Session B6- Installation of Denil fishways and eel ladders at brownfield sites

Meghan Walter  
USDA Natural Resources Conservation Service-Oregon

Alicia Lehrer  
Woonasquatucket River Watershed Council

Thomas Cook P.E.  
EA Engineering, Science, and Technology, Inc.

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Installation of Denil Fishways and Eel Ladders at Brownfield Sites

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WOONASQUATUCKET RIVER WATERSHED COUNCIL

NRCS Natural Resources Conservation Service
This presentation was prepared by:

Meghan Walter, Hydraulic Engineer, NRCS, meghan.walter@or.usda.gov
Alicia Lehrer, Executive Director, WRWC, alehrer@wrwc.org
Tom Cook, Senior Engineer, EA, tcook@eaest.com
Project Partners

Rising Sun Mills and Atlantic Mills Fishway Projects
Woonasquatucket River Fish Restoration Program
Providence, Rhode Island

U.S. Department of Agriculture
Natural Resources Conservation Service (NRCS)

Rhode Island Department of Environmental Management (RIDEM)

US Fish and Wildlife Service (USFWS)

Other Project Partners:
Woonasquatucket River Watershed Council
166 Valley Street, LLC (Rising Sun Mills)
City of Providence (Atlantic Mills)
EA Engineering, Science, and Technology, Inc.
Restoration Objectives

Restore river herring (blueback herring and alewife), American shad, and American Eel to Woonasquatucket River
Woonasquatucket River Fish Restoration Program

Legend
- Dams
- Town Boundaries

Manton Avenue Dam
Bryantville Dam
Atwater Mill Dam
Paragon Mills Dam
Rising Sun Mill Dam

PROVIDENCE
JOHNSTON
CRANSTON
12
19
27
Partner Coordination

Rising Sun Mills Development – Condominium and office park (166 Valley Street LLC); as owner, responsible for permit applications and construction contract.

City of Providence – Owner of Atlantic Mills Dam and at Riverside Mills Park; responsible for permit.

NRCS – Responsible for funding design and 75% funding of construction

Woonasquatucket River Watershed Council – Responsible for partial funding, watershed coordination, and Construction Contract
Project Overview

Conceptual Design of Denil Fish Ladder by D. Quinn (U.S. Fish and Wildlife Service)

EA Contracted by NRCS for:

- **30% Design** – Plan and profile of fishway with all fish passage features defined for U.S. Fish and Wildlife Service review

- **60% Design** – Construction details necessary for permitting

- ** Permit Applications** – USACE RI Programmatic General Permit, RIDEM Wetlands Program, and RIDEM Water Quality Certification

- **100% Design Documents** – Structural design, construction drawings, specification, bid pricing sheet, and construction cost estimate

- **Construction Support** – Weekly onsite meetings, review contractor submittals, resolution of design changes, review of fabrication drawings, and progress inspections
Rising Sun Mills Design Considerations

- Structural integrity of existing dam and abandoned gate
- Spillway discharge capacity and downstream fish bypass
- Parking lot storm drain system
Rising Sun Mills Construction Challenges

Construction sequencing

Short construction window

Cold weather
Atlantic Mills Design Considerations

Water control
Condition of spillway crest
Active gas line
Unknown dam abutment conditions
Atlantic Mills Design Considerations (continued)

Abutment replacement
Flashboard redesign
Cold weather
Permitting Issues

Dewatering for construction

Water quality

Excavation material disposal
Brownfield Site Issues

- Water quality
- Excavation material disposal
- Maintaining Brownfield cap integrity
Eel Ladders

Added to project after Denil fishway installation complete at both dams

Design integrated with Denil fishways

Solar operated/vandal protection
Lessons Learned

Be prepared for unknowns

Daily communications

Construction schedule
Lessons Learned (continued)

Select qualified contractor
Lessons Learned (continued)

Contractor communications and coordination
Project Status

Rising Sun Mills Denil fishway completed in December 2007

Atlantic Mills Denil fishway completed in January 2009

Eel ladders installed at both dams in summer 2009

RIDEM started monitoring and maintaining fish ladders starting in 2008 at Rising Sun and 2011 at Atlantic Mills (Paragon Dam removed in 2010).

Fish observed at Rising Sun Mills since 2008. Passage of river herring Atlantic Mills expected this year.