

The Massachusetts Metropolitan Water Works Photograph Collection, 1876/95-1926

Archival Preservation and Digital Access Project, 2000-2014

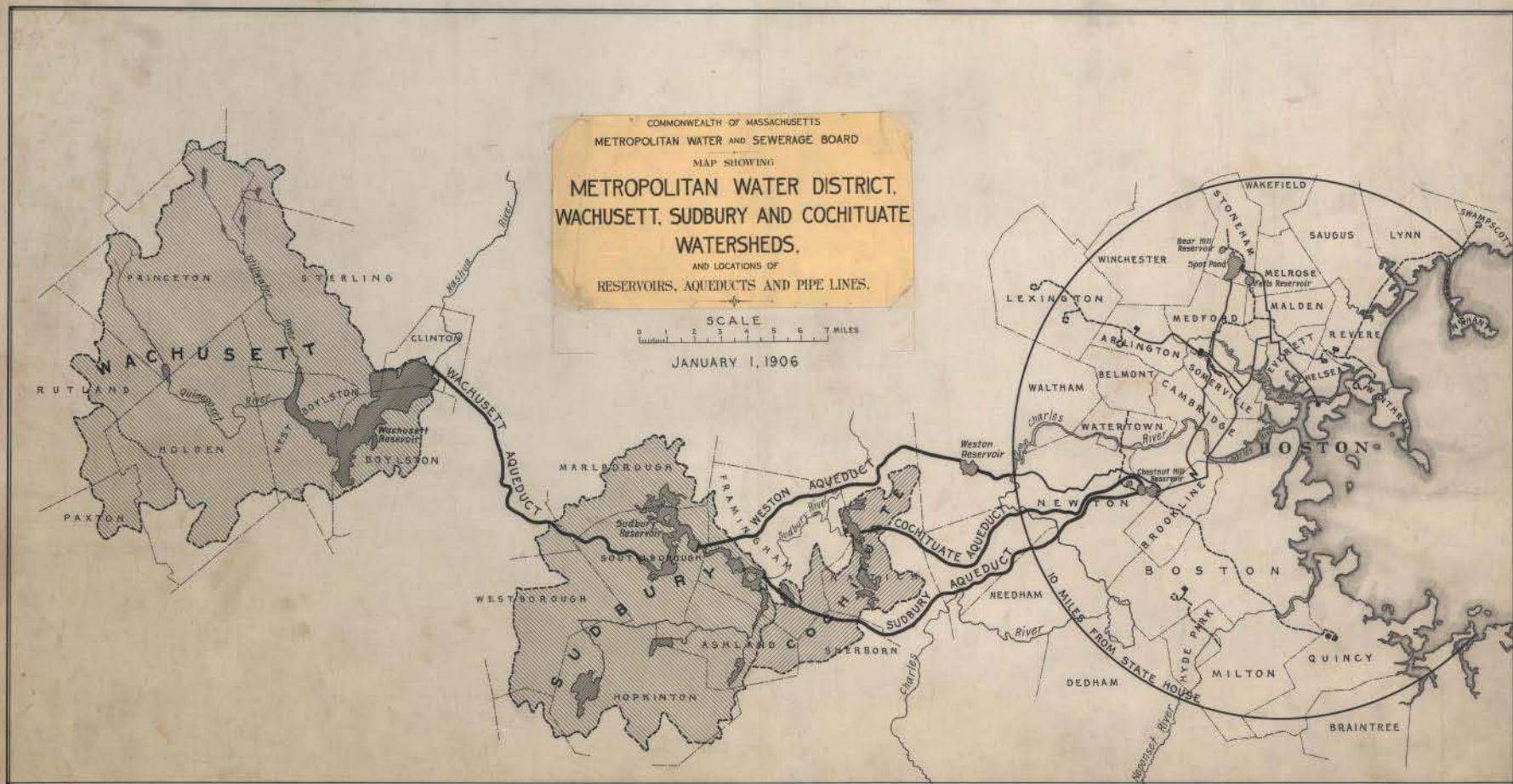
Project Partners

Department of Conservation and Recreation (since 2003)

Metropolitan District Commission (2000-2003)

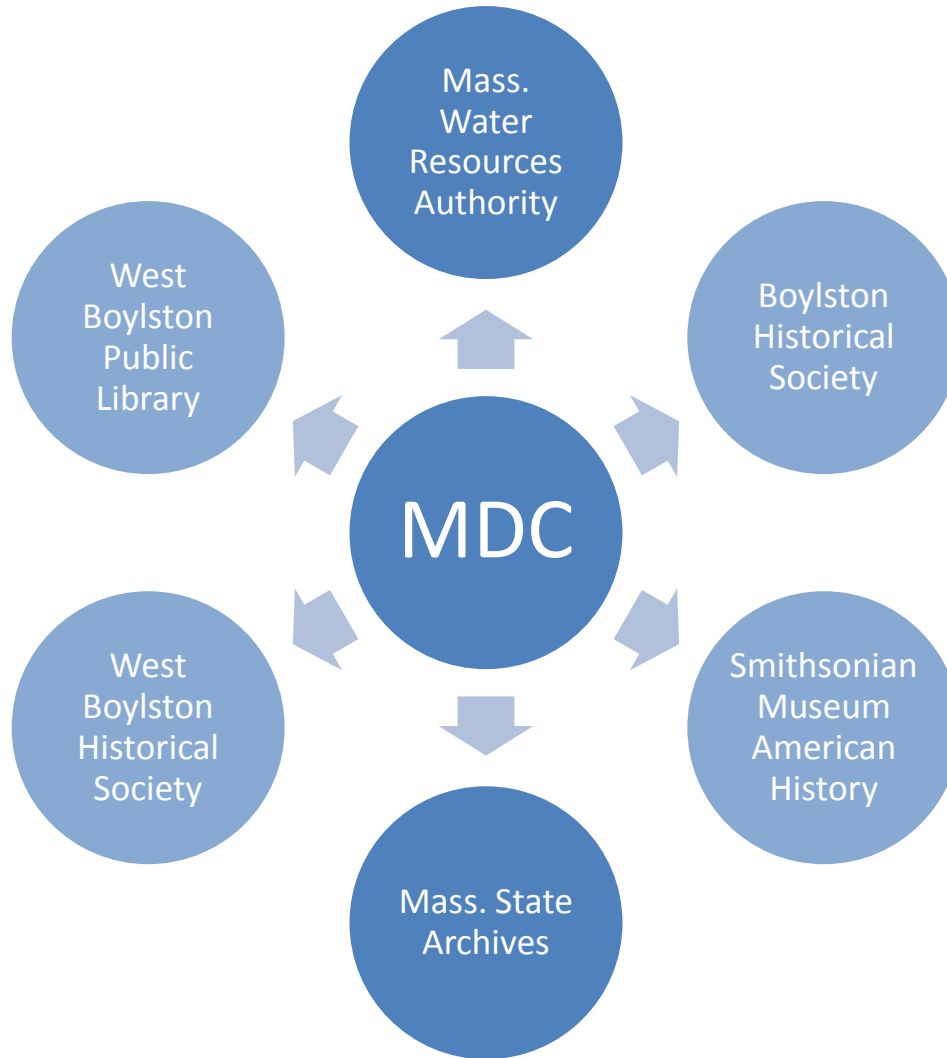
Massachusetts Water Resources Authority

Massachusetts State Archives



1906 Map of the Metropolitan Water Works System, at the conclusion of the major construction phase, 1895-1905

Between 1964 and 1985, the 1895-1921 MWW glass plate negative and photographic print collection became dispersed amongst 7 different organizations, with 3 having legal title and 4 through loan agreements



SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
WASHINGTON, D. C. 20560

RECEIVED 12-21-64
BY H. J. TOOLE

Answered _____
16 December 1964
Referred to _____
Attended to _____

Mr. Harold J. Toole
Director of Water Division and
Chief Water Supply Engineer
Metropolitan District Commission
20 Somerset Street,
Boston 8, Massachusetts

Dear Mr. Toole:

This will acknowledge receipt in good condition, of the portion of the glass negative collection from Chestnut Hill which was recently brought down by our Mr. Battison. It was Mr. Battison's impression that this represents about two-thirds of the collection and that there is no urgency to transport the remainder. May I suggest, therefore, that it remain until such time as someone from our staff is again in New England with a vehicle such as Mr. Battison's, to be then brought down in the same manner. There is no question that this is by all means the most satisfactory means of transportation.

The collection, from the very brief inspection I have been able to make of a portion of it so far, is of a greater historical importance and interest than I first imagined. The amount of detail of the construction scenes recorded by the photographer is astonishing, forming a record of such work that, so far as I know, is absolutely unique in its scope. We are most grateful to you, to Mr. Cooke and to the Metropolitan District Commission for making this material available for preservation here.

It will take me some time to cull out the real estate and other views lacking historic interest and to list the

Reel 101
Sm1 - Sm2 1965 3
COURTESY DCR ARCHIVES

Mr. Harold J. Toole
16 December 1964
Page 2

remaining negatives, but I will keep at it and return these negatives with a listing in due course.

Thanking you again and with all best wishes of the season, I remain

Yours sincerely,

Robert M. Vogel
Curator of Heavy Machinery
Division of Mechanical
and Civil Engineering

cc: Mr. William J. Cooke

Reel 101
Sm1 - Sm2 1965

COURTESY DCR ARCHIVES 4

From the 1985 microfilm of the 1936-1984 MDC Water Division
Boston Office Subject Files



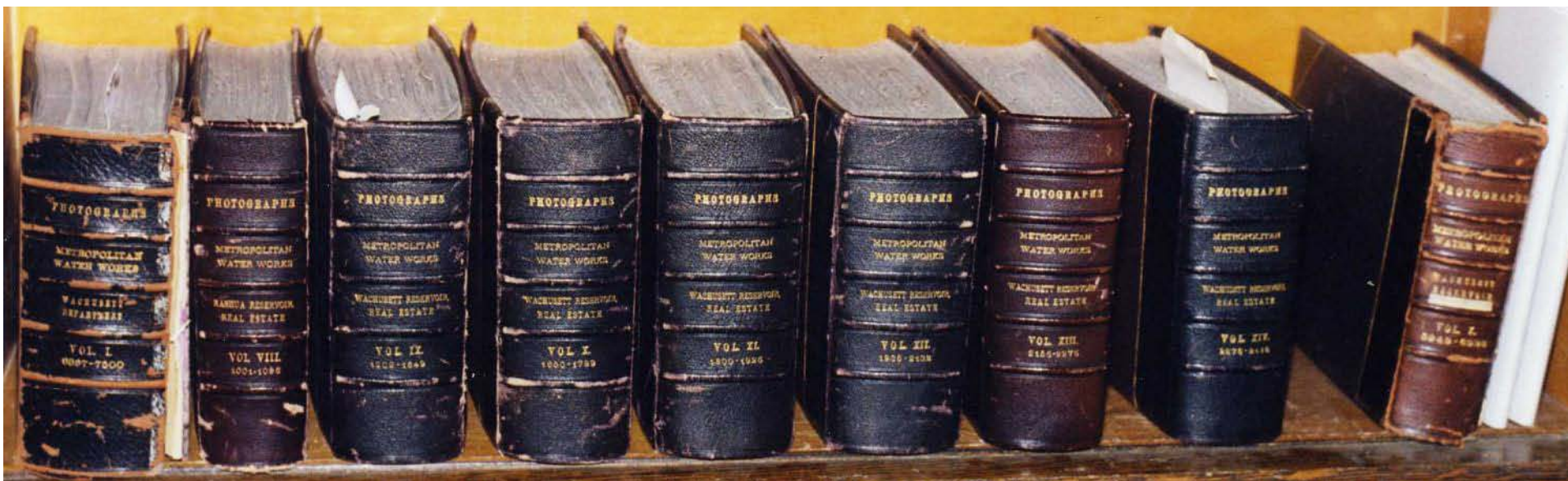
38 crates of MWW
glass plate
negatives returned
to MDC from
1964/65-1990 loan
to Smithsonian
Institution, with
about 200 plates
per crate
(1996)



3 crates of MWW glass plate negatives loaned from MDC to West Boylston Historical Society, through the Smithsonian Institution, 1975-2000 (1998)



1 crate of MWW glass plate negatives, and 8 MWW bound volumes of photo prints loaned from MDC to Boylston Historical Society, through the Smithsonian Institution, 1972/75-2001 (1998)



9 MWW bound volumes of photo prints loaned from MDC to West Boylston Beaman Memorial Public Library, through the Smithsonian Institution, 1976-2001 (1998)



MWW bound volumes of
photo prints transferred
from MDC to
Massachusetts State
Archives, 1980 (1998)



PEOPLE



48-inch pipes through the Wachusett Dam, Sept. 6, 1902



Catholic and Baptist churches in West Boylston, Nov. 7, 1896. Today, the stone church remains.



Work in progress: Wachusett Dam, from the viaduct, Aug. 1, 1903



The same shot taken eight months later.

GLASS FROM THE PAST

Fragile images document land taken for Wachusett Reservoir

By Nancy Sheehan
TELEGRAM & GAZETTE STAFF

WEST BOYLSTON — They were meticulously created, the details of each one carefully logged in a leather-bound ledger. Then, they were left to mold for decades in a reservoir pumping station. A sharp-eyed curator from the Smithsonian Institution saved them, trucking them to Washington, D.C., in the back of his Volkswagen microbus in the mid-1990s.

A few years later, some were reclaimed by local towns whose history they vividly portray. More recently the rest of the venerable glass-plate photographic negatives, nearly 8,000 of them, have returned home.

The negatives depict the building of the Wachusett Reservoir and its dam and aqueducts from 1895 to 1921. Long scattered about in groups of 100 to several thousand, they have been culled from the archives of the Metropolitan District Commission, the Massachusetts Water Resources Authority and the historical societies of Boylston and West Boylston. Miraculously, most are intact — only about 500 have been broken. But the fragile survivors bear a century's worth of grit and grime.

The state and historical agencies entrusted with their care are seeking volunteers to help clean the negatives so the irreplaceable images can be safely stored on microfilm and in a computer database. After the cleaning and scanning, all the negatives will be housed together as a collection at the

Massachusetts State Archives in Boston, where they will be available to researchers and the public.

Organizers hope about 50 volunteers sign up for each of two cleaning sessions. The work will be done Oct. 28 and Nov. 11 at the MDC Watershed Management Field Headquarters in West Boylston, a town deeply affected by the building of the reservoir.

The photographs were commissioned by the fore-runner of today's MDC to document the construction of the reservoir and the large-scale real estate takings that it required. Two prints of each negative were made at the time, some of which have survived.

There were about half a dozen photographers, including engineers pressed into photographic service. Those engineers probably were the ones responsible for the many mechanical-minded photos in the collection — wide shots of massive pipes piled high at rubble-strewn blasting sites and affectionate closeups of the primitive, steam-driven machinery that was the wonder of the day.

But there also are photographs of the people who laid the pipes and ran the machinery, among them



Sean M. Fisher, an MDC archivist, uses a cotton ball dipped in distilled water to clean off a negative.

Cleaning glass negatives

What: Volunteers are needed to help with the preservation of historic photographs.

When: 8:30 a.m. to 4:30 p.m. Oct. 28 and Nov. 11.

Where: MDC Division of Watershed Management Field Headquarters, John Augustus Hall, 180 Beaman St., West Boylston.

Details: Volunteers will be trained on how to use distilled water and cotton balls to remove dust and grime from the reverse side of glass plate negatives. Volunteers may work in whole or half day shifts, and lunch and refreshments will be served.

Registration is required. Contact Sean M. Fisher, MDC archivist, at (617) 727-5117, Ext. 140; or at sean.fisher@state.ma.us.

Italian stonemasons and laborers, many of whom remained in the area after the work was done. Of the scores of Italian-surnamed residents in West Boylston today, most are direct descendants of the people who built the reservoir.

Photographs show what life was like in immigrant labor camps and the larger old buildings in West Boylston, including Thomas Hall, that were used as bunkhouses for laborers. Other workers built shanties of their own, while some even dug caves or burrows into the hillsides surrounding the project, attaching improvised roofs and front doors to their make-do dwellings.

In all, 7,671 photos were taken, Sean M. Fisher, MDC archivist, said. Each exposure was numbered — from the first in 1895 to the last in 1921 — and its date, time, place and photographic particulars scrupulously recorded in leather-bound log books.

Then, after all that work, they were simply forgotten.

Mr. Fisher's account of their ultimate rediscovery: After 1921 there was no record of the negatives until 1968, when they turned up in the Chestnut Hill pumping station in Brighton. They sat there in

Turn to Dam/Back Page

On October 20, 2000, the Worcester Telegram & Gazette published an article about the Volunteer Days to archivally clean and rehouse the MWW glass plate negatives



glass plate cleaning set-up for the Volunteer Days:
cleaning/rehousing (left); and folding for the archival 4-flap envelopes

**Volunteer Day to Archivaly Clean and Rehouse
MWW Glass Plate Negatives,
Fall 2000, West Boylston**



25 teams of 2





Condition Survey

NOV 11 2000

9

Write Negative No. in column that describes the condition.

If a plate represents more than one condition, write Negative No. in each column that describes the conditions.

Cracked	Broken but with missing piece		Broken	Flaking Emulsion	Paper	Masking
3739 3705	3728	insignificant missing piece	3769	3810 3807 3797 3782 3739	adhered to emulsion	3738
	3701	3746				

Each pair of volunteers documented any plates with condition issues

Certificate of Appreciation



Wachusett Dam and Grounds, Clinton, MA, ca. 1919. The 40" x 8" original nitrate cellulose panoramic negative was found in a tube at the back of a storage closet in the Wachusett Dam Administration Building (above) in fall 1999 by an employee of the MDC Division of Watershed Management, Wachusett Section. The Northeast Document Conservation Center (Andover, MA) was contracted to make contact prints from this negative. The above image is a detail of a 50% reduction of the original negative, which is now archivally enclosed in buffered tissue paper and in a buffered tube. It will be transferred to the Massachusetts State Archives during the course of this project.

This certificate is to thank

Anne E. Macdonald

for volunteer assistance in cleaning and rehousing the collection of 8,000 dry glass plate photonegatives
for the

Dry Glass Plate Photonegative Archival Cleaning, Rehousing and Reformatting Project

This project will ensure preservation and access of the photographs created between 1895 and 1926 by the Metropolitan Water Works of the Metropolitan Water Board, the Metropolitan Water & Sewerage Board and the Metropolitan District Commission for now and future generations.

October 28 and November 11, 2000

Joseph M. McCinn
Joseph M. McCinn, Esq.
Director, MDC Division of Watershed Management

MWRA Library & Records Center
Boylston Historical Society
West Boylston Historical Society




Massachusetts Archives
Clinton Historical Society
Beaman Memorial Public Library

Sean M. Fisher
Sean M. Fisher
MDC Archivist, Project Coordinator



Archival-grade
Coroplast boxes
for glass plate
negatives; each
box holds 32
plates, divided
into 4 sections

A photograph of a white plastic tray containing numerous small, rectangular, light-colored plates. The plates are arranged in a grid pattern, with three distinct rows visible. Each row is separated by a horizontal white plastic divider. The plates have a slightly textured surface and rounded corners. The tray is set against a dark background.

8 plates per slot

20

bindungs
plocku biers



N. R.

50

created "plugs" for broken missing pieces of glass

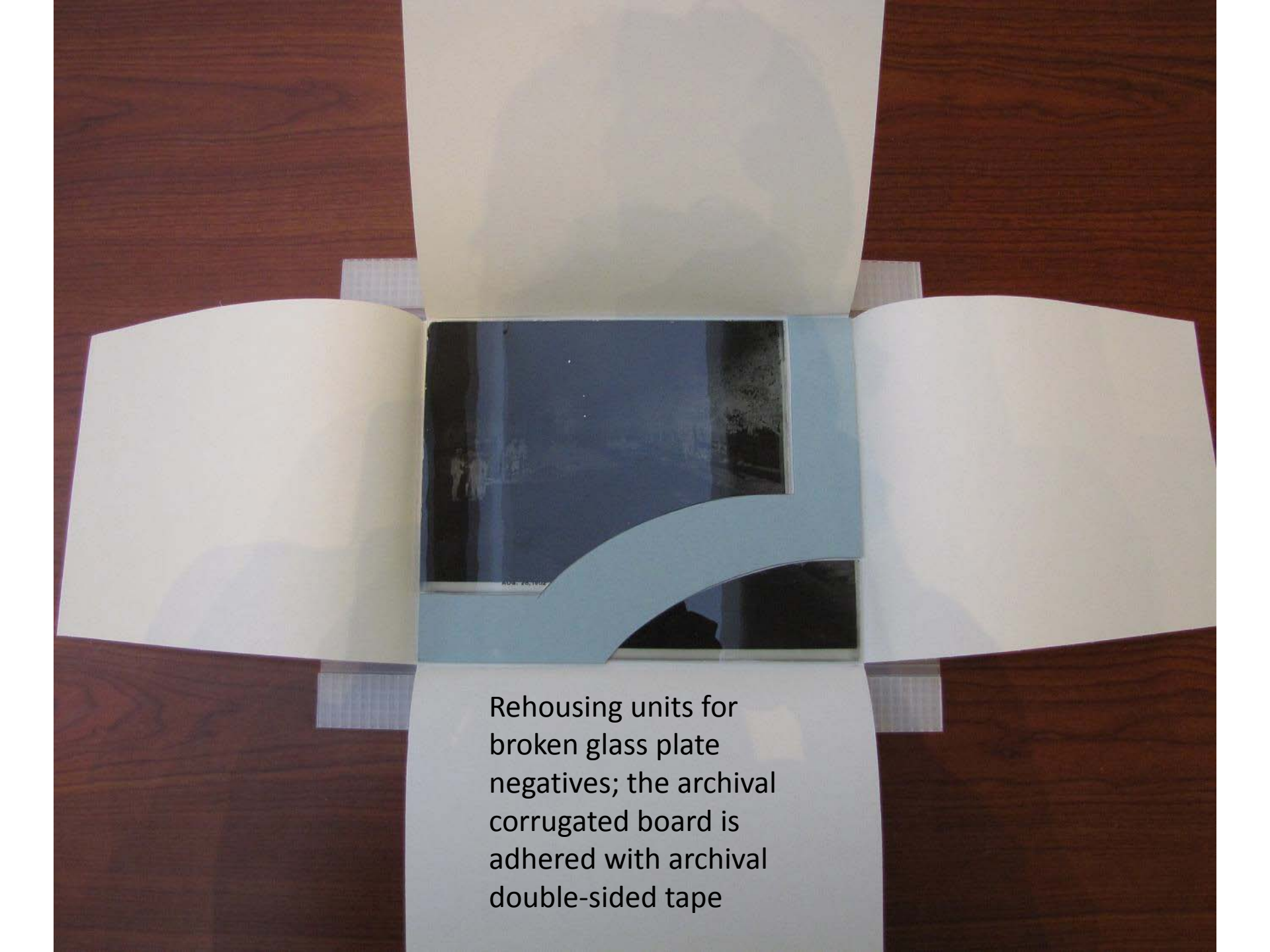
121 Broken piece bird nest



157

broken piece plug here





Rehousing units for
broken glass plate
negatives; the archival
corrugated board is
adhered with archival
double-sided tape



Unit sits on archival grade Coroplast sheet, and is covered with the same; and image is viewable on a light table




W. RES. - CLINTON
ELZA W. LEADRETTEN

4873


11"x14" flat unit with a 8"x10" four-flap enclosure
for 6.5"x8.5" broken glass plate negative



11"x14" flat units for 6.5"x8.5" broken
glass plate negatives
(6 per box)

An open, light-colored cardboard box is shown from a top-down perspective. The box is filled with a stack of numerous white, rectangular sheets, likely glass plate negatives, which are neatly aligned. A single, light blue Coroplast sheet is placed horizontally across the top of the stack, acting as a divider. The box's interior is lined with a light-colored material, and the lid is open, revealing the contents. A small white circular mark is visible on the inside of the lid.

**Box for 8"x10" glass plate negatives, with
corrugated board liners and Coroplast
sheets as interval dividers**

The image shows four open cardboard boxes arranged in a 2x2 grid. Each box is filled with a thick stack of white, rectangular glass plate negatives. The boxes are made of light-colored cardboard and have their flaps open. The negatives are stacked neatly, and their edges are visible, creating a dense, layered appearance. The boxes are placed on a dark wooden surface.

**109 glass plate negatives (8"x10") of the
1897 Wachusett Dam Load Testing Experiment
(except 17 broken plates)**



84 glass plate negatives (4"x5")
(except 7 broken plates)

The image shows two identical, open cardboard boxes placed side-by-side on a dark wooden surface. Each box is filled with a large stack of thin, rectangular glass plate negatives. The boxes are made of light brown cardboard and have their lids propped open. The negatives are organized into neat, parallel rows within each box. A white label is affixed to the inside of the top lid of the left box, containing text. The overall appearance is that of a well-organized archival collection.

**51 glass plate negatives (5"x7")
of engineering plans, 1894-1899**



1960s/70s “glassine” envelopes used by the Smithsonian Institution to rehouse the negatives (after removal in 2000/01)



Original glass lantern slide boxes used by MWW





618 glass lantern slides (3.25"x4");
each slide enclosed in a polyester sleeve



Loose and mounted photo prints, each enclosed in polyester



Oversize loose photo prints enclosed in polyester

Negative Data Entry Form

General Info

Negative Condition

Volume Info

Annual Report Info

Negative General Informatio

Neg Number:

50

Box Number:

001

Negative not Extant

Taking Number:

Date:

Mar. 9, 1896

Location 1:

Wachusett Reservoir

Location 2:

Baptist Church

Location 3:

on south side of East Main Street

Town:

West Boylston

Comments:

Subject Heading:

Old Stone Church

Data entry form in Microsoft Access, 2001-2002,
for MWW Photograph Collection

Negative Data Entry Form

General Info

Negative Condition

Volume Info

Annual Report Info

Negative Condition

Neg Number:

Cracked

Sig Broken Piece Missing

Insig Broken Piece Missing

Mult Broken Pieces

Flaking Emulsion

Paper Adhered to Emulsion

Additional Condition Comments:

significant paper adhesion; significant flaking

Data entry form in Microsoft Access, 2001-2002,
to track conditions of the MWW glass plate negatives

Negative Data Entry Form

General Info Negative Condition **Volume Info** Annual Report Info

Volume Information

Neg Number:

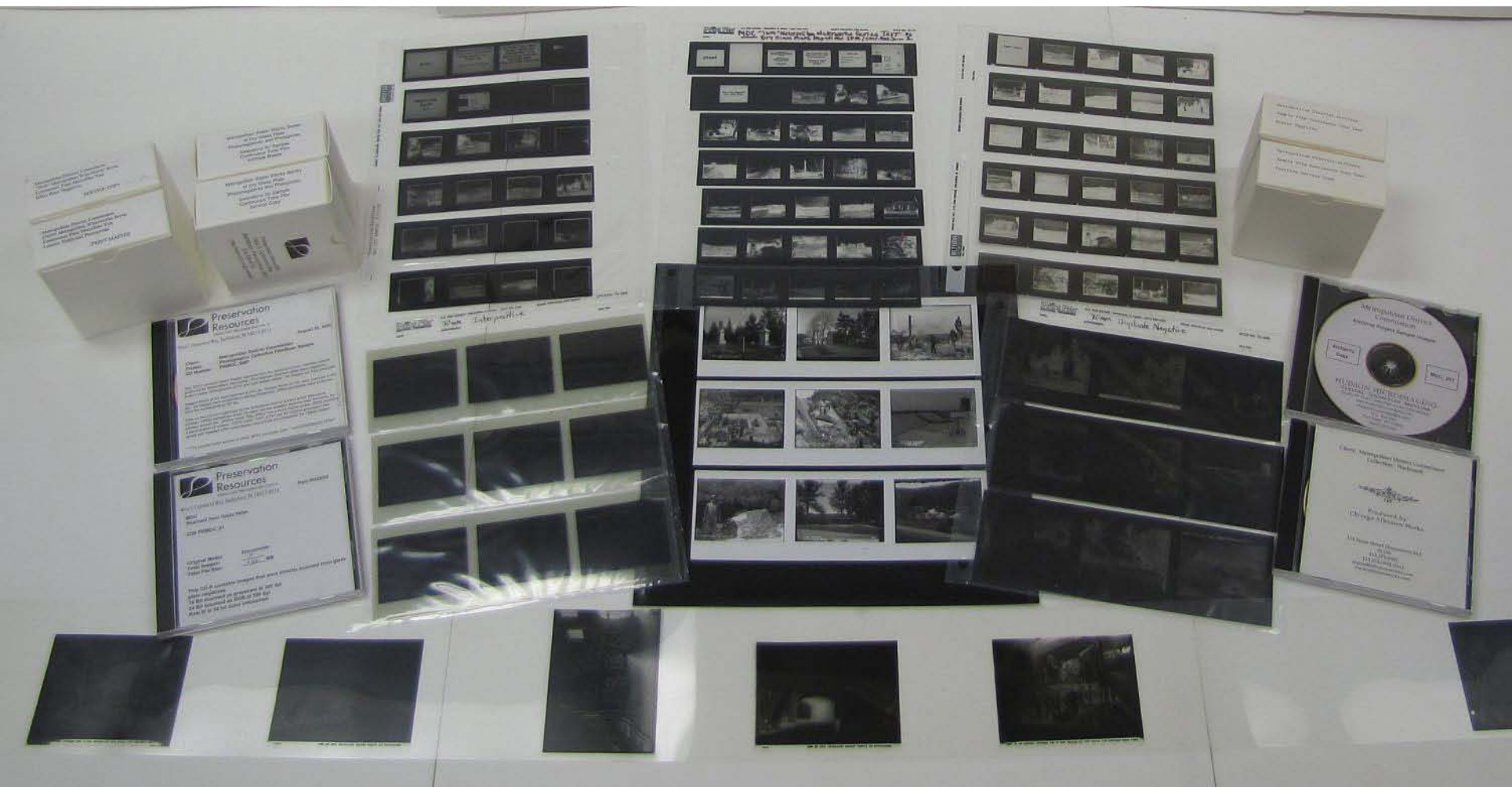
In Bound Volume

Vol. Number:

Comments:

Previously Held By:

Data entry form in Microsoft Access, 2001-2002,
to track print location in bound volumes of photo prints, and
to track location of glass plate negative in 2000/01



Preservation film and digital imaging tests by 4 companies, 2000-2002:
35mm continuous tone microfilm; 70mm film; & 105mm film
(none were implemented due to costs)



transporting the MWW
glass plate negatives
from/to MA State
Archives and City of
Boston Archives
Center, BPL Storage,
2012/13, for 1 year



shelving the MWW glass
plate negatives at the
City of Boston Archives
Center, BPL Storage, for
1 year BPL Digital
Services Lab access, Nov.
2012



BPL's digitizing the MWW glass plate negatives using a light table and digital camera



Courtesy DCR Archives

MWW photographer's field notebooks, 1895-1900

Commonwealth of Massachusetts.

METROPOLITAN WATER WORKS.

Information regarding the Dams, Reservoirs and Aqueducts comprising the Metropolitan Water System.

WACHUSETT DAM.

Length of main dam between terminal structures,	838 feet.
Length of waste weir,	452 feet.
Height of top of main dam above full-reservoir level,	20 feet.
Maximum height of dam above rock foundation, about	207 feet.
Maximum thickness of dam at bottom, about	185 feet.
Thickness of dam at full-reservoir level,	25 feet.
Maximum depth of water above dam,	129 feet.
Masonry required for dam,	280,000 cu. yds.
Contractor,	McArthur Brothers Company, of Chicago.
In charge of work for contractor,	Winston Brothers and Locher.
Amount of contract,	\$1,603,635.

The two Lidgerwood cableways used in constructing the dam had each a span of 1,150 feet and a capacity of 8 tons.

NORTH DIKE.

Length on water side,	2 miles.
Height to full-reservoir level at deepest place,	65 feet.
Maximum width at base,	1,930 feet.
Area covered by dike,	143 acres.
Contents of dike,	5,000,000 cu. yds.
Total length of cut-off trench,	9,556 feet.
Length of cut-off trench where sheet piling was driven,	5,245 feet.

WACHUSETT RESERVOIR.

Area of water-shed,	118.31 sq. miles.
Elevation of water level of full reservoir above Boston city base (low tide),	395 feet.
Water surface, 4,195 acres, or	6.56 sq. miles.
Total contents,	63,068,000,000 gals.
Length,	8.41 miles.
Maximum width,	2.05 miles.
Maximum depth,	129 feet.
Average depth,	46 feet.
Total length of shore, not including islands,	35.4 miles.
Length of railroad flooded,	6.56 miles.
Length of highways flooded,	19.21 miles.

The land required for this reservoir contained 6 large mills, 8 school-houses, 4 churches and about 360 dwelling-houses, occupied by upwards of 1,700 people.

The buildings, vegetation and about 6,900,000 cubic yards of surface soil have been removed from the reservoir.

1907 description of the new facilities of the Metropolitan Water Works

Metropolitan Water Works System

- **Boston Water Commissioners (1846-1850)**
- **Cochituate Water Board (1850-1875)**
- **Water Commissioners of the City of Charlestown Water Works (1862-1865)**
- **Mystic Water Board (1865-1875)**
- **Boston Water Board (1875-1895)**
- **Metropolitan Water Board (1895-1901)**
- **Metropolitan Water and Sewerage Board (1901-1919)**
- **Metropolitan District Commission (MDC), Water Division (1919-1985)**
- **Metropolitan District Water Supply Commission (1926-1947) [Quabbin]**
- **MDC, Division of Watershed Management (1985-2003)
for Quabbin, Wachusett, & Sudbury Reservoirs & their watersheds**
- **DCR, Div. of Water Supply Protection, Office of Watershed Management (since
2003), for Quabbin, Wachusett, & Sudbury Reservoirs & their watersheds**
- **Massachusetts Water Resources Authority (since 1985)
for the MWW supply aqueducts & distribution system (from the MDC Water Division)**