

NEW YORK STATE BARGE CANAL, LOCK CS1  
(Cayuga-Seneca Canal, Lock CS1)  
6817 River Road  
Cayuga  
Cayuga County  
New York

HAER NY-521  
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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

## HISTORIC AMERICAN ENGINEERING RECORD

### NEW YORK STATE BARGE CANAL, LOCK CS1 (Cayuga-Seneca Canal, Lock CS1)

#### HAER No. NY-521

**Location:** 6817 River Road, Cayuga, Cayuga County, New York

Lock CS1 is located at latitude 42.9480324, longitude -76.7341183. The point represents the lockhouse and was obtained in 2009. There is no restriction on its release to the public.

**Significance:** Lock CS1, located on the Cayuga-Seneca 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.

**Description:** Located at the north end of Cayuga Lake about 1 mile south of the Cayuga-Seneca Canal's junction with the Erie Canal, Lock CS1 (also known as "Mud Lock") consists of the lock and related structures, guard gate, lockhouse, storage sheds, and comfort station, in addition to the movable dam with Tainter gates.<sup>1</sup> The lock is on the east side of the channel and is separated from its associated dam by a strip of land. Access to Lock CS1 is by an asphalt road leading to a gravel parking area on the east side of the chamber.

The lock has a 7.5' lift to the south with normal pool elevations 374' below and 381.5' above. The concrete chamber walls have a steel lining. 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 flow of water through the culverts in the chamber walls is controlled by valves also operated by the original DC electro-mechanical machinery. The control stand shelters are located on the east bank of the lock chamber. These are single-story frame structures with shiplap siding and gable-front roofs clad with asphalt shingles. The shelters have pop-out wood windows and wood pane-and-panel doors. A pipe railing surrounds the public access side of the lock, which is illuminated by modern light fixtures. The lock and control stand shelters are in good condition.

A guard gate is located at the southern (upstream) end of the lock to help control the level of Cayuga Lake. The riveted steel lattice towers sit on the chamber walls. The vertical-lift gate is 45' wide and operates by a cable pulley system and steel counterweights. It appears to be in good to fair condition.

Originally, there was a gasoline-electric powerhouse on the site, but it was removed at an unknown date, probably during the 1966 rehabilitation of the lock.

The lockhouse, centered on the east side of the lock chamber, is a single-story concrete block structure on a concrete foundation. It was built in 1966 on the opposite side of the chamber from

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<sup>1</sup> Description based on a site visit made by the HAER recording team in summer 2009.

the original lockhouse. The side-gable roof is covered with asphalt shingles, and there is a concrete chimney. The lockhouse has one-over-one-light vinyl windows with steel mesh coverings and shed overhangs. Wood pane-and-panel doors with steel mesh coverings and gabled overhangs provide entry to the building. The lockhouse is in good condition.

Two modern storage sheds dating to the 1990s are located at Lock CS1. The southwest storage shed, located at the southern end of the lock on the strip of land separating the lock from the dam, is a single-story frame structure on a concrete slab foundation with vertical board siding. The offset side-gable roof is covered with asphalt shingles. It has a three-light awning window and a wood door. It is in good condition. Another storage shed is located on the opposite side of the chamber, east of the lockhouse. It is nearly identical to the southwest one and is also in good condition.

The scored concrete guide walls are generally in good condition. The northwest guide wall exhibits minor spalling and cracks along the scoring. The northeast guide wall also has some minor spalling. Concrete-filled cast-iron bollards are set back from both the northeast and southeast guide walls, and there are modern lighting fixtures.

The movable dam is located west of the lock. The dam has six Tainter gates with a riveted steel superstructure located between concrete abutments and piers that exhibit signs of spalling and breaking. The gates operate with concrete counterweights. An open-grated catwalk extends the length of the structure. A modern electrical cabinet sits next to the dam. The dam is overall in fair condition, while the concrete abutments and piers are in poor condition.

Other structures at the site related to recreational purposes include a boat launch with a patterned concrete ramp upstream of the lock. A comfort station is located south of the site. The single-story concrete block structure with an asphalt-shingled gable roof is currently closed and is non-contributing to the site.

**History:** The lock was built as part of Contract No. A, which was awarded to the Scott Brothers of Rome, New York, on December 30, 1910, and overseen by State Assistant Engineer R.W. Cady. The contract included construction of the lock and a dam at the outlet of Cayuga Lake. Work on the site began in February 1911 when the contractor drove the steel sheet piling around what would become the west wall of the lock. Concrete work on this wall began in June. Excavation of the main section of the lock and east wall started at the south end. The contractor loaded the excavated material onto cars, which were then deposited at a spoil area to the north of the lock site.<sup>2</sup>

During 1912 and 1913, Scott Brothers completed the concrete work for the east lock wall and lock chamber. In addition, work progressed on the dam, which had concrete piers and abutments and was equipped with Tainter gates. The *Annual Report* notes that a storehouse, which is no

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<sup>2</sup> *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), 143.

longer extant, was built between the lock and dam. Contract No. A was completed in 1914.<sup>3</sup> As Noble Whitford notes in his history of the canal, Tainter gates were used throughout the New York State Barge Canal, but this location was perhaps the “most conspicuous” since “the gates constitute the whole of the structures that act as regulating works for Cayuga and Seneca lakes, respectively.”<sup>4</sup>

Due to flooding in Cayuga Lake, which caused the water to rise above the walls of Lock CS1, the State of New York raised the lock walls and operating equipment 2' in 1927. The *Annual Report* from that year noted as a result of this work, “in the extreme high water near the close of the season no difficulty was experienced in operating the lock.”<sup>5</sup> The following year, a sea wall was built at the site “to prevent floods from damaging the powerhouse and lock grounds.”<sup>6</sup>

The powerhouse construction and lock equipment installation were covered under Contract No. M, awarded to Lupfer and Remick of Buffalo, New York. Alteration 1 to the contract changed the foundation of the powerhouse at Lock CS1, but otherwise work proceeded on the contract as specified. By 1915, the powerhouse had been completed, with 80 percent of the gasoline-electric operating equipment installed. The following year, the lock operating machinery, including that used to operate the valves and gates, had been completed, aside from painting.<sup>7</sup>

Repairs and alterations have been made to the lock and dam since their initial construction. The 1933 *Annual Report* indicates that the original timber lock gates were already “showing indications of failure and will soon have to be replaced.” By 1940, the timber gates had all been replaced on the Cayuga-Seneca Canal with welded steel ones manufactured at the Syracuse shop.<sup>8</sup> The lock underwent a “general overhaul” in 1943, and new buffer beams were installed. The original buffer beam had been located in a recess in the approach wall and then swung across the channel, but the new buffer beam was a “vertical lift type supported on light towers at each end.”<sup>9</sup> In 1966, new lock gates were installed at Lock CS1 under Contract M66-1. In

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<sup>3</sup> *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), 199; *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), 242; *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), 231.

<sup>4</sup> Noble Whitford, *History of the Barge Canal of New York State* (Albany: J.B. Lyon Company, Printers, 1922), 474.

<sup>5</sup> State of New York, Department of Public Works, *Report of the Superintendent of Public Works for the Year 1927* (Albany: J.B. Lyon Company, Printer, 1928), 18.

<sup>6</sup> State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1928* (Albany: J.B. Lyon Company, Printers, 1929), 8.

<sup>7</sup> *Annual Report, 1914*, 185; *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), 227; *Annual Report of the State Engineer and Surveyor of the State of New York for the Fiscal Year ended in September 30, 1916, Vol. 1* (Albany: J.B. Lyon Company, 1917), 206.

<sup>8</sup> State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1933* (Albany: J.B. Lyon Company, Printers, 1934), 20; State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1940* (Albany: J.B. Lyon Company, 1941), 21.

<sup>9</sup> State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1943* (Albany: J.B. Lyon Company, 1944), 47.

addition, electrical work was done at the site, repairs were made to the approach walls, and the lock chamber walls were resurfaced with steel.<sup>10</sup>

The dam underwent repairs in 1941 because an “extensive leak” had been found under the concrete sills of Tainter gates 1 and 2. To fix the problem, a new concrete apron was poured extending about 3' deep and 15' beyond the existing sill. The dam was again rehabilitated in 1990 under Contract D252322.<sup>11</sup>

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<sup>10</sup> Maintenance Contracts, August 17, 1966.

<sup>11</sup>State of New York, Department of Public Works, *Annual Report of the Superintendent for the Year 1941* (Albany: J.B. Lyon Company, 1942), 25; Maintenance Contracts, 1990.

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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: Lock overview with lockhouse at left and guard gate at end of chamber. Field photograph taken by HAER recording team, summer 2009.



Image 2: Dam with Tainter gates. Field photograph taken by HAER recording team, summer 2009.