GILBOA DAM
RECONSTRUCTION
PROJECT

Status Report

October 2007
GILBOA DAM RECONSTRUCTION PROJECT

PROJECT GOALS: Ensuring Public Safety
Sustaining Public Water Supply
GILBOA DAM RECONSTRUCTION PROJECT
Interim Construction Phase

Work Completed in 2006:
• Debris Barrier
• Siphons
• Notch
• Anchors
• Upgraded Instrumentation/Surveillance

Flows diverted through siphons and notch to allow preparation for anchor installation.
ON-GOING AND RECENTLY COMPLETED DESIGN ACTIVITIES

- Environmental Assessment
  - Environmental Document Anticipated Release - December 2007
  - Public Outreach
  - Permit Coordination with DEC & USACE

- Surveys & Mapping

- Spillway Physical Modeling

- Subsurface Exploration & Testing

- Low-Level Outlet Investigations

- Preliminary & Final Design
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Spillway Modeling to Understand Complex Hydraulic Conditions

Model of Existing Steps

Model of Planned Spillway Improvements
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1996 Flood Flow vs. Final Design Flood Flow

1996 Flood: 6.6 ft  
Elev. 1136.6 ft  
70,800 cfs

17.8 ft

DESIGN FLOOD
100% PMF
Elev. 1,147.8 ft
312,000 cfs

ORIGINAL PROFILE

FINAL PROFILE

2006 ANCHORS

EARTH BACKFILL

BEDROCK
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ANTICIPATED PHASED APPROACH

- **PHASE I** – Site Preparation (CAT-212A)
- **PHASE II** – Gilboa Dam Reconstruction (CAT-212B)
- **PHASE III** – Shandaken Intake Improvements (CAT-212C)
- **PHASE IV** – Site Restoration (CAT-212D)
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PHASE I SCOPE – SITE PREPARATION

CAT-212A

- Site Clearing
- Grading & Drainage Improvements
- New (West) Access Road Construction
- Spillway Crest Gate Installation
- Site Utility Upgrade / Installation
- Construction Staging Area Development
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Location for New Gate Crest

Approximate Limits of Spillway Notch and Crest Gate
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Proposed Crest Gate
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PHASE II SCOPE – DAM RECONSTRUCTION
CAT-212B

- Spillway & Training Wall Reconstruction
- Embankment Improvements
- Low-Level Outlet Works
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PHASE III SCOPE – SHANDAKEN INTAKE IMPROVEMENTS

CAT-212C

- Intake Gate Repair / Replacement
- Utility Upgrades
- Access / Site Improvements
- Miscellaneous Architectural & Structural Upgrades

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PHASE IV SCOPE – SITE RESTORATION CAT-212D

- Environmental Mitigation
- Site Restoration
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CURRENT DESIGN ACTIVITIES
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SUBSURFACE EXPLORATION & TESTING

Current Investigation Areas of Focus:

- West Abutment Area
- Embankment / Training Walls
- Low-Level Outlet Works
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Boring Location Plan

- Remaining Borings (34)
- Low-Level Outlet Works
- West Training Wall

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Evacuate 90% of storage in 4 months or less under average inflow conditions (Corps of Engineers Criteria)

Capacity to maintain the reservoir in a substantially dewatered state – Max headwater depth limited to 10% storage (EL 1052 feet)

Invert elevation at or below Elev. 980-1000 feet

No credit for use of Shandaken Intake to meet recommended design criteria

Maximum daily drawdown rate in the range of 1-2 feet per day, except for extreme emergencies
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Low-Level Outlet Alternatives

1. Tunnel through right abutment
   A. Hard rock tunnel through right abutment
   B. Alternative alignment based on initial borings

2. Tower adjacent to dam
   A. Tunnel through dam
   B. Tunnel under dam

3. Tunnel through left abutment  
   – rejected

4. New shaft at existing gate chamber
Benefits will vary depending on storm magnitude and spatial distribution.

For a storm event comparable to the 1996 flood, a snowpack management program could potentially result in up to 144 fewer structures being flooded in the communities of Esperance, Schoharie, Middleburgh & Fulton.
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POTENTIAL BENEFITS OF SNOWPACK MANAGEMENT

<table>
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<tr>
<th>Watershed Show Depth (Inches)</th>
<th>Reservoir Drawdown Elevation (Feet)</th>
<th>Storm Rainfall (inches)</th>
<th>Peak Flow from Schoharie Reservoir (cfs)</th>
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<tr>
<td>20</td>
<td>1,111.6</td>
<td>4.5</td>
<td>Without Snowpack Management: 56,260</td>
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<td>With Snowpack Management: 44,490</td>
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<td>Without Snowpack Management: 92,430</td>
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<td>With Snowpack Management: 64,310</td>
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# GILBOA DAM RECONSTRUCTION PROJECT

## Planned Project Schedule

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Sedimentation Depth

<table>
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<tr>
<th>ZONE</th>
<th>DEPTH OF SEDIMENT</th>
<th>COLOR</th>
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<tbody>
<tr>
<td>1</td>
<td>0' - 5'</td>
<td>Red</td>
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<tr>
<td>2</td>
<td>5' - 10'</td>
<td>Yellow</td>
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<tr>
<td>3</td>
<td>10' - 15'</td>
<td>Green</td>
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<tr>
<td>4</td>
<td>15' - 20'</td>
<td>Purple</td>
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