

NEW YORK STATE BARGE CANAL, LOCK O5
(Oswego Canal, Lock O5)
Adjacent to Brookfield Power Plant
Minetto
Oswego County
New York

HAER NY-534
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

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NEW YORK STATE BARGE CANAL, LOCK O5 (Oswego Canal, Lock O5)

HAER No. NY-534

Location: Adjacent to Brookfield Power Plant, State Route 48, Minetto, Oswego County, New York

Lock O5 is located at latitude 43.40008865, longitude -76.472997254. The point represents the upstream lock gate and was obtained in summer 2009. There is no restriction on its release to the public.

Significance: Lock O5, located on the Oswego Canal, is a component of the nationally significant New York State Barge Canal. The lock retains the original DC electro-mechanical gate and valve operating machinery. The powerhouse is one of a handful on the system that still has the original vertical-shaft hydroelectric generators and governors.

Description: Lock O5 is located in the center of the channel, 6 miles north of Lock O4.¹ It sits between the Brookfield Power Plant (to the west) and the Minetto Dam (to the east). The site consists of the lock and related structures, lockhouse, and powerhouse.

The lockhouse, which is in good condition, is located adjacent to the Brookfield Power Plant on an extended concrete wall to the west of the lock chamber. The single-story concrete building has a concrete chimney and sits on a concrete foundation. The gable-front roof is covered with asphalt shingles, and the gable ends have horizontal board infill. There are one-over-one light aluminum windows with aluminum storm windows. The entrance is a wooden pane-and-panel door.

The powerhouse, located on the east side of the lock, is a single-story concrete building on an exposed concrete foundation. The hipped roof is covered with asphalt shingles. The fenestration consists of nine-over-nine-light wood windows and three-light windows in the eaves. The entrance is pane-and-panel wood double doors with a four-light transom. The original vertical-shaft hydroelectric generators and governors are intact. The powerhouse is in good condition.

An open-grated stairway near the powerhouse provides access to a rusticated concrete block structure roofed with a concrete slab. There are multi-light windows and a plywood door. This may be the foundation of a pre-1950s wood-frame lockhouse at this location.

Lock O5 has a lift of 18' to the south with normal pool elevations of 290' below and 308' above. The concrete chamber walls have been faced with mild-steel plates, and there is cast-iron coping along the chamber wall edges. There are double-leaf, steel miter lock gates at each end of the chamber, operated by spars and gear trains powered by the original DC electro-mechanical gate machinery. The valve operating machinery used to control the flow of water through the culverts

¹ Description of current conditions is based on a site visit made by the HAER recording team in summer 2009.

in the chamber is also original. Due to the siting of the lock, the concrete chamber walls are exposed or under water rather than having earth fill along the exterior sides. In summer 2009, the severely cracking concrete in the chamber was being replaced. Two types of railings, bulb-and-pipe and pipe, surround the public access side of the chamber. Historic light fixtures illuminate the site. A truss utility bridge spans the downstream end of the lock. The lock is in fair to poor condition due to the severe spalling and vegetation growth in the exposed concrete surfaces. A stairway consisting of open-grated steel steps on concrete abutments and equipped with pipe railings is located at the north end of the lock. Another set of stairs is located at the south end of the lock on the west side of the chamber. The steel stairway with cross-hatch steps has a pipe railing. Both stairways are in good condition.

Control stand shelters are located on the west side of the chamber at the upstream and downstream ends. Each is a single-story frame structure with horizontal fiber-cement siding and a pyramidal asphalt roof with vinyl siding windows and a single-pane door. The structures sit on concrete foundations and are in good condition.

The guide walls were also under repair at the time of the field visit. Repairs to the northeast guide wall had been recently completed, as evidenced by the newly poured concrete and modern ladders and bollards. The northwest guide wall, originally constructed of concrete and stone, was under rehabilitation at the time of the visit. The 300' southeast concrete guide wall has a 380' extension consisting of guide cribs made up concrete piers connected by timber beams and steel I-beams and is topped by concrete-filled cast-iron bollards. The concrete on this wall is severely spalling, and vegetation is encroaching. This wall is in fair to poor condition while the rest are in good condition. A row of guide cribs extending 285' from the southwest corner of the chamber protects boats from the nearby power plant's forebay.

Extending across the Oswego River is Minetto Dam, a concrete, semi-circular, fixed crest dam with an ogee spillway. The dam appears to be in good condition.

History: The construction of Lock O5 was included in Contract 37, which covered the Oswego Canal between Fulton and Oswego and specified the construction of locks O5 and O6 with adjoining dams and other incidental work. The contract was awarded on December 9, 1910, to Henry P. Burgard, but later transferred to D'Olier Engineering Company of Philadelphia in 1911. The State Assistant Engineer supervising the work was Edward M. Ellis. Additions were made to the original contract, including extending a dike west of Lock O5 and installing guide cribs at the upper end of the lock to safeguard vessels. Lock 5 and the dam (also numbered 5) were completed in 1914.²

² *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1910, Vol. 1* (Albany: J.B. Lyon Company, 1911), 145; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1911, Vol. 1* (Albany: J.B. Lyon Company, 1912), 141; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1912, Vol. 1* (Albany: J.B. Lyon Company, 1913), 183; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1913, Vol. 1* (Albany: J.B. Lyon Company, 1914), 231-232; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1914, Vol. 1* (Albany: J.B. Lyon Company, 1915), 220.

The power plant was part of Contract 93, which was awarded on August 12, 1913 to MacArthur Bros. Co. & Lord Electric Co.³

Repairs and alterations were made to the lock and dam after their initial completion. In 1943, the State of New York's Department of Public Works embarked on a project to replace the corroded buffer beams at the end of each lock. Buffer beams, located in a recess in the lock approach wall, could be swung across the channel to support the needle dam used to dewater the lock. The replacement plans called for using a vertical-lift type supported on towers. Locks O1 through O5 had the new buffer beams installed.⁴

In 1961, the lock was rehabilitated. The Department of Public Works undertook a second rehabilitation in 1964 as part of Contract No. M64-2. The work included lining the lock walls with "wrought-iron" plate, installing new gates, and other miscellaneous work. In 1992, Lock O5 was rehabilitated, along with the river wall, as part of Contract D234988.⁵

The dam was first altered in 1939 when the crest had to be rebuilt of reinforced concrete because of disintegration. Fifty years later, it was again rehabilitated under Contract D252328.⁶

Sources:

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³ Noble E. Whitford, *History of the Barge Canal of New York State* (Albany: J.B. Lyon Company, 1922), 561.

⁴ State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1943* (Albany: Williams Press, Inc., 1944), 47.

⁵ State of New York, Department of Public Works, *Annual Report, 1961* (s.n., 1962), 76; Maintenance Contracts, August 17, 1966; 1992.

⁶ State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1939* (Albany: J.B. Lyon Company, Printers, 1940), 23; Maintenance Contracts, 1989.

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Historians: Laura S. Black and Jami Babb, summer 2009

Project Information: The Historic American Engineering Record (HAER) is a long-range program that documents and interprets historically significant engineering sites and structures throughout the United States. HAER is part of Heritage Documentation Programs (Richard O'Connor, Manager), a division of the National Park Service, United States Department of the Interior. The New York State Barge Canal Survey was undertaken in summer 2009 in cooperation with the Erie Canalway National Heritage Corridor (ERIE), Beth Sciumeca, Executive Director. Justine Christianson, HAER Historian, and Duncan Hay, ERIE, served as project leaders. The staff of the New York State Canal Corporation provided access to the sites. Craig Williams of the New York State Museum provided research materials and assistance. The HAER field team consisted of Jami Babb and Laura Black.

Appendix: Images of Current Conditions



Image 1: Perspective view of the end of the lock chamber with a control stand shelter in the foreground, lockhouse behind, and Brookfield Power Plant. Field photograph taken by HAER recording team, summer 2009.



Image 2: Powerhouse at center of image. Field photograph taken by HAER recording team, summer 2009.

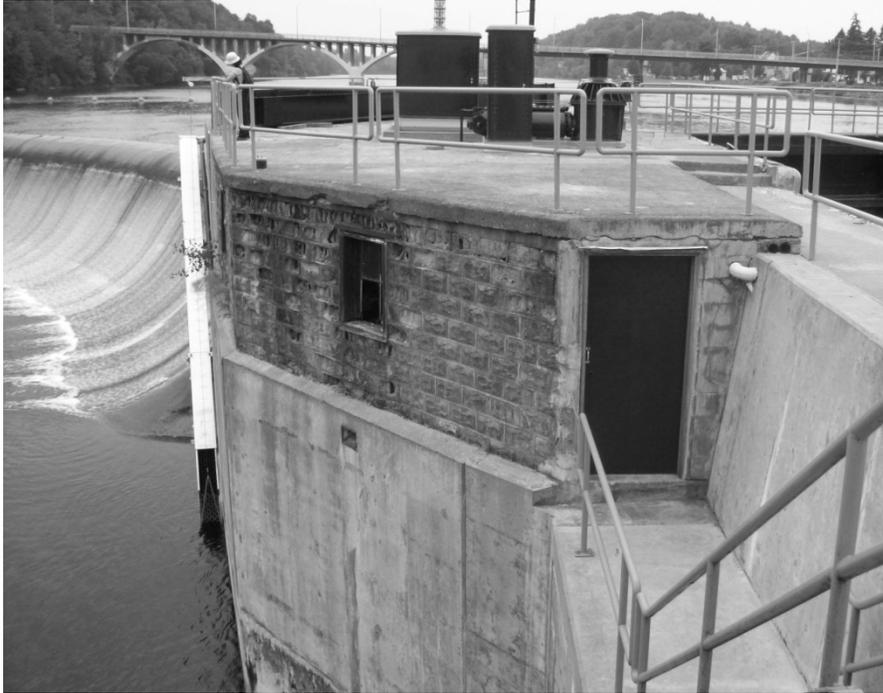


Image 3: Dam is to the left and the former lockhouse foundation is to the right. Field photograph taken by HAER recording team, summer 2009.



Image 4: View of curved crest of Minetto Dam. Field photograph taken by HAER recording team, summer 2009.