

NEW YORK STATE BARGE CANAL, LOCK O1
(Oswego Canal, Lock O1)
87 State Street off County Route 57
Phoenix
Oswego County
New York

HAER NY-529
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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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HAER No. NY-529

Location: 87 State Street off County Route 57, Phoenix, Oswego County, New York

Lock O1 is located at latitude 43.229041468, longitude -76.300916197. The point represents the upstream lock gates and was obtained in summer 2009.

There is no restriction on its release to the public.

Significance: Lock O1, located on the Oswego Canal, is a component of the nationally significant New York State Barge Canal. The original gate and valve operating machinery is intact but differs from the DC electro-mechanical gate and valve operating machinery installed elsewhere on the system, probably because it was installed under a different contract.

Description: Lock O1 is 10 miles from Lock O2 and 2 miles south of the junction of the Oswego Canal with the Erie Canal.¹ The lock is accessed by an asphalt drive that runs along the south side of the lock and ends at a small gravel parking area. The Lock O1 site consists of the lock chamber and associated structures, lockhouse, auxiliary buildings, and the Bridge Street lift bridge. The Phoenix Dam and its associated structures are located to the north and east of the lock, separated by a strip of land. Downstream of the lock is the Culvert Street lift bridge. There is no powerhouse at this site.

The 1958 lockhouse is located at the downstream end of the lock on the southern chamber wall. The single-story concrete block structure sits on a concrete foundation and has a rear extension used as a generator room. The gable-front roof is covered with asphalt shingles. The wood-sided dormer has a one-over-one-light vinyl window and a roof covered with asphalt shingles. The entrance is a wooden pane-and-panel door. The building is in good condition. A garage is situated on the access road, adjacent to the parking area. It is a single-story, gable-front, frame structure on a poured concrete foundation. The gable roof has asphalt shingles. The building is clad in wood siding and has a modern vinyl garage door. The fenestration consists of wood windows with steel mesh on the interior. The garage appears to be in good condition.

The lock has a 10.2' lift to the south with normal pool elevations 352.8' below and 363' above. The concrete chamber walls have been lined with steel plates and coping. There are double-leaf, steel miter lock gates at each end of the lock chamber operated by spars and gear trains powered by the original electric motors in cast-iron housings located in pits below the deck. The chamber is watered by culverts equipped with valves. While original, the gate and valve operating machinery differs from that used elsewhere on the system, which may be due to its early installation under a different contract. There are riveted-steel electrical cabinets at each corner of the lock. The capstans are located on a raised concrete platform that is surrounded by steel railing and open grates. Concrete-filled cast-iron bollards on concrete pads line either side of the

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

chamber. A chain-link fence and pipe railing surrounds the public access side of the lock. The recording team could not determine if the light fixtures illuminating the lock are historic or reproduction. The lock is in good condition.

Control stand shelters are located on the upstream and downstream ends of the south bank of the chamber. Each is a single-story frame structure with horizontal wood siding and a gable asphalt roof with wood single-light sliding windows and a pane-and-panel door. Modern electrical boxes are located inside the shelter. The shelters appear to be in good condition.

The northeast and northwest guide walls are poured concrete. The northeast wall exhibits severe spalling and breakage in areas. Concrete-filled cast-iron bollards line the wall and a modern guide light is visible. This wall is in fair condition. The northwest guide wall has concrete-filled cast-iron bollards lining it along with reproduction lighting fixtures. It is in good condition. The southeast guide wall has been repaired with new concrete. Concrete-filled cast-iron bollards, as well as lighting fixtures (the field work was not able to verify if these were historic or reproduction), line the wall, which is in good to fair condition. Finally, the concrete southwest guide wall has a steel lining and wooden bumpers. There are modern steel cleats lining the wall, while spalling concrete cribs extend from it that are each equipped with a concrete-filled cast-iron bollard. Most of the cribs are connected by timber beams. The section of the wall closest to the lock chamber is severely spalling, but overall, the wall is in fair condition. A non-contributing, modern pavilion sits on the remains of a bridge abutment on the southwest guide wall.

Lock O1 is unique because of the bascule bridges in its vicinity. The Culvert Street lift bridge, at the downstream end of the lock chamber, is a heel trunnion single-leaf bascule with concrete abutments. Built in 1990, it is 67' long and is in good condition. The 1912 Bridge Street lift bridge, at the southeast end of the lock chamber, is also a heel trunnion single-leaf bascule. It operates via concrete counterweights and a rack-gear spar powered by a motor. It is also in good condition.

The bridge house is located at the northeast end of the lock. The three-story concrete structure may have a flat or shallow hipped roof, but this could not be verified by visual inspection from the ground. The walls are punctuated by metal awning windows and a wood door. A single-story concrete addition is attached to the building. The addition has a hipped, standing-seam metal roof and two-light windows. The building is in good to fair condition.

Stretching across the Oswego River to the south of the lock is the Phoenix Dam, consisting of movable crest and fixed crest spillways. The east end of the dam has two Tainter gates, which may date to 1980. The riveted-steel Tainter gates are located between concrete piers and abutments. The 383' spillway has a concrete apron. Next is another movable-crest section with four Tainter gates between concrete piers and a welded steel superstructure. The gates operate by a cable system and are accessible by an open-grate catwalk set on the concrete piers. On the other side of this section of the dam is a fixed-crest dam that could not be seen during the field work due to its location. This spillway is about 166' long and ends at a hydroelectric power plant. All the components of the Phoenix Dam appear to be in good condition.

History: Lock O1 was built under Contract No. 53, awarded to Scott Brothers of Lynchburg, Virginia, on August 16, 1909. State Assistant Engineer Louis A. Burns oversaw the work. Construction started on the lock on September 30 and had been completed in February 1911.²

D'Olier Engineering Company won Contract 90 for the construction of numerous power plants on the canal on April 6, 1910. Work progressed slowly through 1912, when additional power plant work, including sites on the Oswego Canal, began under Contract 90A. Lupfer & Remick of Buffalo, New York, were responsible for building the powerhouse, and H.A.J. Castor, Engineering Draftsman, supervised the work. The contract included building and equipping a substation adjacent to Lock O1 and a hydro-electric plant at Lock O2, except for the wheel pits, feed culvert, and tail culvert, as well as constructing power stations at Locks O7 and O8. The contract was awarded on August 8, 1912, and completed in 1915. The power equipment was supplied under Contract 93 by MacArthur Bros. & Co. & Lord Electric Co., awarded in August 1913.³

Phoenix Dam was built under Contract 80 by Walter Bradley of Fulton, New York, and under the supervision of State Assistant Engineer Robert K. Sheldon. The combination of regulating (using Tainter gates) and fixed sections was necessary to maintain the levels of the Oswego River. Awarded on January 16, 1911, the contract involved building an ogee dam at Phoenix along with six Tainter gates and a set of new headgates for riverside mills. An existing masonry dam had to be removed. According to the *Annual Report*, "the new dam is about four feet higher than the old one and additional spillway is secured by building it in the shape of a 'V' with the Taintor gates at the apex for the control of floods." By February 1912, almost all of the work had been completed except for the concrete counterweights on the Tainter gates and the removal of a portion of the existing masonry dam. In his history of the Barge Canal, Noble Whitford noted that the Tainter gates of the Phoenix Dam were some of the "most conspicuous examples" on the entire canal.⁴

Repairs and alterations were made to the lock after its initial completion. In 1943, the State of New York's Department of Public Works embarked on a project replacing 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 during repair. The replacement plans called for using a vertical-lift type supported on towers. Locks O1 through O5 had the new buffer beams installed. The Department of Public Works also embarked

² *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1909, Vol. 1* (Albany: J.B. Lyon Company, 1910), 141; *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), 135.

³ *Annual Report, 1911*, 129; *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), 213; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1915, Vol. 1* (Albany: J.B. Lyon Company, 1916), 212; Noble Whitford, *History of the Barge Canal of New York State* (Albany: J.B. Lyon Company, Printers, 1922), 561.

⁴ *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), 181-82; Whitford, 474.

upon a project in 1949 to lower thirty-two lock sills to provide a minimum 13' depth, which required altering the lock gates to fit. Lock O1 had sill and gate work done in 1956 as part of Contract No. US93, which might have been related to this initiative. According to a 1958 *Annual Report*, a modern lockhouse equipped with heat, hot water, and sanitary facilities was built at the site. The lock underwent rehabilitation in 1991 under Contract D253723.⁵

Work at the dam included the construction and erection of two Tainter gates under Contract No. D96486 (M80-7) in 1980. The four Tainter gates at the portion of the dam located in the river channel were replaced in 1987 as part of Contract No. D500455. The lock underwent rehabilitation in 1991 under Contract D253723.⁶

The construction of the nearby bascule bridges was part of a separate contract. In 1910, a commission studying the subject of terminals on the canal recommended to the State Legislature that the Barge Canal law be amended to stipulate that bridges on the canalized Towanda Creek be designed to allow masted ships unimpeded transit along the canal. The legislature agreed, amending this legislation in 1910 with the following statement: "When recommended by the state engineer and surveyor and approved by the county board bascule or swing bridges may be constructed." With this provision in place, Syracuse lobbied for the construction of movable bridges on the Oswego River to facilitate travel to its harbors. The State Engineer agreed, as did the Canal Board, and bascule bridges were built at Lock O1 as a result. On October 13, 1917, Contract No. 167, covering the construction of a bascule bridge at Culvert Street, was awarded to Walter S. Rae. Contract No. 85, awarded on August 5, 1911, to Lupfer & Remick, was for the lift bridge at Bridge Street.⁷

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⁵ State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1943* (Albany: Williams Press, Inc., 1944), 47; Maintenance Contracts, 1980, 1987, and 1991; State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1949* (s.n., 1950), 93; State of New York, Department of Public Works, *Annual Report, 1958* (s.n., 1959), 81.

⁶ Maintenance Contracts, 1980 and 1987.

⁷ Whitford, 162-163, 561, 563.

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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: Overview of lock chamber and related structures. The lockhouse is to the right of the chamber with the garage behind at the far right of the image. Bridge Street lift bridge is behind the lockhouse. Field photograph taken by HAER recording team, summer 2009.



Image 2: Bridge house. Field photograph taken by HAER recording team, summer 2009.



Image 3: Overview of Phoenix Dam with Tainter gates flanking the spillway. Field photograph taken by HAER recording team, summer 2009.