



Presentation For:

Warner's Pond Dam Rehabilitation

Concord, Massachusetts

PUBLIC MEETING

April 10, 2006



Project Team

- *Concord Public Works*
 - Bill Edgerton – Public Works Director
 - Jim Shuris; Town Engineer
 - Sean Divoll; Public Works Engineer; Town Contact
- *GZA GeoEnvironmental, Inc.*
 - Peter Baril-Principal-in-Charge
 - Chris Haker-Project Manager; Lead Designer
- *Dufresne-Henry*
 - Randall Christensen; Environmental Permitting
 - Nicole Sanford; Environmental Permitting
 - Victor Olson; Structural Design and Plans Preparation



Meeting Purpose

- *To inform public on the importance of the project*
- *To update public on what has been accomplished since the March 2, 2006 meeting.*
- *Present final design plans.*
- *To answer any remaining questions prior to Town Meeting on April 24-26.*

Questions and Comments

Why are we fixing the dam?



PROJECT BENEFITS

- *Improve Dam Safety*
- *Preservation Of Pond Resources*
- *Functional Water Controls*
 - *Allows for seasonal draw downs*
 - *Allows for emergency draw down*
- *Improve Water Quality in Auxiliary Spillway Area*



Questions and Comments

Why do the trees need to be removed?

What are the alternatives?



Questions and Comments

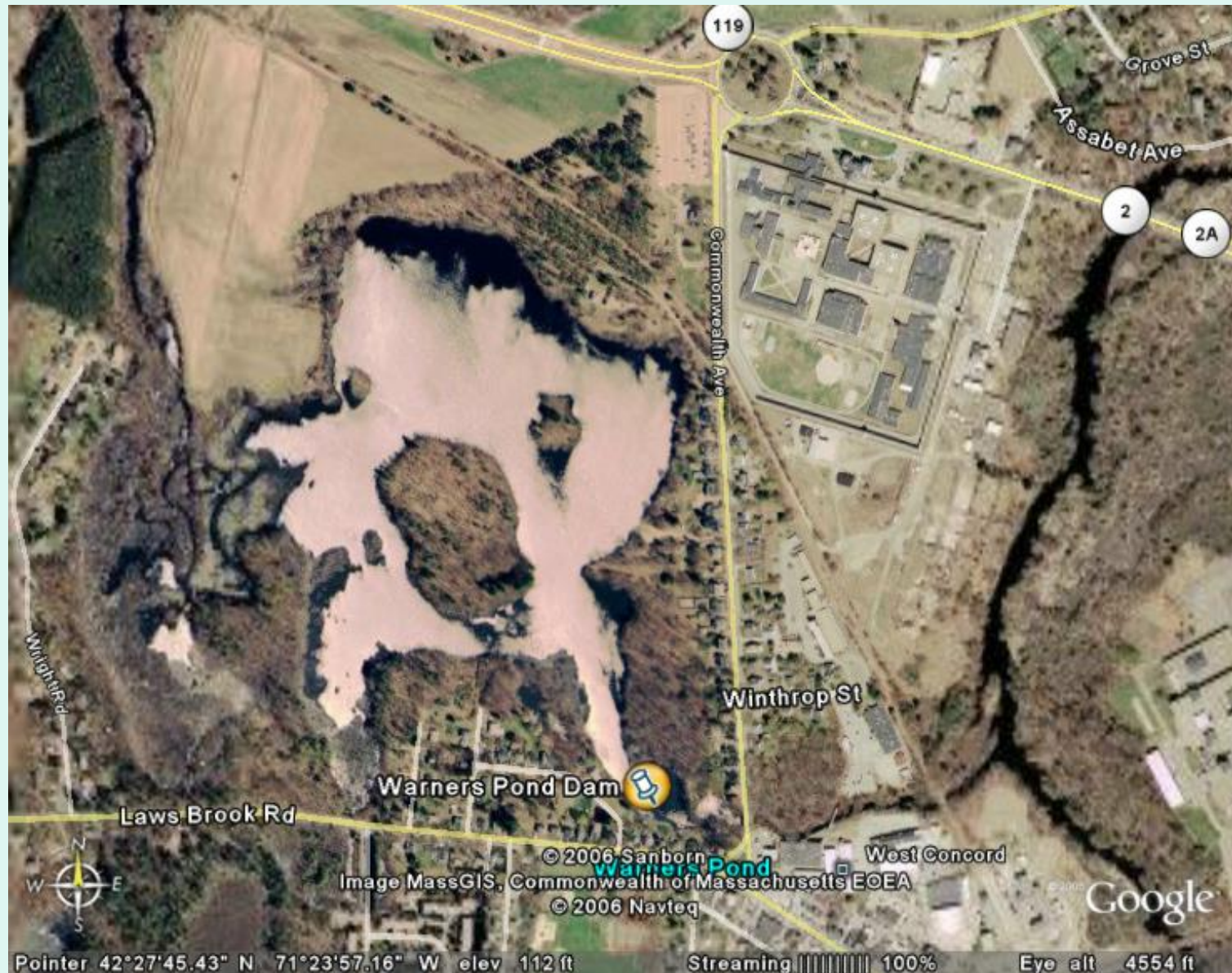
Why grass on the new dam?



TURF REINFORCEMENT MATS



QUESTIONS?

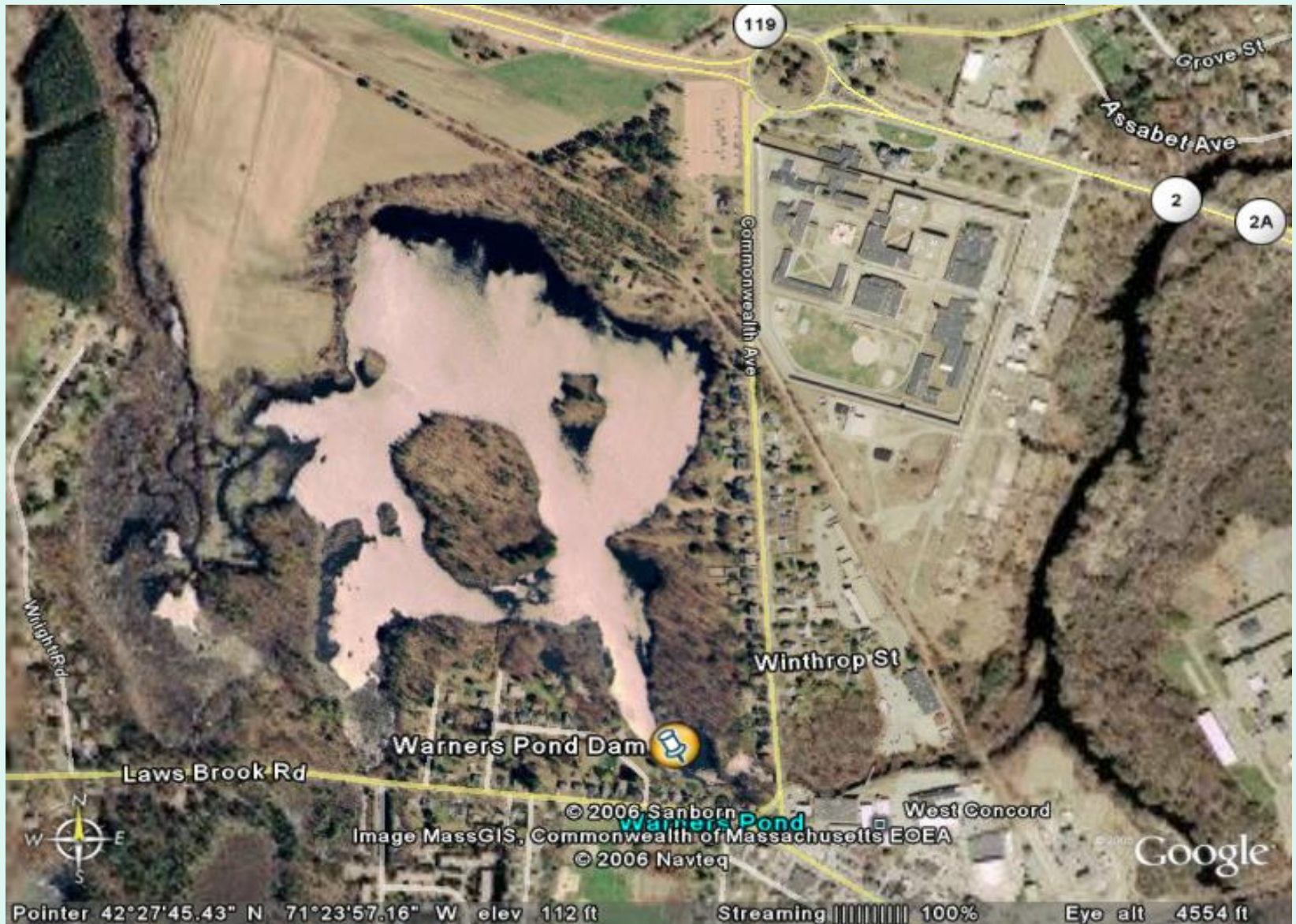


Project Schedule

- *Kickoff Meeting*
 - *December 6, 2005*
- *Preliminary design*
 - *Through Mid Winter 2006*
 - *March 2, 2006 Public Presentation*
- *Final design*
 - *Spring 2006*
 - *April 10, 2006 Public Presentation (TONIGHT)*
- *Permitting*
 - *Spring/Early Summer 2006*
 - *Public comment during permit process*
- *Construction*
 - *Late Summer/Fall 2006*



Where's the Dam?

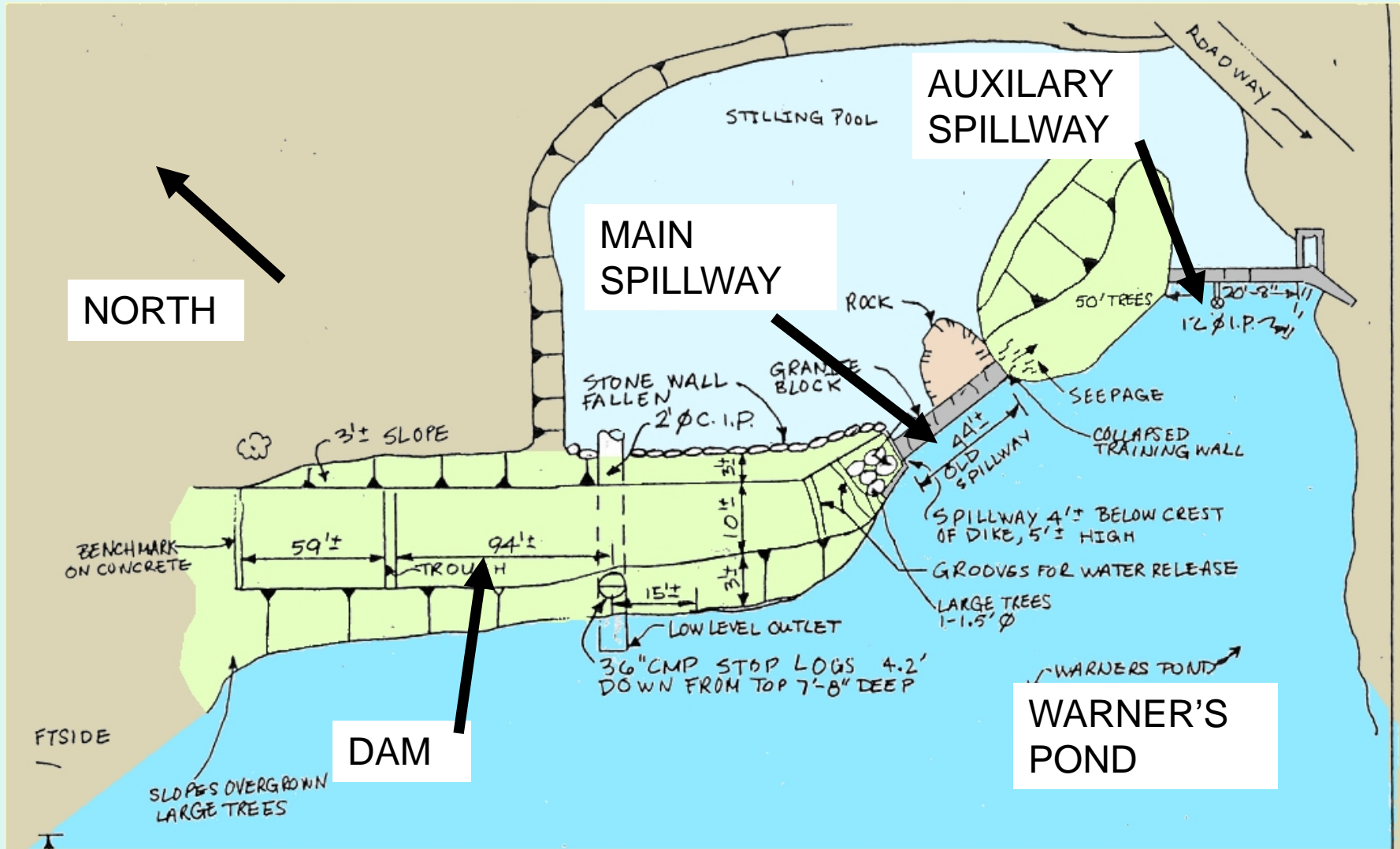


Since March 2, 2006 Meeting

- *Evaluated environmental impacts of proposed improvements.*
- *Began preparation of final design plans*
- *Met with Massachusetts DEP to discuss mitigation measures*

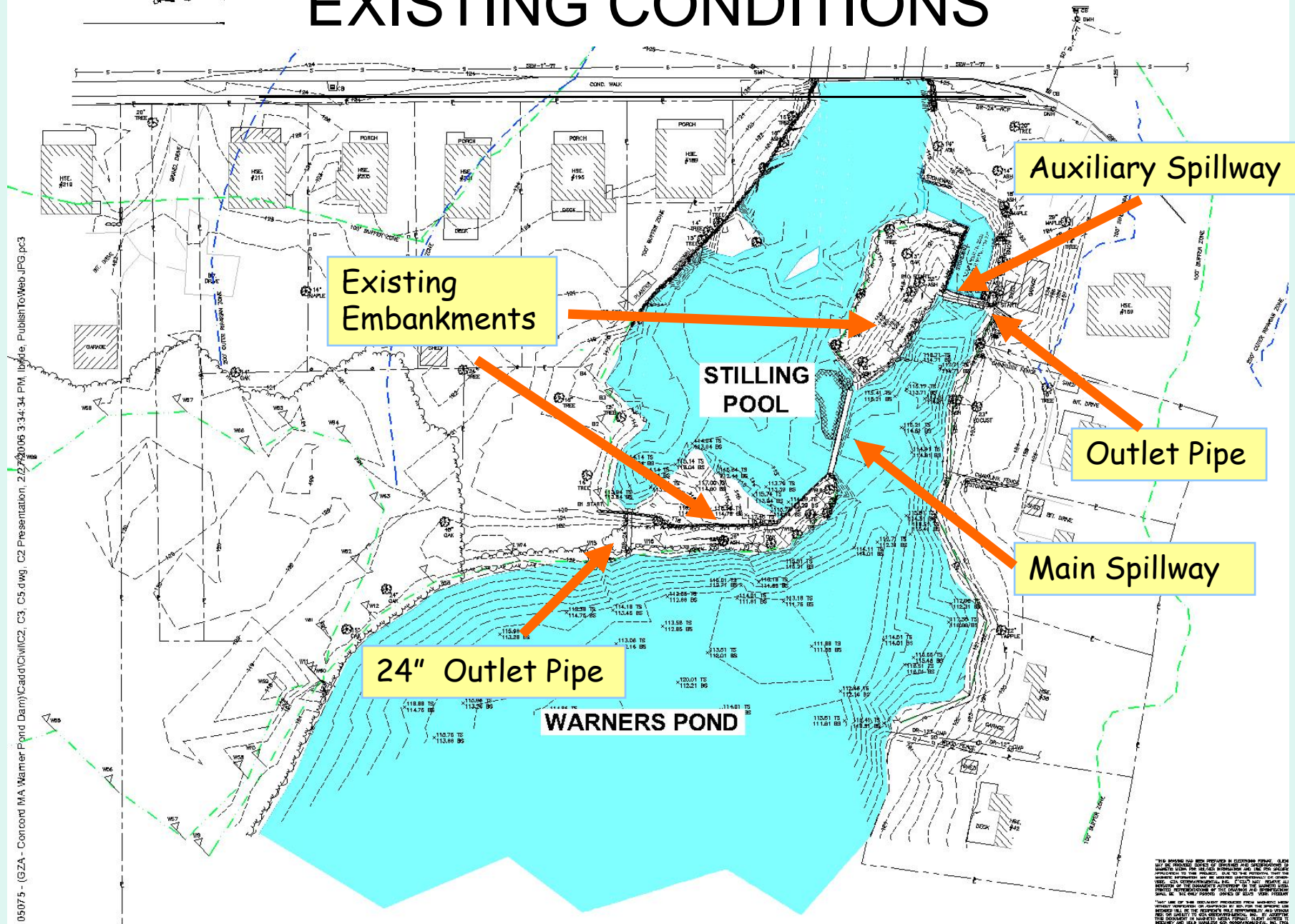


Existing Conditions

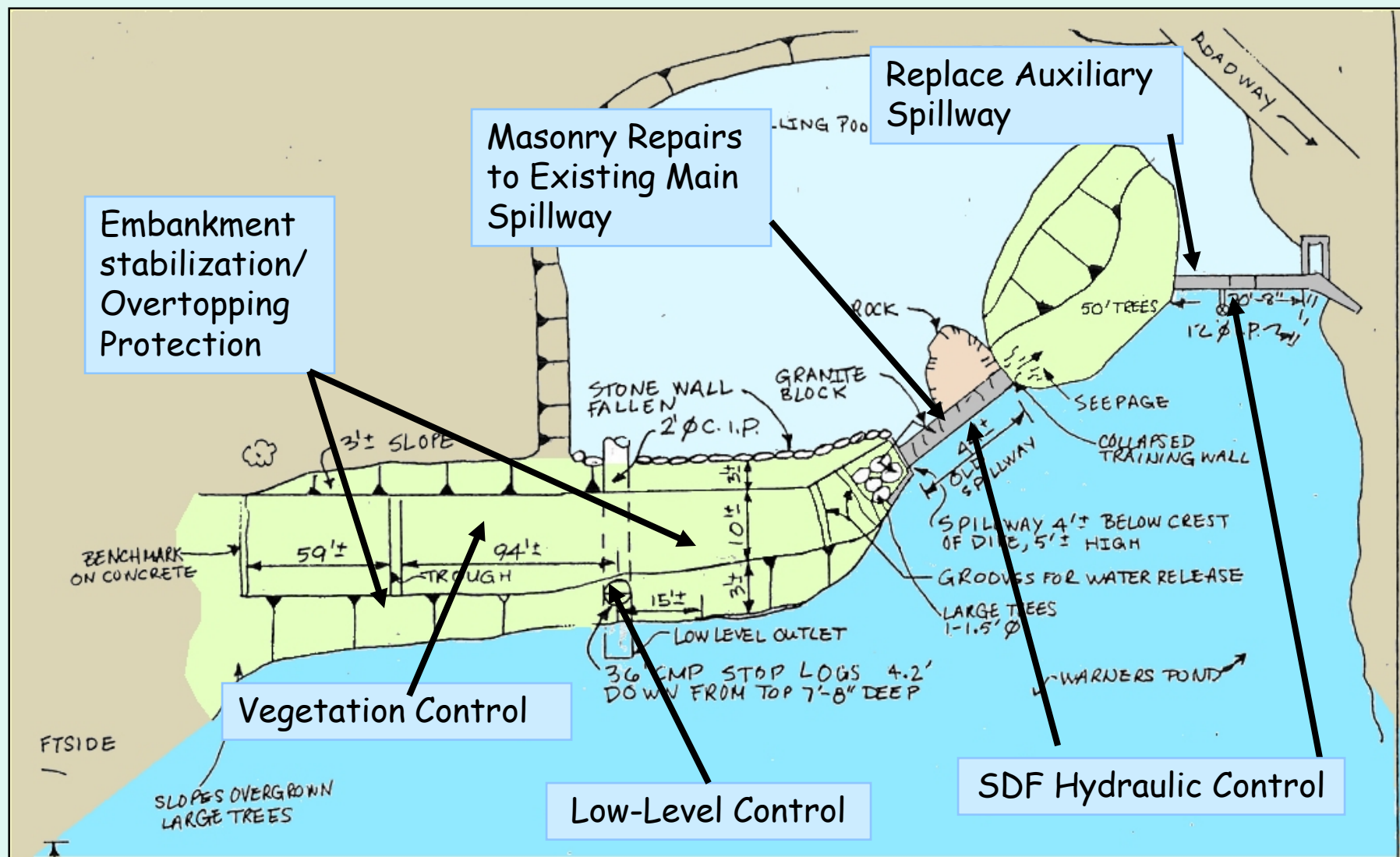


Sketch based on Haley & Aldrich's April 30, 1999 Dam Safety Inspection Report

EXISTING CONDITIONS

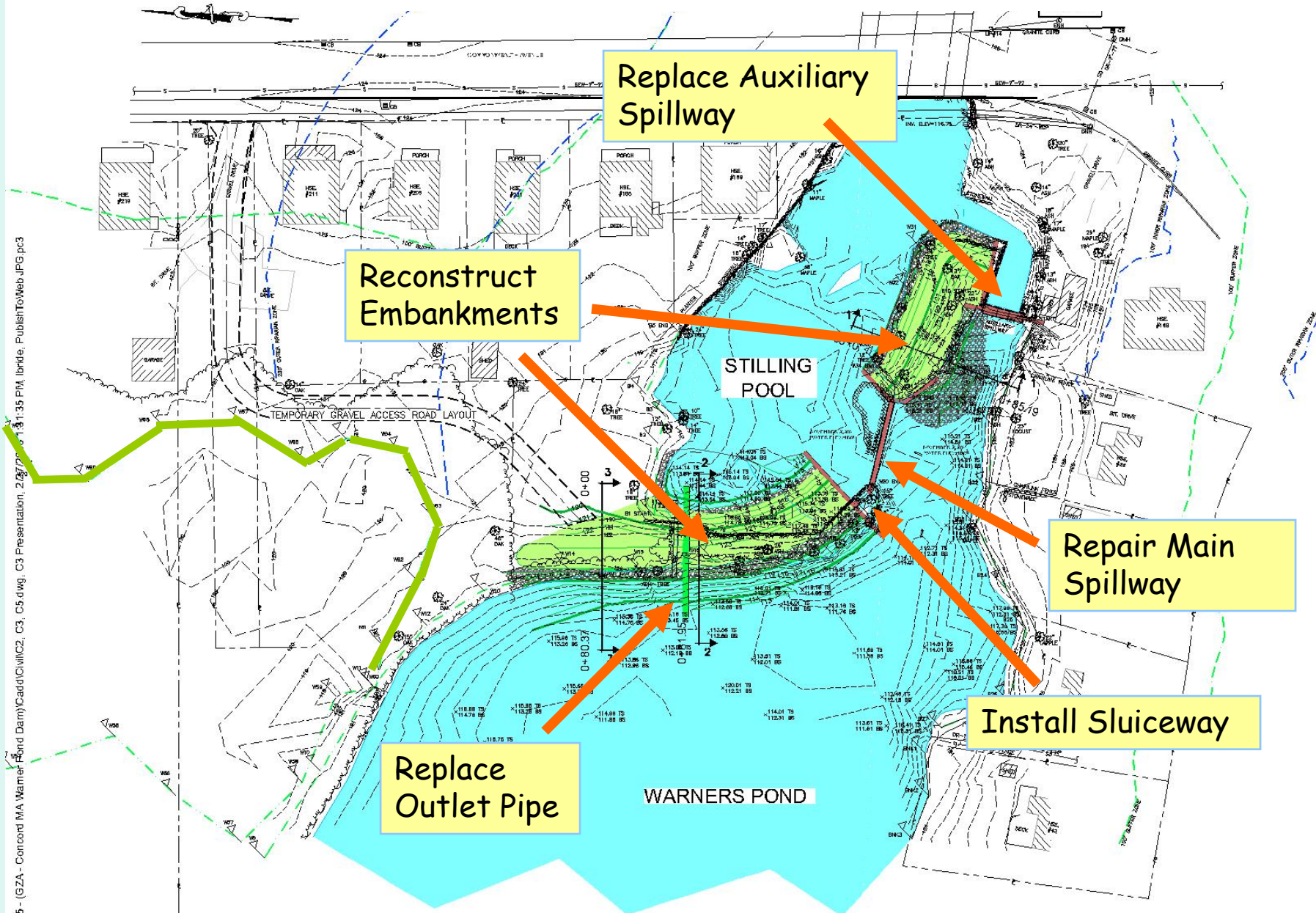


PROPOSED IMPROVEMENTS

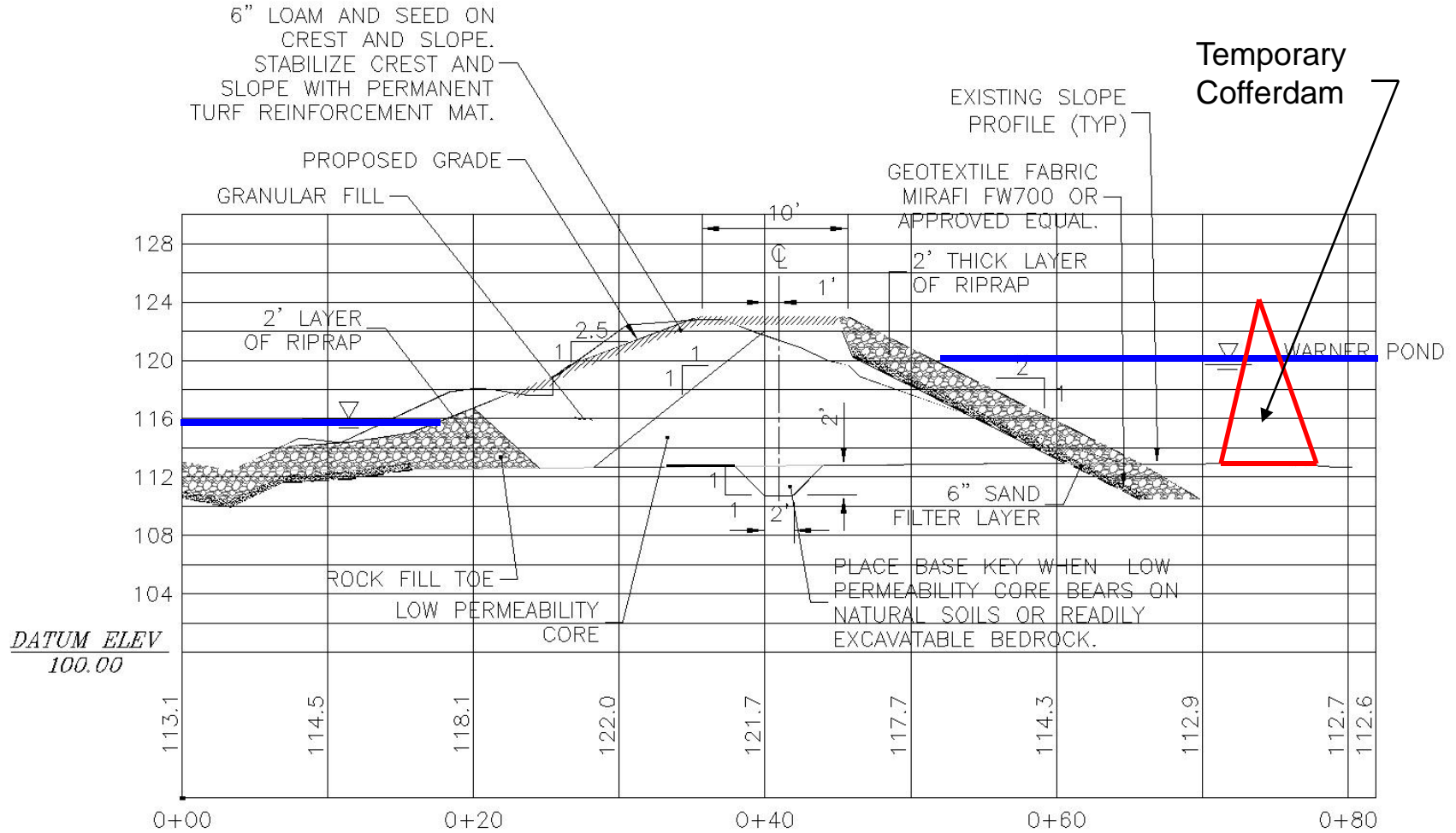


Sketch based on Haley & Aldrich's April 30, 1999 Dam Safety Inspection Report

PROPOSED IMPROVEMENTS



TYPICAL EMBANKMENT CROSS SECTION



SECTION 2

SCALE: 1"=10'

TURF REINFORCEMENT MATS



TURF REINFORCEMENT MATS



Key Deficiencies / Issues

Heavy tree and brush growth on
earth embankments



Vegetation Control on Dams

“Current state and federal policies, procedures, and practices relating to tree and woody plant removal, control, and management for dam safety are generally fragmented and inconsistent among state and federal dam safety agencies. ***However, all state and federal agency dam safety officials and experts agree that trees have no place on dams and need to be managed and controlled on both existing and new dams for at least three important reasons:***”

- (1) trees and dense vegetation hinder effective dam inspections;
- (2) tree roots can cause serious structural instability or hydraulic problems, which could lead to dam failure and possible loss of life; and
- (3) trees and brush attract burrowing animals, which can in turn cause serious structural or hydraulic problems.

Reference: (ASDSO/FEMA, 2002)



Vegetation Control on Dams: Case Studies



Tree root induced scouring on crest and downstream face of Coffey dam in Kansas



Serious damage by uprooted tree to embankment stability at a dam in Oregon

PERMITTING

MA ENVIRONMENTAL POLICY ACT

- *Public notice of the ENF availability in the Environmental Monitor www.mass.gov/envir/mepa/secondlevelpages/currentissue.htm*
- *Contact Massachusetts Historical Commission*
- *Public comment on the Environmental Notification Form*
- *Public participation in the on-site meeting (if scheduled)*

MA WETLANDS PROTECTION ACT

- *Public notice of the Notice of Intent filing*
- *Public hearing(s) on the Notice of Intent*
- *Right to appeal decision of the local conservation commission*

FEDERAL CLEAN WATER ACT

- *Public notice of the availability of the Section 401 permit application*
- *USCOE accepts comments on the PGP 2 application pursuant to Section 404*
- *Public comment accepted by the DEP on the permit application*

MITIGATION

MITIGATION REQUIREMENTS

- *MA Wetlands Protection Act*
- *Federal Clean Water Act*

PROPOSED MITIGATION

- *Limited Aquatic Weed Control (Eurasian Milfoil)*
- *Erosion Control Barriers*
- *Coffer Dams*

REQUIRED MITIGATION

- *Wetland Replication (Minimum Ratio 1:1)*
- *NRC is looking for a potential off-site location*
- *Erosion Control Barriers*
- *Coffer Dams*

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PLEASE PROVIDE COMMENTS/QUESTIONS TO:

SEAN DIVOLL, P.E.

PUBLIC WORKS ENGINEER

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OPEN DISCUSSION

