

**CONSTRUCTION REPORT - URGIEL UPSTREAM
FERC PROJECT # 1889/2485
TURNERS FALLS / NORTHFIELD MOUNTAIN PROJECTS
BIOENGINEERING BANK AND SLOPE STABILIZATION
CONNECTICUT RIVER, MASSACHUSETTS**

NOVEMBER 15, 2001

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Progress of Work:

Background

The Connecticut River erosion control work associated with the Phase II, Turners Falls / Northfield Mountain Bioengineering bank stabilization projects includes eight sites totaling approximately 6,100 linear feet of riverbank. The Phase I bioengineering projects which were completed during the summer/2000, included a total of five sites with 5,470 linear feet of bank restoration. The current Urgiel Upstream site is approximately 1,300 linear feet of bank, and was selected as the first project under the Phase II work due to the active erosion on this site compared to other areas, the loss of prime farmland, degradation of fisheries and wildlife habitat, and the aesthetics.

Bioengineering Techniques

The bioengineering treatments which have been employed on the Connecticut River are considered to be a “soft-engineering” approach to bank stabilization by using living plant materials, and erosion control fabrics to stabilize the eroded slopes. This project includes a more extensive shrub planting plan on the slopes, and the planting of large trees on the top of the bank to provide future Bald Eagle perching sites. Our past experience using these techniques on the Connecticut River have demonstrated that these stabilization techniques are appropriate in protecting the banks, even under high flow conditions. Other benefits which have been demonstrated by the bioengineering treatments include sediment reduction, improved water quality, improved fisheries habitat, and improved wildlife habitat. While Phase I projects on the Connecticut River were viewed as “demonstration”, we now believe that these projects have progressed to the point where these methods are a viable form of erosion control on the Connecticut River.

Lower Bank Treatment Details

A stone toe of slope composed of 4”-6” diameter stone is placed at the water’s edge at an elevation within the normal elevation range of the pool. Based on our experiences with the

Phase I projects, we have downsized the size of the stone specified in prior projects (from 6"-8") as there has been no movement or shifting of the stone due to near bank shear stress.

Willow shrubs are proposed to be installed on the river side and the slope side of the stone toe in order to catch sediment, provide additional wildlife habitat, and to provide a slope with a natural appearance.

Upper Bank Treatment Details

The upper bank will be graded back to a stable 1.5:1 slope, covered with a minimum of 6" of loam, seeded with a native seed mix, covered with a biodegradable erosion control blanket, and planted with native shrubs. A low berm approximately one foot high will be created at the top of the bank to prevent overland runoff from eroding the slope. Trees are to be planted at the top of the bank to restore areas cut during construction, and to provide future perching sites for the Bald Eagle.

All plant materials and seed mixes used on this site were selected as species representing native plant materials found along the Connecticut River valley. These plant selections have been reviewed and approved by Local, State, and Federal conservation agencies.

Status of Construction

Bioengineering mobilization and construction on the Urgiel Upstream property began on October 1, 2001. Work for the first three weeks included tree clearing, access road construction, and the construction of staging areas. A pre-construction meeting with the site contractors was held at the start of the work to review the project plans, tree-clearing areas, and environmental considerations. By the week of October 22, 2001, work on the slope and stone toe commenced. As of the date of this report, the stone toe has been completed, and the slope grades are being established. We anticipate the completion of construction by December 15, 2001, with the exception of plant installation which will take place in the Spring of 2002.

Construction Difficulties

There have been no significant construction difficulties experienced to date.

Contract Status

The construction contractor who is performing the riverbank erosion control work at the Urgiel Upstream site is Davenport Trucking of Greenfield, Massachusetts. A land-clearing subcontractor, Pentermill Logging of Ashfield, Massachusetts was used during the initial site preparation work. No other subcontractors other than material suppliers are being used as of this

date. Project supervision is being conducted by the NGS project engineer Mr. Patrick Moriarty, and by Michael Marcus, of New England Environmental, Inc., as the project designer.

The major pieces of construction equipment used by the contractor for this project includes:

- Small Trackhoe Excavator, John Deere, 690 ELC
- Large Trackhoe Excavator, Cat 330BL
- Articulated 14 cubic yard dump truck, Volvo A30C
- Front end bucket loader, Komatsu WA320

Reservoir Filling

Not applicable to this project.

Foundation

Not applicable to this project.

Sources of Major Construction Materials

Angular Field Stone: Lane Construction, Northfield, Massachusetts (local quarry)

Filter Fabric: Redhead Supplies, Hatfield, MA , A.H. Harris, Portsmouth, NH

No other materials have been used to date.

Materials Testing and Results

No material testing was required during this reporting period.

Instrumentation

Not Applicable to this project

Erosion Control and Other Environmental Measures

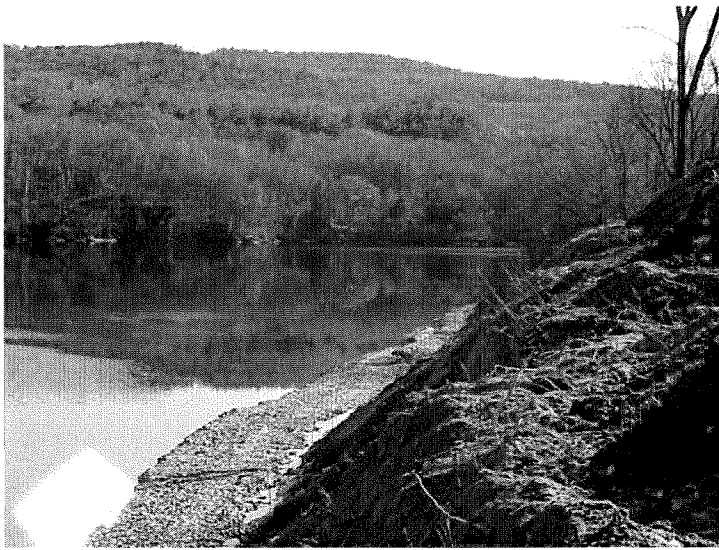
A turbidity curtain has been installed within the Connecticut River adjacent to the work areas as prescribed by the environmental permits for this project. Once the stone toe of slope is installed, the turbidity curtain was moved to the next work area as the stone becomes the erosion control

feature. To date, the contractor has done an excellent job of controlling sediment on the site. There have been no erosion breaches and no off-site sedimentation problems during construction.

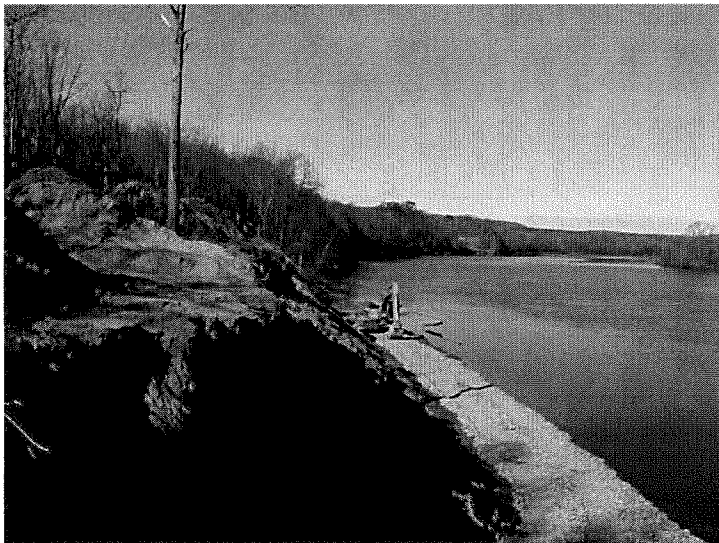
Schedule

It is anticipated that by December 15, 2001 the site will be fully constructed and stabilized with erosion control blankets. Installation of the specified plant materials will be conducted in May and June, 2002.

PROJECT PHOTOGRAPHS
Urgiel Upstream, Connecticut River
November, 2001



Site construction in progress looking downstream. The stone has been placed at the toe of slope, but has not yet been shaped into the foot of the bank.



Site looking upstream. Note the placement of the turbidity curtain (orange) adjacent to the work area to keep sediment from the River. The slopes have not yet been graded to the final grade.