

**Lenart Consulting Service, LLC
408 Memorial Drive
Chicopee, MA 01020**

September 12, 2018

Paul Marinelli, Engineer
Commonwealth of Massachusetts
Department of Conservation and Recreation
Office of Dam Safety
251 Causeway Street
Boston, MA 02114-1449

**Re: Upper Lynde Basin Dam - MA01308
Sterling, MA
Follow-up Inspection Report 8/10/18**

Dear Mr. Marinelli:

Lenart Consulting Service prepared the attached follow-up inspection report for Upper Lynde Basin Dam, located in Sterling, Massachusetts. This follow-up inspection assessed the general condition of the dam, on August 10, 2018 because it was previously reported to be in poor condition after a Phase 1 Report was performed and a Certificate of Non-Compliance and Dam Safety Order was issued by your office. The Dam Safety Order issued in July of 2009 by DCR requires follow-up inspections of Upper Lynde Basin Dam at 6-month intervals until repairs are made or the dam is breached.

Based on visual observations made during the current follow-up inspection, there are no significant changes since the previous inspection and Upper Lynde Basin Dam is still considered to be in poor condition.

The Town of Clinton will be undertaking vegetation and tree removal so that a more comprehensive inspection can be conducted for a future follow-up inspection. A Chapter 253, Part A determination application and a Conservation Commission NOI will be filed, in the near future, for the proposed vegetation clearing.

Please review this report and contact the undersigned at 413-535-5754 if you have any questions or need additional information.

Very truly yours,

LENART CONSULTING SERVICE, LLC

David M. Lenart, P.E.
Owner



Attachment: August 10, 2018 Follow-Up Inspection Form – Upper Lynde Basin Dam
Cc: Christopher McGown, DPW Director, 242 Church St, Clinton, MA 01510

C/C-0 Followup 8-10-18

**- UPPER LYNDE BASIN DAM-
FOLLOW-UP INSPECTION REPORT**



Dam Name: Upper Lynde Basin Dam
NID#: MA01308
Owner: Town of Clinton
Owner Type: Public
Town: Sterling
Consultant: Lenart Consulting Service, LLC
Date of Inspection: August 10, 2018

Commonwealth of Massachusetts
Department of Conservation and Recreation
Office of Dam Safety Poor and Unsafe Condition Dam Follow-up Inspection Form

Dam Name: Upper Lynde Basin Dam
Dam Owner: Town of Clinton
Nat. ID Number: MA01308
Hazard Potential: Significant (Class II)
Location of Dam (town): Sterling, MA
Coordinate location (lat/long): 42.4721°N/71.7773°W
Date of Inspection: August 10, 2018
Weather: 85 degrees F, Clear
Consultant Inspector(s): David Lenart P.E., Lenart Consulting Service LLC
Cathleen A Benben representing Lenart Consulting Service LLC

Others in Attendance at Field Inspection: Christopher McGown, Clinton DPW Director

Attachments: Site sketch with photo locations, photos, and locus map.

I. Previous Inspection Date/Overall Condition:

- November 27, 2017 Follow-Up Inspection by Weston and Sampson/ Poor
- Phase 1 March 24, 2016 by Weston and Sampson/ Poor

II. Previous Inspection Deficiencies:

1. The embankment and abutments are overgrown with brush and trees with exposed roots on the dam crest.
2. The spillway cannot safely pass the spillway design storm.
3. The upstream slope is undercut near the normal water elevation and rip rap is sparse.
4. Beaver paths and footpaths were observed on the upstream slope.
5. Animal burrows were observed in the downstream slope.
6. The downstream slope is undercut and nearly vertical. No armoring was observed.
7. The spillway training walls are leaning. The granite cap stones have shifted and some have fallen into the spillway. A large sinkhole was observed behind the right downstream training wall.
8. The approach and discharge areas of the spillway were partially blocked with beaver debris.
9. Scarps up to 18 inches were observed at the toe of the downstream and upstream slopes.

III. Overall Condition of Dam at the Time of the Current Follow-up Inspection:

Based on observations made during the current follow-up inspection, conditions are similar to those noted at the previous follow-up inspection. The overall condition of the dam remains Poor.

IV. Comparison of Current Conditions to Conditions Listed in Previous Phase I Follow- Up Inspection Report:

- The current conditions are similar to those listed in the previous Follow-Up Inspection Report. Conditions do not appear to have worsened.
- Beaver debris was collected at the downstream side of the spillway. The approach area was clear.
- Footpaths were observed on both the upstream and downstream sides of the embankment.
- The overgrown vegetation made it difficult to inspect the extent of existing animal burrows and locations of scarp as previously noted.
- Evidence of recent beaver activity was observed.

V. Dam Safety Orders:

- DCR July 2, 2009 Certificate of Non-Compliance and Dam Safety Order.

VI. Maintenance:

1. There is no updated operation and maintenance plan for the dam.
2. The Town of Clinton periodically cuts low woody vegetation on the dam crest and clears debris from the spillway.
3. The dam owner will be implementing a plan to remove trees and woody vegetation from the embankment and within 20 feet of any part of the structure. A Chapter 253, Part A permit application will be filed with DCR.
4. The dam owner will be taking steps for approval from the Sterling Conservation Commission to cut trees.

VII. Recommendations:

Significant remediation is required to upgrade Upper Lynde Basin Dam to a Satisfactory condition in accordance with Dam Safety Regulations. It is recommended that the dam owner implement a multi-phase plan to comprehensively address the overall condition of the dam, develop an implementation plan of improvements and undertake improvements.

The initial first phase efforts by the Town of Clinton for dam repairs should include the following:

- Clear all trees, woody and low vegetation from the dam and slopes including areas 20 feet from any part of the structure.
- Make temporary repairs to the spillway..
- Perform a detailed follow-up inspection of the dam to identify all deficiencies and maintenance items.

The second phase efforts by the Town of Clinton for dam repairs should include the following investigations and studies:

- Conduct investigations and studies to develop a comprehensive listing of improvements with alternatives and prepare a preliminary design report, with detailed cost estimates, that will be the basis for design of improvements.

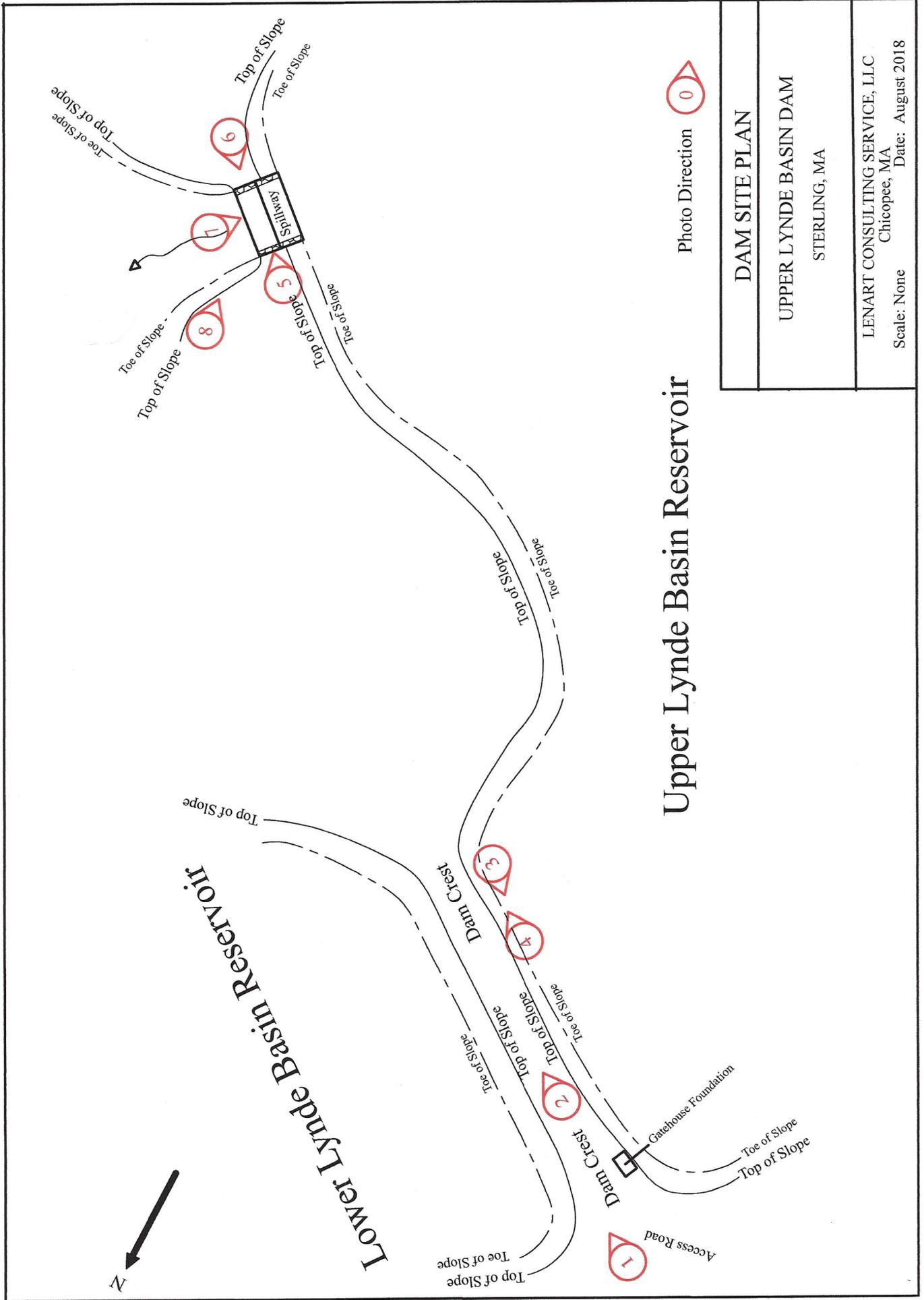
A third phase long term effort by the Town of Clinton for dam repairs should include:

- Establishing an implementation plan of improvements determined in the second phase design report and implementing improvements based on financial resources.

VIII. Other Comments or Observations:

- Less than an inch of water was flowing over the spillway weir at the time of the inspection.
- The overgrowth of vegetation limited the visual inspection and identification of deficiencies along the embankment.

IX Site Sketch With Photo Locations



Upper Lynde Basin Reservoir

Photo Direction 0

DAM SITE PLAN
UPPER LYNDE BASIN DAM STERLING, MA
LENART CONSULTING SERVICE, LLC Chitopee, MA Scale: None Date: August 2018



Photo 1 – Dam Crest viewed from left abutment

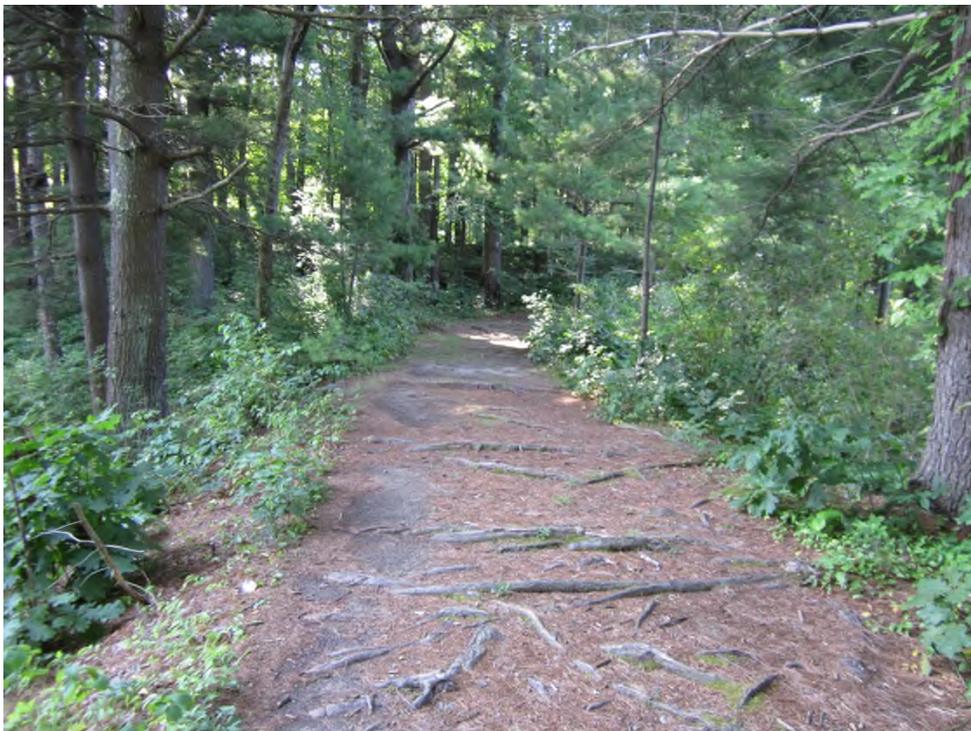


Photo 2 – Dam Crest at center of embankment

Date of Inspection: August 10, 2018



Photo 3 – Trees and vegetation on upstream slope (typical of entire slope)



Photo 4 – Trees and vegetation on downstream slope at right abutment

Date of Inspection: August 10, 2018



Photo 5 – Spillway crest, right training wall and right abutment

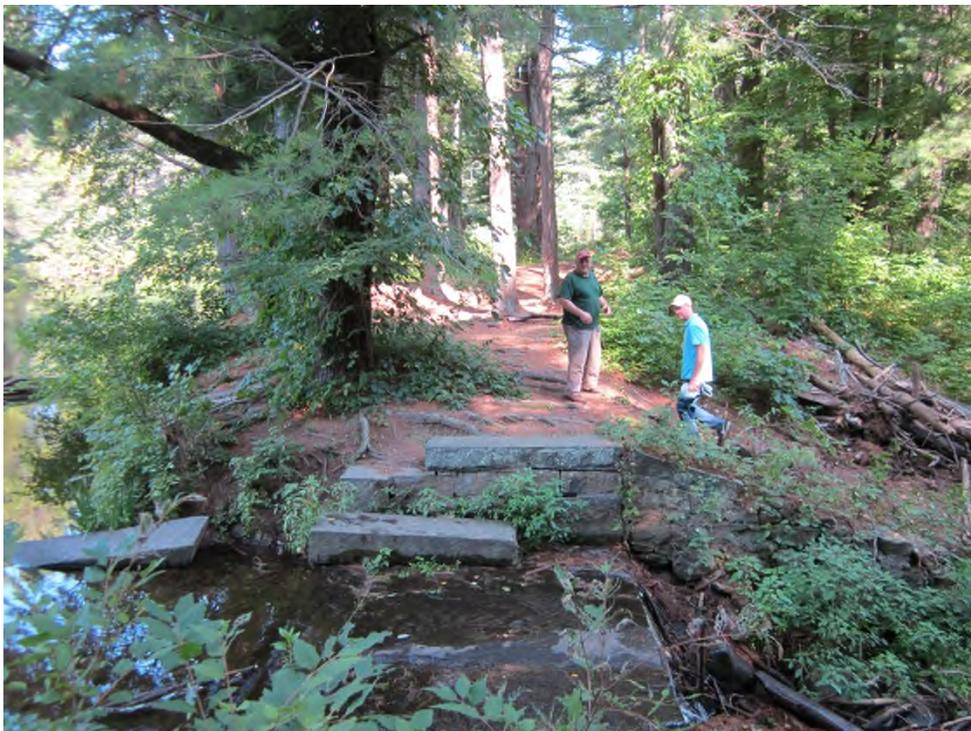


Photo 6 - Left Spillway training wall

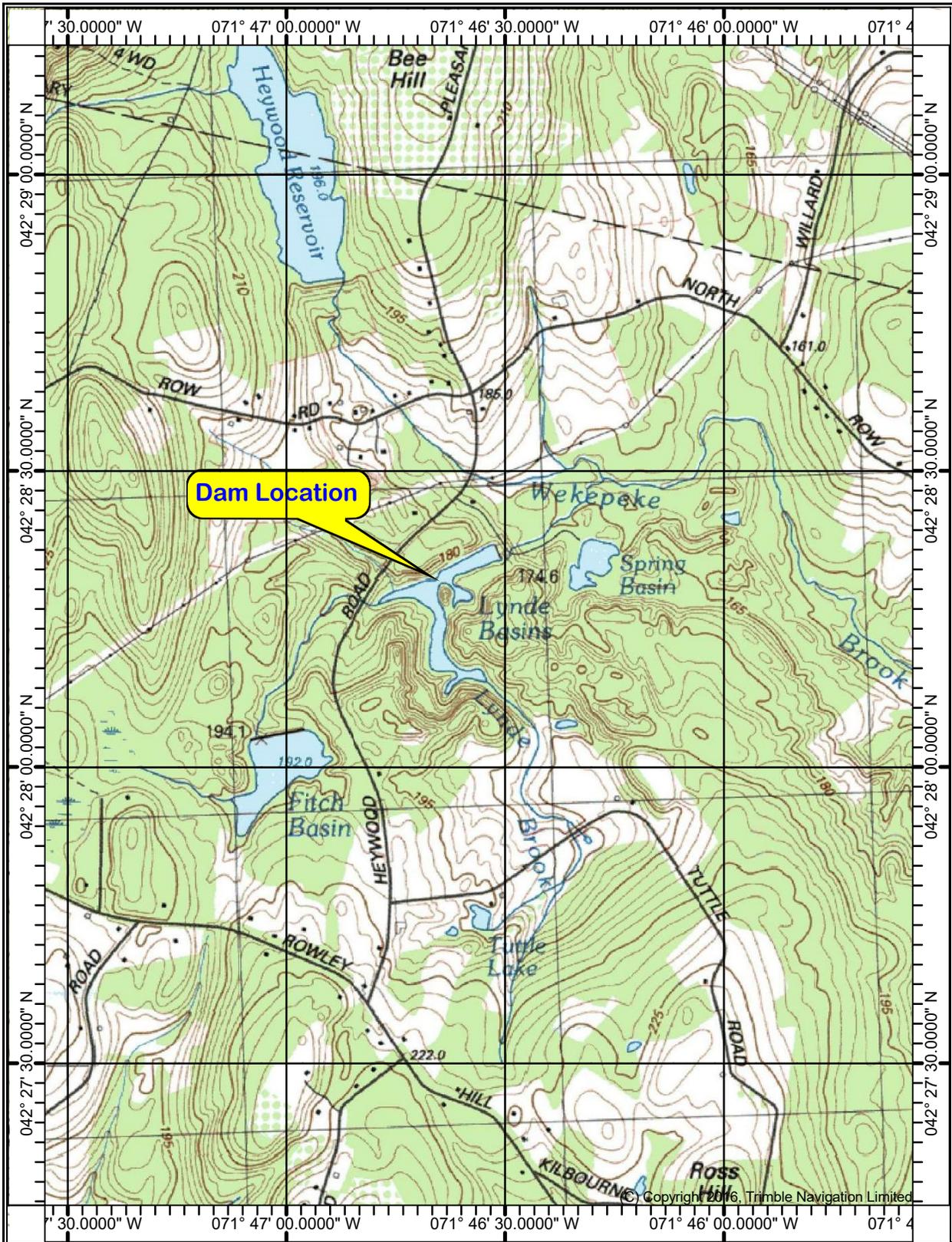


Photo 7 –Downstream view of spillway



Photo 8 – Downstream view of right training wall

X Locus Map



Based on USGS Topographic Map
for Sterling, MA

SCALE 1:18056

0 1000 2000 3000
Feet

Figure 1 - Locus Plan

**MA01308 Upper Lynde Basin Dam
Sterling, Massachusetts**

**Latitude 42.4721 N
Longitude 71.7774 W**