEET

**GRADING SECTION NOTES:**

- CROSS SECTIONS ARE ORIENTED TO FACE DOWNSTREAM.
- CROSS SECTIONS TAKEN FROM THE IPSWICH MILLS DAM HEC-RAS MODEL DATED 03/21/23.
- CROSS SECTION DATA AT STA. 30+20 AND STA. 30+41 AND THE DAM STRUCTURE ARE FROM THE 2016 HORSLEY WITTEN GROUP SURVEY.
- CROSS SECTION DATA AT STA. 30+72 WAS EXTRACTED FROM THE 2014 NORDEAST BATHYMETRIC SURVEY AND FROM THE 2022 RADAR SOLUTIONS INTERNATIONAL BATHYMETRIC SURVEY.
- REORIENT BOULDERS AS DIRECTED BY ENGINEER AND CONSERVATION AGENT IN ORDER TO LOCATE THE THALWEG/LOW CHANNEL ALONG WITH CHANNEL CENTERLINE POSITION. ADJUST LOCATIONS AS NEEDED BASED ON BEDROCK POSITION.
- MEDIAN (50% FLOW) ELEVATIONS ARE SHOWN BASED ON WATER SURFACE ELEVATIONS DURING HIGH TIDE PERIODS.



**CROSS SECTIONS AND PERMIT-LEVEL DESIGN PLANS**

**IPSWICH MILLS DAM REMOVAL RESTORATION DETAILS**

RESTORATION DETAILS

**NOTES:**

- CONSTRUCT ROCK TOE WITH SALVAGED ROCK ACCEPTED FOR REUSE ONLY BY THE ENGINEER OR WITH ROUNDED TO SUBANGULAR STONE.
- D50 OF ALL SALVAGED ROCK TO BE 4" OR LARGER.

**CONSTRUCTED BANK**  
 NOT TO SCALE

**KEY TRENCH**

GRAPHIC SCALE  
 1 INCH = 20 FEET  
 (In Feet)

Rev.	Date	By	Appr.	Description

**Horsley Witten Group, Inc.**  
 Sustainable Environmental Solutions  
 90 Route 6A  
 Sandwich, MA 02563  
 Phone: (508) 833-6600  
 Fax: (508) 833-3150  
 508-833-3150 fax

**IPSWICH MILLS DAM REMOVAL RESTORATION DETAILS**

PERMIT-LEVEL DESIGN PLANS

IPSWICH, MASSACHUSETTS

RESTORATION DETAILS

Prepared For: Town of Ipswich  
 22 Green Street  
 Sandwich, MA 01938  
 Phone: (978) 358-6600  
 Fax: —

Survey Provided By: Horsley Witten Group, Inc.  
 90 Route 6A  
 Sandwich, MA 02563  
 Phone: (508) 833-6600  
 Fax: (508) 833-3150  
 Dated: September 7, 2018

Project Number: 16041  
 Sheet: 7 of 8  
 Sheet Number: C-7

**DRAFT**  
 NOT FOR CONSTRUCTION





Appendix C: Public Archaeological Laboratory  
Archaeological and Historic Properties  
Reconnaissance Survey Scope of Services

---



## **Scope of Services** **Ipswich Mills Dam Removal** Ipswich, Massachusetts

### *Archaeological and Historic Properties Reconnaissance Survey*

*November 2, 2023*

Submitted to:

#### **Ipswich River Watershed Association**

143 County Road  
Ipswich, MA 01938

---

In response to a request from the Ipswich River Watershed Association (IRWA), The Public Archaeology Laboratory, Inc. (PAL) is pleased to submit the following scope of work for an archaeological and historic properties reconnaissance survey for the Ipswich Mills Dam Removal Project in Ipswich, Massachusetts. The project is being proposed by the Town of Ipswich (dam owner) in partnership with the National Oceanic and Atmospheric Administration (NOAA), the Massachusetts Department of Fish and Game's Division of Ecological Restoration (DER), the Ipswich River Watershed Association, and others. Major elements of the proposed project include the full removal of the Ipswich Mills Dam, which includes the approximately 132-foot (ft) long granite masonry spillway and its appurtenances (a portion of the fish viewing platform, a floating log boom, and the functional fish ladder installed in 1996). The project will also involve riverbed restoration efforts both upstream and downstream of the dam and construction of a continuous low-flow channel to promote fish passage.

In September 2023, the Massachusetts Historical Commission (MHC) reviewed and commented on the project's Expanded Environmental Notification Form (EENF), which included a Cultural Resources Narrative Report prepared by PAL in 2017 as part of the project's Feasibility Study. The Cultural Resources Narrative provides a summary of the pre-and post-settlement history of the dam site using information from the Ipswich Historical Commission, the Massachusetts Historical Commission (MHC), or other sources. The Cultural Resources Narrative identified historic properties and previously surveyed archaeological and architectural resources within and immediately adjacent to the project study area, provided information about the pre-history and history of the dam site including former dams and their date(s) of construction, and offered recommendations concerning potential impacts to cultural resources or additional cultural resources survey efforts that would be needed if the dam removal project proceeded into design and permitting.

In their comment letter dated September 27, 2023, the MHC indicates that the "project area of potential effect includes several identified historic and archaeological resources, some officially designated by inclusion in the National Register of Historic Places and/or the State Register of Historic Places." The Ipswich Mills Dam is adjacent to (and may be included in) the Ipswich Mills Historic District, which was listed in the National and State Registers of Historic Places in 1996. The MHC requests that a "reconnaissance-level archaeological and historic properties survey be

conducted for the project.” The goal of the reconnaissance survey will be to identify and document historic and archaeological resources and archaeologically sensitive areas within a recommended project area of potential effect (APE) based on the preliminary design plans included in the MEPA filing; and provide recommendations to further identify, evaluate, and consider feasible project alternatives to avoid, minimize, or mitigate any project related adverse effects to significant historic and archaeological resources. The archaeological reconnaissance survey component will need to be conducted under a State Archaeologist’s permit to conduct the field investigations (950 CMR 70).

Because of federal and state permitting and funding, the Project is being reviewed under Section 106 of the National Historic Preservation Act (NHPA), as amended, and its implementing regulations (36 CFR 800); Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 70-71); and MEPA (301 CMR 11).

### **Task 1. Coordination, Consultation, and Meetings**

The PAL principal investigator will coordinate with the IRWA and project partners to ensure the timely execution of the contract, work tasks, and submission of deliverables and effective communication. PAL will also assist NOAA (as the lead federal agency) in identifying and preparing notifications to potential consulting parties including Native American Tribes and local historical groups. The PAL principal investigator and senior architectural historian will also be available to discuss the findings of the reconnaissance survey with the MHC, as needed.

The PAL principal investigator will prepare the State Archaeologist’s field investigation permit application (950 CMR 70) and accompanying technical proposal/research design. The draft permit application and technical proposal will be submitted to the IRWA and project partners for review and approval prior to submitting to the MHC.

For the purposes of this Scope, PAL assumes attendance at one virtual kickoff conference call with the project team to become more familiar with the preliminary design plans and overall project EIR schedule. PAL assumes all other coordination with the project partners will be handled via email and teleconference calls. PAL does not anticipate the need to attend any on-site or agency or public consultation meetings.

### **Task 2. Design and Research Review**

PAL will review the Project’s Final Feasibility Study (2017), updates (2019), and EENF and preliminary design plans (2023) to assist in understanding the nature and locations of the project work areas including access and staging. PAL will also review the 2017 Cultural Resources Narrative report and information sources including town histories, historical maps, and historical images to re-familiarize the technical leads with the pre- and post-contact cultural contexts, site history, and known historic and archaeological resources in the study area. PAL’s research review will also include an update of known cultural resources recorded in the MHC’s online *Inventory of the Historic and Archaeological Assets of the Commonwealth* (MACRIS) and within the recommended APE. The online file review will include historic properties (those that are listed or evaluated as eligible for listing in the National Register), resources that are included in the State Register, and surveyed properties that have not been evaluated for registration.

Since the 2017 study included extensive local archival research and informant interviews, PAL does not anticipate conducting much new research for the reconnaissance survey. Any additional research will be limited to information sources that may be needed to update the cultural contexts to present-day and to fill in any gaps identified by PAL or others (including Gordon Harris, the town historian) in the chronological mill and dam site history.

### **Task 3. Field Survey**

A PAL project archaeologist and architectural historian will conduct a walkover survey of the project work areas depicted on the preliminary design plans and surrounding neighborhood for visual context. The extent of the survey will include the Ipswich Mills Dam site and upstream and downstream restoration work areas including the impoundment/river. The field effort will include close ground surface inspection of the proposed work areas and an evaluation of the surrounding environments to assist in determining the recommended APE for historic and archaeological resources. Notes on the appearance of the dam site, the upstream and downstream river banks and impoundment, and surrounding viewsheds will be recorded and digital photographs will be taken.

If ground conditions allow 2-inch wide, 23-inch deep Hoffer auger cores will be placed in upland areas to help assess soil integrity. No subsurface test pits are proposed as part of the reconnaissance survey and no artifacts will be collected but their locations will be noted on project maps with GPS points taken.

*PAL assumes that the project partners will secure all necessary landowner access permissions for the dam site, impoundment, and river shorelines within the project work areas before fieldwork is conducted.*

### **Task 4. Technical Report**

Upon completion of the research tasks, PAL will prepare a technical Reconnaissance Survey report that presents the survey methodology including sources consulted; a recommended APE based on preliminary design plans; environmental and cultural contexts to present-day, including the dam's site history of industrial uses; the identification of known and potential historic architectural properties and archaeological resources in the recommended APE; and an archaeological sensitivity assessment description and maps. The report will also provide recommendations about the potential of the Project to impact historic properties, and ways to avoid, minimize, or mitigate any potential adverse effects that may be needed in accordance with federal and state regulations. The report will be amply illustrated with historical and present-day images of the dam and associated mill site(s).

Draft copies of the Technical Report will be provided in WORD (and/or PDF) format to the project partners for review. All comments on the draft report will be incorporated into a revised draft report for submittal in paper format to the MHC and in electronic PDF format to other potential consulting parties (e.g., Native American Tribes, Ipswich Historical Commission, and the Massachusetts Board of Underwater Archaeological Resources).

### **Personnel**

The archaeological component of the reconnaissance survey will be overseen by Suzanne Cherau, PAL principal investigator, while Stephen Olausen, PAL senior architectural historian, will be

responsible for the historic (architectural) properties component. Both Ms. Cherau and Mr. Olausen have extensive experience on dam removal and rivers restoration projects that involve historic industrial (mill) sites in Massachusetts, including assisting federal agencies with their Section 106 consultations. Ms. Cherau and Mr. Olausen along with other assigned PAL project personnel meet the *Secretary of the Interior's Professional Qualifications Standards* (36 CFR Appendix A to Part 61) and the MHC's Professional Qualifications (950 CMR 70.10).

### **Schedule**

PAL is prepared to begin work on the project upon written notice to proceed (NTP) and a signed contract from the IRWA. The State Archaeologist's permit application with technical proposal will take approximately 5 days to prepare. The MHC has 60 days to review and comment on the permit application but typically takes about 10–20 days. Once the state permit is received PAL will schedule the field walkover survey in coordination with IRWA and the project partners. The research review will take approximately two weeks to complete and the draft technical report will be submitted within 45 days of the completion of fieldwork. The MHC and other potential consulting parties have 30 days to review the report and provide comments. The final report will follow the draft reviews.

### **Cost**

A detailed cost estimate for the tasks described in this Scope of Services is attached.

Appendix D: 1980 Phase I Inspection Report  
National Dam Inspection Program

---

IPSWICH RIVER BASIN  
IPSWICH, MASSACHUSETTS

IPSWICH MILLS DAM

MA. 231

LOW- HAZARD DAM

5

PHASE I INSPECTION REPORT  
NATIONAL DAM INSPECTION PROGRAM



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS. 02154

NOVEMBER 1980



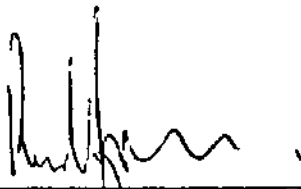
as the water rises from a depth of about 10 ft. under spillway full conditions to a depth of about 12 ft. under breach discharge conditions. In this reach of the river, there are three buildings whose foundation walls extend from Route 1A street level to the Ipswich River Channel and actually form an upper portion of the river channel. It is estimated the basements of two of these buildings would be flooded to a depth of about 2 ft. and one building would be flooded about 1 ft. It is estimated one of these buildings would be slightly flooded under spillway full conditions.

Just below the Route 1A bridge there is a restaurant on the right bank of the river which would probably receive minor flooding in its parking lot. Beyond this point, all the structures along the river are relatively high and would not be flooded by the breach discharge.

In the event the dam should breach when there is no flow over the spillway crest, it is expected there would not be any downstream flooding.

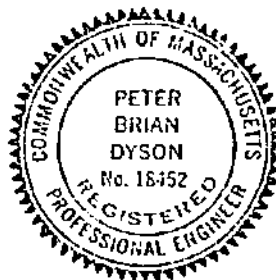
For the purpose of this analysis, the tide was assumed to be at about high mean tide. In addition, it was assumed there would be no attenuating effects of additional temporary storage because the channel is narrow and the reach is short.

In summary, failure of this dam would not be expected to result in any loss of human life, and economic loss should be minimal. Therefore, it has been classified as having a low hazard potential.

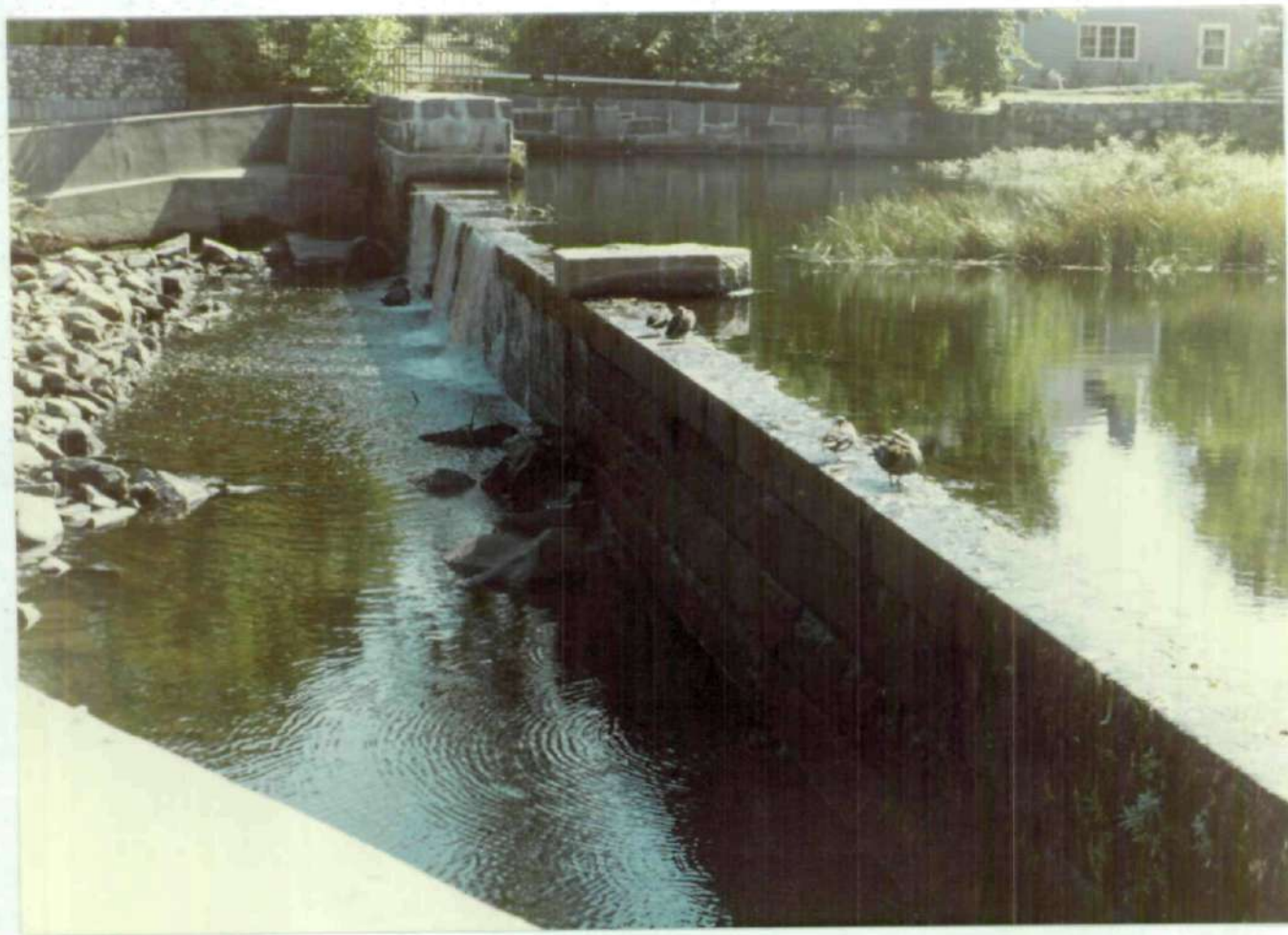


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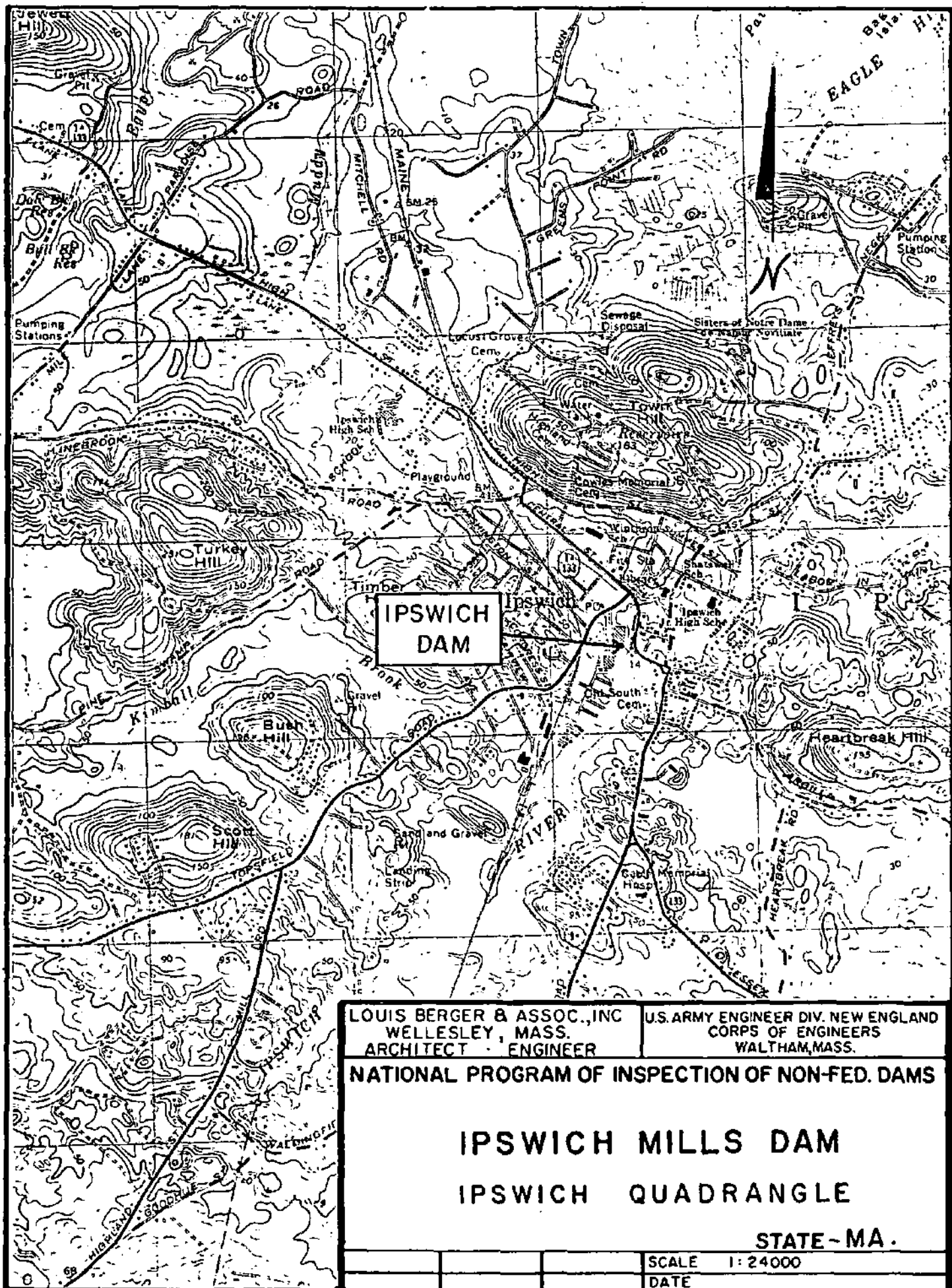
Peter B. Dyson  
Project Manager



IPSWICH MILL DAM



OVERVIEW PHOTO OF DAM



APPENDIX A  
PHOTOGRAPHS

Ipswich River

Spillway

Fish Ladder

Flow

Tidal

Parking Area

A-1



Overview Photo



Appendix Photos

LOUIS BERGER & ASSOC., INC  
WELLESLEY, MASS.  
ARCHITECT · ENGINEER

U.S. ARMY ENGINEER DIV. NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

IPSWICH MILLS DAM

SKETCH PLAN SHOWING LOCATION &  
ORIENTATION OF PHOTOS

STATE - MA.

NOT TO SCALE

DATE



IPSWICH MILL DAM



1. View along crest of dam from left abutment.



2. Downstream ashlar masonry face of dam.

IPSWICH MILL DAM



3. Fish ladder on right abutment of dam.

APPENDIX B  
ENGINEERING DATA



WESTON & SAMPSON  
ENGINEERS

10 HIGH STREET  
BOSTON, MASS. 02110

TEL. AREA CODE 617  
357-8988

R. S. WESTON 1913-43  
G. A. SAMPSON 1918-64  
G. G. SOGREN 1946-72

PARTNERS

ROBERT M. POPE  
LEO F. PETERS

ASSOCIATES

ELIOT F. TUCKER  
DAVID K. BLAKE  
STEVEN H. CORR  
WILLIAM A. PERKINS

December 27, 1974

DEPARTMENT OF PUBLIC WORKS  
DEPUTY CHIEF ENGINEER  
WATERWAYS

The Commonwealth of Massachusetts  
Department of Public Works  
Division of Waterways  
100 Nashua Street  
Boston, Massachusetts 02114

RECEIVED JAN 6 1975

*L. Andronico*

Referred To .....  
Report back to .....  
File .....

Attn: Mr. Leo Andronico

Re: Ipswich Mills Dam,  
GTE Sylvania

Gentlemen:

In behalf of our client, GTE Sylvania Inc., we wish to inform you that the proposed alterations to the Ipswich Mill Dam have been completed. This letter is to comply with the final requirement of your letter dated October 17, 1973.

The alterations were completed in accordance with the revised drawings sent to your office on September 6, 1974. Please take note that the detail entitled, "Alternate Concrete Wall at East Slide Gates" - Section 4/2 was not implemented due to the high quality of foundation material found at this location.

If you have any further questions please notify us.

Very truly yours,

WESTON & SAMPSON ENGINEERS

*Leon A. Bombardier*

Leon A. Bombardier

LAB/tmr

cc - Paul Brown  
GTE Sylvania

DAM 3-3-1974-7

OK  
FILE  
10-6

# WESTON & SAMPSON ENGINEERS

10 HIGH STREET  
BOSTON, MASS. 02110

TEL: AREA CODE 617  
357-3928

R. S. WESTON 1913-43  
O. A. SAMPSON 1918-66  
D. G. BOGREN 1948-72

PARTNERS

ROBERT M. POPE  
LEO F. PEYENS

ASSOCIATES

ELIOT F. TUCKER  
DAVID K. BLAKE  
STEVEN H. CORR  
WILLIAM A. PERKINS

September 23, 1974

The Commonwealth of Massachusetts  
Department of Public Works  
Division of Waterways  
100 Nashua Street  
Boston, Massachusetts 02114

Attn: Leo Andronico

Referred to  
Report back to  
File

RECEIVED SEP 24 1974  
DEPARTMENT OF PUBLIC WORKS  
DEPUTY CHIEF ENGINEER  
WATERWAYS

Re: Ipswich Mills Dam  
GTE Sylvania

Dear Mr. Andronico:

You are hereby notified, as per conditions dated October 17, 1973 by Malcom E. Graf, Associate Commissioner, that GTE Sylvania is to commence with the alterations to the Ipswich Mills Dam.

Revised drawings and Notice of Intent were sent to your office on September 6, 1974. A copy of the drawings have also been given to Mr. Donald P. Horgan.

Sincerely,

WESTON & SAMPSON

Leon A. Bombardier

LAB/jb

cc - Paul Brown GTE Sylvania

Donald P. Horgan, Dams and Reservoir Engineer, DPW

Mr. Leon A. Bombardier  
Weston and Sampson  
10 High Street  
Boston, Massachusetts 02110

October 17, 1973

1. A risk to life and property is determined by this Department.
2. The weight of the dam is greater than was stated.
3. The Department exceeds one million dollars.

October 17, 1973

Mr. Leon A. Bombardier  
Weston and Sampson  
10 High Street  
Boston, Massachusetts 02110

RE: Alterations - Dam #5-5-144-4  
Ipswich  
Ipswich Mills Dam

Dear Mr. Bombardier:

We have reviewed your letter dated September 28, 1973, wherein certain alterations to the above dam are proposed.

Department approval is hereby granted subject to the following:

1. That sound engineering and construction practices be supervised by a Registered Professional Civil Engineer.
2. That you provide the District 5 Dams and Reservoir Engineer, Mr. Donald P. Horgan, 45 Maple Street, P. O. Box 74, Danvers and this office with at least two (2) weeks advance written notice of work commencement so that arrangements can be made for periodic Department inspection.
3. Final construction plans or a letter of certification be submitted to this office.

In answer to your question of Division of Waterways jurisdiction over this dam, please be advised that the Commissioner of Public Works has jurisdiction according to the provisions of Chapter 253 of the Massachusetts General Laws, as amended by Chapter 595 of the Acts of 1970. This statute became effective on October 27, 1970, and transferred the responsibilities from the County Commissioners to the Commissioner of Public Works. More specifically, jurisdiction is determined by meeting any one of the following requirements:

VESTER & SAMSON

Mr. Leon A. Bombardier  
Dam #5-5-144-4  
Ipswich Mills Dam

ENGINEERS  
1000 DEERFIELD  
-2- 1000 DEERFIELD

October 17, 1973

1. A risk to life and property downstream. (This is determined by this Department.)
2. The height of the dam is greater than ten feet.
3. The impoundment exceeds one million gallons.
4. The drainage area exceeds one square mile.

In this particular case the effective drainage area is about 149 square miles.

You are also advised that this approval shall not be construed as obviating the need of complying with Chapter 784 of the Acts of 1972 (Wetlands Act).

Ipswich Dam  
Very truly yours,

*HLB*

MALCOLM E. GRAY  
ASSOCIATE COMMISSIONER

cc: J. Berkover  
D. Eorgan

WESTON & SAMPSON  
ENGINEERS

10 HIGH STREET  
BOSTON, MASS. 02110

R. S. WESTON 1918-43  
G. A. SAMPSON 1915-64  
G. G. DOOREN 1946-72  
PARTNERS

ROBERT M. POPE  
LEO F. PETERS  
ASSOCIATES

ELIOT F. TUCKER  
DAVID K. BLAKE  
STEVEN H. CORR  
WILLIAM A. PERKINS

TEL: AREA CODE 617  
337-5995

September 28, 1973

The Commonwealth of Massachusetts  
Department of Public Works  
Division of Waterways  
100 Nashua Street  
Boston, Massachusetts 02114

DEPARTMENT OF PUBLIC WORKS  
BUREAU OF CHIEF ENGINEER  
WATER DIVISION

RECEIVED OCT 3 1973

J. Piaseczny

Attn: Mr. John Piaseczny

Re: Ipswich Dam  
GTE Sylvania Inc.

Dear Mr. Piaseczny:

Enclosed are sketches showing the Mill dam as it appears today and the alterations proposed by the Owner. We have been retained by GTE Sylvania to obtain permission to complete the following:

1. Remove the slide gates on the East and West sides of the dam and close the openings.
2. Close the openings in the building foundation walls, where water flows from the west slide gates.

The slide gates on each side of the dam are inoperable and leak profusely. It is the intent of the Owner to remove the existing gates and fill the openings in the dam. The amount of water flowing through the slide gates is such that the upstream water level remains below the crest of the dam spillway. Closing the gates would cause a continuous flow of water over the spillway crest. Therefore, enhancing the appearance of the dam. It is our understanding that the Ipswich residents have indicated a desire to have water flowing over the crest.

The Commonwealth of Massachusetts 2/  
Department of Public Works  
Boston, Massachusetts  
September 28, 1973

Previous inspections of the dam, made by Massachusetts Department of Public Works engineers, indicate that the dam spillway is of sufficient length to handle any possible storm runoff and that any failure of the dam itself could be handled by the river downstream. This was stated in an inspection report by Mr. L.E. Wilkinson of the Massachusetts Department of Public Works on August 17, 1971. A subsequent inspection of the dam was made by Mr. Donald Horgan, Massachusetts Department of Public Works, on September 18, 1973. Mr. Horgan was accompanied by representatives of GTE Sylvania and myself. Mr. Horgan concurred with the previous statements concerning the safety of the dam under extreme flow conditions.

We would like to determine the answers to two basic questions. Does the Division of Waterways Department of Public Works have jurisdiction of the Sylvania Mill Dam under Chapter 595 of the Acts of 1970? If so, can Sylvania perform the proposed alterations to the Mill Dam?

Please feel free to contact me if any additional information is required.

Sincerely,

WESTON & SAMPSON

*Leon A. Bombardier*

Leon A. Bombardier

LAB/jb  
cc - Mr. David A. Corcoran

THE COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATERWAYS  
100 Nashua St., Boston, Mass. 02114

RECEIVED 08.11.1970

Referred To.....  
Report back to.....

APPLICATION FOR AUTHORIZATION TO CONSTRUCT  
OR ALTER A RESERVOIR, RESERVOIR DAM OR  
MILL DAM

JURISDICTION - Chapter 253 of the General Laws as amended by  
Chapter 595 of the Acts of 1970.

CONDITIONS OF D.P.W. JURISDICTION

Shall not apply to small dams, constructed for irrigation or for other purposes, the breaking of which would involve no risk to life or property, nor to standpipes or tanks, nor to a dam where the area draining into the pond formed thereby does not exceed one square mile; unless the dam is more than ten feet in height above the natural bed of the stream at any point, or unless the quantity of water which the dam impounds exceeds one million gallons.

(N.A. - Indicates Not Applicable)

1. Location of Dam (City or Town) Ipswich, Massachusetts
2. U. S. Geological Survey  
Topographic Map Quadrangle Ipswich
3. Name of Waterway Ipswich River
4. Navigable: Yes ( ) No (X)
5. Detailed Description of Dam Location West of Route 1A  
400 ± feet South of Elm Street
6. Present or Prospective Owner(s) of Dam GTE Sylvania  
100 Endicott St. Danvers
7. Nature of Work: Proposed Dam ( ) Alteration (X)
8. Purpose of Dam Mill Dam
9. Specific Legislative Authority to Construct Dam: Yes ( ) No (X)  
Identify N.A.



- \*10. Contributory Drainage Area 150 ± Sq.Mi. \_\_\_\_\_ Acres
11. Height of Dam 6' (a) Top Elevation of Dam +12.4  
(b) Top Elevation of Spillway +12.4
12. Volume of Water Impounded N.A. Acre-Ft. = N.A. Gallons
13. Datum Used (Preferably Mean Sea Level of 1929) M.S.L.
- 
14. Previous Known Flood of Record (Month) \_\_\_\_\_ (Year) \_\_\_\_\_
15. Present River Bed or Channel Grade at Dam +6.0 ±
16. Normal Pond Area N.A. Acres
17. Normal Water Level: Elevation +12 ±
18. Maximum Flood Level: Elevation \_\_\_\_\_
19. Type (Earthen, Concrete, etc.) Granite Block
20. Length of Principal Spillway 130' Feet
21. Description of Principal Spillway Total Dam width approximately 185' - spillway full width of natural river channel
- 
22. Emergency Spillway: Yes ( ) No ( X )  
If Yes, Describe N.A.
- 
23. Gated: Yes ( X ) No ( )
24. No. of Gates 2 West @ Raceway 4 east
25. Size of Gates 4 @ 4'x4' - Gates inoperable and leaking
26. Nature of Slope Protection (Rip-rap, Sodding, etc.) None (Granite Block Dam)
27. Stop Log Structure(s): Yes ( ) No ( X )  
Describe N.A.
28. Control for Removal of Stop Logs: Mechanical ( ) Manual ( )
29. Freeboard N.A. Feet

30. Peak Discharge (Outflow) \_\_\_\_\_ C.F.S.

31. Design Storm Duration \_\_\_\_\_ Hours

32. Design Storm Runoff \_\_\_\_\_ Inches

33. Degree of hazard to life and property downstream.

(Field Investigation)

(A) The estimated number of people affected by possible overtopping or failure of the structure, and to what degree they would be affected. None

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(B) The estimated number of properties (homes, buildings etc.) and extent of possible damage by overtopping or failure \_\_\_\_\_

None

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(C) \_\_\_\_\_

(C) Roads (type) or other structures possibly affected by over topping or failure \_\_\_\_\_

None

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Applicant: Name: GTE Sylvania - Corporate Facilities Office

Address: 60 Boston Street

Salem, Massachusetts 01970

Signature: *[Handwritten Signature]* Date: 10/1/73

\*\*Consultant Engineering Firm:

Weston & Sampson

10 High Street

Boston, Massachusetts 02110

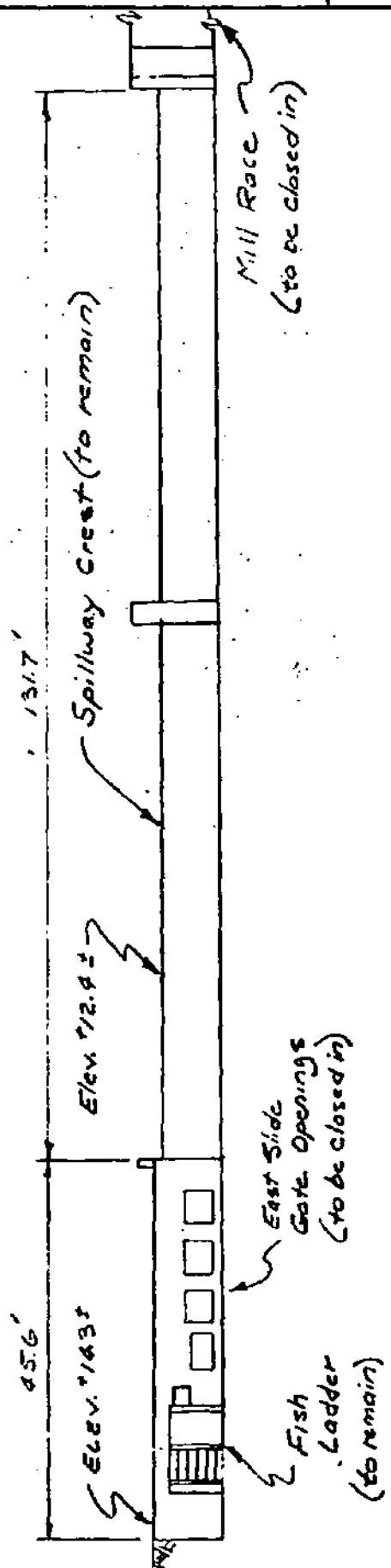
Signature: *[Handwritten Signature]* Date: Sept 28 1973  
Mass P.E.

\* Submit outline on topographic map.

\*\*Final Construction Drawings and Specifications must be submitted with this application. Names of property owners and delineation of property lines for all parcels of land within the flowage area must be shown on the plans. Approval will not be considered unless all submissions bear the stamp and signature of a Registered Professional (Civil) Engineer.

Additional Notes:

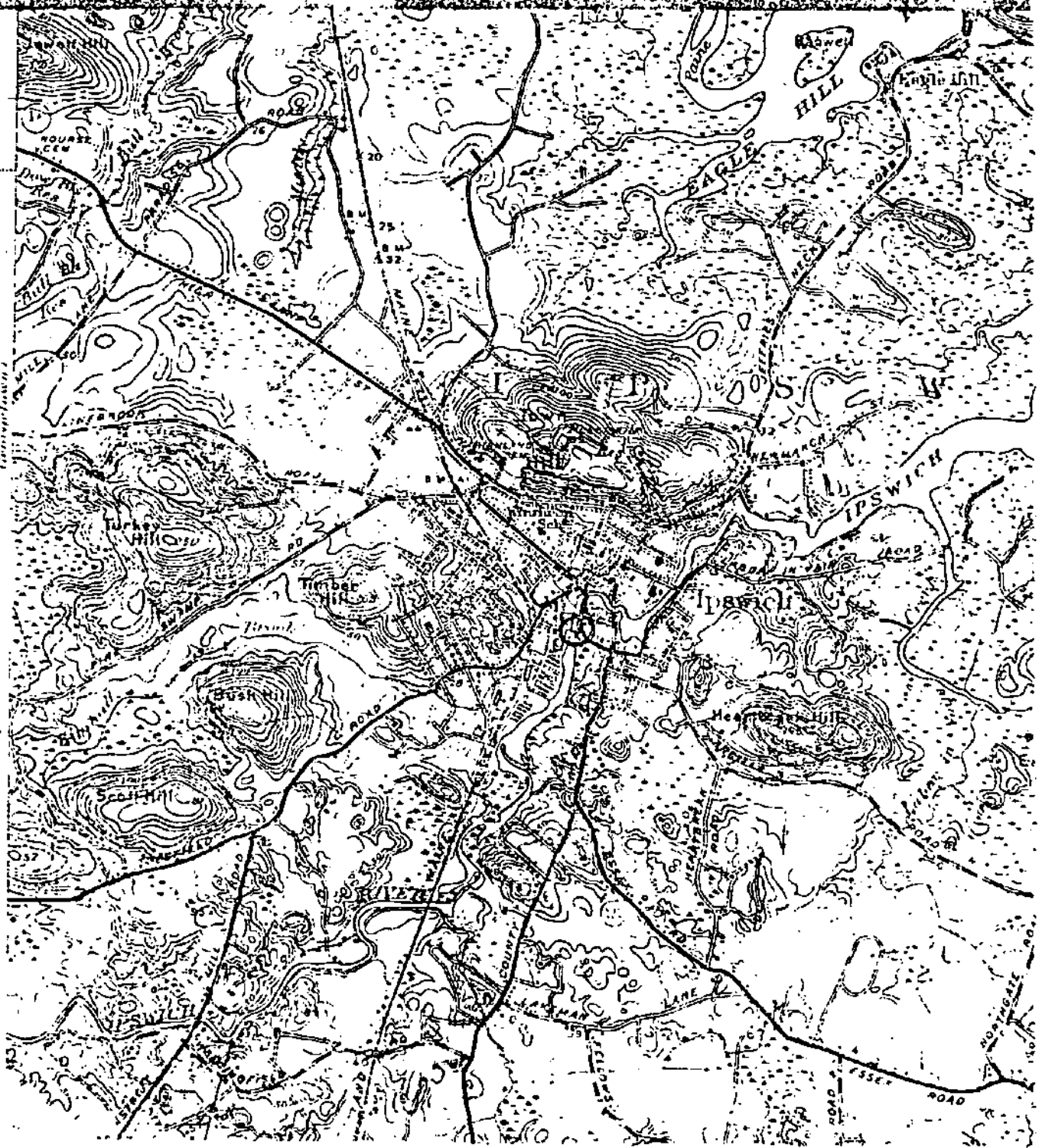




DOWNSTREAM ELEVATION OF DAM  
(Scale 1"=20')

B-11

B-12



GTE SYLVANIA  
IPSWICH DAM

USGS  
IPSWICH QUAD.  
WESTON & SIMPSON  
SYLVANIA DAM

at five 1"

INSPECTION REPORT - DAMS AND RESERVOIRS

Location: 91/6/Town Ipswich Dam No. 5-5-144-4  
Name of Dam Ipswich Mills Inspected By: Donald P. Horgan  
Date of Inspection 9/18/73

Owner/s: none Assessors: \_\_\_\_\_ Prev. Inspection \_\_\_\_\_  
Reg. of Deeds: \_\_\_\_\_ Pers. Contact \*

- |    |  |           |                 |       |          |
|----|--|-----------|-----------------|-------|----------|
| 1. | <u>G.T.E. Sylvania Electric Products, Inc.</u> |           |                 |       |          |
|    | Name   | St. & No. | City/Town       | State | Tel. No. |
| 2. | <u>100 Endicott St., Danvers, Mass.</u>        |           | <u>777-1900</u> |       |          |
|    | Name   | St. & No. | City/Town       | State | Tel. No. |
| 3. |  |           |                 |       |          |
|    | Name   | St. & No. | City/Town       | State | Tel. No. |

Operator (if any) e.g. superintendent, plant manager, appointed by absentee owner, appointed by multi owners.  
Paul Brown, Manager 777-1900  
Name St. & No. City/Town State Tel. No.

No. of Pictures taken None

- Degree of Hazard (if dam should fail completely)\*
- |                   |                     |
|-------------------|---------------------|
| 1. Minor <u>*</u> | 2. Moderate _____   |
| 3. Severe _____   | 4. Disastrous _____ |

\* This rating may change as land use changes (future development)

Outlet Controls: Automatic \_\_\_\_\_ Manual \_\_\_\_\_  
Operative \_\_\_\_\_ No. \_\_\_\_\_  
Comments: Two of the gates on the east end adjacent to the dam  
may be operable. All others appear inoperable.

System Face of Dam: \_\_\_\_\_ Condition: \_\_\_\_\_  
1. Good \* 2. Minor Repairs \_\_\_\_\_  
3. Major Repairs \_\_\_\_\_ 4. Urgent Repairs \_\_\_\_\_  
Comments: \_\_\_\_\_

Downstream Face of Dam: Condition: 1. Good # 2. Minor Repairs  
3. Major Repairs # 4. Urgent Repairs

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9.) Emergency Spillway: Condition: 1. Good \_\_\_\_\_ 2. Minor Repairs \_\_\_\_\_  
3. Major Repairs # \_\_\_\_\_ 4. Urgent Repairs \_\_\_\_\_

Comments: Only two of the spillway gates appear operable - Sylvania  
desires to close all spillway & sluiceway openings.

10.) Water level @ time of inspection: 13" xxx above \_\_\_\_\_ below # \_\_\_\_\_  
top of dam # \_\_\_\_\_ principal spillway \_\_\_\_\_  
other Elev. = 8.3

7) Summary of Deficiencies Noted:

- Growth (Trees and Brush) on Embankment \_\_\_\_\_
- Animal Burrows and Washouts \_\_\_\_\_
- Damage to slopes or top of Dam \_\_\_\_\_
- Cracked or Damaged Masonry \_\_\_\_\_
- Evidence of Seepage \_\_\_\_\_
- Evidence of Piping \_\_\_\_\_
- Erosion \_\_\_\_\_
- Leaks Beneath spillway & sluiceway gates.
- Trash and/or debris impeding flow \_\_\_\_\_
- Clogged or blocked spillway \_\_\_\_\_
- Other \_\_\_\_\_





NAME OF OWNER L. E. WILKINSON DATE 8/17/71 SECTION 2

LOCATION ON IPSWICH RIVER WEST OF ROUTE 1A 400± FT. SOUTH OF ELM ST.

OWNER SYLVANIA ELECTRIC PRODUCTS INC.  
100 ENOICOTT ST. DANVERS

USE \_\_\_\_\_

MATERIAL & TYPE \_\_\_\_\_

HEIGHT OF DAM \_\_\_\_\_ TOP ELEVATION OF DAM \_\_\_\_\_

DATE 8.3.71 1989 TOP ELEVATION OF DRAINAGE \_\_\_\_\_

LENGTH \_\_\_\_\_ TOP WIDTH \_\_\_\_\_ POND AREA \_\_\_\_\_

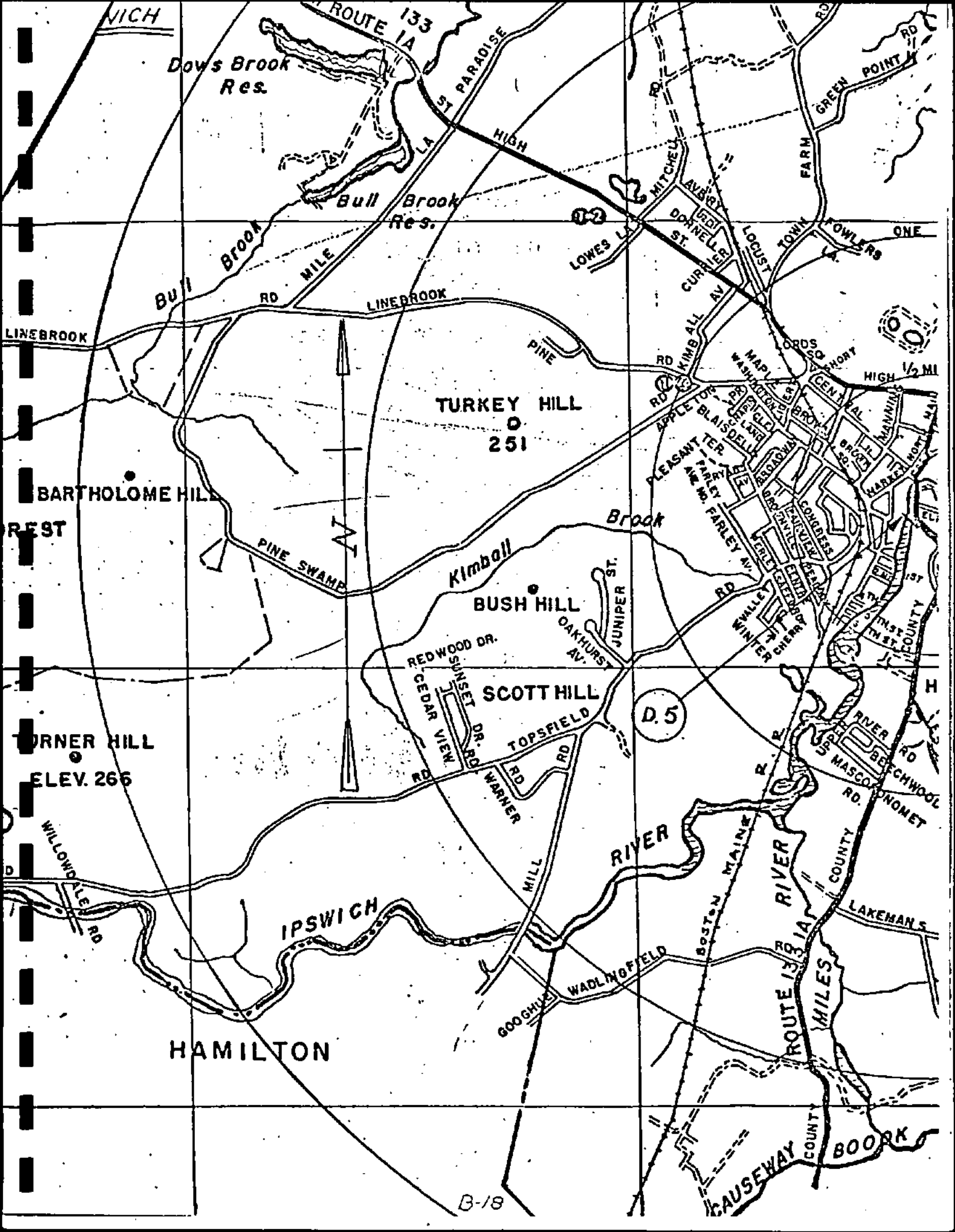
VOLUME OF WATER IMPOUNDED \_\_\_\_\_ GALLONS \_\_\_\_\_

CONTRIBUTORY DRAINAGE AREA \_\_\_\_\_ ACRES \_\_\_\_\_

DESCRIPTION OF SPILLWAY WATER LEVEL 3.0± FEET BELOW TOP

OF DAM TO-DAY - THIS DAM NOT CRITICAL AS THE FLOW WIDTH OF THE RIVER BELOW WOULD TAKE ANY SURGE FROM A COLLAPSE. THE WATER IMPOUNDED IS ONLY THE WIDTH OF THE NATURAL RIVER BANKS UPSTREAM.

THIS DAM DOES NOT NEED INSPECTION UNDER CHAPTER 595



NICH

ROUTE 133

Dows Brook Res.

Bull Brook Res.

Bull Brook

TURKEY HILL  
251

BARTHOLOME HILL

REST

Kimball Brook

PINE SWAMP

BUSH HILL

SCOTT HILL

TURNER HILL  
ELEV. 266

WILLOWDALE RD

IPSWICH RIVER

RIVER

HAMILTON

B-18

ROUTE 133  
MILES

BOORCK

1964 Dec. 29, P.D.K. & K.M.J. Insp. Conditions same.

1964 Report to Co. Comm. Safe and in reasonably good condition.

1966 April 11, 1967. P.D.K. & K.M.J. Insp. Conditions same.

1966 Report to Co. Comm. Safe and in reasonably good condition.

1968 March 25, 1969. P.D. Killam and J. Fitzgerald. This dam is in good condition with about 6 in. + of water going over.

mill end of bridge. 10 " + over dam. No provision for flashboards.

1954 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, there is still some leakage at the westerly end of the dam although an attempt has been made to stop it by backfilling with gravel. This was done before the 1952 inspection. This dam is under constant supervision by the owners to keep it a safe structure.

1956 Sept. 14, E.H. Page, Insp. Sylvania, owner. Elev. of water: 20" + below spillway. Spillway: Clear. Condition of dam: Same.

1956 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, there is some leakage. The owners keep this dam under constant observation to keep the structure safe. This dam is important due to its location near the business section of the town.

1958, Jan. 28, E.H. Page and J.O. Harmaala, Insp. Elev. of water: 24" below top of granite wall at east end of dam.

Jan. 29th. Some flooding below dam and behind business blocks on Topsfield Road. The bridge at So. Main Street is holding back the water some causing the water to back up in the yards. Water has gone up 2" or 3" since yesterday.

1959, Jan. 5, E.H. Page, Insp. Elev. of water: 3" over. No obstructions. Condition: good. Gate to fishway is open.

1958 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, there is some leakage. The owners keep this dam under constant observation to keep the structure safe. This dam is important due to its location near the business section of the town.

1961, January 11, E.H. Page & P.D. Killam, Insp. Condition: Same. Elev. of water: 4" over dam. All gates closed except fishway which is open

1960 Report to Co. Comm. 1/2 way.

At the Ipswich Mills Dam, west of South Main Street, there is some leakage. The owners keep this dam under constant observation to keep the structure safe. This dam is important due to its location near the business district of the town.

1962 Dec. 19, K.M. Jackson, Insp. Owner: Sylvania Elec. Products, Inc. Conditions below dam: Good. Elev. of water: about 6" + Condition of dam: Same as previous report. All gates closed except fishway which is open about half way.

1962 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, there is some leakage. The owners keep this dam under constant observation to keep the structure safe. A contract will be let at low water next summer to gunite the face of the dam and the fishway, and backfill with impervious material back of the dam near the mill. This dam is important because of its location near the business district.

repairs have been made during the last two years except the floor of the footbridge has been replanked. Conditions below and above seem to be about the same. No leaks could be seen. The hoisting machinery of one of the gates needs to be repaired and Mr. McDonald said that he would attend to this.

1944 Report to Co. Comm. Safe and in reasonably good condition.

1946 Sept. 27, S.W. Woodbury, Insp. I gave a copy of the notice to Mr. William McDonald, Chief Eng., who went to the dam with me. New timbers have been placed under east gates. Center pier of bridge has been braced with timbers (work done by the Aberthaw Co.). Water level today is 4.1 below top of the granite footwalk to footbridge. Condition of dam is the same.

1946 Report to Co. Comm. Safe and in reasonably good condition.

1948 Oct. 1, S. W. Woodbury, Insp. Dam now owned by Sylvania Electric Products, Inc., Gave a copy of the notice to Mr. Al Illsley. Mr. Illsley, Mr. Parker and Mr. Thurlow went to dam with me. Water level today: Very low (no water near the dam) Leaks: Leaks under spillway at westerly end. Concrete in fishway is disintegrated.

1948 Report to Co. Comm. Safe and in reasonably good condition.

1950 Oct. 2, S.W. Woodbury, Insp. Gave a copy of the notice to Mr. Al Illsley, who went to the dam with me. Further inspection needed to see that leak is repaired. Some work has been done on gates. Water level today: about 7' below top of conc. wall at spillway. Leaks: Very bad leak at W end. Concrete sidewall of fishway is badly disintegrated. Mr. Illsley wants any information we may have on the construction of the dam.

1950 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, the leakage at the westerly end of the dam which has developed should be stopped to prevent any deterioration which might be harmful to the safety of the structure. Also repairs should be made at the concrete fishway.

1952 Sept. 24, E.H. Page, Insp. Gave a copy of the notice to Mr. Al. Illsley in charge of plant maintenance who went to dam with me. Some gravel has been dumped in back of dam at the west end. Still leaks at west end. Mr. Illsley said there used to be a whirlpool at the west end of the dam so he backfilled with gravel and it stopped the whirlpool but it didn't have any visible effect on the leaks.

1952 Report to Co. Comm. At the Ipswich Mills Dam, west of South Main Street, there is still some leakage at the westerly end of the dam although an attempt has been made to stop it by backfilling with gravel. This dam is under constant supervision by the owners to keep it a safe structure.

1954 May 28, E.H. Page, Insp. Mr. Al Illsley, owner, Plant Maintenance Man, Supt. Mr. Trainer, a maintenance man was sent by Mr. Illsley. Notice and law given to Mr. Trainer. Owner cooperated. No repairs since last inspection. Elev. of water: 3'-2" below conc. wing wall at

Ipswich D. 5.

1934 Report to Co. Comm. Safe and in reasonably good condition.

1936 August 12, C.C.Barker, Insp. This dam is now owned by the Tanning Process Company, a subsidiary of United Shoe Machinery Company. I gave a copy of the notice to R. A. Ruedebush, Super., who went to the dam with me. They use the water for washing and will use it for power when there is sufficient water. There is some leakage around the old gates. The riprap in front of the dam on the down stream side was pushed out by the ice and high water last spring. The dam is apparently in good condition except as noted. Next year Mr. Ruedebush intends to repair the old gates and stop all leaks. He will probably build a dike up river to hold out the water while making repairs.

1936 Report to Co. Comm. The dam at the Ipswich Mills, west of South Main Street, is in good condition except that the riprap on the down stream side of the dam was somewhat displaced by the spring floods and there is leakage around the gates. It is understood that these will be repaired.

1938 Oct. 28, C.C.Barker, Insp. I gave a copy of the notice to Mr. Ruedebush, Supt., who sent Mr. Edgar to the dam with me. This dam is apparently in good condition except that some of the timber gates need repairing. The water level is 2 feet below the concrete wall at the westerly end of the dam. A large amount of water is flowing over the dam today.

1938 Report to Co. Comm. The dam at the Ipswich Mills west of South Main Street is in good condition except that repairs to the gates and some other minor repairs are needed.

1940 Oct. 1, C.C.Barker, Insp. This dam is owned by the United Shoe Machinery Co. Mr. Johnson, watchman for the Hygrade Sylvania Corp., which leases part of the old mills from the U.S.M. Co., conducted me to Mr. Morgan, Engineer for the U.S.M.Co., who has charge of the dam, to whom I gave a copy of the notice. New gates and timber work have just been built at the westerly end of the dam, where the wheels are. Last year new draw-off gates were built at the easterly end of the dam. This dam is in good condition. The water is low.

1940 Report to Co. Comm. Safe and in reasonably good condition.

1942 Aug. 4, C.C.Barker, Insp. Mr. Johnson, watchman for the Hygrade Sylvania Corp., conducted me to the dam. I gave a copy to him of the notice for the U.S.M.Co. There is a slight seepage at the easterly end at the fishway. This dam is apparently in good condition, and water is flowing over the flashboards which have been renewed since the last inspection. There has not been any change.

1942 Report to Co. Comm. Safe and in reasonably good condition.

1944 Sept. 19, S.W.Woodbury, Insp. The dam is still owned by the U.S.M.Co. I gave a copy of the notice to Mr. McDonald, who is now chief engineer. Mr. McDonald went to the dam with me. Water level is 4.5 ft. below the top of the granite footwalk to Toothbridge. The gates are open and the water is rushing through. Water level looked to be about two ft. below the high water line painted on the building. No

Ipswich D. 5

1917, March 26. Watershed 149.0 sq. m. Max. Ht. 7.0 ft. Apparent condition, Good.

1925, Oct. 21. R. R. Evans, Insp. Ipswich Mills Dam. This dam is of cut granite on the face and the company has a plan of it on file in their office drawn by Charles T. Main when the structure was rebuilt about 1908. This plan shows rock foundation beneath the dam, and the structure is in good condition. A fish-way has recently been built. Superintendent was with me at time of inspection and Master Mechanic also furnished some information.

1925 Report to Co. Comm. Same as above.

1928, Oct. 9. C. C. Barker, Insp. Dam on the Ipswich River west of South Main Street, is owned by the Ipswich Mills and is used for mill power. I gave a copy of the notice to F. B. Bates who has Mr. Wilson show me the dam. The river banks below the dam are thickly settled. There would be a great deal of damage in case of failure and very likely loss of life would occur. The dam is in good condition and there have been no changes since the last inspection. The conditions are about the same. At present they are using the 54" and 42" wheel. The 48" wheel is not being used.

1928 Report to Co. Comm. This dam on the Ipswich River near Main Street is owned by the Ipswich Mills and used for power. It apparently is well built and in good condition and there seems to be no reason to anticipate any trouble from it.

1930, Sept. 17. C. C. Barker, Insp. Dam on Ipswich River west of South Main Street, is owned by the Ipswich Mills, and was formerly used for power. The mills are closed now and the machinery has been sold. They are owned by John S. Lawrence. I did not see any one about this dam. The river banks below this dam are thickly settled. There would be a great deal of damage and very likely loss of life in case of failure. From all appearances there have been no changes since the last inspection, and the dam seems to be in good condition.

1930 Report to Co. Comm. The dam on the Ipswich River west of South Main Street is owned by the Ipswich Mills and is a masonry structure of considerable importance. Little can normally be seen of this dam, but there have been no indications of any trouble, and it is apparently safe and in good condition.

1932, Aug. 4. C. C. Barker, Insp. Apparently the dam is in good condition and there is no change. A little water is flowing over the dam today. Francis R. Boyd, Receiver, 82 Devonshire St., Boston.

1932 Report to Co. Comm. Safe and in reasonably good condition.

1934, Sept. 29. C. C. Barker, Insp. At present this dam belongs to E. B. Currier, Real Estate Agent. I left a copy of the notice at his office on Central St. I met Mr. Currier's father at the dam. The dam is in good condition and there has been no changes. The water power is used occasionally. There is a watchman on duty all the time. Water is flowing over the dam today.

Inspection of Dams, Reservoirs, and Stand Pipes

O 112-50  
SUB NUMBER  
D. S. R. S. P.  
Neg. Nos. 536-

D. S. R. S. P.

Inspector E. C. Barker Date May 21, 1912 \*Classification 1

City or Town Ipswich Location Ipswich River west of South Main Street

Owner Ipswich Mill Co. Use Mill power  
Include such details as cores, cut off walls, paving, sodding, class of masonry, kind of cement, (nat. or port.) etc.

Material and Type Coarsed stone masonry dam with timber flash-boards

Elevations in feet: above (+) or below (-) full pond or reservoir level. (Cross out what does not apply.)  
For Dam  
{ Bed of stream below..... Bottom of pond..... Bottom of spillway..... Top of dam..... Top of flash boards.....  
For Res. or S. P.  
{ Ground surface below..... ~~Bottom of res.~~..... ~~Level of over flow pipe~~..... ~~Top of res.~~  
For dam  
Length in ft..... Top width in ft..... Pond area..... Area of watershed 1/2  
For Res. or S. P.  
~~Inside dimensions~~..... ~~Capacity~~..... ~~covered~~ ~~open~~

Length of overflow or spillway..... Outlet pipes (size and nature).....  
Stand pipe thickness at base..... diam. of river head..... Pitch hor.

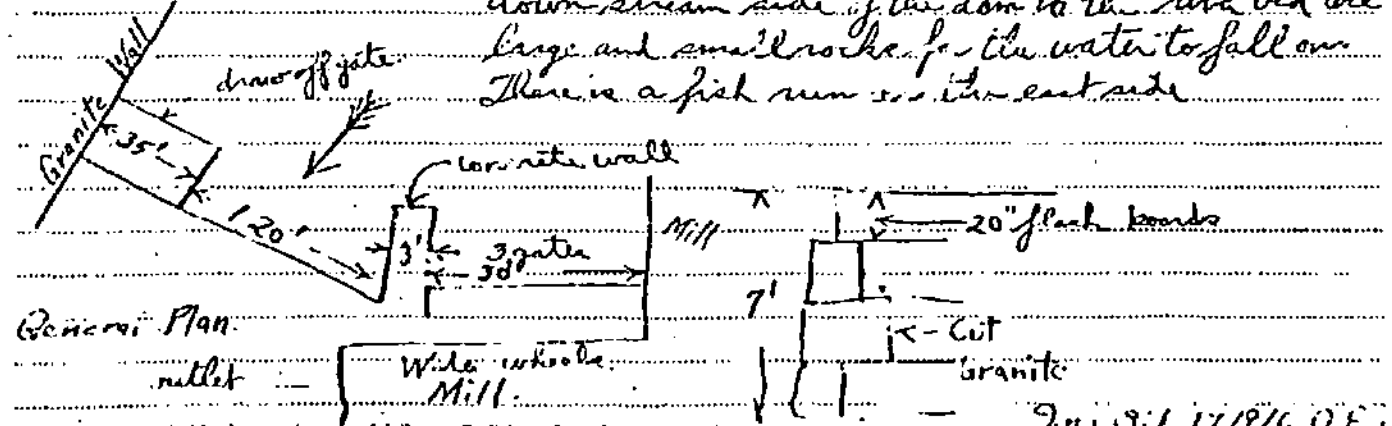
Foundation and details of construction.....

Constructed by and date.....  
Recent repairs and date Put in one new gate & pointed a few joints

Evidence of leakage..... condition & well protected  
Condition Good The timber gates on the west end are in good S. P. when painted inside with con masonry

Topography of country below.....  
Nature, extent, proximity, etc. of buildings, roads or other property in danger if failure should occur The river banks below the dam is thickly built up and considerable damage would be done  
Plans and data secured or available.....

Use separate sheet for sketches if necessary  
Notes, sketches, sections, etc. Max depth of water is 7 ft. The granite wall on the east side of the river is about 2.5 ft. above top of spillway. In the down stream side of the dam in the river bed are large and small rocks for the water to fall over. There is a fish run on the east side



\*Classify as to probable damage in case of failure. 1 slight. 2 moderate. 3 serious.  
B. 24  
Typ. Sec  
Jan. 31, 1916 Q.E.S.



DESCRIPTION OF DAM

DISERICT 5

Submitted by Donald P. Horgan

Dam No. 5-5-144-4

1. Location: Type Sheet No. 37B

Provide 8 1/2" x 11" in clear copy of topog map with location of Dam clearly indicated.

2. Rebuilt Near xxxxx 1908 Name/s of subsequent repairs \_\_\_\_\_

3. Purpose of Dam: Water Supply \_\_\_\_\_ Recreational \_\_\_\_\_  
Navigation \_\_\_\_\_ Other Formerly Mill Power

4. Drainage Area 149.0 sq. mi. \_\_\_\_\_ acres

5. Normal Pooling Areas: 40+ Acres; Ave. Depth \_\_\_\_\_  
Impoundment: \_\_\_\_\_ gals; \_\_\_\_\_ acre ft.

6. No. and type of dwellings located adjacent to pond or reservoir 10 - 20  
i.e. summer homes etc. Dwelling Houses

7. Dimensions of Dam: Length 175'+ Max. Height 7'  
Slopes: Upstream Face 4:1 at crest  
Downstream Face Vertical  
Crest above top 4'

8. Classification of Dam by Materials:  
Type of Dam: \_\_\_\_\_ Type of Structure: \_\_\_\_\_ Stone Masonry? \*  
Material: \_\_\_\_\_ Rockfill \_\_\_\_\_ Other \_\_\_\_\_

9. Construction of the dam and its appurtenances of dam 10 90  
i.e. spillway & bridge dams or other parts. Construction of dam in first listed components of  
dam reported in this case or a complete dam failure no \*

10.

Risk to life and property in event of complete failure. \* See below

No. of people \_\_\_\_\_

No. of homes \_\_\_\_\_

No. of businesses \_\_\_\_\_

No. of industries \_\_\_\_\_

Type \_\_\_\_\_

No. of utilities \_\_\_\_\_

Type \_\_\_\_\_

Railroads \_\_\_\_\_

Other class \_\_\_\_\_

Other \_\_\_\_\_

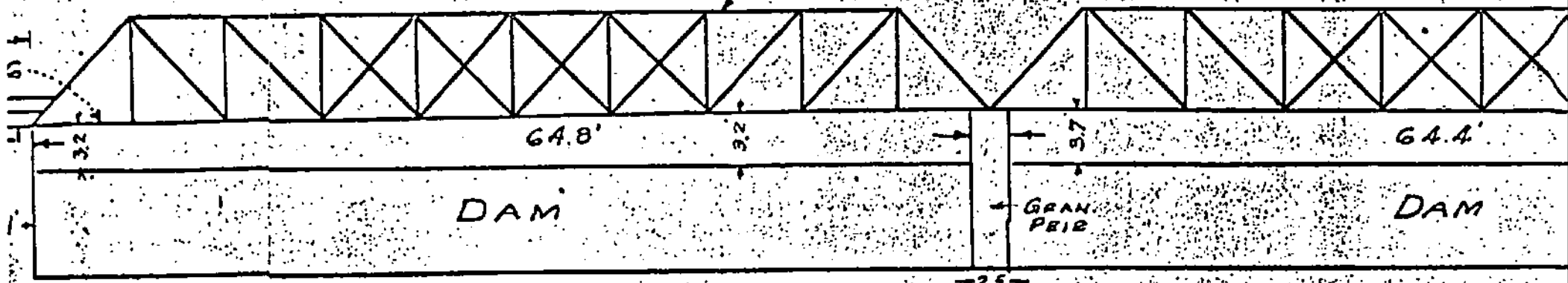
11.

Attach sketch of dam to this form showing section and plan on 8 1/2" x 11" sheet.

The river bed below the dam is quite deep and it is not expected that any structures, located high on the river banks, would be affected. Some washouts of the river banks could be possible due to the winding downstream reach.

Tidal waters reach this dam at high tide.

STEEL TRUSS



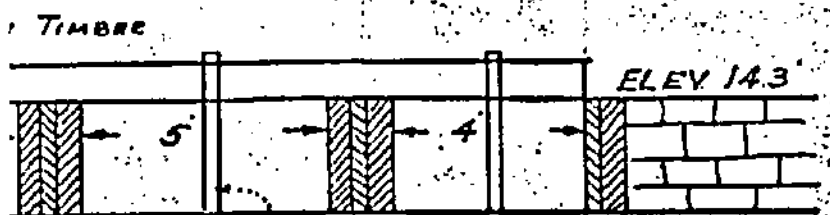
ELEV. 0.0 ±

DOWNSTREAM ELEVATION OF DAM AND FOOTBRIDGE

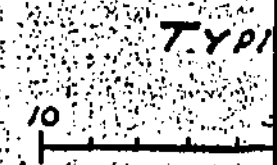
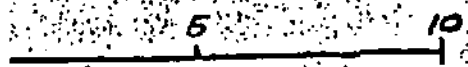


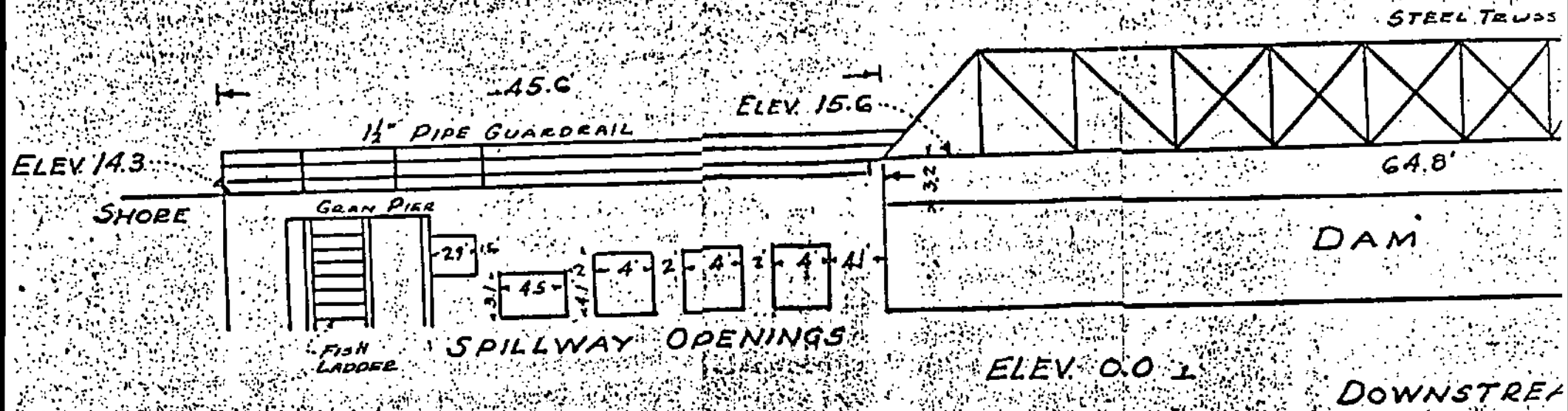
B-27

DAM & FOOTBRIDGE  
 IPSWICH  
 AT SYLVANIA PLANT  
 IPSWICH RIVER

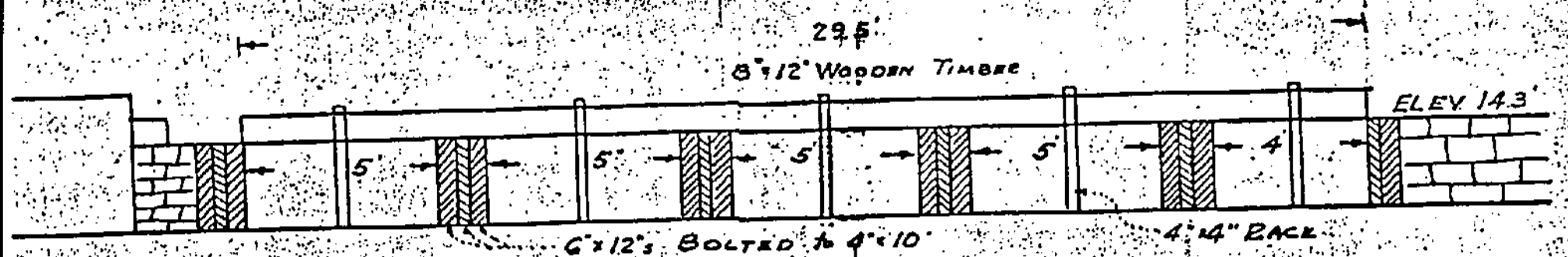


OF SPILLWAY  
 PATES





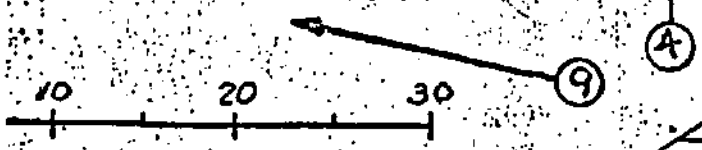
0-28



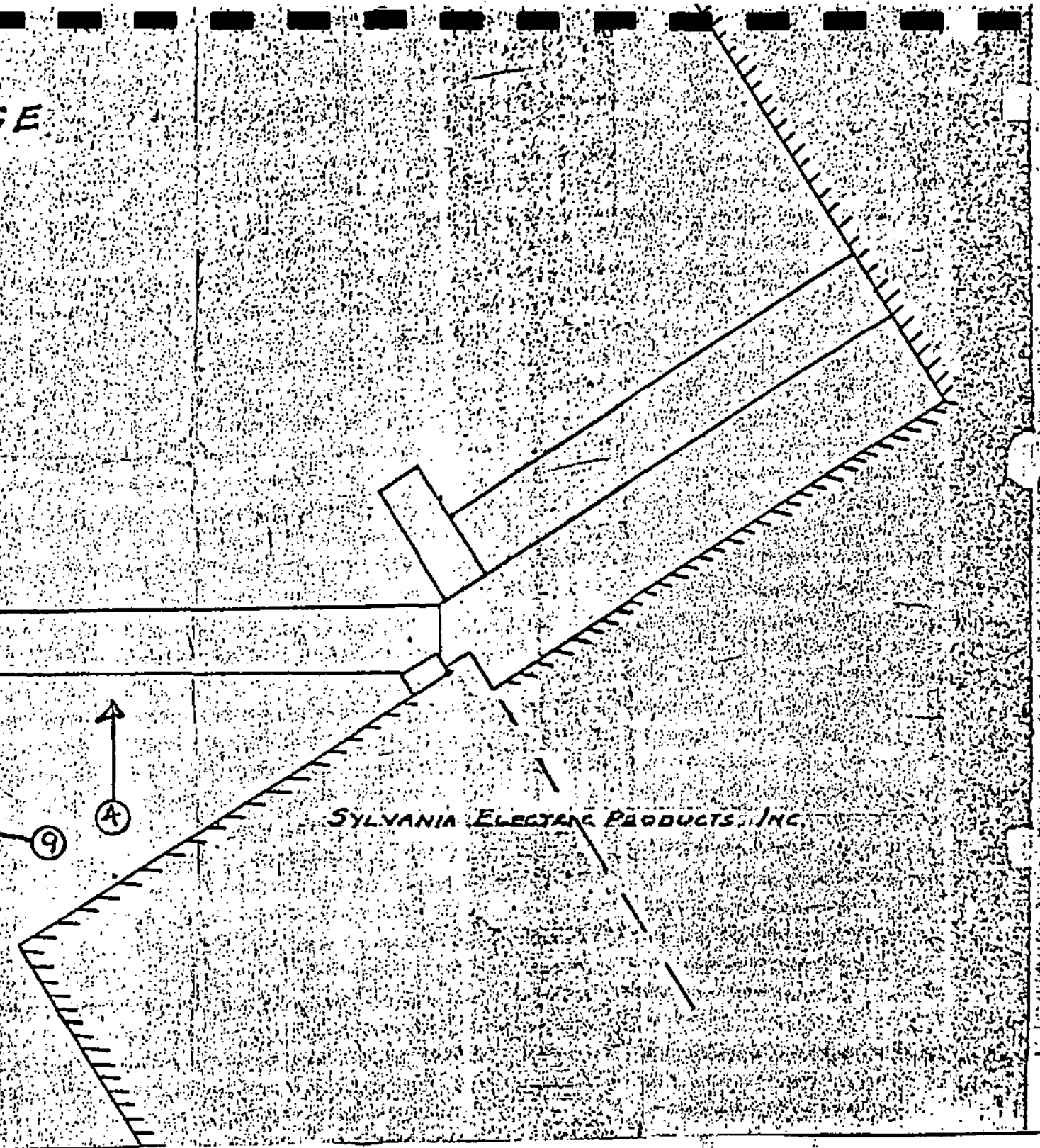
UPSTREAM ELEVATION OF SPILLWAY RACK AND PINION GATES

FOOTBRIDGE  
PSWICH  
SYLVANIA PLANT  
PSWICH RIVER

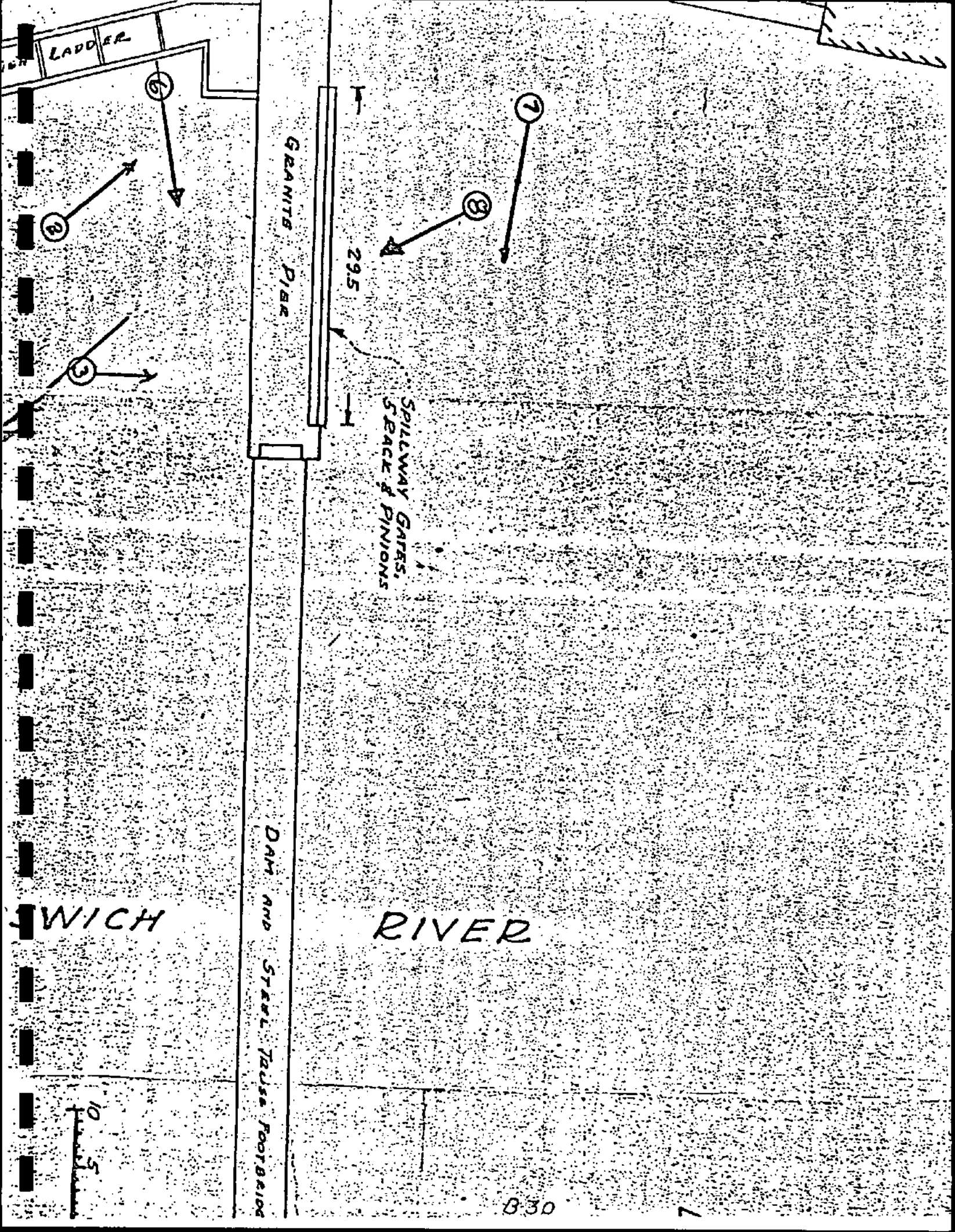
B-29



SYLVANIA ELECTRIC PRODUCTS, INC.







LADDER

GRANITE PIER

29.5

SPILLWAY GATES,  
SPACE & PINIONS

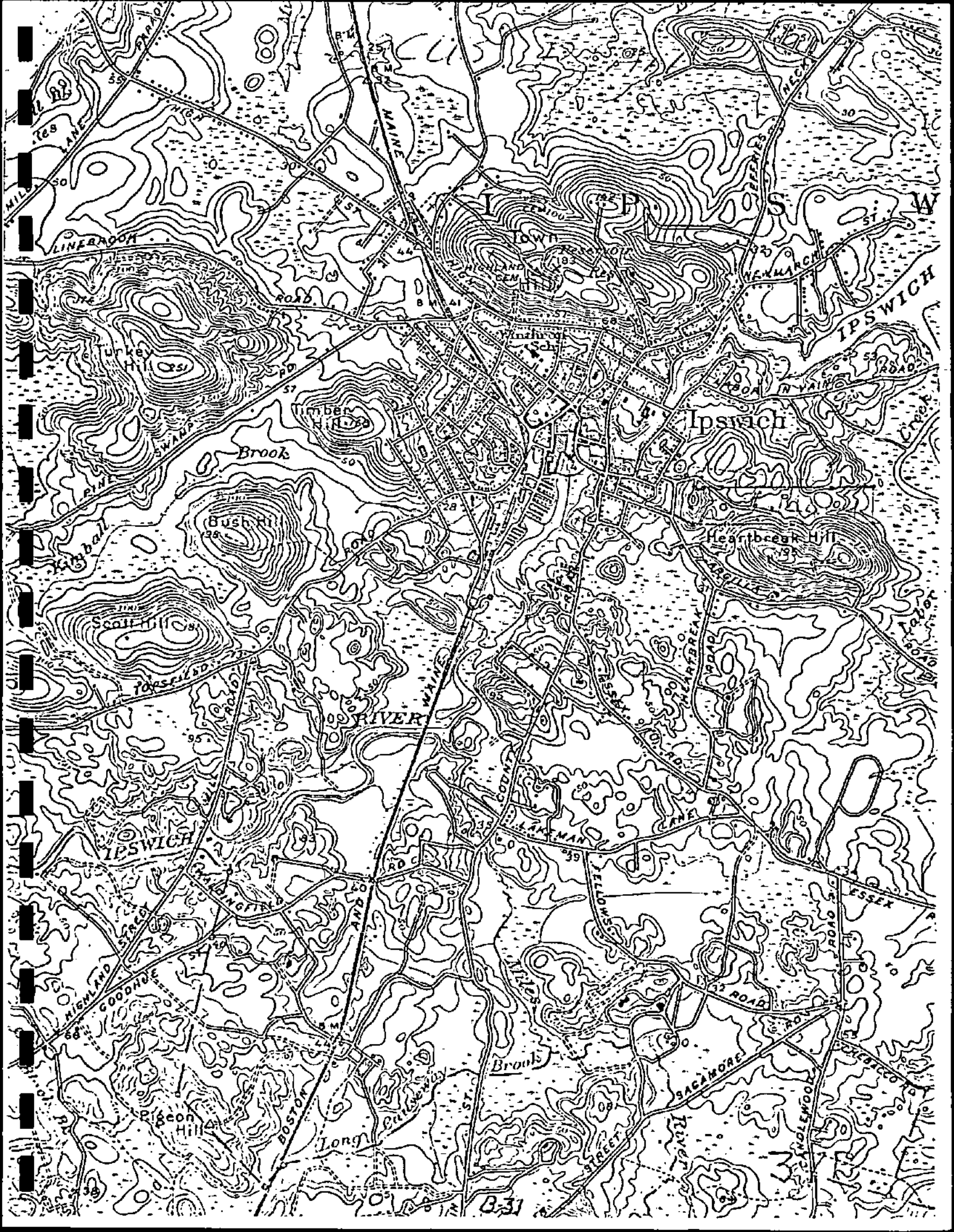
DAM AND STEEL TASS POORBAID

RIVER

WICH

10  
5

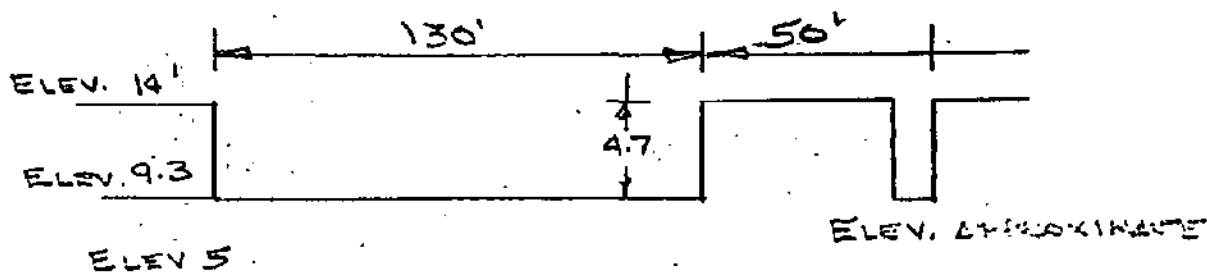
B-30



APPENDIX C  
DAM FAILURE ANALYSIS



COMPUTE SPILLWAY DISCHARGE



$$Q \text{ AT TOP OF DAM} = CLH^{3/2} = 3.2(130)(4.7)^{3/2}$$

$$Q = 4,233$$

COMPUTE BREACH DISCHARGE ASSUMING  
40% OF SPILLWAY GOES OUT

$$W = 40\% \text{ OF } 180 = 72 \text{ FT}, H = 9 \text{ FT}$$

$$Q = 1.65WH^{3/2}$$

$$Q = 1.65(72)(9)^{3/2} = 3265 \text{ CFS}$$

IF 0 DISCHARGE OVERDAM AT TIME OF FAILURE:

$$Q = 1.65(52)(9 - 4.7)^{3/2} = 1066 \text{ CFS}$$

BUT FOR THE CONDITIONS HEIGHT OF WATER WILL  
ONLY BE 4.7' IN DOWNSTREAM CHANNEL  
NO FLOODING WILL OCCUR

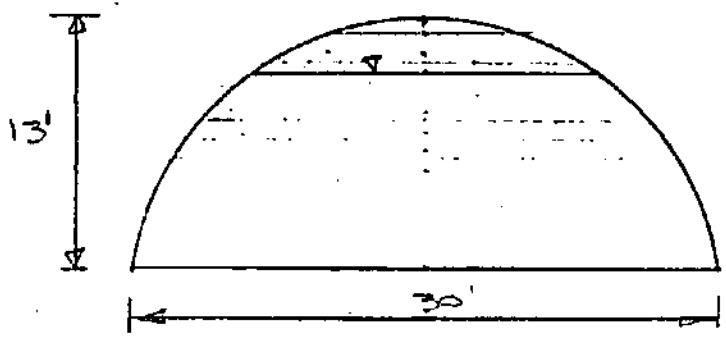
WORST CONDITION ASSUMPTION, NO TAILWATER

$$Q_{TOTAL} = 3265 + 60\% \text{ OF } 4233 = 5800 \text{ CFS}$$

CHKD. BY DATE

PROJECT W-19B

SUBJECT IRRAWADDY MILE DAM, PRELIMINARY DOWNSTREAM



ASSUME  
INVERT 1 FT BELOW  
TAIL OF DAM ELEV 4 FT

RT 1A TWIN STONE ARCHES  
SCALE 1" = 10 FT

ASSUME UNREALISTIC CONDITION TAILWATER IS  
AT ABOUT ELEV. 9 FT

MAX HEAD THAT CAN OCCUR AT ARCHES IS 14' - 4' = 10 FT

AREA OF FLOODED ARCH IS

READ #2	61.91
" #1	59.32
	<hr/>
	2.59

READ #3	64.52
READ #1	61.91
	<hr/>
	2.61

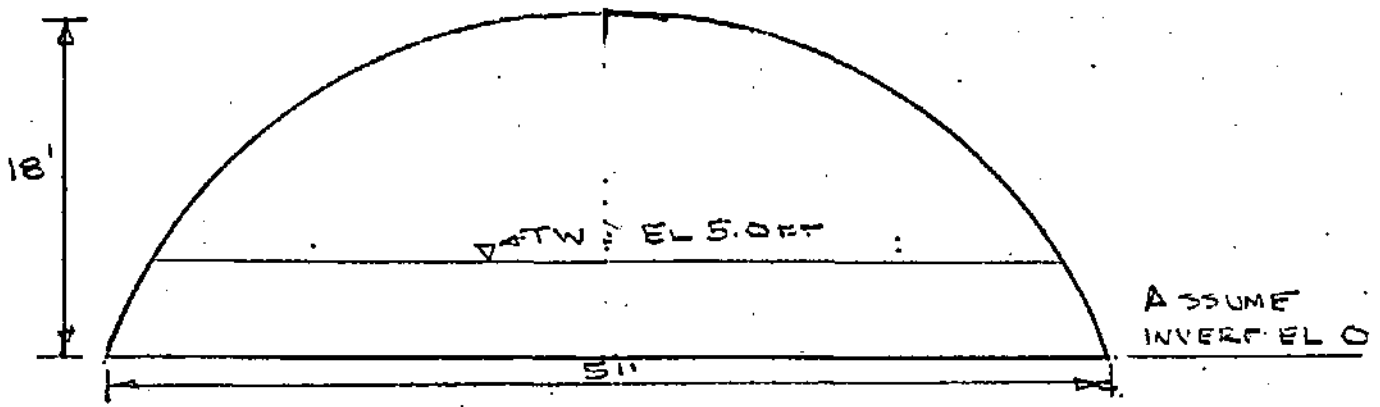
WETTED AREA TWIN ARCHES = (2.6)(100)(2) = 520

NOW FIND Q THRU ARCHES FOR ASSUMED  
CONDITION  $H_2 = 10, H_1 = 5, \Delta H = 5$  FT

ASSUME ORIFICE FLOW,  $C = 0.75$

$Q = CA\sqrt{2g\Delta H} = 0.75(520)(64.4 \times 5)^{1/2}$

$Q = 6993$  cfs (HIGH - GO TO LOWEST BRIDGE  
TO FIND T.W. @ RT- 1A)



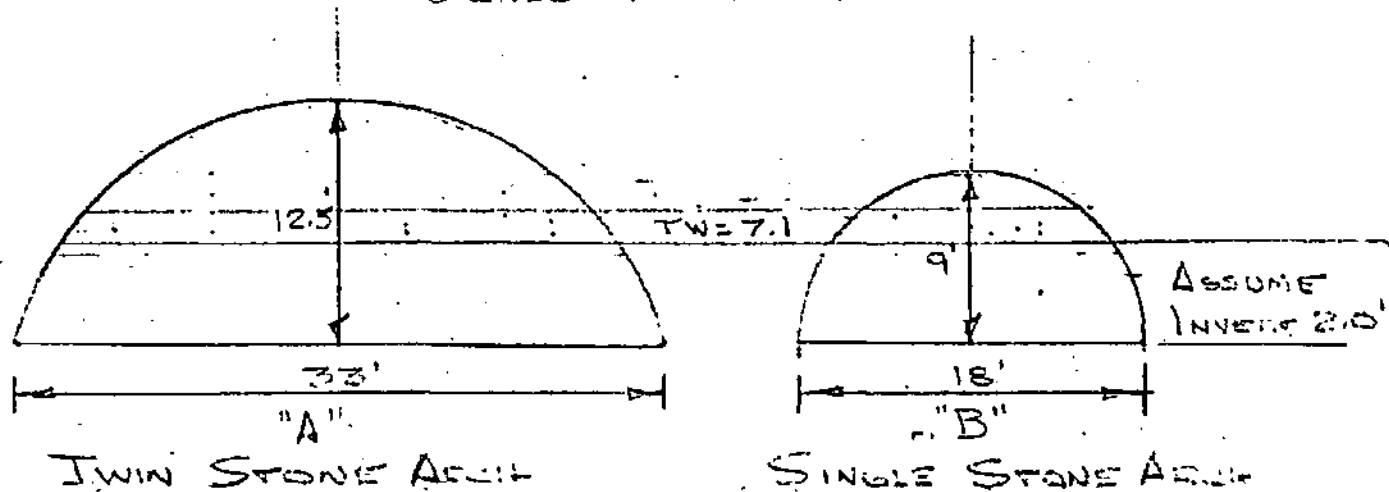
LOWEST BRIDGE TWIN STONE ARCHES  
 SCALE 1" = 10'

ASSUME TAILWATER 5.0 FT (HIGH MEAN TIDE)

EL	AREA	ΔH	$Q = 0.75 A \sqrt{2gh}$
5	490	0	0
6	582	1	3500
7	670	2	5702
7.1	680	2.1	5930

SAY HW = 7.1 FT

2ND BRIDGE BELOW DAM  
SCALE 1" = 10 FT.



EL	AREA "A"	AREA "B"	ΔH	Q = 0.75 A √2gh
7.1	317	87	0	0
8.1	373	101	1	2853
9.1	425	113	2	4580
9.6	450	117	2.5	5396
9.8	457	119	2.7	5696

SAY HW = 9.9

NOW GOING BACK TO FIRST BRIDGE TW = 10.1 - .4 = 9.7

ELEV.	AREA	ΔH	Q = 0.75 A √2gh
9.9	565	0	0
10.9	595	1	3580
11.9	627	2	5340
12.1	633	2.2	5650

SAY HW = 12.1 FOR BRIDGE Q IS 5,800

NOW REPEAT SAME ROUTINE FOR SPILLWAY Q = 4240

GO TO LOWEST BRIDGE, ASSUMED TW = 5.0 FT

EL	AREA	$\Delta H$	$Q = 0.75A\sqrt{2gh}$
5	490	0	0
6	582	1	3500
6.5	626	1.5	4615

SAY HW = 6.3 (ELEV. 6.3)

GO TO MIDDLE BRIDGE, TW = 4.3 FT (ELEV. 6.3)

EL.	AREA "A"	AREA "B"	$\Delta H$	$Q = 0.75A\sqrt{2gh}$
7.1	317	87	0.8	2174
8.1	373	101	1.8	3827
8.3	383	103	2.0	4136

SAY HW = ELEV. 8.3

GO TO ROUTE 14 BRIDGE, TW = 4.3 (ELEV. 8.3)

ELEV.	AREA	$\Delta H$	$Q = 0.75A\sqrt{2gh}$
9.9	565	1.6	4301

SAY HW = ELEV. 9.9 FT

FOR BREACH:  $Q = 5800$ ,  $H = 12.2$   
 " SPILLWAY:  $Q = 4200$ ,  $H = 9.9$

FIRST REACH	$\Delta H = 2.3$ FT
SECOND REACH	$\Delta H = 1.6$ FT
THIRD REACH	$\Delta H = 0.8$ FT

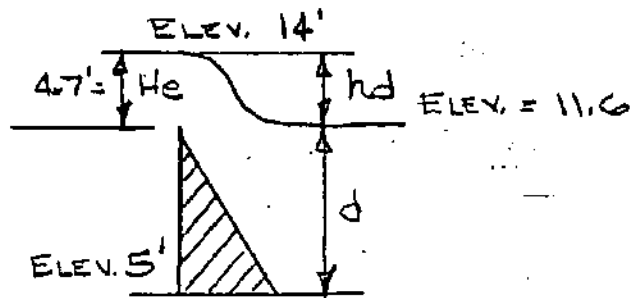
IN 1ST REACH BREACH FLOWS ARE BELOW THE CHANNEL RETAINING WALLS,

CHECK FLOODING ON THREE BUILDINGS THAT EXTEND BELOW THE WALLS

	FLOODING
BRICK BLDG , ELEV $\approx$ 10	2.2 FT
GRAY BLDG , ELEV $\approx$ 9	$\Delta$ 2.3 FT
BROWN BLDG , ELEV $\approx$ 11	1.2 FT

ALL WATERIS ARE IN SUB STREET LEVELS IN BACK OF BUILDINGS

CHECK FOR SUBMERGENCE @ Q FLOW



$H_e$	$Q$	$d$	$h_d$	$\frac{h_d + d}{H_e}$	$\frac{h_d}{H_e}$	% RED	$Q$
4.7	4240	6.6	2.4	3.8	0.5	02.4	4140

SUBMERGENCE FACTOR ONLY SLIGHT  
ANALYSIS O.K.

DRAINAGE AT USGS GAGE 01102000 = 124 MI<sup>2</sup>  
 FIND DRAINAGE AREA BETWEEN GAGE & DAM

IPSWICH QUAD SCALE 1:25,000

READ #2 109.74  
 " #1 46.32  
63.42

READ #3 173.01  
 " #2 109.74 AVE 63.34  
63.27

MARBLEHEAD No. SCALE 1:25,000

READ #2 64.33  
 " #1 11.13  
53.20

READ #3 117.49  
 " #2 64.33 AVE 53.18  
53.16

SALEM QUAD SCALE 1:25,000

READ #2 46.61  
 " #1 18.66  
27.95

READ #3 74.66  
 " #2 46.61 AVE = 28.00  
28.05

GEORGETOWN QUAD SCALE 1:24,000

READ #2 44.39  
 " #1 29.06  
20.33

READ #3 69.76 AVE 20.35  
 " #2 49.39  
20.37

---

TOTAL @ 1:25,000 = 144.52 X 0.1556 = 22.49 sq mi  
 " " 1:24,000 = 20.35 X 0.1435 = 2.92 " "  
 TOTAL ΔA = 25.4 " "

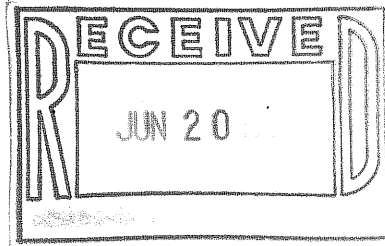
TOTAL AREA ABOVE DAM = 149 sq mi



Appendix E: 1995 Notice of Intent and  
Subsequent Orders of Conditions

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10.99: continued



DEP File No. [ ]

(To be provided by DEP)

Form 3

City/Town Town of Ipswich

Applicant \_\_\_\_\_

Commonwealth of Massachusetts

Department of Defense United States of America

Notice of Intent Under the Massachusetts Wetlands Protection Act, G.L. c. 131, §40 and Application for a Department of the Army Permit and the Ipswich Wetlands Protection By-Law

Part I: General Information

1. Location: street Address Ipswich Mills Dam/Union St. & South Main St. Lot Number \_\_\_\_\_

2. Project: Type Construction description See Exhibit A

3. Registry: County \_\_\_\_\_ Current Book \_\_\_\_\_ & Page \_\_\_\_\_ Certificate (if Registered Land) \_\_\_\_\_

4. Applicant Town of Ipswich Engineer Tel. 508-356-6635 Address 272 High St.

5. Property owner Town of Ipswich Tel. Same Address \_\_\_\_\_

6. Representative Gannett Fleming, Inc. Tel. 380-7750 Address 150 Wood Road, Braintree, MA 02184

7. a. Have the Conservation Commission and the Department's Regional Office each been sent, by certified mail or hand deliver, 2 copies of completed Notice of Intent, with supporting plans and documents?

Yes  No

b. Has the fee been submitted? Yes  No

c. Total Filing Fee Submitted Town Exempt

d. City/Town Share of Filing Fee N/A state Share of Filing Fee N/A (sent to City/Town) (if of fee in excess of \$25, sent to DEP)

e. Is a brief statement attached indicating how the applicant calculated the fee?  Yes  No

310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

10.99: continued

8. Have all obtainable permits, variances and approvals required by local by-law been obtained? Yes  No

Obtained	Applied For:	Not Applied For:
N/A		

9. Is any portion of the site subject to a Wetlands Restriction Order pursuant to G.L. c. 131, §40A or G.L. c. 130, §105? Yes  No

10. List all plans and supporting documents submitted with this Notice of Intent.

Identifying Number/Letter	Title, Date
A	Project Narrative
B	USGS Site Location
C	Flood Boundry Map
D	Conservation Commission Plan
E	Rare And Endangered Species Map

11. Check those resource areas within which work is proposed:

(a)  Buffer Zone

(b) Inland:

Bank\*

Bordering Vegetated Wetland\*

Land Under Water Body & Waterway\*

Land Subject to Flooding

Bordering

Isolated

(c) Coastal:

Land Under the Ocean\*

Coastal Beach\*

Barrier Beach\*

Rocky Intertidal Shore\*

Land Under Salt Pond\*

Fish Run\*

Designated Port Area\*

Coastal Dune

Coastal Bank

Salt Marsh\*

Land Containing Shellfish\*

\*Likely to involve U.S. Army Corps of Engineers concurrent jurisdiction. See General Instructions for Completing Notice of Intent.

10.99: continued

12. Is the project within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife (if any) published by the Natural Heritage and Endangered Species Program?

YES  NO  Date printed on the Estimated Habitat Map  
 NO MAP AVAILABLE  (if any) 1993

If yes, have you sent a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program via the U.S. Postal Service by certified or priority mail (or otherwise sent it in a manner that guarantees delivery within two days) no later than the date of the filing of this Notice of Intent with the conservation commission and the DEP regional office?

YES  NO

If yes please attach evidence of timely mailing or other delivery to the Natural Heritage and Endangered Species Program.

Part II: Site Description

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe existing site conditions.

Identifying  
 Number/Letter  
 (of plan, narrative  
 or calculations)

_____	<u>Natural Features</u>
_____	Soils
_____	Vegetation
<u>B</u>	Topography
<u>B</u>	Open water bodies (including ponds and lakes)
<u>B D</u>	Flowing water bodies (including streams and rivers)
_____	Public and private surface water and ground water supplies on or within 100 feet of site
_____	Maximum annual ground water elevations with dates and location of test
<u>C</u>	Boundaries of resource areas checked under Part 1, item 11 above
_____	Other
_____	<u>Man-made Features:</u>
<u>B D</u>	Structures (such as buildings, piers, towers and headwalls)
<u>B D</u>	Drainage and flood control facilities at the site and immediately off the site, including culverts and open channels (with inverts), dams and dikes
_____	Subsurface sewage disposal systems
_____	Underground utilities

10.99: continued

- \_\_\_\_\_ Roadways and parking areas
- \_\_\_\_\_ Property boundaries, easements and rights-of-way
- \_\_\_\_\_ Other

**Part III: Work Description**

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe work proposed within each of the resource areas checked in Part I, item 11 above.

Identifying  
Number/Letter  
(of plan, narrative  
or calculations)

- D   Planview and Cross Section of:  
Structures (such as buildings, piers, towers and headwalls)
- D   Drainage and flood control facilities, including culverts  
and open channels (with inverts), dams and dikes
- \_\_\_\_\_ Subsurface sewage disposal systems & underground utilities
- \_\_\_\_\_ Filling, dredging and excavating, indicating volume and  
composition of material
- \_\_\_\_\_ Compensatory storage areas, where required in accordance  
with Part III, section 10.57(4) of the regulations.
- \_\_\_\_\_ Wildlife habitat restoration or replication areas
- \_\_\_\_\_ other

Point Source Discharge

Description of characteristics of discharge from point source (both closed and open channel), when point of discharge falls within resource area checked under Part I, item 11 above, as supported by standard engineering calculations, data and plans, including but not limited to the following:

1. Delineation of the drainage area contributing to the point of discharge;
2. Pre- and post-development peak run-off from the drainage area, at the point of discharge, for at least the 10-year and 100-year frequency storm;
3. Pre- and post-development rate of infiltration contributing to the resource area checked under Part I, item 11 above;
4. Estimated water quality characteristics of pre- and post-development run-off at the point of discharge.

10.99: continued

Part IV: Mitigating Measures

1. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:
  - (a) All measures and designs proposed to meet the performance standards set forth under each resource area specified in Part II or Part III of the regulations; or
  - (b) Why the presumptions set forth under each resource area specified in Part II or Part III of the regulations do not apply.

<input type="checkbox"/> Coastal <input checked="" type="checkbox"/> Inland	Resource Area Type:  WATERWAY	Identifying number or letter of support documents
The erection of the fish ladder will be done in the day. A fabric tube type cofferdam will be placed upstream and downstream of the dam.		D

<input type="checkbox"/> Coastal <input checked="" type="checkbox"/> Inland	Resource Area Type:  WATERWAY	Identifying number or letter of support documents
A permanent log boom will be installed to protect the fish ladder from being clogged with floating debris.		D

310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

10.99: continued

<input type="checkbox"/> Coastal <input type="checkbox"/> Inland	Resource Area Type:  	Identifying number or letter of support documents

2. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:

- (a) all measures and designs to regulate work within the Buffer Zone so as to ensure that said work does not alter an area specified in Part I, Section 10.02(1)(a) of these regulations; or
- (b) If work in the Buffer Zone will alter such an area, all measures and designs proposed to meet the performance standards established for the adjacent resource area, specified in Part II or Part III of these regulations.

<input type="checkbox"/> Coastal <input checked="" type="checkbox"/> Inland	Resource Area Type Bordered By 100-Foot Discretionary Zone:	Identifying number or letter of support documents
Staging of construction will be done on shore in the buffer zone. The area will be restored to its current condition.		

10.99: continued

Part V: Additional Information for a Department of the Army Permit

1. COE Application No. \_\_\_\_\_  
(to be provided by COE)
2. Ipswich River  
(Name of waterway)
3. Names and addresses of property owners adjoining your property:
4. Document other project alternatives (i.e., other locations and/or construction methods, particularly those that would eliminate the discharge of dredged or fill material into waters or wetlands).
5. 8 1/2" x 11" drawings in planview and cross-section, showing the resource area and the proposed activity within the resource area. Drawings must be to scale and should be clear enough for photocopying.

Certification is required from the Division of Water Pollution Control before the Federal permit can be issued. Certification may be obtained by contacting the Division of Water Pollution Control, 1 Winter Street, Boston, Massachusetts 02108.

Where the activity will take place within the area under the Massachusetts approved Coastal Zone Management Program, the applicant certifies that his proposed activity complies with and will be conducted in a manner that is consistent with the approved program.

Information provided will be used in evaluating the application for a permit and is made a matter of public record through issuance of a public notice. Disclosure of this information is voluntary; however, if necessary information is not provided, the application cannot be processed nor can a permit be issued.

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

<u>Town of Ipswich</u>	<u>Paul W Smith</u>	<u>6/19/95</u>
Signature of Applicant	Town Mgr	Date
<u>Paul W Smith</u>		<u>5/9/95</u>
Signature of Applicant's Representative		Date

FORM 100 (TEST) 1 MAY 82

"Exception to ENG Form 4345 approved by HOUFACE, 6 May 1982"

"This document contains a joint Department of the Army and State of Massachusetts application for a permit to obtain permission to perform activities in United States waters. The Office of Management and Budget (OMB) has approved those questions required by the US Army Corps of Engineers. OMB Number 0702-0036 and expiration date of 30 September 1983 applies. This statement will be set in 6 point type."



## EXHIBIT A

### Project Description

#### Existing Dam

The Ipswich Mills Dam is a run-of-the-river dam located at the Town of Ipswich on the Ipswich River, about 3.5 miles upstream from Ipswich Bay. The Ipswich River below the dam is tidal estuary.

The dam has a hydraulic height of about 9 ft. and is about 180 ft. long. The crest of the 130 ft. long overflow section is about 4.7 ft. below the top of the dam.

The dam is a gravity structure constructed of ashlar masonry with a vertical downstream face. A fish ladder is located through the dam near the right abutment.

It is believed that the dam was constructed around 1900 and rebuilt in 1908. The dam was formerly owned by the Ipswich Mills and was used to generate power. The dam is now owned by GTE Sylvania, Inc.

The drainage area above the dam is about 149 sq. mi. and the maximum impoundment capacity to the top of the dam is estimated to be about 140 acre-ft.

The presence of dams without adequate upstream fish passage facilities along river systems has prevented or significantly reduced the number of migratory fish that return to available habitat. Because of its location and exit velocities, the fish can not find the existing fish ladder. The *alosa*, not sharing the same leaping ability or swimming characteristics as the salmonids and are more dependant upon adequate upstream fish passage facilities for being able to pass barriers and reaching their spawning areas, are prevented from migrating on this river. Downstream fish passage facilities are also essential so that the spawned out adults as well as their fry can safely pass over the same barrier(s) on their journey back to sea.

#### Fishway

A new chute-type Fishway, consisting of Denil baffles will be constructed at the dam. The Denil fishway is the most common fishway in the Northeast and a very reliable fishway. Because of its small size, it is the least costly of the four major types of fishways. It will pass most migratory species and all members of the *alosa* family. Of all the migratory species, only spawning sized striped bass and sturgeon are reluctant to negotiate a Denil fishway.

Baffles are set at a 45° angle to the floor, sloping upstream. For a 4 foot wide fishway, the actual clear opening in the baffle is 2'-4". For other design information, see figure 1. Fish must continually swim in the sloped Denil baffle section of the fishway and can rest at the pools either upstream or downstream of the baffle sections. Typical criteria allows no more than 6 to 9 feet of vertical rise before requiring a resting pool.

The average flow velocities through the Denil baffle sections is between two and four cubic feet per second (cfs). A typical design depth of this type of fishway is 30 inches at normal river flows, with a minimum depth of two feet, as measured at the turning pools. For a four

foot wide Denil fishway, this is equivalent to a flow rate of about 10.5 cfs and 4.5 cfs respectively. At a maximum design depth of 4 feet, and the width 4 feet a Denil this size can pass about 37 cfs. The entrance of the fishway is as close to the base of the dam and along the side of the dam that lies the farthest upstream.

Maintenance considerations are relatively minor for the Denil. Ideally, the fishway should be inspected at least twice a week during the migration period to remove debris wedged inside the baffles, and to clean off the trash rack and/or trash boom at the exit channel. Additionally, some minor adjustments to the stoplogs in the fishway entrance channel may be required. The wooden baffles have to be replaced about every 8 to 10 years depending upon fishway location and what type of wood is used in the construction.

### **Proposed Construction**

The proponent of the fishway is the Town of Ipswich. The envisioned sequence for construction of this fishway is:

- Install the upstream and downstream cofferdams. These cofferdams are temporary structures, designed and installed by the Contractor. They can consist of an anchored water filled balloon type barrier.
- Using a sump pump the interior of the cofferdam is pumped out. Pumping will be continuous to maintain a dry work area.
- The existing stone block pier will be removed to the limits shown.
- The downstream area will be excavated to subgrade where concrete leveling mats will be placed for the fishway.
- The concrete for the fishway will be placed and tie-down anchors drilled into the rock to hold the fishway in place.
- The pier will be rebuilt to the previous dimension with placed concrete. The existing gateways will be blocked off. A new side mounted slide gate will be installed to control flow at the fishway.
- A new notch will be cut into the dam to allow the fish to pass through the dam back to the ocean.
- The cofferdam will be removed.
- A floating trash boom will be installed that is connected to the pier and the stone wall.

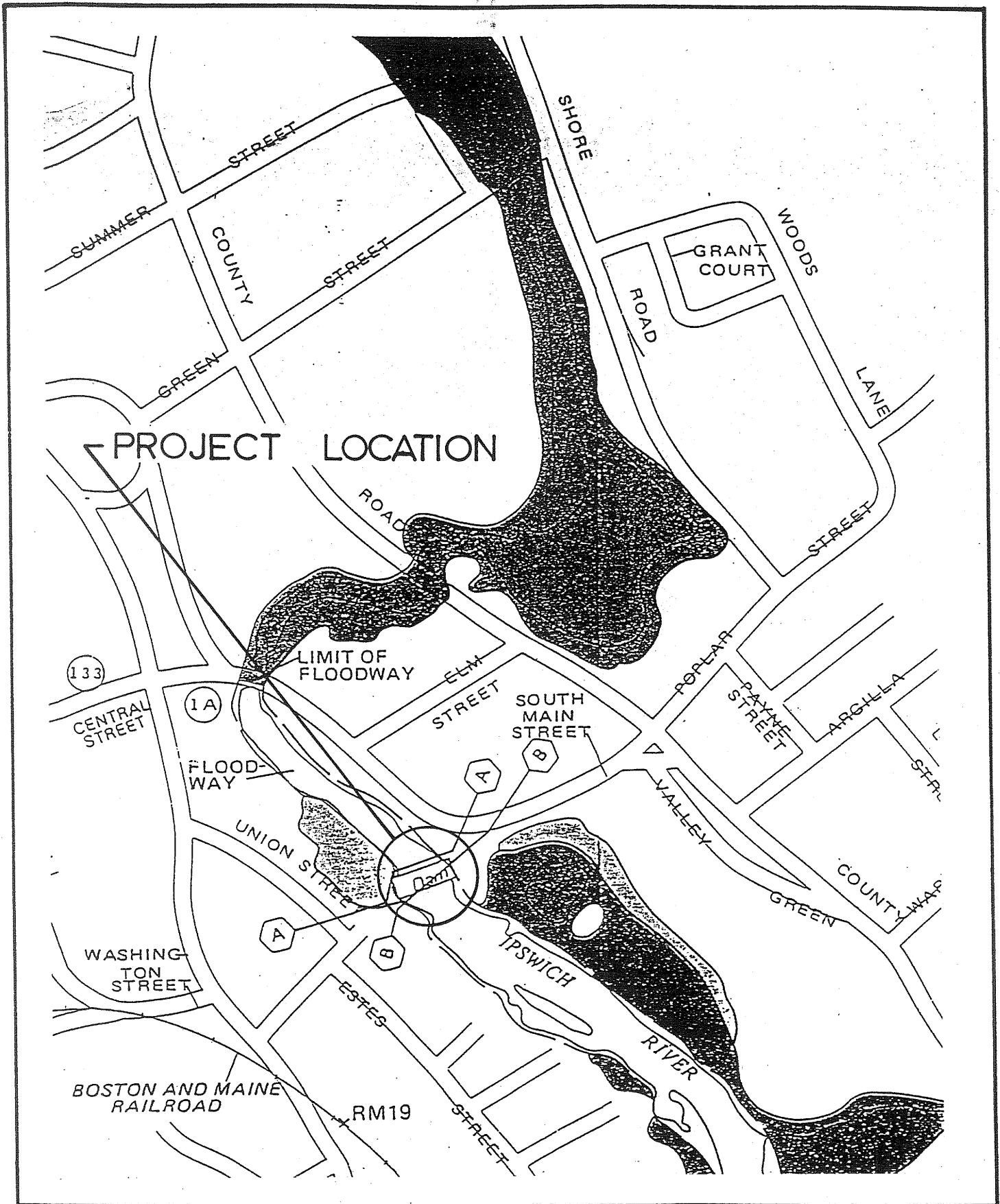


PROJECT LOCATION

B  
SITE LOCATION  
USGS QUADRANGLE

TOWN OF IPSWICH  
IPSWICH RIVER  
FISH LADDER





C  
FEMA FLOOD  
BOUNDARY MAP

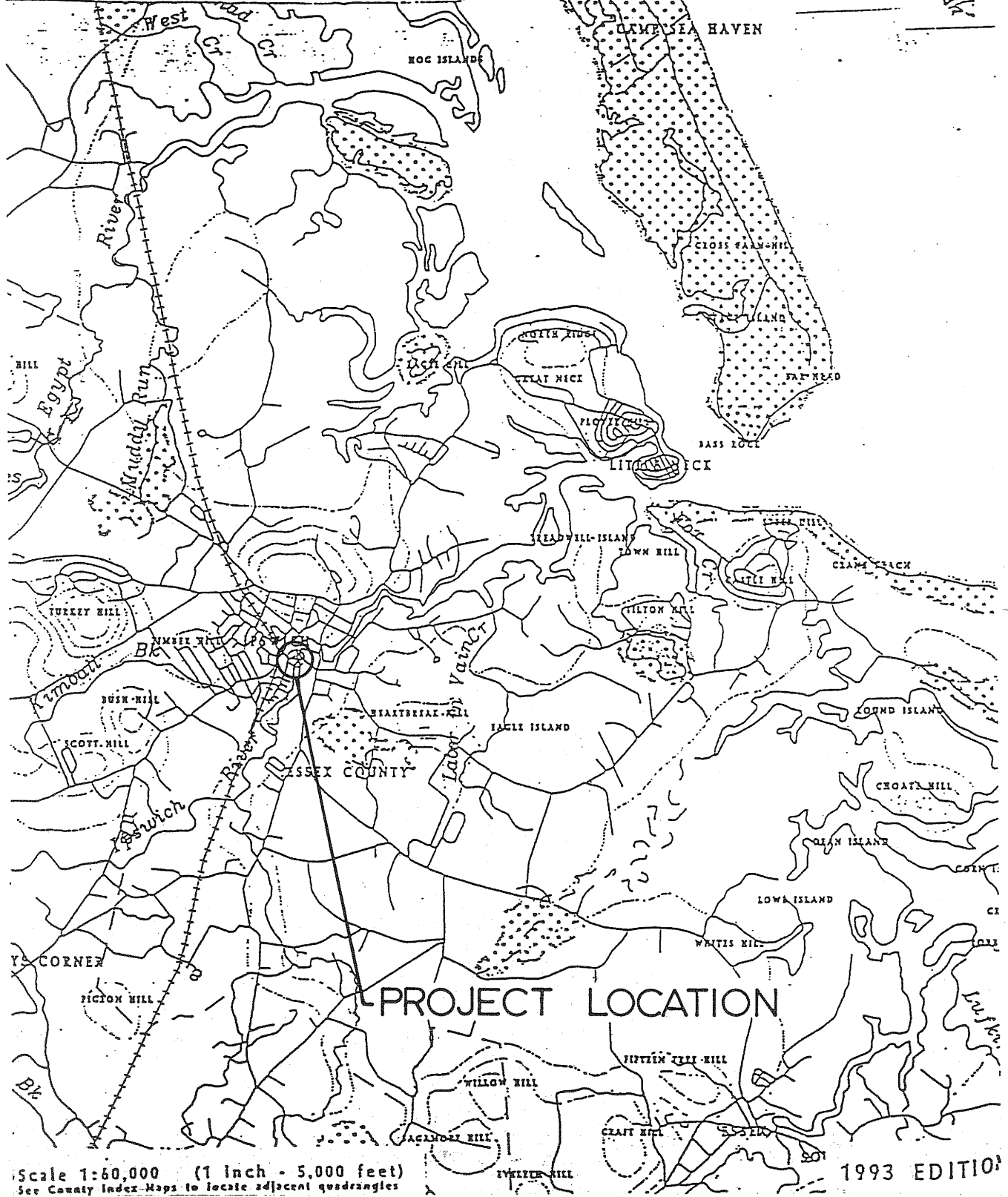
TOWN OF IPSWICH  
IPSWICH RIVER  
FISH LADDER





MAP OF ESTIMATED HABITATS  
OF STATE-LISTED RARE WETLANDS WILDLIFE  
Use only in reference to the Wetlands  
Protection Act Regulations (310 CMR 10)  
Natural Heritage & Endangered Species Program  
Massachusetts Division of Fisheries & Wildlife

IPSWICH QUAD



E  
ESTIMATED  
HABITATS

TOWN OF IPSWICH  
IPSWICH RIVER  
FISH LADDER



**Gannett Fleming**  
ENGINEERS AND PLANNERS

(To be provided by DEP)

Form 5

City/Town Ipswich

Applicant Town of Ipswich DPW

Commonwealth  
of Massachusetts

Order of Conditions  
Massachusetts Wetlands Protection Act  
G.L. c. 131, §40  
and the IPSWICH WETLANDS PROTECTION BY-LAW

From IPSWICH CONSERVATION COMMISSION Issuing Authority

To Town of Ipswich DPW Town of Ipswich  
(Name of Applicant) (Name of property owner)

Address Union St. & So. Main St. Address Town of Ipswich  
Ipswich, MA 01938 Ipswich, MA 01938

This Order is issued and delivered as follows:

by hand delivery to applicant or representative on \_\_\_\_\_ (date)

by certified mail, return receipt requested on August 22, 1995 (date)

This project is located at Union Street & So. Main Street

The property is recorded at the Registry of Essex South

Book 6999 Page 772

Certificate (if registered) \_\_\_\_\_

The Notice of Intent for this project was filed on June 20, 1995 (date)

The public hearing was closed on June 28, 1995 (date)

Findings

The Commission has reviewed the above-referenced Notice of Intent and plans and has held a public hearing on the project. Based on the information available to the Commission at this time, the Commission has determined that the area on which the proposed work is to be done is significant to the following interests in accordance with the Presumptions of Significance set forth in the regulations for each Area Subject to Protection Under the Act (check as appropriate):

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Public water supply  | <input type="checkbox"/> Flood Control           | <input type="checkbox"/> Land containing shellfish      |
| <input type="checkbox"/> Private water supply | <input type="checkbox"/> Storm damage prevention | <input type="checkbox"/> Fisheries                      |
| <input type="checkbox"/> Ground water supply  | <input type="checkbox"/> Prevention of pollution | <input type="checkbox"/> Protection of Wildlife Habitat |

Total Filing Fee Submitted Town exempt State Share N/A  
(1/2 fee in excess of \$25)

City/Town Share N/A

Total Refund Due \$ \_\_\_\_\_ City/Town Portion \$ \_\_\_\_\_ State Portion \$ \_\_\_\_\_  
(1/2 total) (1/2 total)

Therefore, the Commission hereby finds that the following conditions are necessary, in accordance with the Performance Standards set forth in the regulations, to protect those interests checked above. The Commission orders that all work shall be performed in accordance with said conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications or other proposals submitted with the Notice of Intent, the conditions shall control.

#### General Conditions

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state or local statutes, ordinances, by-laws or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
  - (a) the work is a maintenance dredging project as provided for in the Act; or
  - (b) the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance and both that date and the special circumstances warranting the extended time period are set forth in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. Any fill used in connection with this project shall be clean fill, containing no trash, refuse, rubbish or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles or parts of any of the foregoing.
7. No work shall be undertaken until all administrative appeal periods from this Order have elapsed or, if such an appeal has been filed, until all proceedings before the Department have been completed.
8. No work shall be undertaken until the Final order has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, the Final order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is to be done. The recording informatin shall be submitted to the Commission on the form at the end of this order prior to commencement of the work.
9. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,  
"Massachusetts Department of Environmental Protection,  
File Number 36-425"
10. Where the Department of Environmental Protection is requested to make a determination and to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before the Department.

11. Upon completion of the work described herein, the applicant shall forthwith request in writing that a Certificate of Compliance be issued stating that the work has been satisfactorily completed.

12. The work shall conform to the following plans and special conditions:

Plans:

Title	Dated	Signed and Stamped by:	On File with:
Ips. Mills Fish Ladder	5/95	Gannett Flemming	Ipswich Cons. Com
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Special Conditions (Use additional paper if necessary)

13. Special Conditions include the following conditions, 14 through 25 on the attached pages, 5-3B and 5-3C, herewith declared to be a part of this Order and which must be registered with it at the Essex Registry of Deeds.

(Leave Space Blank)

.....



APPLICANT: Dept. of Public Works, Town of Ipswich (Sylvania Dam)

DEP FILE #: 36-425

14. As per General Condition #8, no work shall be undertaken until the Final Order has been recorded in the Registry of Deeds and the recorded information has been submitted to the Conservation Commission. This Order must be recorded within 30 days of the date of issuance.

15. All debris, fill and excavated material shall be stockpiled far enough away from designated wetlands, and at a location to prevent sediment from surface runoff entering wetlands.

16. No activity may occur outside the limits of the cofferdams in or along the banks of the Ipswich River

17. Upon completion of the proposed work, an "as-built" plan shall be prepared for all work that has been proposed within the resource areas or 100-foot buffer zone. Such a plan shall indicate, in a clear manner, the final and actual conditions. The applicant or his successor shall request a Certificate of Compliance, including with that request, the "as-built" plans.

18. The applicant, owner, successors or assigns shall be responsible for maintaining all on-site drainage structures and outfalls, and assuring that site activities so prevent erosion, siltation, sedimentation, chemical contamination or other detrimental impact to the on-site wetlands and/or off-site resource areas. The maintenance activities specified in this Order shall not expire with the issuance of a Certificate of Compliance. It shall be the responsibility of the property owner of record to see that maintenance conditions are complied with as required by this Order.

19. During construction for this project, an on-site foreman, directing engineer, or designated construction manager shall have a copy of this Order at the site, shall familiarize him or herself with the conditions of this permit, and shall adhere to said conditions. The excavating subcontractor shall also have a copy of this Order at the site, shall familiarize him or herself with the conditions of this permit, and shall adhere to said conditions.

20. All waste products, grubbed stumps, if any, slash, construction materials, etc., shall be deposited at an approved landfill and shall not be, in any manner, incorporated into the project site.

21. During and after work on this project, there shall be no discharge or spillage of fuel, oil or other pollutants into any resource area. Whenever possible, servicing of equipment (fueling, changing, adding or applying lubricants or hydraulic fluids) should be done outside the 100-foot buffer zone of the River. Equipment must be maintained to prevent leakage or discharge of pollutants. Overnight storage of equipment must be, whenever possible, a minimum of 100 feet from the river.

22. No petroleum products may be stored within the 100-foot buffer zone of the River and any used petroleum products resulting from the maintenance and servicing of construction equipment shall be collected and disposed of off-site.

23. Members and agents of the Conservation Commission shall have the right to enter and inspect the premises to evaluate and ensure compliance with the conditions and performance standards stated in this Order, the Notice of Intent, the Ipswich Wetlands Protection By Law, the

APPLICANT: Dept. of Public Works, Town of Ipswich (Sylvania Dam)

DEP FILE #: 36-425

referenced Plans, the Act, and 310 CMR 10.00, and may acquire any information, measurements, photographs, observations and/or materials or may require the submittal of any data or information deemed necessary by this Commission for that evaluation.

24. If any changes are made in the above-described plans, unless specified otherwise in this Order, which will alter an area subject to protection under the Wetlands Protection Act, or if any changes are proposed in activities subject to regulation under M.G.L. Chapter 131, Section 40, or the Ipswich Wetlands Protection By-Law, the applicant shall make written inquiry to the Conservation Commission, prior to commencement of work, whether the changes are significant enough to require the filing of a new Notice of Intent. A copy of such a request, at the same time, is to be sent to the Department of Environmental Protection.

25. This Order of Conditions shall be included in all construction contracts and subcontracts dealing with the work proposed and shall supersede other contract requirements.

Issued By IPSWICH Conservation Commission

Signature(s) Lillian V. North  
Bramble Boyd  
Beverly D. Perna  
[Signature] [Signature]  
[Signature] [Signature]

This Order must be signed by a majority of the Conservation Commission.

On this 22nd day of August 1995, before me personally appeared Lillian V. North, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Elise W. Graves My Commission Expires October 10, 1997  
Notary Public My commission expires

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the Department of Environmental Protection to issue a Superseding Order, providing the request is made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form as provided in 310 CMR 10.03(7), within ten days from the date of issuance of this determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and the applicant.

Detach on dotted line and submit to the \_\_\_\_\_ prior to commencement of work.

To \_\_\_\_\_ Issuing Authority

Please be advised that the Order of Conditions for the project at \_\_\_\_\_

File Number \_\_\_\_\_ has been recorded at the Registry of \_\_\_\_\_ and

has been noted in the chain of title of the affected property in accordance with General Condition 8 on

\_\_\_\_\_, 19\_\_\_\_.

If recorded land, the instrument number which identifies this transaction is \_\_\_\_\_

If registered land, the document number which identifies this transaction is \_\_\_\_\_

Signature \_\_\_\_\_ Applicant

C.C DEP  
Town of Ips. DPW  
Gannett Fleming, Inc.  
Ips. Bldg Insp.  
Ips. Town Clerk  
File

## Fw: Ipswich Mills Dam Removal Sed Sampling Plan

Casey Chatelain <cchatelain@horsleywitten.com>

Wed 2/28/2024 3:46 PM

To: Casey Chatelain <cchatelain@horsleywitten.com>

---

**From:** Alepidis, Kenneth (DEP) <Kenneth.Alepidis@mass.gov>

**Sent:** Wednesday, February 28, 2024 3:01 PM

**To:** Neal Price <nprice@horsleywitten.com>

**Cc:** Standish, Derek (DEP) <derek.standish@mass.gov>

**Subject:** RE: Ipswich Mills Dam Removal Sed Sampling Plan

Thank you, Neal.

This revised sediment sampling plan for the Ipswich Mills Dam Removal project located in Ipswich (provided today, 2/28/2024), is approved.

Good luck in the field.

Let me know if you have any questions.

Thanks,

Ken Alepidis, P.G.

401 Water Quality Certification Unit

MassDEP

[Kenneth.Alepidis@Mass.gov](mailto:Kenneth.Alepidis@Mass.gov)

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Appendix F: January 2024 Office of Dam  
Safety Series of Public Safety Notices to  
Dam Owners

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January 2024

**Subject: Enclosed Series of Public Safety Notices**

Dear Dam Owner,

You are receiving this packet of information as you are listed as the owner of a dam or dams located within the Commonwealth of Massachusetts that fall(s) under the jurisdiction of the Office of Dam Safety and is subject to MGL Ch. 253, Sections 44 – 50 and corresponding regulations 302 CMR 10.00.

Enclosed, for your review and that of your engineering consultant, please find a series of public safety notices that have been drafted for informational purposes. Subjects include:

- Notice Regarding Public Safety Hazards at “Low Head” Dams That are Subject to State Regulation
- Public Safety Notice Regarding Spillway Adequacy
- Public Safety Notice Regarding the Policy on Trees on Dams
- Public Safety Notice Regarding the Potential Impacts of Beaver Activity on or Near Man-Made Dams
- Public Safety Notice Regarding Hazard Creep
- Public Safety Notice Regarding Overtopping of Dams
- Public Safety Notice Regarding Winter Risks to Dams

Please note, any actions taken by you as the dam owner must be in conformance with all applicable local, state, and/or federal regulations. It is recommended that you seek the guidance of your chosen engineering consultant before conducting any work at your dam.

The enclosed public safety notices are also available on the Office of Dam Safety website located at the following link: <https://www.mass.gov/office-of-dam-safety>.

If you have any questions pertaining to these enclosed notices, please contact Office of Dam Safety at 617-620-8583 or [dam.safety@mass.gov](mailto:dam.safety@mass.gov).

Thank you for your cooperation in ensuring dam safety in the Commonwealth.

Sincerely,

William C. Salomaa, Director  
Office of Dam Safety







**Subject: Notice Regarding Public Safety Hazards at "Low Head" Dams That are Subject to State Regulation**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information regarding hazardous flow conditions that have the potential to develop at "low head" dams, also known as "roll" dams. Per dam safety regulations 302 CMR 10.03 Definitions, a roll dam, or a low head dam, is defined as "usually run-of-the-river overflow weir[s] or spillway structures that produce vertical water surface drops of one to 15 feet and change river flows from super-critical to sub-critical."

According to the American Society of Civil Engineers (ASCE), "A **low head dam** is a manufactured structure, built in a river or stream channel, extending fully across the banks. A low-head dam is designed and built such that water flows continuously over the crest from bank to bank. If water levels rise downstream, a submerged hydraulic jump can form that produces an upstream directed current that traps any recreationist who might go over the dam."

Information on the hazard posed by the submerged hydraulic jump flow condition, also known as a "hydraulic roller," has been compiled by the Association of Dam Safety Officials (ASDSO) and is available on the following web page, <https://www.damsafety.org/public-safety-hazards#Hydraulic%20Roller>.

With support from the Federal Emergency Management Agency (FEMA), the Public Broadcasting Service (PBS) has produced a video, "Over, Under, Gone: The Killer in our Rivers," which demonstrates the hazardous flow conditions that can exist at low head dams. The video is available at the following web page, <https://www.pbs.org/video/over-under-gone-killer-our-rivers/>.

In June 2021, DCR ODS updated the required Phase I inspection report template to include "Section 2.5 **Awareness of Potential Dam Related Safety Hazards at, near, and on Dams**". If your dam has been inspected since June 2021 and your inspecting engineer determined that your dam is or may be subject to this condition, it is likely specified in Section 2.5 of the report. Please review Section 2.5 of your most recent Phase I inspection report and direct your engineering consultant to 1) assess the possibility of hydraulic roller conditions developing at your dam and to 2) evaluate the need for installation of safety measures at the dam such as signage, booms, and buoys to limit exposure of the public to potential water-based safety hazards.

If your dam has not been inspected since June 2021 or your most recent report does not reference this condition in Section 2.5, during your next inspection, please direct your inspecting engineer to evaluate the potential of hydraulic roller conditions developing at the dam.

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam."

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS  
Department of Conservation and Recreation  
180 Beaman Street  
West Boylston, MA 01583  
508-792-7423 508-792-7805 Fax  
[www.mass.gov/dcr](http://www.mass.gov/dcr)



Maura T. Healey  
Governor

Kimberley Driscoll  
Lt. Governor

Rebecca L. Tepper, Secretary  
Executive Office of Energy & Environmental Affairs

Brian Arrigo, Commissioner  
Department of Conservation & Recreation



Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with a large initial "W" and a distinct "C" and "S".

William C. Salomaa, Director  
Office of Dam Safety



**Subject: Public Safety Notice Regarding Spillway Adequacy**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information pertaining to the spillway adequacy of dams. The term "adequate spillway capacity" is defined as the ability of a dam's existing primary spillway, as well as auxiliary spillway (if available), and other discharge/outlet works to pass the Spillway Design Flood (SDF) without overtopping the dam. Dam Safety regulations 302 CMR 10.03 defines the Spillway Design Flood as "the flood used in the design of a dam and its appurtenant works particularly for sizing the spillway(s) and outlet works, and for determining maximum temporary storage and height of dam requirements."

Details regarding the SDF applicable to your dam(s) are provided in Attachment A to this letter. Additional details regarding computing SDFs are provided in Attachment B to this letter.

It is recommended that you hire an engineer to review 1) all records pertaining to the adequacy of your dam's spillway, and 2) conduct and submit to ODS an updated hydrologic and hydraulic analysis demonstrating the spillway adequacy of your dam using an appropriate methodology.

302 CMR 10.08 (7) states that when the spillway capacity of the existing dam does not meet stated criteria, the Commissioner may require the dam owner's engineer to perform a relative impact analysis. This analysis shall address such factors as: downstream impact area, capacity and/or condition of outlet work(s), overtopping potential, operation plans, consideration of incremental impacts of possible failure, and Emergency Action Plans. A reduction in the standard design flood may be allowed to such dam upon review and approval by the Commissioner.

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam." You are therefore responsible for any adverse consequences that may occur downstream of your dam as a result of damage that occurs to your dam during an extreme rainfall event. It is recommended that you maintain the operability of your spillway and outlet works and always ensure they are free and clear of debris and obstructions to flow, especially during periods of significant rainfall and runoff events.

If you have any questions or require assistance responding to this request, please contact David Ouellette, P.E. of ODS by phone at 617-549-3553 or by email at [David.Ouellette@mass.gov](mailto:David.Ouellette@mass.gov).

Thank you for your attention to this important public safety concern and for your anticipated cooperation.



Sincerely,

A handwritten signature in black ink, reading "William C. Salomaa". The signature is written in a cursive style with a large, stylized initial "W".

William C. Salomaa, Director  
Office of Dam Safety

## Attachment A

### 302 CMR 10.14 Design and Construction Criteria for New and Existing Dams

#### (6) Spillway Design

(a) The spillway system shall have a capacity to pass a flow resulting from a design storm, as indicated in the following table, unless the applicant provides calculations, designs and plans to show that the design flow can be stored, passed through, or passed over the dam without failure occurring.

SPILLWAY DESIGN FLOOD DESIGN STORM

Hazard Potential	Size	Existing Dams	New Dams
Low	small	50 year	100 year
	intermediate	50 year	100 year
	large	100 year	100 year
Significant	small	100 year	500 year
	intermediate	100 year	500 year
	large	500 year	½ PMF
High	small	500 year	PMF
	intermediate	½ PMF	PMF
	large	½ PMF	PMF

**Attachment B**  
**Spillway Design Floods (SDFs)**

The 50, 100, or 500 year flood flow is usually determined by a registered Professional Engineer's analysis that applies the appropriate rainfall over a 24-hour period, as determined from National Oceanic and Atmospheric Administration's (NOAA) Atlas 14, to a rainfall-runoff model such as the U.S. Army Corps of Engineers Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS); or performing a peak discharge frequency analysis utilizing annual peak stream flows from an appropriate USGS gage record, if available. The USGS gage record technique may be appropriate if the dam/reservoir area does not contain significant surcharge storage and the peak flood discharge is going to be used for spillway design.



**Subject: Public Safety Notice Regarding the Policy on Trees on Dams**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information regarding the policy on trees on dams. **The Massachusetts Office of Dam Safety requires that earth embankment dams be maintained free of the existence of trees and woody growth.**

Tree and woody vegetation growth on earthen dams and in close proximity to other dams such as concrete dams is undesirable and at a minimum has some level of detrimental impact upon operation, inspection, performance, and safety of dams. Tree roots cause serious structural damage to earth embankment and appurtenant dam features such as gate wells, spillway walls, and other components.

It is recommended that earth embankment dams be maintained with a healthy uniform cover of desirable vegetation such as an appropriate variety of grasses. Dam embankment grass should be mowed periodically to promote healthy cover and prevent infestation of undesirable woody growth and weeds.

Trees and woody growth can make it difficult to conduct inspections of dams. Tree roots can cause leaks, damage concrete joints and overturn during high wind events causing large voids due to pull out of root balls and cause many other problems that will be very costly to repair. Trees and woody growth located in spillways will dramatically reduce spillway flow capacity. Trees are known to accelerate deterioration of dams and can lead to dam failure.

It is recommended that the area at least 20 feet downstream from the entire downstream toe of earth embankment dams be maintained free of trees and woody growth. This is necessary to prevent root systems from growing into the dam embankment causing damage to this area of the dam.

For concrete dams and appurtenant features of all dams it is recommended that tree growth not be allowed to occur within 20 feet of such features. In some cases, it may be necessary to maintain a greater distance to ensure roots do not adversely impact dam components. Do not allow tree growth in areas located above buried conduits/pipes.

Prior to removal of existing trees and woody growth from dams, part A of a Chapter 253 Dam Safety Permit Application must be submitted to the Office of Dam Safety. Permit applications should be prepared by a qualified dam engineer for larger projects involving removal of trees in excess of 4 inches and where there is planned excavation of roots. The Office of Dam Safety will review applications and determine if the planned work requires a permit. If the project involves removal of brush and trees 4 inches and less in diameter the Office of Dam Safety may find a permit is not necessary to conduct the work. In general, routine maintenance activity does not require a Dam Safety permit.



Please note, the dam owner is responsible for ensuring that all other local, state, and federal agency permits that may apply to planned work are obtained prior to conducting work.

To view the sources of information used in the development of this policy on trees and vegetation on dams, please visit the Office of Dam Safety website at the following link: <https://www.mass.gov/info-details/policy-on-trees-on-dams>.

For information pertaining to the Dam Safety permit process, please visit our website at the following link: <https://www.mass.gov/info-details/office-of-dam-safety-permit-process>, or contact Office of Dam Safety permit engineer David Ouellette, P.E., by phone at 617-549-3553 or by email at [David.Ouellette@mass.gov](mailto:David.Ouellette@mass.gov).

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam."

Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with a large initial 'W'.

William C. Salomaa, Director  
Office of Dam Safety



**Subject: Public Safety Notice Regarding the Potential Impacts of Beaver Activity on or Near Man-Made Dams**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information regarding the potential impacts of beaver activity on or near man-made dams. Beavers and other rodents can impact the structural integrity and performance of man-made dams. Management of beaver activity is an essential component of ensuring the structural integrity and safe operations of a man-made dam and to limit potential liability.

Beavers are naturally attracted to running water and will often try to plug spillways, intake structures, outlet works, channels, etc. with their cuttings, mud, rocks, and debris. Beaver activity on or near man-made dams can result in elevated water levels both upstream and downstream of man-made dams. The elevated water levels can cause significant issues such as increased pressure on a man-made dam, sudden uncontrolled releases of water from behind a beaver dam, erosion of embankments, or reduced discharge capacity, etc., all of which may lead to failure of a man-made dam.

The Federal Emergency Management Agency (FEMA) has compiled several resources that contain information relative to the impact of beaver activity on man-made dams:

- FEMA 145 Dam Safety an Owners Guidance Manual (available for download on the ODS website at the following link: <https://www.mass.gov/doc/fema-145-dam-safety-an-owners-guidance-manual/download>)
- FEMA 473 Impacts of Animals on Earthen Dams (available for download at the following link: <https://www.fema.gov/sites/default/files/2020-08/fema-473.pdf>)
- FEMA L-264 Dam Owner's Guide to Animal Impacts on Earthen Dams (available for download at the following link: <https://www.fema.gov/sites/default/files/2020-08/fema-l264-dam-owners-guide-animal-impacts-earthen-dams.pdf>)

The Massachusetts Division of Fisheries and Wildlife has also compiled several resources regarding beaver related issues. Those resources are available at the following link: <https://www.mass.gov/service-details/learn-about-beavers>. Please note that located at the bottom of this webpage is a section titled "Additional Resources" that may prove helpful, including a resource titled "A Citizen's Guide to Addressing Beaver Conflicts".

Routinely removing beaver cuttings and other debris is one way to try and mitigate beaver activity, but beavers can rebuild their obstructions in a very short span of time, even overnight. Trapping beavers may be done by the owner during the appropriate season, but beavers can migrate up and down a stream or river system and proliferate wherever habitat appears suitable. Installation of various beaver management devices may be an alternative to trapping. Continual observation is required on the part of a man-made dam owner to limit beaver activity on or near man-made dams.





Before engaging in any beaver management activities, you must contact your local Board of Health and/or Conservation Commission to obtain any required permits. You are reminded that as a property owner, you are responsible for ensuring compliance with all local, state, and/or federal regulations that may pertain to your property, including, but not limited to, securing any necessary permits. You may also wish to engage the services of a beaver management specialist.

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam."

Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with a large initial 'W' and a distinct 'S' at the end.

William C. Salomaa, Director  
Office of Dam Safety



**Subject: Public Safety Notice Regarding Hazard Creep**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information pertaining to a phenomenon known as "hazard creep" and how this phenomenon may change your regulatory obligations as a dam owner.

302 CMR 10.03 defines Hazard Potential Classification as the rating for a dam based on the potential consequences of failure. The rating is based on the potential for loss of life and damage to property downstream of the dam if failure occurred. The Hazard Potential Classification for a dam has no relationship to the current structural integrity, operational status, flood routing capability, or safety condition of the dam or its appurtenances. Per 302 CMR 10.06, there are three possible Hazard Potential Classifications for dams located in Massachusetts:

**HAZARD POTENTIAL CLASSIFICATION TABLE**

High Hazard Potential (Class I)	Dams located where failure will likely cause loss of life and serious damage to home(s), industrial or commercial facilities, important public utilities, main highway(s) or railroad(s).
Significant Hazard Potential (Class II)	Dams located where failure may cause loss of life and damage to home(s), industrial or commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important facilities.
Low Hazard Potential (Class III)	Dams located where failure may cause minimal property damage to others. Loss of life is not expected.

The Hazard Potential Classification of a dam determines which regulatory requirements apply to a dam. A dam with a higher Hazard Potential Classification is subject to more stringent regulations, such as more frequent inspections, in the interest of public safety.

According to the Federal Emergency Management Agency (FEMA) publication numbered FEMA P-919, titled "Summary of Existing Guidelines for Hydrologic Safety of Dams", <https://www.damsafety.org/resourcecenter/national-dam-safety-program-guidelines-flyers-and-other-tools#Technical%20Manuals,%20Flyers%20and%20Tools>: the development of an area downstream of a dam often causes a condition called "hazard creep." Dams originally classified as Low Hazard Potential or Significant Hazard Potentials may later be reclassified as High Hazard Potential due to development downstream that occurs after construction of the dam and the initial assessment of Hazard Potential. These reclassified dams are then subject to additional regulatory requirements, including but not limited to, increased inspection frequencies and development of Emergency Action Plans, as well as becoming subject to increasingly conservative design standards and may require significant upgrading to pass flood events of a greater magnitude in order to protect downstream interests.



According to another FEMA publication numbered FEMA P-94, titled "Selecting and Accommodating Inflow Design Floods for Dams", available for viewing at the following link: <https://www.damsafety.org/resourcecenter/national-dam-safety-program-guidelines-flyers-and-other-tools#Technical%20Manuals,%20Flyers%20and%20Tools>, "new development downstream of existing dams, a phenomenon referred to as risk creep, also commonly called hazard creep, is resulting in increased potential consequences that would occur if a dam were to fail. This evolution can result in the reclassification of many dams to a higher Hazard Potential Classification than they were originally determined to be, which requires greater spillway capacity and/or reservoir storage volume, often at substantial cost to the dam owner. As a result, the design of dams to withstand natural forces, including extreme hydrologic events, is an increasingly important matter of public safety and concern".

According to the Association of State Dam Safety Officials (ASDSO), dam safety regulators generally have no control over local zoning issues or developers' property rights, and so this issue continues to worry regulators as the hazard creep trend persists (<https://www.damsafety.org/Roadmap#The%20Increasing%20Hazard:%20Summary%20of%20US%20Dam%20Data>). The ASDSO has created a short, helpful video to demonstrate hazard creep, which is available for viewing at the following link: <https://www.youtube.com/watch?v=5CcVSVhAYvA&list=PLt9aDt7bNpdyASEPeH7juGk--ZJ6oCUDu&index=7&t=15s>.

As a result of the potential for hazard creep, the Massachusetts Dam Safety regulation, 302 CMR 10.06 (7) states, "[w]hile it is a recommended dam safety practice to review the classification of each dam during each subsequent periodic Phase I Formal Inspection, to ensure the accuracy of Hazard Potential Classification of dams, each dam owner shall hire a qualified Registered Professional Engineer to review the classification of their dam(s) at least on a frequency of ten (10) years or as otherwise ordered by the Commissioner". Please be advised that more information will be forthcoming in the future regarding your obligation to comply with this regulatory requirement.

As a dam owner, you are reminded that you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam owner "shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam." You are, therefore, responsible for any adverse consequences that may occur downstream of your dam as a result of damage that occurs to your dam during an extreme rainfall event. It is recommended that you maintain the operability of your spillway and outlet works and always ensure they are free and clear of debris and obstructions to flow, especially during periods of significant rainfall and runoff events.

If you have any questions, please contact Office of Dam Safety at [dam.safety@mass.gov](mailto:dam.safety@mass.gov) or 617-620-8583. Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with a large initial "W".

William C. Salomaa, Director  
Office of Dam Safety

CC: Ariana Johnson, Esq., DCR  
Patrice Kish, Chief, DCR, Design & Engineering  
Robert Lowell, Deputy Chief, DCR, Design & Engineering  
David Ouellette, P.E., DCR, Office of Dam Safety  
Dam Safety file





**Subject: Public Safety Notice Regarding Overtopping of Dams**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information pertaining to the impact of overtopping on the stability of dams. Overtopping is a serious dam safety concern as this can lead to dam failure, which can cause damage to downstream interests, including, but not limited to, loss of life and damage to homes, industrial or commercial facilities, and public infrastructure.

Overtopping should be considered an emergency situation. Overtopping for even a short period of time can cause damage to a dam embankment and possible failure of the dam. If overtopping occurs, appropriate emergency actions should be taken in accordance with developed Emergency Action Plans and guidance from your chosen engineering consultant, and in coordination with emergency management personnel.

The Association of State Dam Safety Officials (ASDSO) has compiled many resources regarding various topics pertaining to dam safety. One such resource titled "Dam Ownership Fact Sheet" which can be viewed in entirety at the following link: <https://www.damsafety.org/dam-owners>, describes that "overtopping failures result from the erosive action of water on the embankment. Erosion is due to uncontrolled flow of water over, around, and adjacent to the dam. Earth embankments are not designed to be overtopped and therefore are particularly susceptible to erosion. Once erosion has begun during overtopping, it is almost impossible to stop." The ASDSO has also created a helpful video to explain this phenomenon, which is available for viewing at the following link: <https://www.youtube.com/watch?v=VRGTkCv3sU&list=PLt9aDt7bNpdyASEPeH7juGk--ZJ6oCUDu&index=7>. ASDSO captioned this video with the following statements: "Overtopping of a dam is often a precursor of dam failure. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for approximately 34% of all U.S. dam failures."

There are multiple factors that can lead to overtopping. Common factors include reduced discharge capacity due to debris or vegetation blockages in spillways; structural damage to spillways and any outlet works; and/or rainfall events that exceed and overwhelm the capacity of a spillway and any outlet works. Scenarios such as these can create higher than normal pool levels. The combination of these factors can dramatically reduce the discharge and storage capacity of a dam which increases the likelihood that the dam will be overtopped during a severe storm event. Other factors that can lead to overtopping include, but are not limited to, presence of low spots or ruts on the crest, crest settlement, formation of "ice dams", high winds causing wave run up, and seismic activity.

Appropriate actions should be taken to prevent overtopping from occurring. The Federal Emergency Management Agency (FEMA) has drafted several technical publications, including a publication numbered FEMA 145, titled "Dam Safety: An Owner's Guidance Manual" and a publication titled "Emergency Operations Planning: Dam Incident Planning Guide" both of which can be viewed online at the following link: <https://www.damsafety.org/resourcecenter/national-dam-safety-program-guidelines-flyers-and-other-tools>.



These resources indicate that some actions that may be taken in preparation of significant rainfall to prevent overtopping or in response to an overtopping event may include, but not be limited to, the following:

- Removing debris or other obstructions from spillways and other outlet works as well as from downstream channels, culverts, and anywhere else where flows may be obstructed;
- Conducting controlled releases of water through the spillway(s), where applicable and appropriate, including opening of any outlet works to a safe capacity, ensuring controlled releases will not cause damages downstream;
- Placing sandbags along the crest to increase freeboard to attempt to move more water through the spillway and outlet works;
- Providing erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas;
- Diverting flood waters around the reservoir basin, if possible, which can sometimes require coordination with other dam owners/operators in the watershed;
- Creating additional spillway capacity by making a controlled breach in a low embankment or dike section where the foundation materials are erosion resistant;
- Evacuation of downstream populations at risk.

Decisions to employ any of the above-described response actions must be made in coordination with your chosen engineering consultant and emergency response personnel, and in accordance with applicable local, state, and/or federal regulations.

According to another FEMA publication numbered FEMA P-1015, titled "Technical Manual: Overtopping Protection for Dams", thousands of dams throughout North America have been determined to have inadequate spillway capacity and have the potential to experience overtopping. To address this situation, new design approaches have been developed that may allow for a dam to be safely overtopped through the employment of overtopping protection. A dam owner deciding to pursue overtopping protection for an existing dam must give strong consideration to the potential risk of failure of the protection system, which could quickly lead to a full breach of the dam. This is especially true for embankment dams as a small defect or design flaw could lead to catastrophic failure once the embankment is exposed to the overtopping flow. Overtopping protection should generally be reserved for situations with some combination of very low annual probability of occurrence, physical or environmental constraints on constructing other methods of flood conveyance, and prohibitive cost of other alternatives, or where downstream consequences of dam failure are demonstrated to be low. A careful analysis of all potential failure modes for a dam and appurtenant features must be performed for both the existing conditions and for the proposed modified conditions.

As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam." You are therefore responsible for any adverse consequences that may occur downstream of your dam as a result of damage that occurs to your dam during an extreme rainfall event. It is recommended that you maintain the operability of your spillway and outlet works and always ensure they are free and clear of debris and obstructions to flow, especially during periods of significant rainfall and runoff events.

If you have any questions, please contact Office of Dam Safety at [dam.safety@mass.gov](mailto:dam.safety@mass.gov) or 617-620-8583. Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with some loops and flourishes.

William C. Salomaa, Director  
Office of Dam Safety







**Subject: Public Safety Notice Regarding Winter Risks to Dams**

Dear Dam Owner:

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) is contacting you to share information pertaining to potential risks to dams associated with typical winter weather in New England.

Some common risks associated with winter weather are as follows:

- Frozen and saturated ground in the watershed limiting infiltration and increased runoff rates and velocity compared to the warmer months
- Ice loading outside accepted range as established by the United States Army Corps of Engineers, additional details available at the following link:  
[https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM\\_1110-2-1612.pdf](https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1612.pdf)
- Ice debris potentially becoming jammed in spillway(s) and obstructing outflow
- Scour and other direct damage occurring to concrete spillway(s) due to ice

In addition to the potential risks associated with winter weather, there are risks associated with spring weather:

- Ice on the lake posing the same risks as in the winter
- Seasonal heavy precipitation in spring
- Ripe snowpack releasing a water equivalency that increases the inflows to the pond, compounding with direct precipitation to increase the "experienced" precipitation depth
- Waterways (upstream and downstream) already at or near high water, limiting discharge capacity without causing flooding

It is recommended that you communicate with your engineering consultant to develop a plan to identify possible risks such as those noted above and assess options to mitigate these issues, for example, conducting a seasonal drawdown and allowing an impoundment to refill during the spring when risks to the dam have been minimized. The potential benefits of conducting seasonal drawdowns are as follows:

- Reducing freeze/thaw cycles on dam and appurtenances
- Reducing ice scour on dam and appurtenances
- Reducing ice loading on dam and appurtenances
- Reducing potential for dam overtopping
- Mitigating for the predictable, seasonal risks that occur in winter and spring by:
  - Creating flood storage and attenuation for inflows from watershed
  - Providing "head-start" on discharging water downstream to create additional flood storage without causing dangerous downstream flooding
  - Shifting ice loading forces on the dam into the accepted range established by the United States Army Corps of Engineers by lowering water surface elevation
  - Avoiding ice jams within spillway(s)
  - Mitigating possible ice scour impacts to the lower, wider portion of spillway



As a dam owner, you are responsible for maintaining and operating your dam in a manner that is protective of public safety. Per 302 CMR 10.13 (1), you are reminded that a dam "owner shall be responsible and liable for damage to property of others or injury to persons, including but not limited to, loss of life resulting from the operation, failure of or mis-operation of a dam."

Thank you for your attention to this important public safety concern and for your anticipated cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "William C. Salomaa". The signature is written in a cursive style with a large initial "W".

William C. Salomaa, Director  
Office of Dam Safety

Appendix G: Due Diligence Report and  
DEP Approved Sediment Sampling Plan

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# DUE DILLIGENCE REVIEW & SEDIMENT SAMPLING PLAN

## Ipswich Mills Dam Removal February 2024

### 1. INTRODUCTION

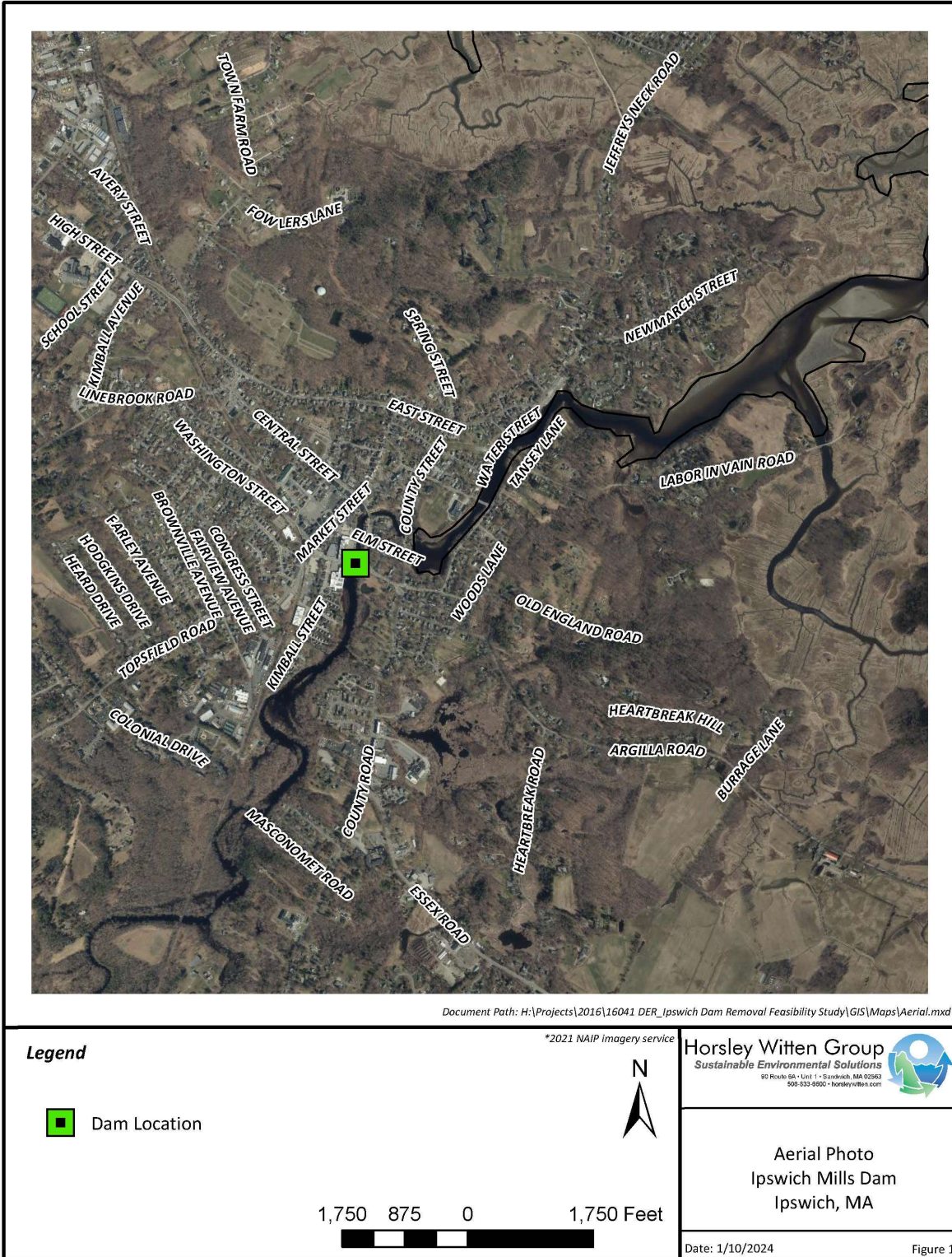
Horsley Witten Group, Inc. (HW) has completed a limited due diligence review to evaluate potential historical threats to sediment quality and to inform sediment sampling to be conducted as part of a proposed dam removal project for the Ipswich Mills Dam, located along the Ipswich River in downtown Ipswich, Massachusetts (the “Subject Property”).

The limited due diligence review consisted of the following:

- An evaluation of online records available from the Massachusetts Department of Environmental Protection (MassDEP) Waste Site and Reportable Releases Database (the “Database”);
- A review of historical topographical maps, Sanborn Fire Insurance maps, and historical aerial photographs available online from the EDR™ Report, published by Environmental Data Resources Inc. (“EDR”);
- A screening of regulatory records for environmental conditions at and abutting the Subject Property from the EDR Radius Map™ Report, published by EDR;
- A visual field assessment of the Subject Properties for evidence of a release of oil and/or hazardous materials (OHM).

The results of the due diligence review, combined with the requirements of the MassDEP Water Quality Certification (WQC) program informed the proposed sediment sampling plan discussed later in this document.

Refer to Figure 1 for regional location and general geographic setting of the Subject Property.



\*Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

Figure 1. Location of Subject Property with Aerial View



## 2. HISTORICAL BACKGROUND

The Ipswich Mills Dam is located at the head of tide on the Ipswich River, in downtown Ipswich, approximately 750-feet south (upstream) of the Route 133/South Main Street/Choate Bridge crossing (Figure 1). The dam is currently owned and operated by the Town of Ipswich Utilities Department (Haley & Aldrich, 2009). The river flows approximately south to north (left to right in Figure 1), ultimately discharging to the ocean waters of Plum Island Sound.

### 2.1. Ipswich Mills Dam Industrial History

The Town of Ipswich is the current owner of the Ipswich Mills dam while EBSCO Information Services is currently housed west of the Ipswich Mills Dam within the Old Mill Building (Ipswich Mill). Based on Ipswich historical records, the current EBSCO building was constructed soon after the turn of the 20<sup>th</sup> century as a mill that utilized the dam for power. Many other mill buildings and industries existed at the Subject Property from the 17<sup>th</sup> into the 20<sup>th</sup> century. The current EBSCO facility constitutes the last of the remaining mill buildings.

The Newburyport/Rockport Massachusetts Bay Transformation Association Line (formerly Boston & Maine Railroad) runs to the west of the Ipswich River. Ipswich Station is located proximal to the EBSCO building. The River itself is located in a previously industrial area of Ipswich that played a key role within the industrial revolution when small-scale production shifted toward industrial manufacturing.

According to the Cultural Resources Report prepared by the Public Archaeology Laboratory (PAL) in February of 2017 for the Ipswich Mills Dam Removal Feasibility Study, the Ipswich River was originally utilized as a hydro-power source beginning circa 1635-1637 to power a grist mill shortly upstream of the present location of the dam. A variety of hydro-powered mills and factories flourished in the vicinity of the dam over the following centuries, including fulling mills, sawmills, woolen mills, bark mills, dye houses, and tanneries. The vicinity of the Ipswich Mills Dam and Ipswich River was previously known as “Mill Garden,” according to PAL. A sawmill on the east bank of the river utilized the waterpower from earlier iterations of the dam from the late 1700s to circa 1858 when the sawmill was moved downstream.

In 1824, the mill was owned and operated by Boston & Ipswich Lace Company and produced lace until 1828 when it was taken over by the Ipswich Manufacturing Company to produce cotton cloth. The Ipswich Manufacturing Company was the first sizable manufacturing corporation in Ipswich. According to PAL, a new stone dam was constructed circa 1828-1829 just below the older dam and was noted as a “higher, more substantial stone dam” than what had previously existed.

The 1828-1829 stone dam was later owned and operated by the Dane Manufacturing Company in 1846 where production of cotton cloth continued. The Ipswich Mills Company took over the Ipswich Mills site in 1868 and began producing hosiery and became the “largest stocking mill in the country” (PAL).

The next iteration of a dam at the Subject Property was constructed circa 1880 consisting of cut granite blocks (PAL, 2017). As a part of the industrial expansion of the Ipswich Mills site, the 1880 dam was rebuilt in 1908 to its current structural design to improve the available waterpower. The 1829 stone mill was demolished during the reconstruction. During this time, a knitting mill took place of the stone mill. A new fishway was constructed in 1919 after being destroyed in 1916.

After a period of vacancy from circa 1928 to circa 1932, the Tanning Process Company, a subsidiary of the United Shoe Machinery Company (USMC), took over ownership of the mill and dam. Shoe mills are known for the use of mercury salts (i.e., mercuric chloride and mercuric nitrate) and lead during the manufacturing and bluing process as well as solvents, acids, bases and dyes and additional contaminants of concern including volatile organic compounds, cyanide, heavy metals (such as arsenic), pesticides, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons.

According to PAL and historical dam inspection reports, the mills were leased to Hygrade Sylvania Corporation (Sylvania) from 1940 to 1948 for the production of “proximity fuses, military and commercial transformers as well as tungsten coils”. The proximity fuses were a key contribution to World War II aerial bombing operations that allowed the bombs to detonate at specified altitudes above the ground surface. The proximity fuses were electronic in nature. No known explosives production occurred at the facility.

Sylvania was acquired by General Telephone and Electric (GTE) in 1959, and the facility was then used for equipment development and quartz glass manufacturing as part of GTE’s lighting and fluorescent manufacturing according to the Boston Globe. It is unknown if fluorescent light bulbs were produced at the facility but, if so, fluorescent lights can contain small amounts of mercury which could have possibility impacted sediment quality. Finally, in 1982, the Town of Ipswich purchased the dam from Sylvania, and the remaining buildings of the Ipswich Mills were sold to EBSCO Publishing in 1995.

Consequently, the historic mills and industrial land use surrounding the Subject Properties suggests the potential for asbestos, polychlorinated biphenyls (PCBs), metals, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) to impact sediment quality. Additionally, railroad ties surrounding the property also suggest the potential for pesticides, herbicides, creosote, and metal contributions to sediments. While no known explosives production occurred at the facility, potential explosives-related metals and perchlorate contaminants to impact sediments were also included in the evaluation of sediment sampling parameters discussed in the Sediment Sampling Plan section of this document below.

## 2.2. Ipswich Mills Dam Structure

In 1908, the dam was modified to its current structural design to supply nearby mill buildings (at the time) with a more reliable source of power. The current dam is constructed out of cut granite blocks with concrete at some locations, with the spillway extending across most of the width of the river. The main spillway is 132 feet wide. A three-foot-wide low-level stop-log spillway is at the river-right end of the main spillway with an invert elevation approximately 0.4 feet lower than the spillway. Further to the right, the dam also has a 4.5-foot-wide by 3-foot-high low level gated outlet with an invert elevation approximately two feet lower than the main spillway. Further still to the right is a functional fish way that was installed in 1996 (IRWA). Furthest to the right is an abandoned fish ladder of older construction (Haley & Aldrich, 2009). According to the most recent dam inspection report (Tetra Tech, 2020), the dam is currently classified by the Office of Dam Safety (ODS) as an Intermediate dam with Significant Hazard Potential, meaning that failure would cause minimal property damage and loss of life if the failure occurred without warning with people present in the flow path.



A run of the river dam provides minimal storage above it and is operated such that the volume of water released below the dam is equal to the volume of water flowing in the stream or river above the dam on a normal, continuous basis. Put another way, water is not stored in the impoundment to be released later. Rather, the dam simply increases the head in the river, providing a potential power source that can be captured. It does not serve to prevent or mitigate flooding downstream of the dam since it allows water to flow over the dam during most typical flows. The dam receives river flow contributions from a 148 square-mile watershed upstream of the dam that is made up of primarily forested land, wetland areas, residential properties, agricultural land, and some commercial/industrial zones. The soils in the watershed primarily include somewhat excessively or excessively drained, loamy and sandy soils that were formed in outwash deposits and well drained, loamy soils formed in glacial till (Fuller and Francis, 1984). The river flows nearly 40 miles from its headwaters in Wilmington and North Andover to its mouth in Plum Island Sound, dropping approximately 115 feet in elevation along its course.

The Ipswich Mills Dam is located at the head of tide (upstream limit of tidal influence) roughly 3.7 miles from the Ipswich River's mouth. In addition to limiting many migratory fish species from moving upstream into the watershed to spawn or feed, the dam also presents a problem to freshwater resident species that pass over the dam for one reason or another, including many freshwater fish, turtles and other species that cannot survive long-term below the dam or simply die due to hitting rocks when they fall over the dam. With the exception of wildlife that are strong swimmers or good climbers many of these animals are likely to be permanently trapped below the dam.

Based on historical records and anecdotal observations reported during low flow conditions, it is generally believed that the dam was constructed on top of or at the toe of a rock ledge outcrop that created the Upper Falls. The extent of that ledge is yet to be determined. Normal or low water surface elevations under a dam removal scenario will be partially influenced by the extent and elevation of ledge present, as well the prevailing profile of hard bottom substrate from upstream to downstream, and the prevailing hydrologic and tidal conditions at any given time.

### 2.3. Historical Records Research

Horsley Witten completed a review of historical topographical maps, Sanborn Fire Insurance maps, and historical aerial photographs available online from the EDR™ Report, published by Environmental Data Resources Inc. A copy of the EDR Report dated January 9-11, 2024, including aeriels, topography, and Sanborn maps is attached herein as Appendix A. Additionally, a screening of regulatory records for environmental conditions at and abutting the Subject Property from online available MassDEP records and from the EDR Radius Map™ Report, published by EDR. Information obtained from these records is summarized below.

#### *Aerial Photographs*

Aerial Photographs dated 1938, 1952, 1960, 1965, 1978, 1986, 1995, 2006, 2010, 2014, and 2018 were reviewed. The aerial photographs show primarily industrial and residential land use with some wooded areas in the vicinity of the Subject Property. The area immediately adjacent to the dam is developed, and the 2006 through 2018 photographs illustrate the Riverwalk Pedestrian Bridge. Union Street, Estes Street, and South Main Street are depicted in all available aeriels as well as the Ipswich River and the active railroad is shown west of the river. However, due to the scale and quality of the aerial photography, additional details regarding the Subject Property are not discernible.

### *USGS Topographic Maps*

USGS Topographic maps dated 1888, 1893, 1915, 1919, 1943, 1945, 1950, 1966, 1985, 1997, 2012, 2015, 2018, and 2021 were reviewed. The available maps depict the properties surrounding the river as primarily developed; however, details of that development are not discernible. A railroad is depicted west of the dam and Ipswich River. The topographic maps illustrate Union Street, Estes Street, South Main Street, and the Ipswich River. The 1945 through 2021 maps depict the developed dam across the Ipswich River.

### *Sanborn Fire Insurance Maps*

Sanborn Fire Insurance maps dated 1887, 1892, 1897, 1902, 1907, 1916, 1929, 1944, and 1961 were reviewed. Multiple Sanborn Fire Insurance Maps for the Ipswich River, Ipswich Mills Dam, and surrounding properties exist upstream and abutting the Dam property. Notable details of the various Sanborn maps reviewed include the following:

- The Boston & Maine Railroad is depicted west of the Ipswich River on various maps. The train platform is depicted southwest of the Ipswich dam. Contaminants of concern include herbicides, which were typically applied to railroad right of ways, and creosote and metals for wood preservative purposes, both which rail ties are known to contain.
- A Knitting Mill Steam Laundry included in the 1897 map located near First Street and Ipswich River.
- The 1916 through 1961 maps show South Cemetery on the eastern side of River.
- Hayward Hosiery Co Manufacturing Silt Stockings is depicted across the railroad near Hayward Street.
- Ipswich Mills Manufacturers Cotton Hosiery is illustrated on western bank of River from circa 1887 to circa 1929.
- In the 1961 map, a dry cleaner is shown just north of Ipswich Mill building on the western side of the river.
- Sylvania Manufacturers is depicted on the 1944 map.
- Within the 1916 map to circa 1944, a garage/autobody existed along the eastern bank of the river, upstream of the dam.
- Depicted on the 1961 map is a US Army reserve building on the eastern side of the river along with an autobody and sales building.

A copy of the EDR Report dated January 9-11, 2024, including aerials, topography, and Sanborn maps is included herein as Appendix A.

### *Historical Photographs*

Historical photographs available online of the Ipswich Mills Dam and the former nearby factories were reviewed.

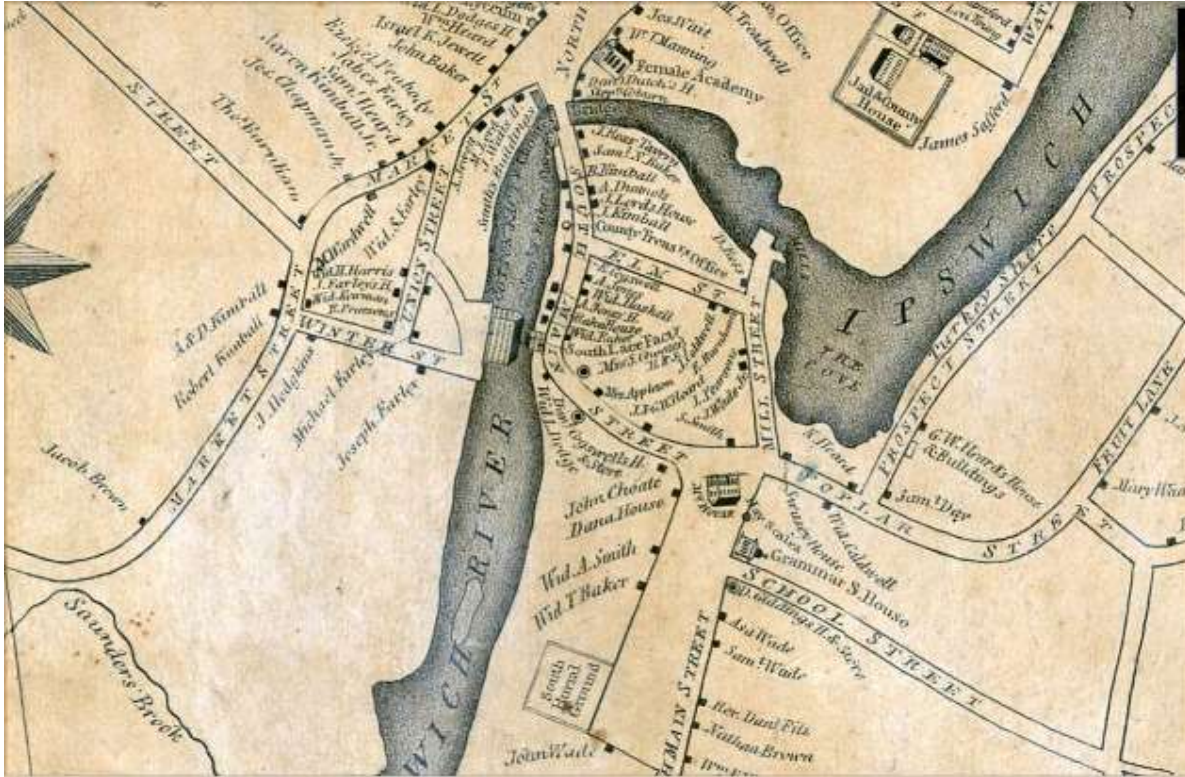


Photo 1: 1832 Ipswich Map – Map shows the stone cotton mill on the left of the lace factory on the right.

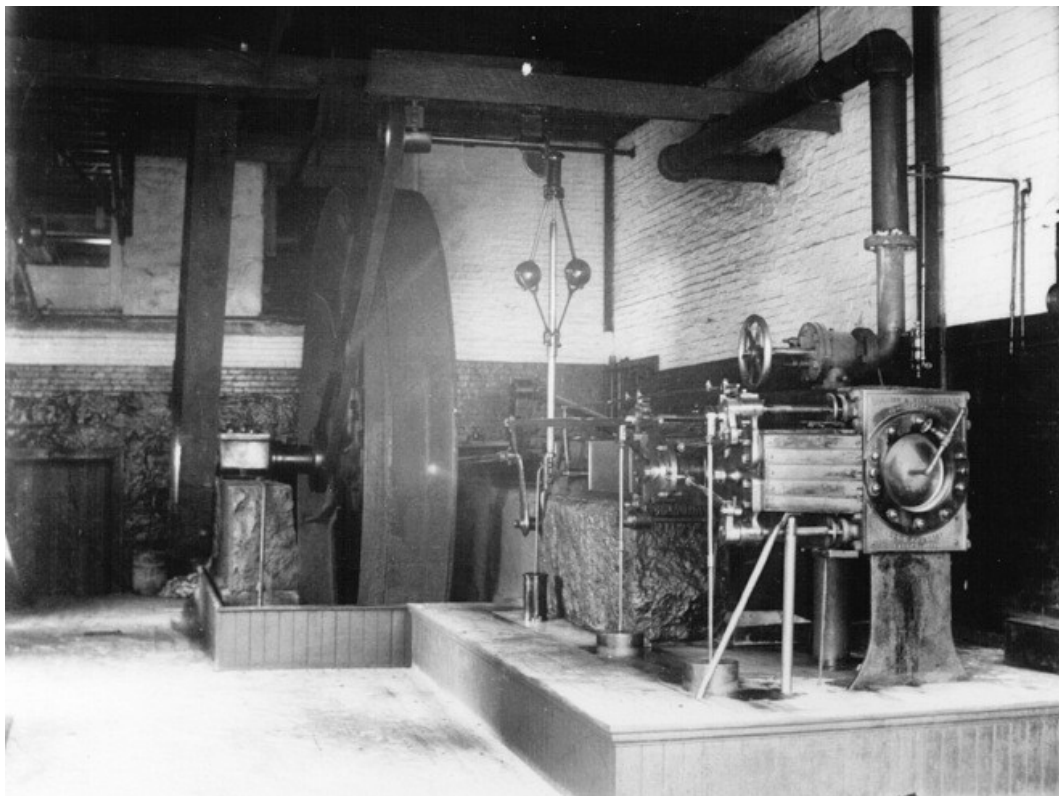


Photo 2: Water-powered machinery in the Ipswich mill. Undated photograph.



*Photo 3: Ipswich Mills – View of the Mill just upstream of the dam and former pedestrian bridge circa early 20<sup>th</sup> century. The shorter building in foreground is the current EBSCO facility. The larger building no longer exists.*

#### 2.4. Ipswich Mills Dam Partial Feasibility Study, April 2014

In April 2014, Horsley Witten in collaboration with Clean Soils Environmental, Ltd, Inter-Fluve, Inc., Roux Associates, Inc. and the Ipswich River Watershed with assistance from Massachusetts Division of Ecological Restoration (DER) completed a Partial Feasibility Study of the Ipswich Mills Dam.

Included in the Partial Feasibility Study was a Sediment Management Preliminary Review completed by Clean Soils Environmental, Ltd. (CLE). CLE collected three (3) sediment cores along the Ipswich River in 2012. These samples were compared to USGS sediment cores collected in 2005 as part of a baseline study for selected dams in Massachusetts.

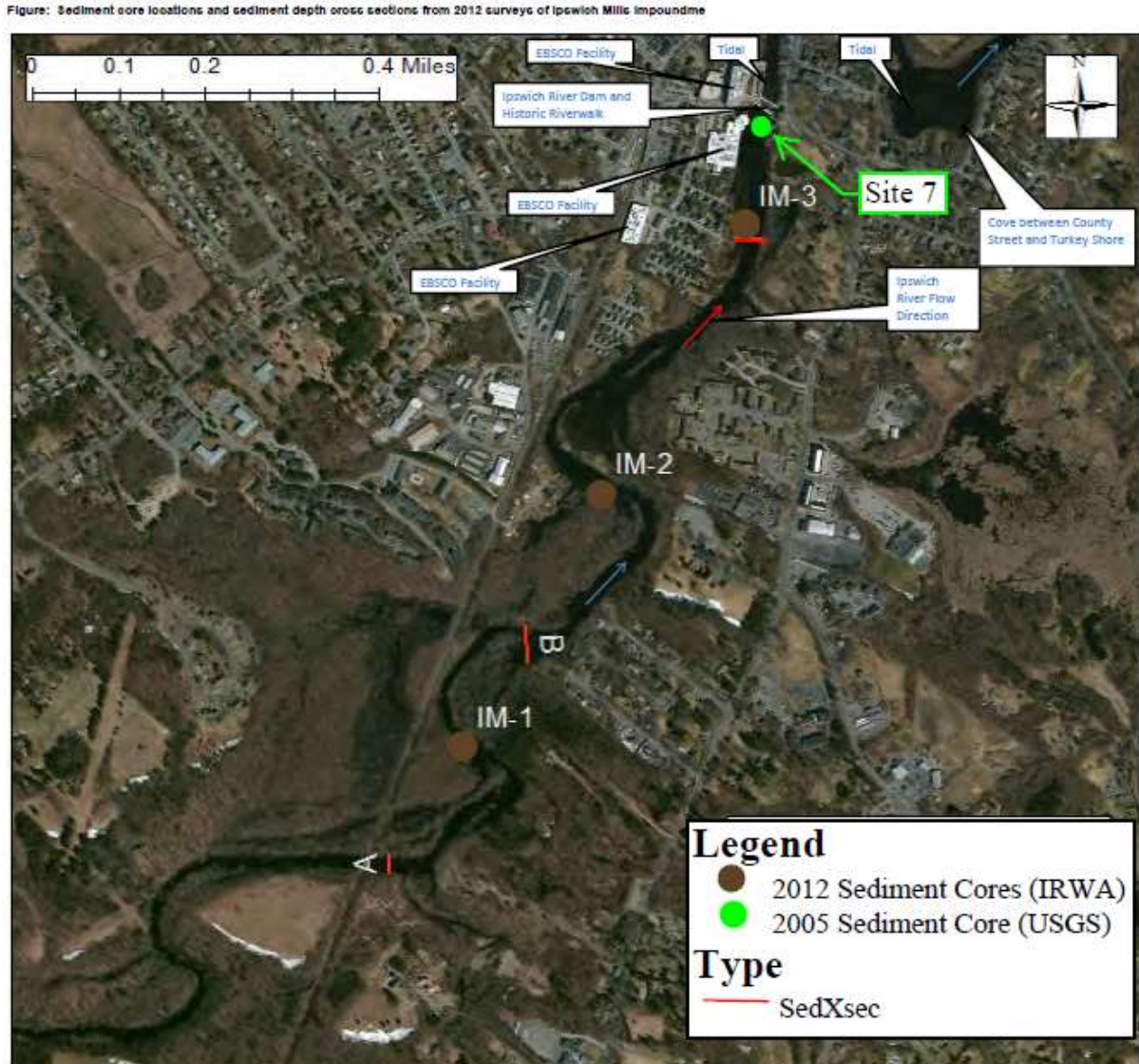
The USGS study included the collection of two sediment cores in close proximity to the Ipswich Mills impoundment. The sample was analyzed for Total Heavy Metals, Semi-Volatile Organic Compounds (SVOCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Total Polychlorinated Biphenyls (PCBs). This study concluded that there was a 13% likelihood of toxicity of bottom sediments at the Ipswich Mills Dam, and the sediment results were considered to be below the applicable ecological impact benchmark limits. A condition of No Significant Risk within the impoundment had been met, according to the study.

In 2012, the IRWA collected three (3) sediment cores from the impoundment and along the Ipswich River. These samples (IM-1, IM-2, and IM-3) were analyzed for Total Heavy Metals, SVOCs, PAHs, VOCs, EPH, and Physical Characteristics. The results of IRWA and CLE's study included concentrations that were below applicable ecological benchmark limits in reference to the freshwater Sediment Probable Effects



Concentration Values (PEC) as well as below the MassDEP MCP Method 1 Cleanup Standards and Reportable Conditions (S1/GW-1) standards.

The included Figure 2 below illustrates the USGS Sediment sample collected in 2005 as well as the three sediment samples collected by IRWA in 2012.



Prepared by the Ipswich River Watershed Association (IRWA) including notes from Clean Soils Environmental, Ltd. (CSE)

Figure 2. IRWA 2012 and USGS 2005 Sediment Sampling Locations

HW developed Table 1A summarizing previous sediment sampling results and included herein as Appendix B. Reference the above Figure 2 for sample locations from Table 1A.

## 2.5. Ipswich Mills Dam Full Feasibility Study, 2019

In 2019, HW completed a full Feasibility Study for the proposed dam removal that primarily focused on potential hydrologic and hydraulic impacts to infrastructure, fish passage, and recreation, as well as historic and cultural considerations. No new sediment sampling was conducted during this project phase. However, a partial drawdown of the impoundment was conducted in August and September for 2016 as part of that project phase that revealed the presence of an abandoned, underwater, natural gas line running across the river. According to IRWA and the Town of Ipswich, the gas company was contacted, and the gas line removed while the water levels were still low during the drawdown. Photos 4 and 5 show the gas line present, and then removed from that summer/fall 2016 time period.



*Photo 4: August 2016 Drawdown – The Ipswich River was drawn down behind the dam to better assess conditions in the impoundment, and an old gas line for the mill was exposed.*





*Photo 5: August/ September 2016 drawdown showing gas line removed.*

## 2.6. Identified Release Sites

To evaluate environmental conditions at and abutting the Subject Property, standard federal, and state environmental databases were reviewed. HW obtained these records from an Environmental Database Report (“EDR Report”). A copy of the EDR Report, dated January 9, 2024, is included as Appendix A. A summary of the standard federal and state databases reviewed in the EDR Report and located within a 1.0-mile radius of the Subject Property are indicated in Table 2.

Table 2 – Standard Environmental Records

Federal/State Records Database	Subject Property	Distance from Subject Property				
		<1/8 Mile	1/8 Mile	¼-1/2 Mile	½- 1 Mile	Total Sites
National Priority List Sites	No	0	0	0	0	0
Delisted National Priority List	No	0	0	0	0	0
Comprehensive <b>Environmental</b> Response, Compensation, and Liability Information System (CERCLA-SEMS)	No	0	0	0	0	0
CERCLIS No Further Remedial Action Planed (SEMS-ARCHIVE)	No	0	0	0	0	0
Resource Conservation and Recovery Act (RCRA) Corrective Action Sites	No	0	0	0	0	0
RCRA Treatment, Storage and Disposal Sites	No	0	0	0	0	0
RCRA Generators	No	6	7	NR	NR	13
Institutional Control/Activity and Use Limitation Sites	No	0	0	0	0	0
State Hazardous Waste Sites	No	24	2	4	6	36
Landfills	No	0	0	0	0	0
Leaking Underground Storage Tank Sites	No	14	1	3	NR	18
Leaking Aboveground Storage Tank Sites	No	8	3	0	NR	11
Registered Underground Storage Tank Sites	No	11	0	NR	NR	11
Registered Aboveground Storage Tank Sites	No	5	0	NR	NR	5
Brownfield Sites	No	0	0	0	0	0

Figure 3 below illustrates the standard federal and state databases reviewed in the EDR Report within a 1-mile radius of the Ipswich Mills Dam. Per the EDR legend, red triangles indicate sites at elevations higher than or equal to the target property and black diamonds indicate sites at elevations lower than the target property. However, since the target property dam is likely the lowest elevation from that part of the river upstream, the accuracy of the elevation designations of Figure 3 is uncertain.



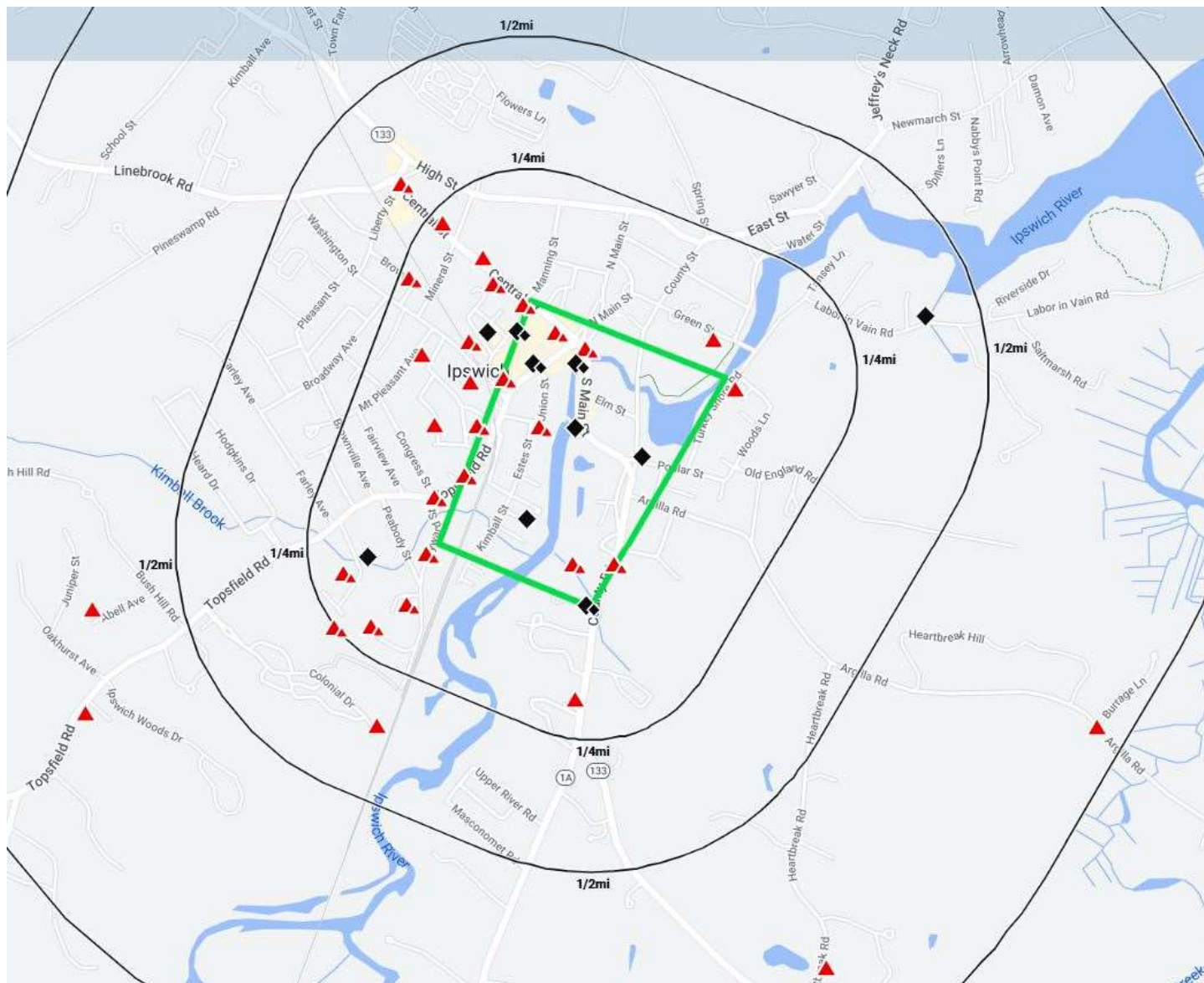


Figure 3. EDR Radius Map

HW utilized the historical information along with a review of regulatory records for environmental conditions at and abutting the Subject Property from the EDR Radius Map™ Report, published by Environmental Data Resources Inc. (“EDR”) as well as online records available from the Massachusetts Department of Environmental Protection (MassDEP) Waste Site and Reportable Releases Database to determine and research known “Release Sites” at and abutting the Subject Properties. According to the EDR Report, 36 release sites with documented releases of OHM were identified within a 1.0-mile radius of the Subject Property. Details regarding select release sites, mainly release sites that may impact the Ipswich River, are set forth below.

**Ipswich Mills Cofferd Dam  
61 South Main Street**

**Release Tracking Number (RTN) 3-14628  
approximately 26 feet upstream of Ipswich Mills Dam**

According to the Release Notification Form and Response Action Outcome (RAO) Statement prepared by Vertex Engineering Services, Inc. and dated January 17, 1997, a release of approximately 10 gallons of fuel oil occurred to the Ipswich River as a result of a failing fuel tank during de-watering for the construction of a cofferdam connected to the Ipswich Mills Dam. Response actions included the deployment of containment booms and absorbent pads as well as emptying the leaking tank. Impacted sandbags from the cofferdam were removed and additional absorbent materials were applied. Spent materials were removed off site for disposal in one 55-gallon drum. The Ipswich Fire Department reported that “most of the spill was contained in the cofferdam”. According to the RAO, a minimal amount of fuel had dripped from the cofferdam to the river, but the amount had been reduced to background levels as a result of the “turbulent flow of the river”. A condition of No Significant Risk had been established on site. Considering the release occurred immediately downstream of the dam and the extent of the release associated with RTN 3-14628, it is unlikely that this release will significantly impact the property.

**GTE Products  
Este Street**

**Release Tracking Number (RTN) 3-2120  
Subject Property (located northwest of Dam)**

According to the report titled *Phase 2 Remedial Environmental Site Assessment* prepared by Briggs Associates, Inc. and dated June 17, 1988, and the letter report prepared by GEI Consultants, Inc. and dated July 18, 1994, a release of fuel oil occurred from a leaking fuel oil tank. Response actions included excavation of contaminated soils for disposal and the installation of a recovery well. The excavation grave was backfilled with shells to allow drainage of remaining oil to recovery wells. No groundwater was encountered during excavation. A total of 429 cubic yards of petroleum-contaminated soil and approximately 47,950 gallons of petroleum-contaminated water was removed and disposed of off-site. Groundwater monitoring wells were advanced and monitored at the property as well. While total petroleum hydrocarbons (TPH) and Volatile Organic Compounds (VOCs) were detected in two of the monitoring wells, the concentrations detected were below their applicable reportable concentrations. Additionally, according to the letter report and License Site Professional Evaluation Opinion prepared by GZA and dated May 31, 1995, a Method 1 Risk Characterization concluded that the release posed no significant risk of harm to human health, public safety, and welfare or the environment. Considering the release is located downstream/northwest of the Ipswich Dam and considering groundwater flow, it is unlikely that the release associated with RTN 3-2120 will significantly impact the property.

**Osram Sylvania  
2 Estes Street**

This property is listed under EDR’s RCRA NonGen/NLR Listing with a waste description regarding halogenated solvents used in decreasing including Tetrachloroethylene, Trichlorethylene, Methylene Chloride, 1,1,1-Trichloroethane, Carbon Tetrachloride, and Chlorinated Fluorocarbons.

This property is also listed in EDR’s FINDS (Facility Index System) which is a central and common inventory of facilities monitored or regulated by the EPA. Osram Sylvania is currently listed in the following EPA inventory:

- **The Air Facility System (AFS)** – “contains compliance and permit data for stationary sources of air pollution regulated by the EPA, state, and local air pollution agencies.” **This listing is in compliance and has been permanent closure.**

- **ICIS-Air (AIR) AIR** – “the modernization of the Air Facility System (AFS) into the Integrated Compliance Information System (ICIS). AIR contains enforcement, compliance, and permit data for stationary sources of air pollution regulated by the EPA, State, and Local air pollution agencies.” **This listing has been Permanently Closed.**
- The **Toxic Release Inventory System (TRIS)** – “a publicly available EPA database reported annually by certain covered industry groups, as well as federal facilities. It contains information about more than 650 toxic chemicals that are being used, manufactured, treated, transported, or released into the environment, and includes information about waste management and pollution prevention activities.” **This listing was last reported for 1994.**
- The **Massachusetts - Environmental Protection Integrated Computer System (MA-EPICS)** – “the central repository for all environmental protection data for the State of Massachusetts.”
- The **Resource Conservation and Recovery Act Information System (RCRAInfo)** – “EPA’s comprehensive information system in support of the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. It tracks many types of information about generators, transporters, treaters, storers, and disposers of hazardous waste.” **This listing is currently Inactive.**

These databases primarily are in regard to the property’s former industrial use and manufacturing of lighting glassware including descriptions of electric lamp bulb and part manufacturing as well as other pressed and blown glass and glassware manufacturing.

**No Location Aid**  
**10 Estes Street**

**Release Tracking Number (RTN) 3-34967**  
**approximately 218 feet west of the Ipswich River**  
**approximately 427 feet southwest (upstream) of the Dam**

According to the report titled *Permanent Solution Statement with No Conditions* prepared by Clean Soils Environmental Ltd and dated July 16, 2018, a release of approximately 30 gallons of hydraulic fluid from a trash truck hydraulic line occurred to pavement, storm drain catch basins, and pervious soils nearby. Response actions included the deployment of absorbent materials, cleanout of two affected catch basins via a vacuum truck, and the installation of absorbent booms into the catch basins. One catch basin, CB-2, has an outlet to the Ipswich River. However, there were no visual observations of the release affecting the river. Additional response actions including soil excavation and sampling from the excavation grave. Eleven 55-gallon drums of spent material and 365 gallons of oily solids were managed and disposed of offsite. Groundwater was not encountered during excavation. Based on a Method 1 Risk Characterization and laboratory results, the post excavation soil samples were below applicable standards and a condition of No Significant Risk existed at the property. Considering the extent of release and groundwater was not encountered, it is unlikely that the release associated with RTN 3-34967 will significantly impact the property.

**No Location Aid**  
**12 First Street**

**Release Tracking Number (RTN) 3-25387**  
**approximately 226 feet west of the Ipswich River**  
**approximately 1,066 feet southwest (upstream) of the Dam**

According to the report titled *Class A-1 Response Action Outcome Statement* prepared by CEA, Inc. and dated January 2006, a release of approximately 10-20 gallons of hydraulic oil was released from a hydraulic line of a truck to the paved roadway and pervious shoulder. Response actions included the application of absorbent material and excavation of impacted soils. Six 55-gallon drums of spent material and soil were transported off site for disposal. Groundwater did not appear to be impacted during this

release. Soil samples were collected from the final excavation grave areas, and based on a Method 1 Risk Characterization and exposure point concentration calculation, a condition of No Significant Risk had been achieved. Considering the extent of release and groundwater was not encountered, it is unlikely that the release associated with RTN 3-25387 will significantly impact the property.

**Ipswich Shellfish Co. Inc.  
8 Hayward Street**

**Release Tracking Number (RTN) 3-12119  
approximately adjacent to Kimball Brook  
approximately 1,734 feet southwest (upstream) of Dam**

According to the letter report in response to an Immediate Response Action (IRA) Completion Statement for Hayward Street prepared by Ransom Environmental Consultants, Inc. and dated May 30, 1995, a release of approximately 50 gallons of diesel fuel from a truck occurred to a parking area. Response actions included the application of speedi-dry, absorbent materials, and soil. The spill had been contained to the concrete area, and while soil and pervious surfaces existed nearby, it was determined that the spill had been contained. A total of 14.21 tons of spent material and impacted soil that was used to contain the spill was hauled off site for disposal. Groundwater was not impacted. The response Action Outcome and IRA concluded that a condition of No Significant Risk had been achieved. Considering the extent of the release and that groundwater was not impacted, the release associated with RTN 3-12119 is unlikely to significantly impact the Subject Property.

**Arvos Mobil  
18 Topsfield Road**

**Release Tracking Number (RTN) 3-10291  
approximately 100 feet north of Kimball Brook  
approximately 1,511 feet southwest (upstream) of Dam**

According to the report titled *Class A-2 Response Action Outcome Statement* prepared by Corporate Environmental Advisors, Inc. and dated February 2009, a release of organic vapors was discovered in a residence and in sewer drain manhole at an adjacent property. Additionally, water was encountered in a gasoline USTs and a sheen was observed in the Kimball Brook. Response actions included the removal and replacement of two 6,000-gallon gasoline USTs, the removal of a 500-gallon UST and a 200-gallon waste oil UST, excavation of approximately 170 cubic yards of petroleum-impacted soil, and excavation of a groundwater interceptor trench that was equipped with a passive free-phase product recovery system to capture product before entering Kimball Brook. Groundwater flow was inferred to move in a southerly direction toward Kimball Brook. Additionally, soil samples, groundwater samples, surface water samples, and air quality readings were collected as part of the Phase I and Phase II investigations. Sediment samples were collected within Kimball Brook for the presence of lead and Total Organic Carbon (TOC). These sediment samples were collected to determine if the impact of the release extended greater than halfway across Kimball Brook. Two sediment samples collected adjacent to the site had detections of lead greater than the Sediment Probable Effects Concentration Values (PEC) values. However, it was determined that these exceedances are isolated and have not migrated more than halfway across the brook. As a result of the release, the selected remedial action was Monitored Natural Attenuation (MNA) to allow the natural processes in degradation and dissipation. Based on a Method 3 Risk Characterization, groundwater was not deemed a direct concern for exposure and a condition of No Significant Risk had been achieved. Considering the extent of release, that groundwater was determined to not be a direct concern, and sediment contamination had been contained and unlikely to move further downstream, the release associated with RTN 3-10291 is unlikely to significantly impact the Subject Property.

**Okeefe Chevrolet Oldsmobile  
96 County Road**

**Release Tracking Number (RTN) 3-862  
approximately 265 feet north of Saltonstall Brook  
approximately 1,648 feet southeast (upstream) of Dam**

According to the report, low level petroleum hydrocarbon contamination was released on site as a result of the nature of the property as an autobody and mobile business. Additionally, several underground storage tanks had been removed at the property. Response actions included surface soil samples, exploratory trenches, soil borings, and monitoring wells. Elevated levels of VOCs and PAHs were detected in soils. Groundwater samples were collected and analyzed for the presence of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX). Contaminants of concern were not detected in groundwater nor were detected at concentrations below applicable standards. Groundwater was determined to flow in an easterly direction. Analytical testing of surface water deemed undetectable levels as well. Based on the Risk Characterization, it was determined that the site does not pose a risk to public safety, public welfare, and the environment. Considering the inferred groundwater flow direction, the release associated with RTN 3-862 is unlikely to significantly impact the Subject Property.

**Railroad Tracks  
Topsfield Road**

**Release Tracking Number (RTN) 3-2316  
approximately 145 west of Ipswich River  
approximately 2,609 feet southwest (upstream) of Dam**

According to the report titled *Phase II Comprehensive Site Assessment and Response Action Outcome Statement* prepared by Weston and Sampson and dated December 2000, an investigation occurred to assess the nature and extent of OHM in subsurface soil and groundwater and impacts to the Ipswich River. The property had experienced various spills and releases over the years as a result of its industrial use for railroad activities, service, maintenance, and re-fueling activities. Known releases included the following:

- 1984 – a diesel spill onto railroad ballasts and materials beneath the rail ties. No further actions were included in DEP files.
- 1989 – an oil release between the wall and floor of a metal storage shed. Response actions included soil sampling, test pit advancement, and monitoring well installation. In-situ bioremediation was also deployed in 1991 as soil excavation and removal was not feasibility due to the close proximity to the active rail line. The in-situ remediation had resulted in a percent reduction in TPH concentrations from 24.2% to 99.9%.
- 1995 – a sheen was discovered in “Foley Brook,” the surface water body located nearby. Response actions included the collection of sediment samples and surface water samples. There was low concentrations of metals and petroleum detected in the sediment samples, and surface water sample concentrations were all below their respective detection limits. There was no evidence of a release to significantly impact the surface water.

The Phase II determined that the primary contaminant in soil on site was total petroleum hydrocarbons (TPH) as a result of these former releases. Response actions included soil sampling, monitoring well installation, piezometer installation, and sediment and surface water sampling. Groundwater was inferred to flow in an easterly direction toward the Ipswich River. Polycyclic Aromatic Hydrocarbons (PAHs) were detected near a storm water outfall pipe into the surface water body. Sediment samples were collected in the Ipswich River and had detections of VOCs (likely attributed to laboratory contaminants) and PAHs adjacent to the outfall.

Based on a combined Method 1 and Method 3 Risk Characterization as well as the calculation of exposure point concentrations (EPCs) which were below the applicable Method 1 standards for soil and groundwater, a condition of No Significant Risk was determined to have been achieved. While the PAHs are generally immobile, there is the possibility this release associated with RTN 3-2316 may impact the sediments along the Ipswich River and Ipswich River Dam.

**Town of Ipswich  
100 Country Road**

**Release Tracking Number (RTN) 3-17720  
approximately 100 feet south of Saltonstall Brook  
approximately 1,885 feet southeast (upstream) of Dam**

According to the report titled *Class A-3 Response Action Outcome and Immediate Response Action Completion Statement* prepared by Clean Soils Environmental, Ltd. and dated July 30, 1999, a release of unleaded gasoline was discovered during an underground storage tank (UST) removal. During removal, the tank grave was observed to be half full of groundwater with a petroleum sheen. The release was attributed to tank overfills over the years. Response actions included soil and groundwater samples from the tank grave. Contaminated soils were excavated and a total of 56.77 tons of soil was removed for disposal off site. Additional responses include the installation of soil borings and groundwater monitoring wells. Groundwater was inferred to flow in a southerly and easterly direction, seasonally dependent. Groundwater concentrations remained below the applicable reportable conditions. A Method 1 Risk Characterization determined a condition of No Significant Risk had been achieved; however, an Activity and Use Limitation (AUL) was required on site as exposure point concentrations exceeded the S1 Method 1 standards for unrestricted use. Considering the extent of release, the release associated with RTN 3-17720 is unlikely to significantly impact the Subject Property.

**No Location Aid  
45-47 South Main Street**

**Release Tracking Number (RTN) 3-25904  
approximately 316 feet north (upstream) of Dam**

According to the letter report in response to a Release Action Outcome (RAO) Statement for the property of 45-47 South Main Street and prepared by Ransom Environmental Consultants, Inc. a release of No. 2 fuel oil occurred as a result of the Ipswich River flooding consequently flooding a basement and submerged and released the contents of four 275-gallon ASTs. An estimated 400 gallons of No. 2 fuel oil was released. Response actions included skimming the recoverable oil off the surface water of the basement and deploying oil absorbent pads. A total of approximately 1,960-gallons of oily water were removed. In a small crawl space of the basement, an earthen floor was discovered, and soil samples were collected in this area. Contaminants of concerns for petroleum products were either not detected above their respective laboratory reporting limit or were detected in concentrations below applicable soil standards. As a majority of the release was contained the basement, Random concluded that groundwater had not been impacted. A Method 1 Risk Characterization determined that a condition of No Significant Risk had been achieved. Considering groundwater was not adversely impacted and the inferred groundwater flow, the release associated with RTN 3-25904 is unlikely to significantly impact the Subject Property.

### 3. SEDIMENT SAMPLING PLAN

Our proposed Sediment Sampling Plan relies on the Chapter 401 Water Quality Certification (401 WQC) regulations and the due diligence assessment of historic land uses surrounding and upstream of the dam to inform its selection of parameters. The number and location of samples to be collected is similarly informed by the 401 WQC regulations and the due diligence-identified land uses and oil and hazardous materials (OHM) spills. Proposed sampling locations are, however, also informed by the need to assess how existing sediment quality compares for the areas of the impoundment modeled to be potentially mobilized following dam removal as compared to upstream conditions and downstream conditions, where mobilized sediment may likely accumulate. Fundamentally, this Sampling Plan seeks to assess the quality of the potentially mobile sediment behind the dam as compared to upstream areas that will be unaffected by dam removal and downstream areas where the mobile sediment is likely to accumulate. There is up to 6,900 cubic yards of potentially mobile sediment within the impoundment.

#### 3.1 Parameters to be Analyzed

Based on the above-discussed due diligence assessment, the Ipswich River project area, including the mainstream river and tributaries further upstream, has a long history of industrial land use for manufacturing. Former factories and sites include the Ipswich Manufacturing Company, Ipswich Hosiery Mills, Tanning Process Company – a subsidiary of the United Show Machinery Company, and Sylvania.

A railroad line also traverses near the left bank or westerly side of the river across the project area. The known contaminant source at the Ipswich Mills Building and the other historic mills and industrial land use more closely surrounding the Subject Properties suggests the potential for polychlorinated biphenyls (PCBs), metals, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) to impact sediment quality. While there is no indication that Sylvania's use of the mill facility during World War II included munitions production, perchlorate is included as an analyte in this proposed sediment sampling in case explosives were produced there. Additionally, the former railroad line along the river left bank also suggests the potential for pesticides, herbicides, creosote, and metal contributions to sediments.

As such, HW suggests completing additional laboratory analysis beyond the typical 401 Water Quality Certification (WQC) Requirements (314 CMR 9.00). We suggest sampling for metals (the eight included on the 401 WQC list), VOCs, SVOCs (to take the place of PAHs from the 401 list and are included with the broader SVOC scan), perchlorate, and herbicides (in addition to the pesticides included on the 401 list). We also suggest to field screen the sediment for the presence of Total Organic Volatiles (TOV) using a calibrated Photoionization Detector (PID) in order to select those sample locations that most warrant VOC analysis (unlike other parameters, VOCs are not allowed to be composited for WQC from multiple locations).

Based upon the above-discussed due diligence review, and in consideration of the 401 Water Quality Certification requirements (314 CMR 9.00), the proposed sediment sampling plan for the Ipswich Mills Dam includes all of the standard 401 WQC parameters, plus adding the additional parameters for SVOCs, perchlorate, and herbicides, as follows:

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc);
- Volatile Organic Compounds (VOCs);
- Semi-Volatile Organic Compounds (SVOCs);



- Organochlorine Pesticides and Herbicides;
- Polychlorinated Biphenyls (PCBs) with congeners;
- Extractable Petroleum Hydrocarbons (EPH);
- Total Petroleum Hydrocarbons (TPH);
- Total Organic Carbon;
- Percent water; and
- Grain Size Distribution – wet sieve (ASTM D422).

In addition, Toxicity Characteristics Leaching Procedure (TCLP) analyses will be run for those parameters that are detected above the TCLP 20X rule relative to the standards from 40 CFR 261.24. It is anticipated, based on past sampling results from 2005 and 2012, that TCLP testing requirements will not be tripped. MassDEP will use the TCLP data as one tool to help evaluate whether or not sediment from the sites qualifies as hazardous waste and, therefore, how it could potentially be managed as part of a dam removal project.

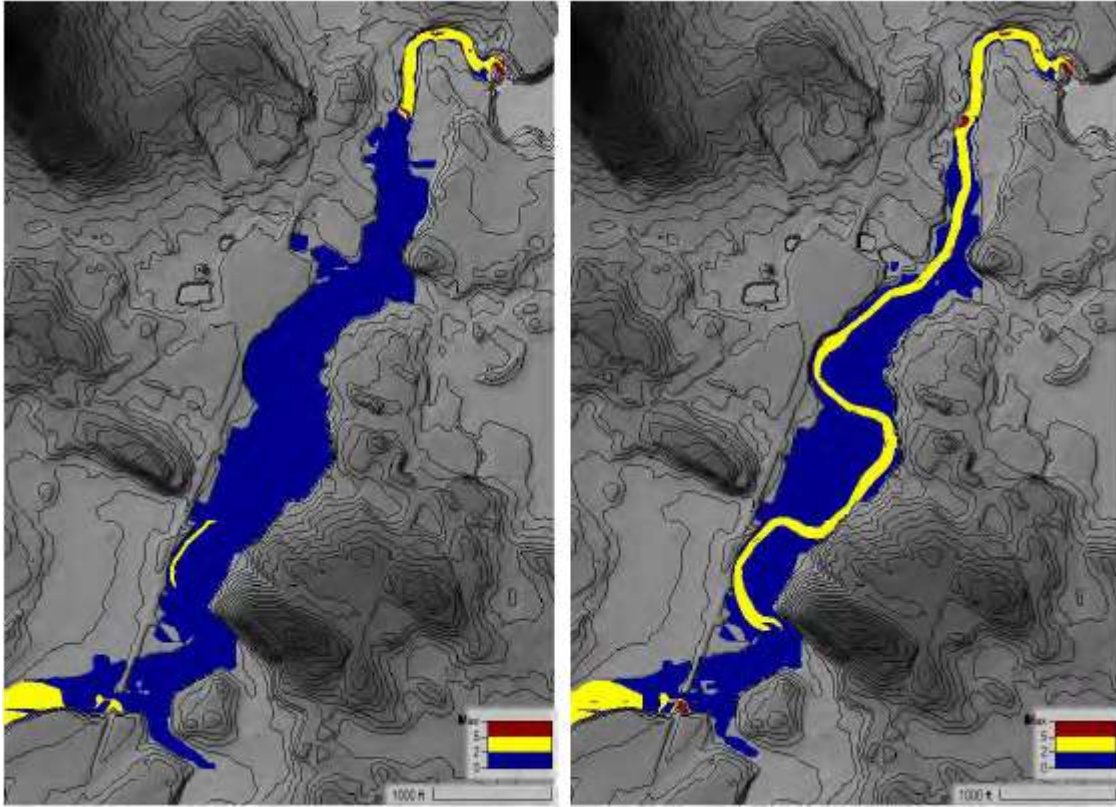
### 3.2 Sampling Locations

Hydrologic and Hydraulic (H&H) Modeling completed during the dam removal project's assessment and design phase identified the areas in the impoundment upstream of the dam where sediment is likely to mobilize and downstream where mobilized sediment is likely to settle. Figure 4 (also depicted as Figure 20 from the figure's original location within the Project's Basis of Design report) below depicts existing and post-dam removal flow velocity conditions for the 2-year storm event. The 2-year event is the channel forming flow condition where the highest velocities tend to occur in the most spatially focused locations, encouraging erosion. Higher flow events tend to overtop channel banks and spread out over wider areas such that erosive velocities are lesser. On Figure 4, the yellow indicates areas where silt and finer sand size particles are likely to mobilize, and the red indicates areas where larger sand and gravel particles are likely to mobilize. As evident in Figure 4, sediment mobilization is anticipated over a broader area immediately upstream of the dam and is mostly confined to a narrower channel within the confines of the current impoundment further upstream.

Based on H&H modeling and understanding of tidal conditions downstream of the limits of the H&H model, Figure 5 below depicts areas where sediment mobilized from the impoundment post dam removal would be likely to accumulate. Shown in yellow is the stretch of river for approximately the first 1,000 feet below the dam characterized by dominantly riverine morphology and flow characteristics. It receives tidal influence but only at the higher end of the tidal range. This area has received a limited sediment supply due to the influence of the upstream dam and has a generally rocky substrate where mobile sand and gravel size particles could settle and accumulate between the larger rocks. The velocity conditions here are modeled to be high enough that finer sediment sizes would be unlikely to accumulate.

Shown in teal is the cove area below the lower falls and the County Street bridge which is expected to be the primary depositional area for mobile sediment as it is the first area below the dam where the river morphology widens and deepens resulting in lower velocities. With its low elevation beneath the lower falls it is also the first river location downstream of the dam receiving nearly full tidal fluctuation. Tidal influence will tend to redistribute sediment that initially settles here over a larger area over time.





*Figure 4. Anticipated Sediment Transport Areas from H&H Modeling*

*Blue: no sediment transport expected (0-2fps)*

*Yellow: transport of silt is feasible (2-5 fps)*

*Maroon: transport of silt, sand, and gravel is feasible (5 fps or greater)*

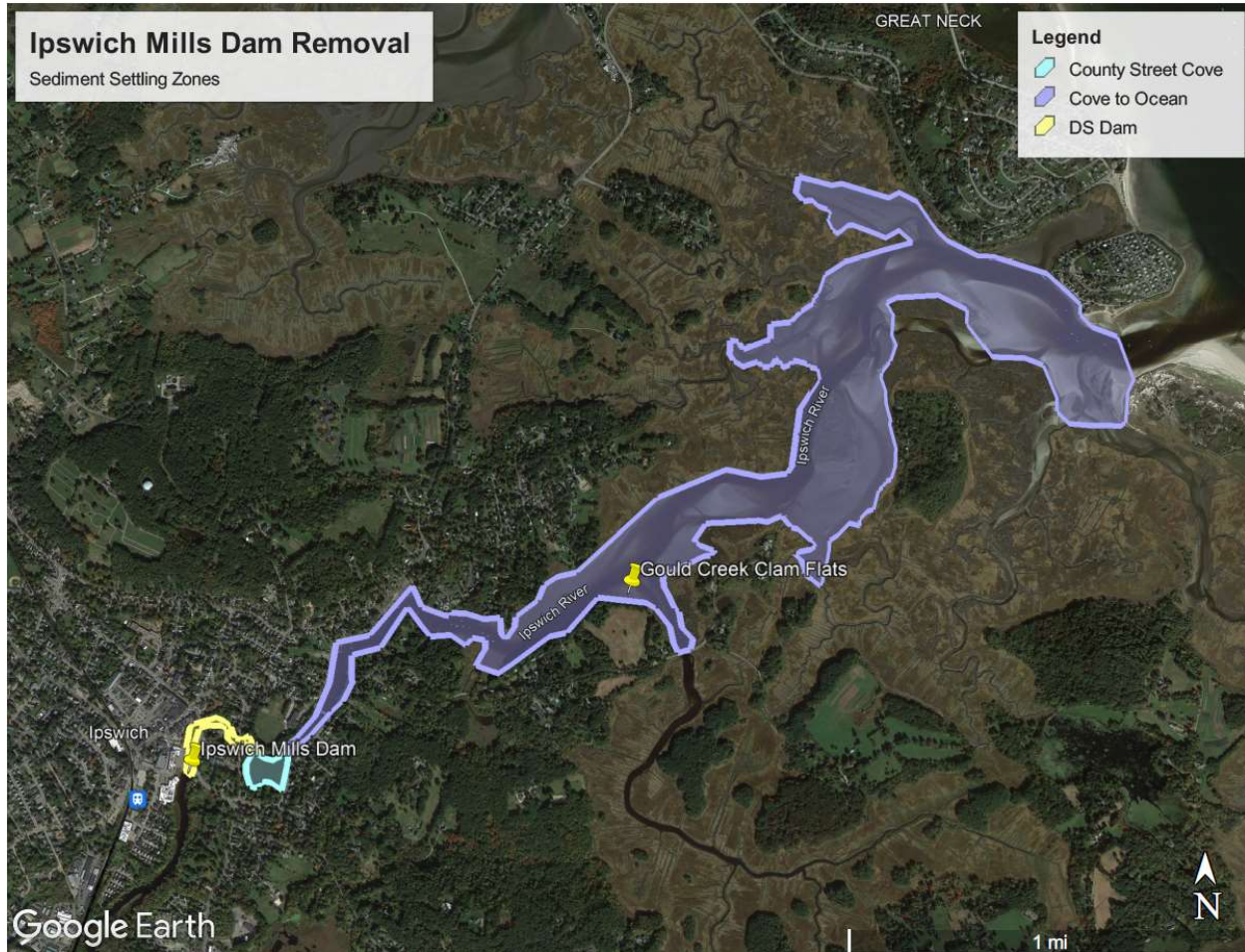


Figure 5. Anticipated Sediment Settling Areas

Shown in purple is the large estuarine salt marsh area at the mouth of the river before it enters Plum Island Sound. This purple-colored area is approximately 300 acres within the estuary’s banks. During higher astronomical tides, when the water floods over the salt marsh plain, the receiving area is likely an order of magnitude larger. Ocean influence on this area for both water and sediment dynamics greatly exceed freshwater riverine influences. Any sediment mobilized to this area as a result of dam removal will be redistributed over the large area relatively quickly under the dominant influence of oceanic dynamics.

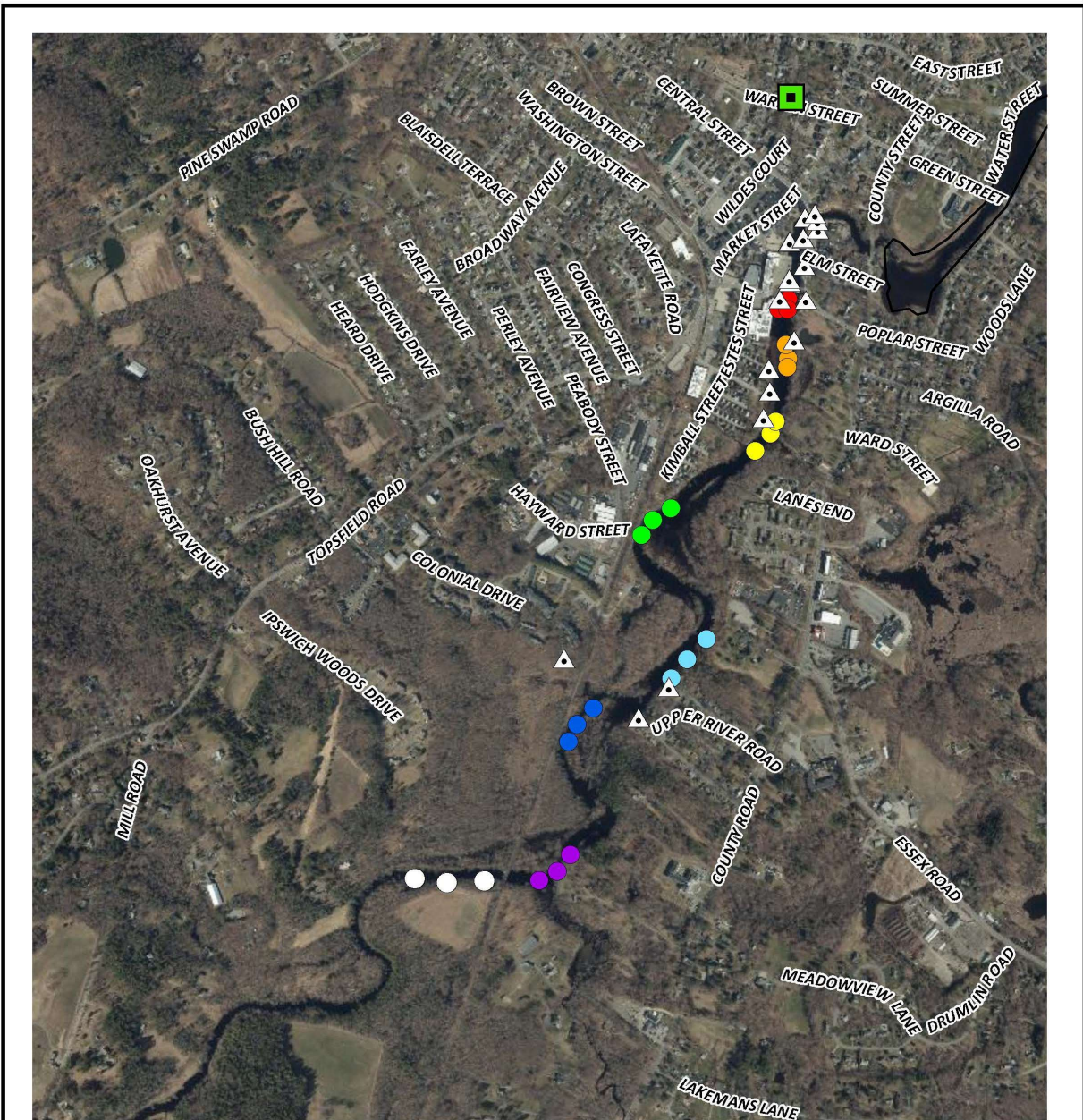
Another concept utilized in our selection of upstream sampling locations, given the very long length of the impoundment, is to use the confluences of tributary streams to break the impounded stretch of mainstream river into “reaches” each to be characterized by three discrete sample locations combined into a single composite laboratory sample submittal. Paying attention to these tributary confluences also helps to identify any potential sediment quality concerns in the mobile sediment portions of the mainstem river that may have originated from contaminant sources on the tributaries, as the due diligence assessment indicated.

Based on the above discussion outlining the philosophy behind sampling location selection, the sampling plan includes submitting 11 composite (VOCs will not be composited) sediment samples for laboratory analysis. Each composite will consist of three discrete grab samples. Therefore, a total of 33 individual grab samples are recommended for collection.







Figures 6 and 7 depict the recommended upstream and downstream sampling locations, respectively, with color coding to show the approximate locations of discrete grabs to be composited into each laboratory-submitted sample. The recommended sediment sampling locations, listed from upstream to downstream are as follows:

- One composite sample (white dots on Figure 6) from approximately 1.5 miles upstream of the dam (above the railroad bridge). This sample will represent upstream background conditions beyond the extent of hydraulic or sediment impacts anticipated to occur as a result of dam removal.
- One composite sample (purple dots on Figure 6) from approximately 1.20 – 1.30 miles upstream of the dam representing the river reach at the Miles River confluence and below the MBTA Railroad bridge influence upstream.
- One composite sample (dark blue dots on Figure 6) from approximately 0.95 – 1.05 miles upstream of the dam representing the river reach adjacent to the next MBTA Railroad influence.
- One composite sample (light blue dots on Figure 6) from approximately 0.70 – 0.80 miles upstream of the dam representing the river reach between Kimball Brook and the MBTA Railroad.
- One composite sample (light green dots on Figure 6) from approximately 0.45 – 0.55 miles upstream of the dam representing the river reach between Saltonstall Brook and Kimball Brook.
- One composite sample (yellow dots on Figure 6) from approximately 0.25 miles upstream of the dam representing the river reach between the broader section of the dam impoundment and Kimball Brook.
- One composite sample (orange dots on Figure 6) from approximately 200-1,000 feet upstream of the dam representing the wider impounded river reach relatively close to the dam where significant mobilization is anticipated.
- One composite sample (red dots on Figure 6) from immediately upstream of the dam where significant mobilization is anticipated.
- One composite sample (pink dots on Figure 7) from the first 1,000 feet downstream of the dam representing the yellow depositional area from Figure 5.
- One composite sample (light green dots on Figure 7) approximately 1,500-2,000 feet downstream of the dam representing the teal depositional area in the cove below the lower falls from Figure 5.
- One composite sample (orange dots on Figure 7) from approximately 1-3 miles downstream of the dam representing the purple salt marsh depositional area from Figure 5.





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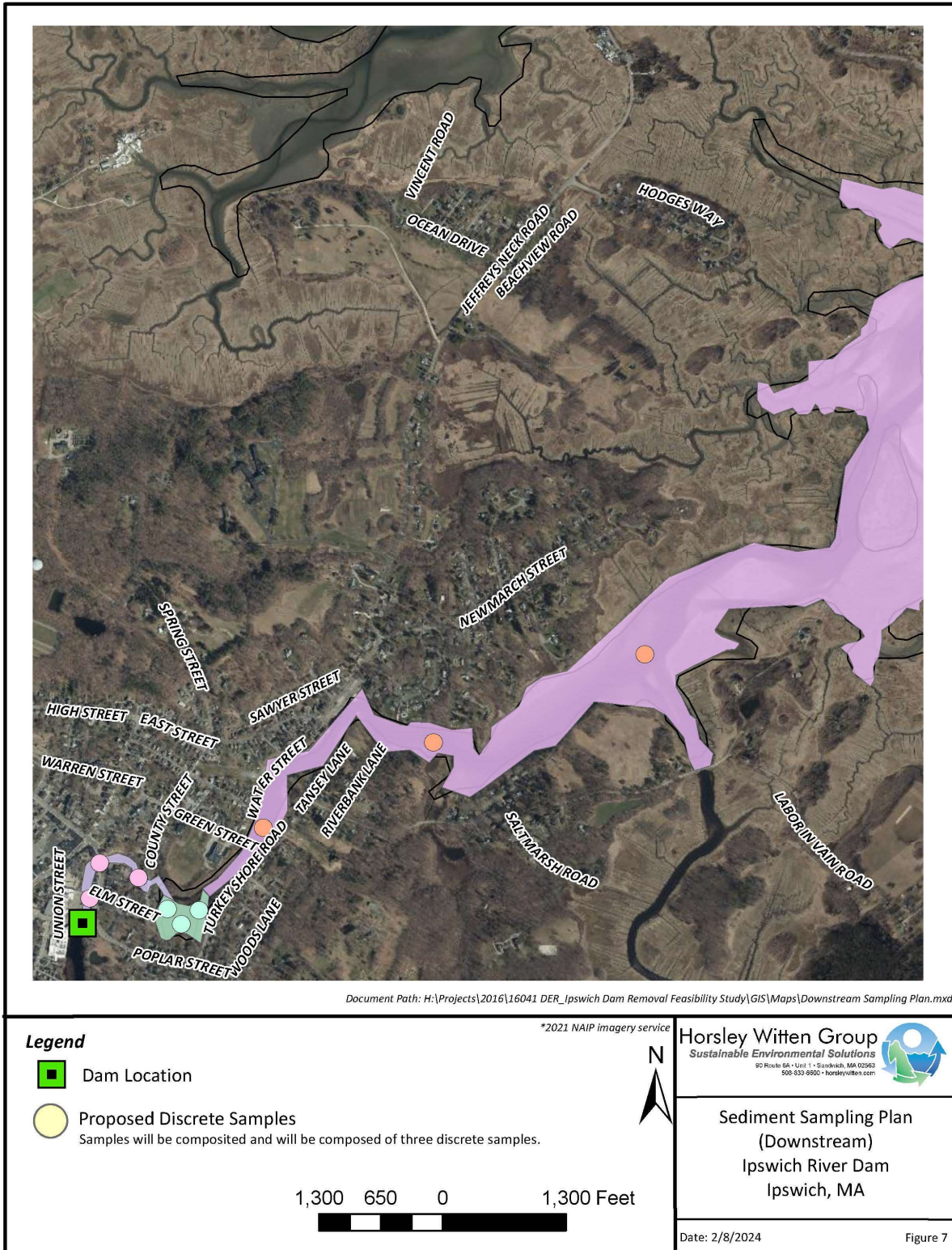
<b>Legend</b>	*2021 NAIP imagery service	 <p>Horsley Witten Group Sustainable Environmental Solutions 90 Route 9A, Unit 1 • Southwick, MA 02555 508-833-8500 • horsleyw@hwn.com</p>
<ul style="list-style-type: none"> <li> Dam Location</li> <li> Proposed Discrete Samples Samples will be composited and will be composed of three discrete samples</li> <li> Outfall Locations</li> </ul>		<p>Sediment Sampling Plan (Upstream) Ipswich River Dam Ipswich, MA</p>
<p>1,200 600 0 1,200 Feet</p> 	<p>Date: 2/15/2024 <span style="float: right;">Figure 6</span></p>	

\*Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

**Figure 6. Upstream Sampling Locations**

Due Diligence Review  
Ipswich Mills Dam  
Ipswich River, Ipswich, MA





\*Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

Figure 7. Downstream Sampling Locations

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Appendix A: EDR Radius Map™ Report with  
GeoCheck®

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AVAILABLE UPON REQUEST

## Appendix B: DER Sediment Sampling Results Spreadsheet

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Table 1A - Sediment Sampling Results  
Sediment Quality Spreadsheet IRWA 2012 and USGS 2005  
Ipswich River, Ipswich, MA

Recommended Analyses for Dam Removal Projects		MA DEP BWSO Soil Standards and Guidance Values				Sediment Thresholds		Upstream Samples				Upstream Metrics		
Parameters	Units	Cleanup Standard	*Natural Soil*	*Urban Soil*	Upper Concentration	Freshwater	Freshwater	IM-1	IM-2	IM-3	USGS	Upstream		
		(S-1/GW-1)	Background	Background	Limit (UCL)	TEC	PEC	2012	2012	2012	2005	Min	Max	Mean
<b>Metals, Total [mg/kg or ppm]</b>														
Antimony	mg/kg (ppm)	20	1	7	80,000	-	-	-	-	-	0.32	0.32	0.32	0.32
Arsenic (mg/kg)	mg/kg (ppm)	20	20	20	500	9.79	33	4.76	<b>13.8</b>	9.68	3.6	3.6	13.8	7.96
Cadmium (mg/kg)	mg/kg (ppm)	70	2	3	1,000	0.99	4.98	0.139	0.503	0.515	0.53	0.139	0.53	0.42
Chromium (TOTAL)(mg/kg)	mg/kg (ppm)	100	30	40	2,000	43.4	111	7.48	15.7	16.4	36	7.48	36	18.90
Copper (mg/kg)	mg/kg (ppm)	NS	40	200	NS	31.6	149	3.45	10.7	15.1	13.7	3.45	15.1	10.74
Lead (mg/kg)	mg/kg (ppm)	200	100	600	6,000	35.8	128	9.37	32.7	<b>43.5</b>	33.8	9.37	43.5	29.84
Mercury (mg/kg)	mg/kg (ppm)	20	0.3	1	300	0.18	1.06	0.047	0.216	<b>0.185</b>	0.066	0.047	0.216	0.13
Nickel (mg/kg)	mg/kg (ppm)	600	20	30	10,000	22.7	48.6	5.25	9.79	10.9	9.2	5.25	10.9	8.79
Silver	mg/kg (ppm)	100	0.6	5	1,000	-	-	-	-	-	0.22	0.22	0.22	0.22
Zinc (mg/kg)	mg/kg (ppm)	1,000	100	300	10,000	121.0	459	32.9	80	102	41.4	32.9	102	<b>64.08</b>
<b>PAHs (ug/kg or ppb)</b>														
Acenaphthene	ug/kg (ppb)	4,000	NS	NS	NS	NS	NS	5.7	5.7	33.5	76.0	5.7	76	30.2
Acenaphthylene	ug/kg (ppb)	1,000	NS	NS	NS	NS	NS	27.7	19.5	124.0	84.0	19.5	124	63.8
Anthracene (ppb)	ug/kg (ppb)	1,000,000	1,000	4,000	10,000,000	57.2	845	20.3	21.2	<b>145.0</b>	<b>330.0</b>	20.3	<b>330</b>	<b>129.1</b>
Benzo[a]anthracene (ppb)	ug/kg (ppb)	7,000	2,000	9,000	3,000,000	108.0	1,050	<b>129.0</b>	110.0	<b>673.0</b>	<b>730.0</b>	110	<b>730</b>	<b>410.5</b>
Benzo[a]pyrene (ppb)	ug/kg (ppb)	2,000	2,000	7,000	3,000,000	150.0	1,450	140.0	97.9	<b>610.0</b>	<b>670.0</b>	97.9	<b>670</b>	<b>379.5</b>
Benzo[b]fluoranthene (ppb)	ug/kg (ppb)	7,000	2,000	8,000	3,000,000	NS	13,400	135.0	129.0	718.0	550.0	129	718	<b>383.0</b>
Benzo[g,h,i]perylene	ug/kg (ppb)	1,000,000	NS	NS	NS	NS	NS	84.3	70.0	412.0	360.0	70	412	<b>231.6</b>
Benzo[k]fluoranthene	ug/kg (ppb)	70,000	NS	NS	NS	NS	NS	121.0	104.0	571.0	550.0	104	571	<b>336.5</b>
Chrysene (ppb)	ug/kg (ppb)	70,000	2,000	7,000	10,000,000	166	1,290	153.0	132.0	<b>702.0</b>	<b>740.0</b>	132	<b>740</b>	<b>431.8</b>
Dibenz[a,h]anthracene (ppb)	ug/kg (ppb)	700	500	1,000	300,000	33	260	19.2	16.1	108.0	200.0	16.1	200	<b>85.8</b>
Fluoranthene (ppb)	ug/kg (ppb)	1,000,000	4,000	10,000	10,000,000	423	2,230	356.0	279.0	<b>1410.0</b>	<b>1500.0</b>	279	<b>1500</b>	<b>886.3</b>
Fluorene (ppb)	ug/kg (ppb)	1,000,000	1,000	2,000	10,000,000	77.4	536	14.5	10.2	62.8	<b>150.0</b>	10.2	<b>150</b>	59.4
Indeno[1,2,3-cd]pyrene	ug/kg (ppb)	7,000	NS	NS	NS	NS	NS	96.6	77.2	491.0	380.0	77.2	491	261.2
Phenanthrene (ppb)	ug/kg (ppb)	10,000	3,000	20,000	10,000,000	204	1,170	181.0	93.0	<b>590.0</b>	-	93	<b>590</b>	<b>288.0</b>
Pyrene (ppb)	ug/kg (ppb)	1,000,000	4,000	20,000	10,000,000	196	1,520	<b>296.0</b>	<b>239.0</b>	<b>1240.0</b>	<b>1200.0</b>	239	<b>1240</b>	<b>743.8</b>
2-Methylnaphthalene	ug/kg (ppb)	700	NS	NS	NS	NS	NS	-	-	-	39.0	39	39	39.0
Naphthalene (ppb)	ug/kg (ppb)	4,000	500	1,000	10,000,000	176	561	25.4	15.6	-	79.0	15.6	79	40.0
Total PAHs (ppb)	ug/kg (ppb)	5,178,400	22,000	89,000	76,600,000	1,610	22,800	<b>1,805</b>	<b>1,419</b>	<b>7,890</b>	<b>7,638</b>	<b>1,419.40</b>	<b>7,890</b>	<b>4,688.1</b>
<b>PCBs (mg/kg or ppm)</b>														
Total PCBs (ppm)*	mg/kg (ppm)	1	NS	NS	100	0.0598	0.676	-	-	-	0.011	0.011	0.011	0.01
<b>VOCs (mg/kg)</b>														
Methyl tert-butyl ether (MTBE)	mg/kg (ppm)	0.1	-	-	-	-	-	3.25	3.25	3.25	-	3.25	3.25	3.25
Benzene	mg/kg (ppm)	2	-	-	-	-	-	1.65	1.65	1.65	-	1.65	1.65	1.65
Toluene	mg/kg (ppm)	40	-	-	-	4.5	4.5	2.45	2.45	2.45	-	2.45	2.45	2.45
Ethylbenzene	mg/kg (ppm)	30	-	-	-	-	-	1.65	1.65	1.65	-	1.65	1.65	1.65
m,p-Xylenes	mg/kg (ppm)	400	-	-	-	-	-	3.25	3.25	3.25	-	3.25	3.25	3.25
o-Xylene	mg/kg (ppm)	400	-	-	-	-	-	3.25	3.25	3.25	-	3.25	3.25	3.25
<b>TPH and EPH (mg/kg or ppm)</b>														
C9-C18 Aliphatic Hydrocarbons (ppm)	mg/kg (ppm)	1,000	NS	NS	20,000	NS	NS	5.05	5.05	5.05	-	5.05	5.05	5.05
C19-C36 Aliphatic Hydrocarbons (ppm)	mg/kg (ppm)	3,000	NS	NS	20,000	NS	NS	5.05	5.05	16.8	-	5.05	16.8	8.97
C11-C22 Aromatic Hydrocarbons (ppm)	mg/kg (ppm)	1,000	NS	NS	10,000	NS	NS	10.3	5.05	22.4	-	5.05	22.4	12.5833
<b>Physical Characteristics</b>														
Total Organic Carbon (%)	%	-	-	-	-	-	-	1.0	3.84	2.99	-	1	4	3
Percent Water (%)	%	-	-	-	-	-	-	36.20	62.20	52.10	-	36.20	62.20	50.17
Sieve No. 4 (% passing)	% passing	-	-	-	-	-	-	0.10	0.10	0.00	-	0.00	0.10	0.07
Sieve No. 10 (% passing)	% passing	-	-	-	-	-	-	2.20	1.00	0.40	-	0.40	2.20	1.20
Sieve No. 40 (% passing)	% passing	-	-	-	-	-	-	50.00	17.40	17.40	-	17.40	50.00	28.27
Sieve No. 60 (% passing)	% passing	-	-	-	-	-	-	40.70	43.20	63.20	-	40.70	63.20	49.03
Sieve No. 200 (% passing)	% passing	-	-	-	-	-	-	7.00	8.30	19.00	-	7.00	19.00	11.43

Note:  
Total PCBs = Sum of 18 PCBs/ congeners tested w ND values computed as half reporting limit.  
BOLD denotes results were over Standards  
Italicized denotes results were over Natural Soil Background Levels  
Underlined denotes results were over Sediment Threshold Effect Concentration Values  
Highlight denotes results were over Sediment Probable Effects Concentration Values  
Results that were Non-Detect are included as HALF of the Reporting Limits  
Metrics were calculated for upstream samples  
NS - denotes no standard



Questions, comments, corrections?  
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