Figures

Construction and early operation of the New York State Barge Canal System

Historic photos from the collections of New York State Archives, Albany, NY

Figure 1 – Tug Geo. E. Lattimer leaving Lock E17 with a tow, September 15, 1921, Erie Canal, Lock E17, Little Falls, Herkimer County

The Barge Canal structures and buildings in these photographs remain in service. The vessels, construction machinery, and workers are gone.
Rock Cuts

Figure 2 Erie Canal, carving the “Deep Cut” above Lock E6, Waterford, Saratoga County, August 25, 1910 (Contract 11)

Figure 3 – Deep Cut completed, Waterford, Saratoga County, September 28, 1922
Rock Cuts

Figure 4 - Erie Canal, "Grab Machine" Deep Cut, Rochester, Monroe County, ca. 1909 (Contract 6)

Figure 5 - Deep Cut completed, Rochester, Monroe County, July 22, 1921
Excavators

Figure 6 – Erie Canal, excavator working on the “Anthony Cut” west of Oneida Lake, Onondaga County, May 26, 1908 (Contract 12)

Figure 7 – Erie Canal, Lubecker Machine, used to widen existing channels, near Sylvan Beach, Oneida County, October 1, 1906 (Contract 4)
Dredges

Figure 8 – Erie Canal, Dipper Dredge *Hurricane* widening the “State Ditch” west of Baldwinsville, Onondaga County, June 7, 1909 (Contract 5)

Figure 9 – Erie Canal, Hydraulic Dredge *Ontario* with cutters raised, near Montezuma, Cayuga County, September 1906 (Contract 5)
Dredges

Figure 10 – Erie Canal, hydraulic dredge *Oneida*, east of Sylvan Beach, Oneida County, November 1, 1906 (Contract 4)
Lock Construction

Figure 11 - Erie Canal, Lock E5, Waterford, Saratoga County – lock filling tubes placed before first concrete pour, August 1907 (Contract 11)

Figure 12 – Erie Canal, Lock E7, Niskayuna, Schenectady County – north lock wall segments cast around filling tubes, September 1, 1908 (Contract 11)
Concrete lock walls and core for earthen dam nearly complete. Lock floor remains to be poured.

Figure 14 - Erie Canal, Locks E4, E5, and E6 of the Waterford Flight, Waterford, Saratoga County, ca. 1917
Mohawk River Movable Dams

Figure 15 – Erie Canal, Lock E11, Amsterdam, Montgomery County, June 21, 1911

Figure 16 – Erie Canal, Lock E12, Tribes Hill, Montgomery County, June 21, 1921
Mohawk River Movable Dams

Figure 17 – Erie Canal, movable dam at Lock E8, Rotterdam, Schenectady County, 1930s (DPW)

Figure 18 - Gate hoisting “mule” on Mohawk River movable dam, Lock E15, Amsterdam, Montgomery County, ca. 1917
Lock E17

Figure 19 – Erie Canal, Lock E17, Little Falls, Herkimer County, 1930s (DPW)

Figure 20 - Erie Canal, Lock E17, Little Falls, Herkimer County, 1930s (DPW)
View from Moss Island looking southeast. Note mid-level pool in in background, built to conserve water
Cayuga-Seneca Canal Locks

Figure 21 – Cayuga-Seneca Canal, Locks CS-2&3, Seneca Falls, Seneca County, August 5, 1921

Figure 22 – Cayuga-Seneca Canal, Lock CS-4, Waterloo, Seneca County, August 5, 1921

Locks on the Cayuga-Seneca Canal were initially fitted with timber mitre gates and have guard gates at their upstream ends.
Rochester Area Locks

Figure 23 – Erie Canal, Lock E32, Pittsford, Monroe County, August 3, 1921
Locks E32 and E33 are among the few locks on the system that had lockhouses dating to original construction. The hip-roofed lockhouse at E32, seen here on the right side of the chamber, survives, although the hip-roofed water tower that appears behind it is gone.

Figure 24 – Erie Canal, East Guard Lock, Rochester, Monroe County, July 21, 1921
Lockport

Figure 25 – Erie Canal, excavation above Lock E35, Lockport, Niagara County, January 16, 1911 (Contract 67)
View looking west from Pine Street bridge.

Figure 26 – Erie Canal, Lock E34 at lower end of Lockport Flight, Lockport, Niagara County, June 13, 1913 (Contract 67)
The stone chambers and timber gates of Enlarged Erie Locks 67-72 remained in service throughout construction of Barge Canal Locks E34 and E35 and were subsequently modified to serve as a bypass spillway.
Lockport

Figure 27 –Erie Canal, Lock E35, Lockport, Niagara County. ca. 1917
View looking east from Main Street bridge. Pine Street bridge and old City Hall in background.
Lock Powerhouses

Figure 28 – Erie Canal, powerhouse, Lock E28B, Newark, Wayne County, October 1, 1913 (Contracts 76 & 94)
Note reuse of old shanty from nearby Enlarged Erie lock 59

Figure 29 – Erie Canal, one of two hydroelectric generating units and governors in powerhouse, Lock E28B, Newark, Wayne County, June 9, 1920 (contract 94)
Vischer Ferry Dam

Figure 30 – Erie Canal/Mohawk River, Vischer Ferry Dam at Lock E7, towns of Clifton Park, Saratoga County and Niskayuna, Schenectady County, November 14, 1908 (Contract 14)
View looking north from lock site.

Figure 31 – Vischer Ferry Dam, towns of Clifton Park, Saratoga County and Niskayuna, Schenectady County, August 31, 1921
View looking south, across Goat Island, to Lock E7 in the distance.
Crescent Dam

Figure 32 - Erie Canal/Mohawk River, Crescent Dam, towns of Waterford, Saratoga County and Colonie, Albany County, October 13, 1909 (contract 14)
View looking from Waterford toward Colonie

Figure 33 – Partially completed Crescent Dam during flood, March 3, 1910
Delta Dam

Figure 34 – Delta Dam construction, Rome, Oneida County, September 21, 1911 (Contract 55)

Concrete aqueduct and flight of locks, built to carry the Black River Canal across the Mohawk River and past Delta Dam are visible in foreground and along right (east) bank.
Medina Aqueduct

Figure 37 – Erie Canal, Oak Orchard Creek Aqueduct, Medina, Orleans County, May 5, 1922
Road Bridges

Figure 38 – East Street Bridge over Champlain Canal, Fort Edward, Washington County, October 4, 1911 (Contract 27-A)
The State Engineer’s office developed this design for reinforced concrete piers and approach slabs that was widely used along land-cut sections of the Barge Canal. Reportedly, it cost about 25% less than conventional abutments.

Figure 39 - East Street Bridge over Champlain Canal, Fort Edward, Washington County, June 26, 1912 (Contract 27-A)
Double-intersection Warren trusses were erected at many locations across the Barge Canal. The configuration is not common outside New York.
Figure 40 – Comparison of Enlarged Erie and Barge Canal bridge heights and channel widths. River Road Bridge, Mindenville, Montgomery County, July 20, 1910. (Channel Contract 18, Bridge Contract 13)

Figure 41 – Genesee Valley Park pedestrian bridges over Erie Canal, Rochester, Monroe County, August 3, 1921
Lift Bridges

Figure 42 – Erecting steel, Main Street lift bridge over Erie Canal, Middleport, Niagara County, April 26, 1915 (Contract 67)

Figure 43 – Main Street lift bridge and control tower, Middleport, Niagara County, July 7, 1915 (Contract 67)
Figure 44 – Main Street Lift Bridge over Erie Canal, Brockport, Monroe County, July 30, 1915 (Contract 61)
Bascule Bridges

Figure 45 - Bridge Street bascule bridge crossing Oswego Canal Lock O-1, Phoenix, Oswego County, June 15, 1922

Figure 46 – Railroad bascule bridge crossing Erie Canal, North Tonawanda, Niagara County, July 21, 1921
Terminal Freighthouses

Figure 47 – Erie Canal, terminal freighthouse, Little Falls, Herkimer County, June 21, 1921

Figure 48 – Erie Canal, Terminal freighthouse, Ilion, Herkimer County, June 22, 1921
Canal Shops

Figure 49 – Erie Canal, State Shop under construction, Waterford, Saratoga County, October 30, 1922

Figure 50 – Erie Canal – State Shop, Utica, Oneida County, 1930s (DPW)
Constructed with WPA assistance, 1933
Navigation Aids

Figure 51 – Lighthouse, north bank of Erie Canal/Oneida River, Brewerton, Oswego County, June 23, 1921
Workers

Figure 52 – Barge Canal construction crew, east of Lyons, Wayne County, ca. 1917

Figure 53 – Barge Canal Construction Camp, Rome vicinity, Oneida County, April 6, 1910 (Contract 44)
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
SPECIAL CANAL LOCATION
HIGH LIFT LOCKS AND SHORT LEVELS
WATERFORD TO CRESCENT
Scale 1/12 in. = 100 feet

Figure 55
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor

FIXED DAM IN CANALIZED RIVER
GRAVITY TYPE WITH LONG SPILLWAY FOR FLOOD DISCHARGE
Scales as indicated

Figure 56
Figure 57

NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor

TYPICAL CHANNEL SECTIONS, PRISM WALL, CONCRETE TROUGH AND BANK PROTECTION

Scale: 

except as indicated
MAIN FLOOR PLAN

BASEMENT PLAN

NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
TYPICAL HYDRO-ELECTRIC POWER-PLANT
VERTICAL SHAFT GENERATOR
ARRANGEMENT OF MACHINERY
Scale: 5.2 feet

Figure 62
Figure 70

NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
REINFORCED CONCRETE AQUEDUCT
PLAN, ELEVATIONS AND CROSS-SECTIONS
Scales as indicated

Figure 70
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor

REINFORCED CONCRETE AQUEDUCT

MISCELLANEOUS DETAILS

Scales as indicated
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor

LIFT-BRIDGE

GENERAL DRAWING (B)
ELEVATION AND MISCELLANEOUS DETAILS
Scales as indicated

Diagram illustrating operating principle of bridge

Total weight of bridge = 449,000 lb
Two operating cables, A
Two operating cables, B

Counterweight = 23,000 lb
Bridge going up = 33,000 lb
Counterweight = 33,000 lb
Bridge going down = 33,000 lb

Machinery end
Bridge going up = 33,000 lb
Counterweight = 33,000 lb
Bridge going down = 33,000 lb

Cable A = 4,000 lb
Cable B = 4,000 lb
Cable C = 4,000 lb

Total weight of bridge = 449,000 lb
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
THROUGH CULVERT
SEMICIRCULAR TYPE – PLAIN CONCRETE
Scales as indicated
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
DIVE CULVERT
HORSESHOE TYPE - REINFORCED CONCRETE
Scales as indicated
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
THROUGH CULVERT
DOUBLE BOX TYPE – REINFORCED CONCRETE
PLAN AND SECTIONS
Scale 1.000 feet

NOTE:
The existing temporary trough used for maintaining navigation shall be removed within the limits shown and after the embankment is in place, it shall be rebuilt.
NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
FIXED DAM FOR STORAGE RESERVOIR
GRAVITY TYPE—EARTH AND MASONRY
PLAN, PROFILE AND SECTIONS
Scales as indicated

NOTICE:
The plans and specifications are subject to change and may be amended by the State Engineer in writing to be effective immediately. Dimensions, material specifications, and other details should be checked with the State Engineer.

TYPICAL SECTION OF SPILLWAY
Scale: 1/20

TYPICAL SECTION OF EARTH DAM
Scale: 1/8

Figure 82