

Feasibility Study for Larkin Road Dam

Study Overview



Presented by:

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Presented to:

Newbury
Selectboard,
Abutters & Public

Funding & Assistance:





USGS Gage
01101000

North

INTERSTATE 95

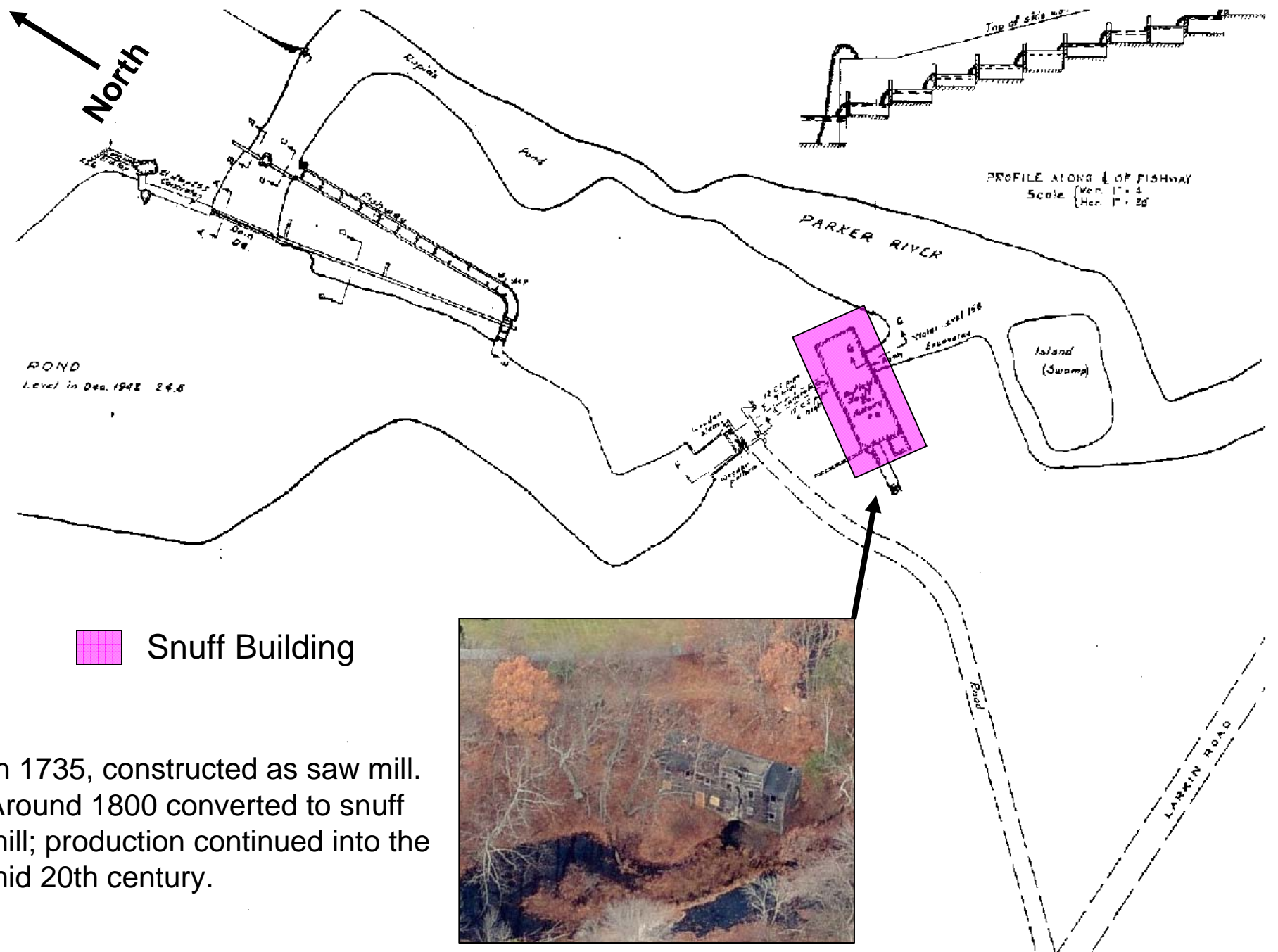
Larkin Road Dam

flow

PARKER RIVER D

LARKIN ROAD

Parker River



- In 1735, constructed as saw mill.
- Around 1800 converted to snuff mill; production continued into the mid 20th century.

Snuff Mill Building



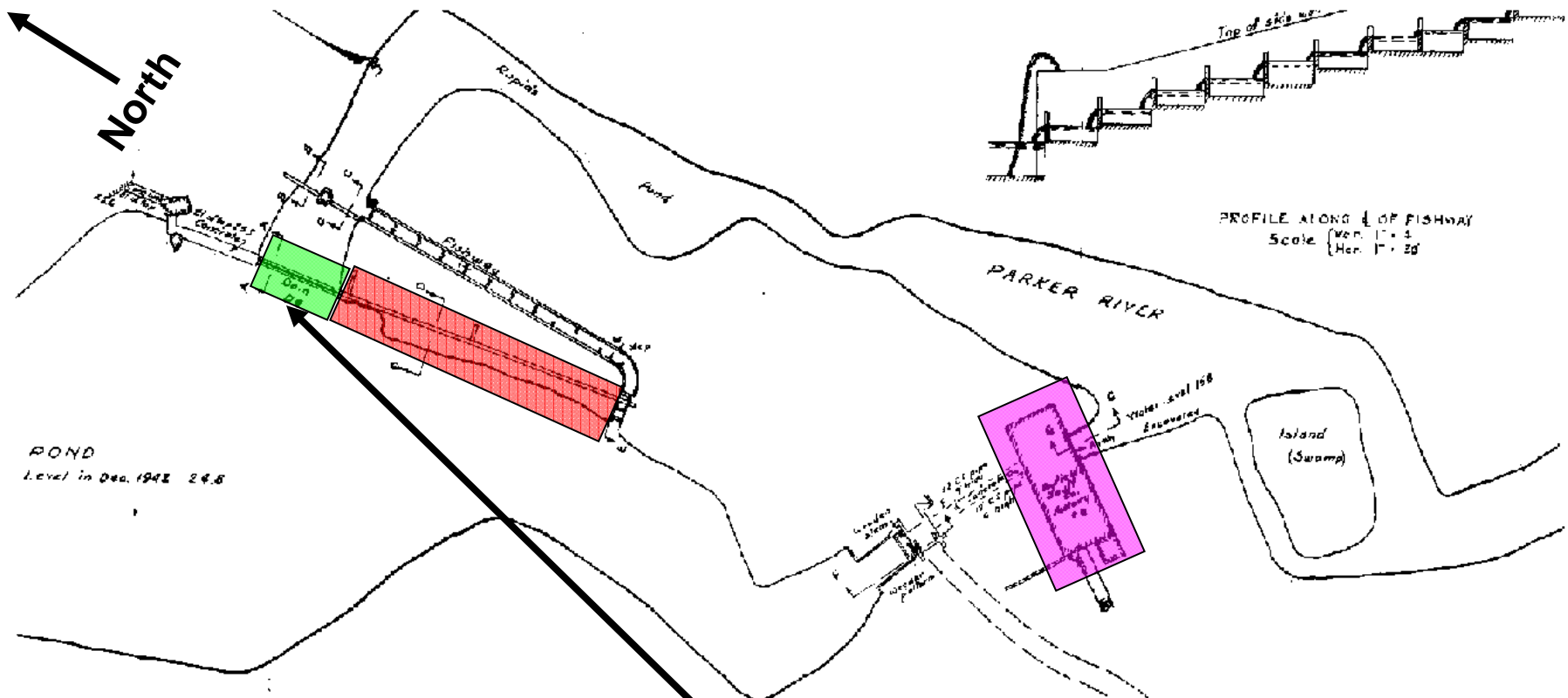
Discharge Location

Earthen Portion of Dam






Cracks

Not aligned



POND
Level in Dec. 1948 24.8

PROFILE ALONG 1/4 OF FISHWAY
Scale (Ver. 1" = 4' Hor. 1" = 20')

-  Snuff Building
-  Earthen Dam
-  Spillway Portion of Dam



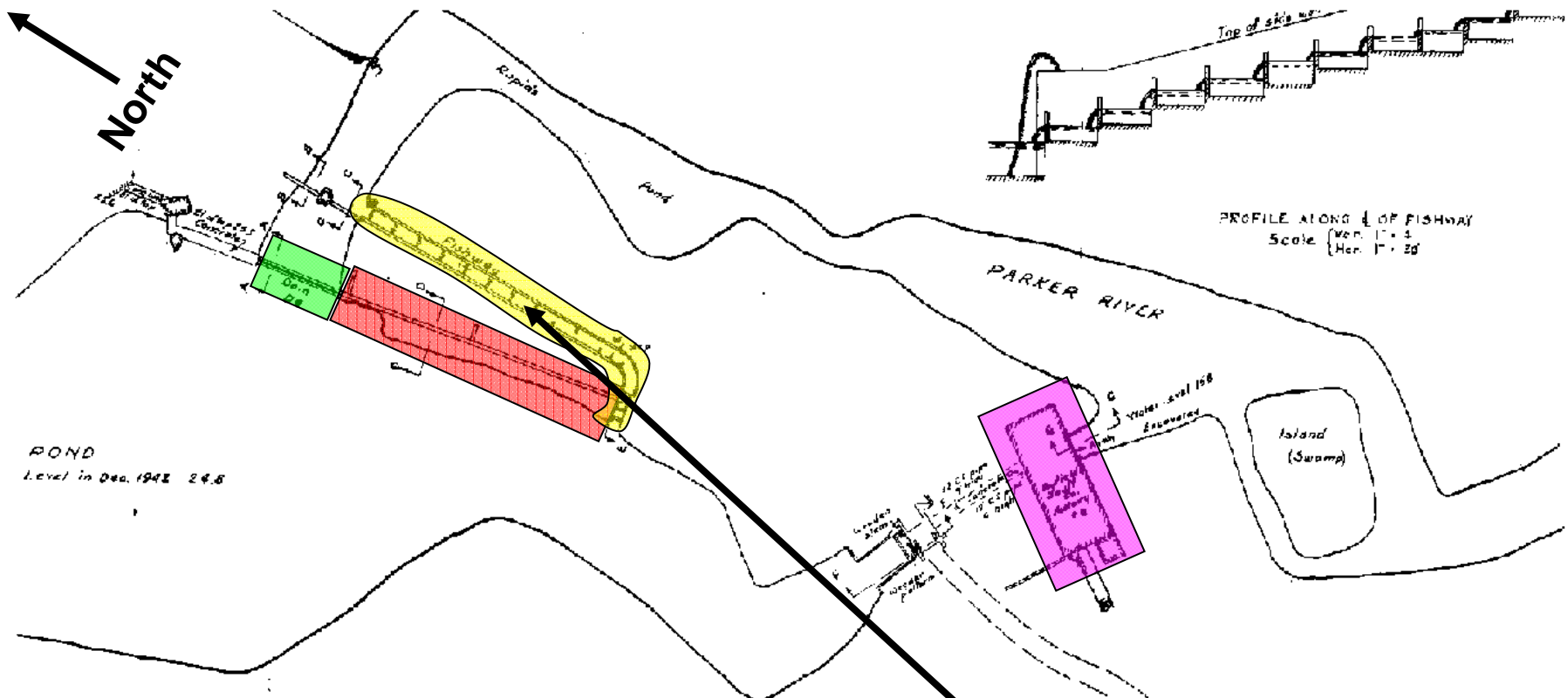
LARKIN ROAD





Spillway Portion of Dam



Leakage

**Tree Growth
(weakens dam
stability)**



-  Snuff Building
-  Earthen Dam
-  Spillway Portion of Dam
-  Fish Ladder

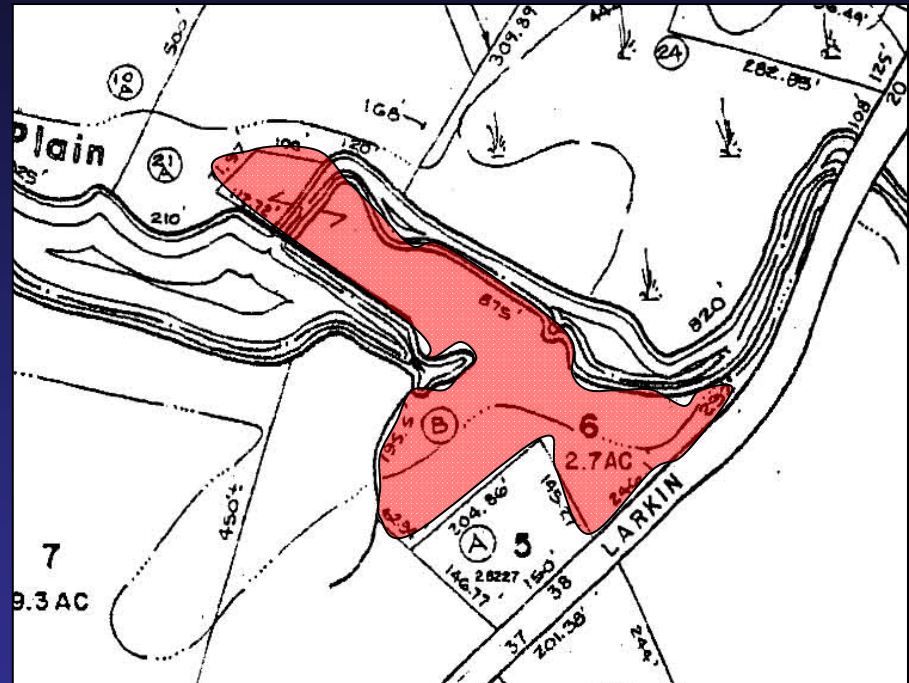


Fish Ladder



Background

- Town owns dam and surrounding property
- Town received grant from Gulf of Maine Council/NOAA to conduct feasibility study. Town matched portion of funding.
- Dam is in poor condition
- Goal- increase passage of *diadromous* fish, restore habitat connectivity, restore natural stream function, and address a deteriorating, attractive structure.



Diadromous fish include river herring, American eel, sea lamprey, sea-run brook trout and white perch.

Alternatives to Consider Relative to Larkin Road Dam

- Do Nothing (dam in poor condition)
- Repair Dam and Modify Fish Passage (if poor at passing fish)
- Remove Spillway Portion of Dam
- Remove Earthen and Spillway Portions of Dam
- Others?

Feasibility Study- Field Studies

- Wetlands Delineation- below dam to USGS gage
- Survey of Main Project Features – for use in preliminary design drawings
- Bathymetric Survey of Impoundment (underwater topographic survey)
- Sediment Depth Survey of Impoundment
- Collection of Sediment Cores for Contaminant Testing
- Historic Survey (Archeological and Cultural Resources Assessment)
- Collect information on Parker River Drive wells- contact landowners

Feasibility Study- Hydraulic Model

- Hydraulic model will be developed from Larkin Road Bridge to above Rte 95 Bridge. Under dam removal alternative, hydraulic model will be used to predict:
 - The “new” channel width, depth and velocity through impoundment.
 - Estimate likelihood of sediments being transported downstream using model velocity output.
 - Determine whether fish can pass through the site using model velocity and depth output.
 - Determine whether Rte 95 Bridge abutments could be scoured using model velocity and depth output.



If dam is removed:

- channel width will narrow
- depth will decrease
- velocity will increase

Feasibility Study Issues- Sediments

- Sediment volume will be quantified using probes from a small boat.
- Sediment samples will be collected for contaminant testing.
- Likelihood of sediments becoming mobile if dam is removed will be quantified with hydraulic model.
- Sediment volume/quality and sediment transport analysis will dictate sediment management options (under dam removal alternative).



Alternatives Evaluated Based on:

- Costs
- Ability to Secure Additional Grant Money (highest probability for dam removal, unlikely for dam repair)
- Sediment Testing Results
- Sediment Management Options
- Hydraulic Modeling Results
- Cultural Resource Impacts
- Wetland Impacts
- Infrastructure Impacts
- Well Impacts
- Route 95 Bridge Impacts
- Ability to Restore Stream Habitat and Function
- Ecological Impacts (fish, wetlands, etc)

Where We Go From Here

- Field Studies/Data Collection (Summer 2009)
- Hydraulic Modeling (Summer/Fall 2009)
- Feasibility Study Report, including Identification of Preferred Alternative (Late Fall 2009)
- Public Meeting (Winter 2009/2010)
- Development of Preliminary Design Drawings (Winter/Spring 2009/2010)
- Public Meeting (Spring 2010)

Contact Information

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