HISTORIC STRUCTURES REPORT

ARCHITECTURAL DATA SECTION

SURVEY REPORT FOR THE LOCK #66 COMPLEX

Located North of Paw Paw Tunnel

Chesapeake and Ohio Canal

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December 1967

For

United States Department of the Interior
National Park Service
Office of Archeology and Historic Preservation

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I. EXISTING CONDITIONS

The construction of the seven locks, #59, #60, #61, #62, #63-1/3, #64-2/3 and #66, was placed under one contract and work was started between May 1838 and December 1939. Because of various vicissitudes, outlined in the Physical History of the Canal[1], construction was not completed until sometime between 1848 and 1850.

The primary construction problem, encountered in building these locks, was a lack of good building stone in the area. Large substantial stones, normally employed in lock construction, could not be cut from the material available and as a consequence small stones were used. The locking through of heavily laden boats subjected the lock walls to considerable abuse that small friable stone could not withstand. As a consequence, the lock walls between the gates were lined with wood for protection.

This was accomplished by fastening 5-1/4” square vertical studs to the stone surface at 30” intervals. The stud fastenings were four-foot long, one-inch round steel rods driven into the masonry joints and threaded at the exposed end to receive square nuts. There were two rods per stud. The studs ran from a 6” wide by 3-1/2” deep sill at the bottom to the underside of the now missing overhanging cap or coping stones. A layer of horizontal planking was nailed over the studs and another layer of vertical planking was applied over the horizontal planking for strength.

Only the bolts and a stud or two survive at Lock #66, but a good portion of the planking exists in place, a tenth of a mile downstream, at Lock #64-2/3. This planking is in a dilapidated condition.

The distance between the masonry of the sidewalls of Lock #66 is 16'-8". The average width of the majority of the locks of the canal is 15'-0". This suggests that lining these particular locks was planned for prior to their construction. The addition of the lining would still result in a nominal 15'-0" width.

The timber of the lock facings was treated to preserve it and this treatment was referred to in the canal company reports as “Kyanized”.

Because of the configuration of the gate pockets and headwalls, it would have been impractical to attempt to line their masonry surfaces with wood. These surfaces had cement applied to protect them from abrasion and strain. It is not certain if the cement was applied originally or not. The date 1910 has been marked in the cement on some of the surfaces.

Remnants of the wood gates at both the upstream and the downstream ends of the lock still remain. Their bottoms are lodged in silt and for this reason it cannot be determined, at this time, if

[1] Miele, John R., *The Chesapeake and Ohio Canal, A Physical History*, dated Jan. 2, 1964, pp. 23 – 25.

it would be possible to rehabilitate them or not. Some portions of all of the gates have sustained severe damage due to rotting. Most of the gate hardware is missing.
Lock #66 had a by-pass flume like other locks in the system. However, at the upstream end, there was a concrete weir gate arrangement parallel with a spillway. Another spillway was located at the downstream end of the flume. (See illustration).

Because of its remoteness, it is difficult to understand why a carpenter's shop would be located at the site of this lock. Former employees of the canal company say that lock gates were fabricated and repaired here. The structure that housed the shop has been a shambles for a good many years and has now melted down to ground level. It measured 20'-2" in width by 40'-4" in length with a height of 11'-0" from grade to the top of the eaves plate. The arrangement of windows and doors is only partially known. Its framework was of post and girt construction with board and batten siding. The roof was pitched and was probably covered with shingles originally. There was a 6'-0" open area under the interior plank floor. The post and girt system was substantial and indicated that block and falls were used to manipulate the heavy gate timbers during assembly.

A creosote dip tank was located at the north end of the shop building. It was made of 3/16" thick steel plate and had a diameter of 28-1/4" outside. It was approximately six feet high and was shielded from the wood building by a concrete wall on two sides. The top of it was roughly level with the ground level between the lock and building.

The creosote treatment was apparently a non-pressure process with the timber heated and allowed to cool in the tank. To accomplish this the tank is supported at its base by a concrete slab and under which there is a space to build a fire for heating the tank. Some form of boom or A-frame must have been used to lower the ends of the heavy timbers into the tank, but such an arrangement has vanished.

There are a number of wing walls and retaining walls within the complex. Erosion has dispatched portions of them. The lock walls have remained reasonably plumb indicating that they are founded on firm and solid material.

II. RECOMMENDATIONS

The lock should be cleaned of silt and trash to below the mud sill level of the downstream gate. The masonry sidewalls should have any loose stone reset and any missing stone replaced, including the missing capstones. The corroded ends of the steel bolts that fastened the wood lining should be burned off with new threaded ends welded in their place. This will make it possible to replace the wood lining.

If after uncovering the existing gates it is found that they warrant refurbishing this should be done. Otherwise, new gates should be fabricated. It is felt that with development of visitor accommodations planned for the area at the south end of the tunnel that this lock should be made operable. This would give the visitor a rest stop feature to view after hiking through the tunnel.

The contiguous wing walls, retaining walls, weir and spillways should be repaired to accommodate the re-watering of the canal through the tunnel.

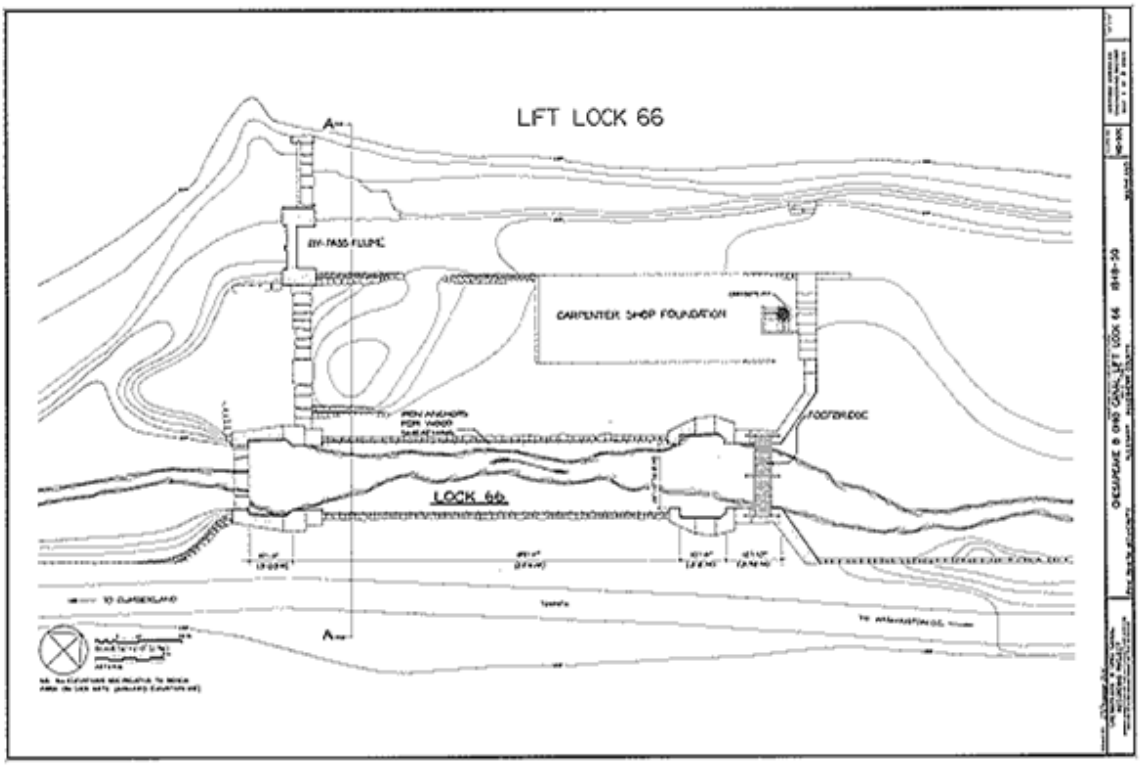
So little is known of the operation of the carpenter's shop, it might be best to remove the existing fabric remains and stabilize the masonry foundation rather than reconstruct it.

If the shop building were reconstructed, some means would have to be provided to cross the re-watered canal to reach it. No evidence has been found to indicate that there was any kind of bridge at this location, and it may have been that the men working in the carpenter's shop crossed over the top of the lock gates.

III. ESTIMATE FOR RESTORATION AND REPAIRS

1.	Masonry Work (Lock walls, wing walls, flume wall, spillways and weir)	$11,825.00
2.	Wood Lock Lining (Including anchor bolt repair)	$8,435.00
3.	Lock Gates (Estimated if totally replaced)	$13,875.00
4.	Clean-Up, Scaffolding, Equipment	$1,000
5.	Raze Carpenter's Shop and Stabilize Foundation	$2,500
	Total for construction	$37,635.00

Illustration I: The following drawings are available (on-line) in two higher resolutions from Historic American Building Survey, Chesapeake & Ohio Canal, Lift Lock 66



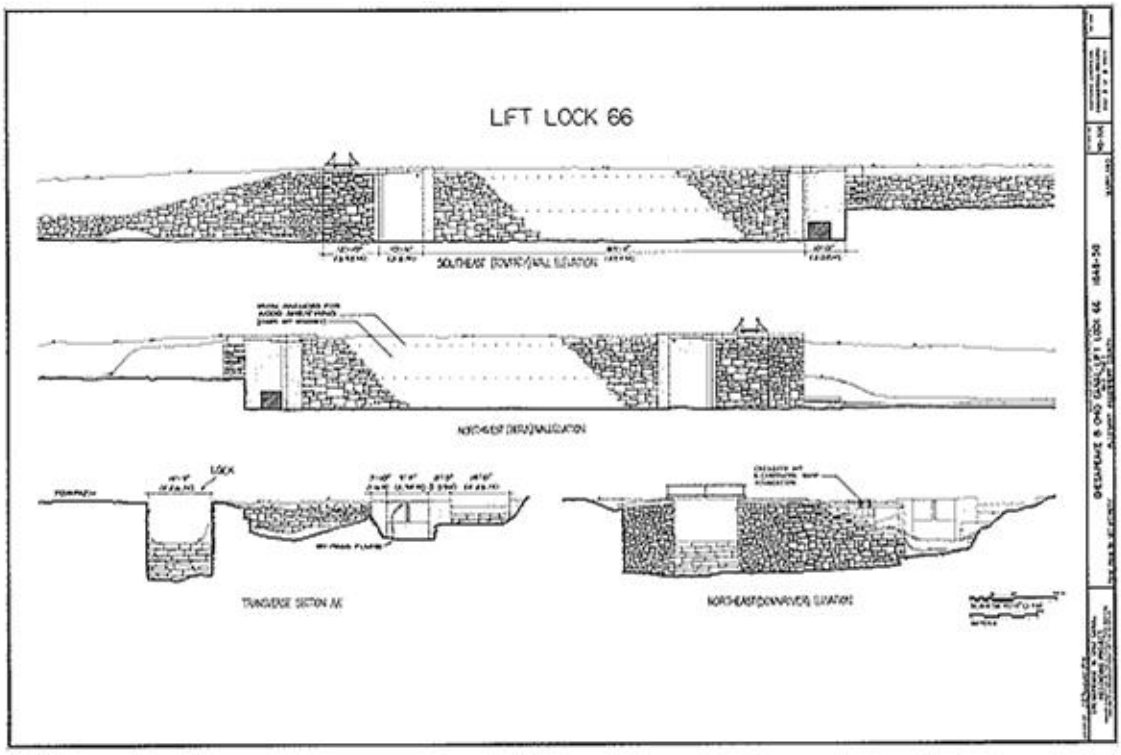


Illustration 2: This perspective was constructed from a viewpoint to show the entire complex. The depression between the lock and flume and behind the wall connecting the lock and weir was probably caused by erosion resulting from a break in the flume wall. It was shown, however, as it might have been a timber soaking pond. The height of the creosote tank has been exaggerated to show its location. The spillway in the foreground had notches at its ends to receive timbers. Why this was done immediately adjacent to the weir is not understood. The object of the flume was to pass surplus water on to lower levels along the canal using the weirs to maintain a proper level of water in the level above. Sketch: A. W. Franzen, September 1967.

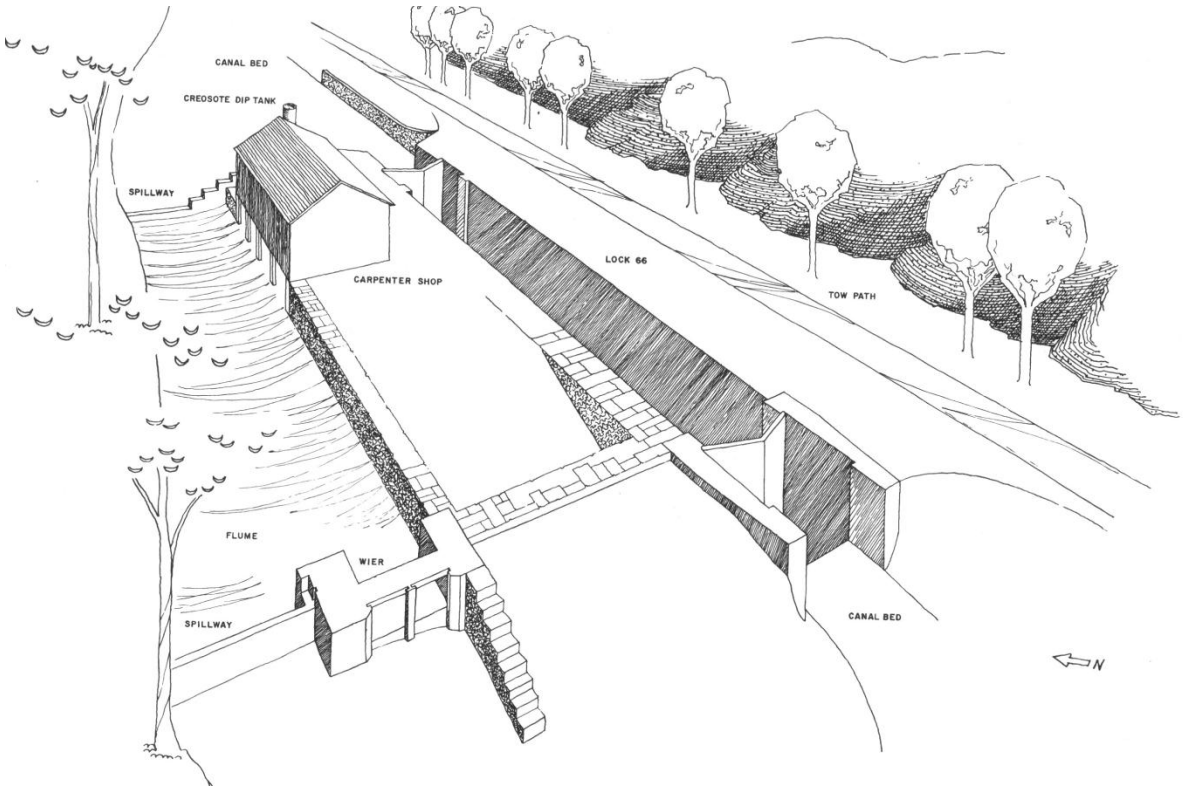


Illustration 3: View of Lock #66 from the towpath at the upstream end. The character of the stone can be seen and how it was reinforced with concrete in the gate pockets. What is left of the carpenter's shop can be seen in the background. The lock is 99'-6" long between gates and 16'-8" wide between the masonry of the sidewalls. Photo: A. W. Franzen, August 1967

Illustration 4: View of lock from downstream showing size and extent of wing walls. To the right can be seen the top of the creosote dip tank. For scale, it is eighteen feet from the top of the lock to the water in the foreground. Photo: A. W. Franzen, August 1967

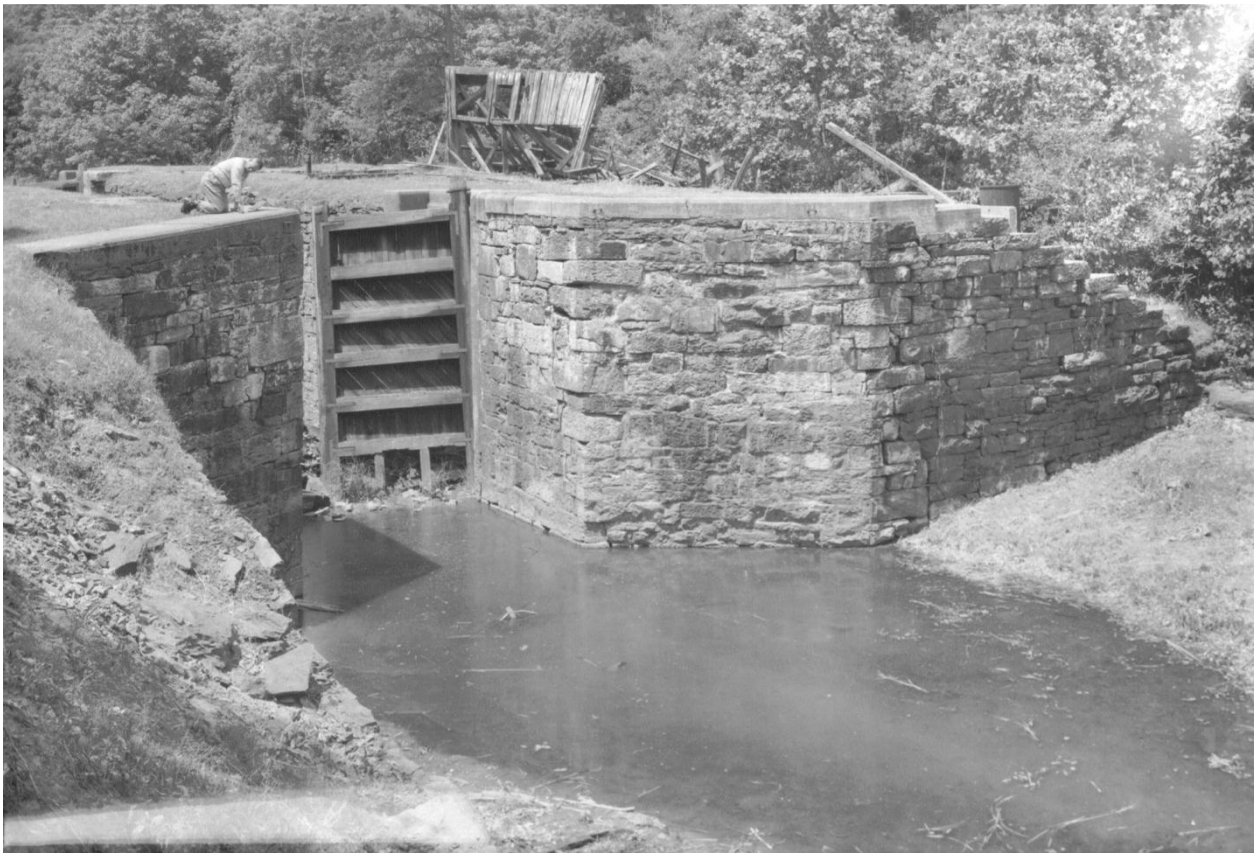


Illustration 5: Looking upstream from within the lock. This view gives a good idea of the condition of the lock gates and their size. They are approximately fifteen feet high. Note how silt has amassed at the bottom of the gates. Photo: A. W. Franzen, August 1967

Illustration 6: View of wood lock sheathing at Lock #64-2/3. Similar construction was employed at Lock #66. The missing capstones would have overhung the wood construction to protect it and prevent trash from falling down in the space between studs. Photo: A. W. Franzen, August 1967

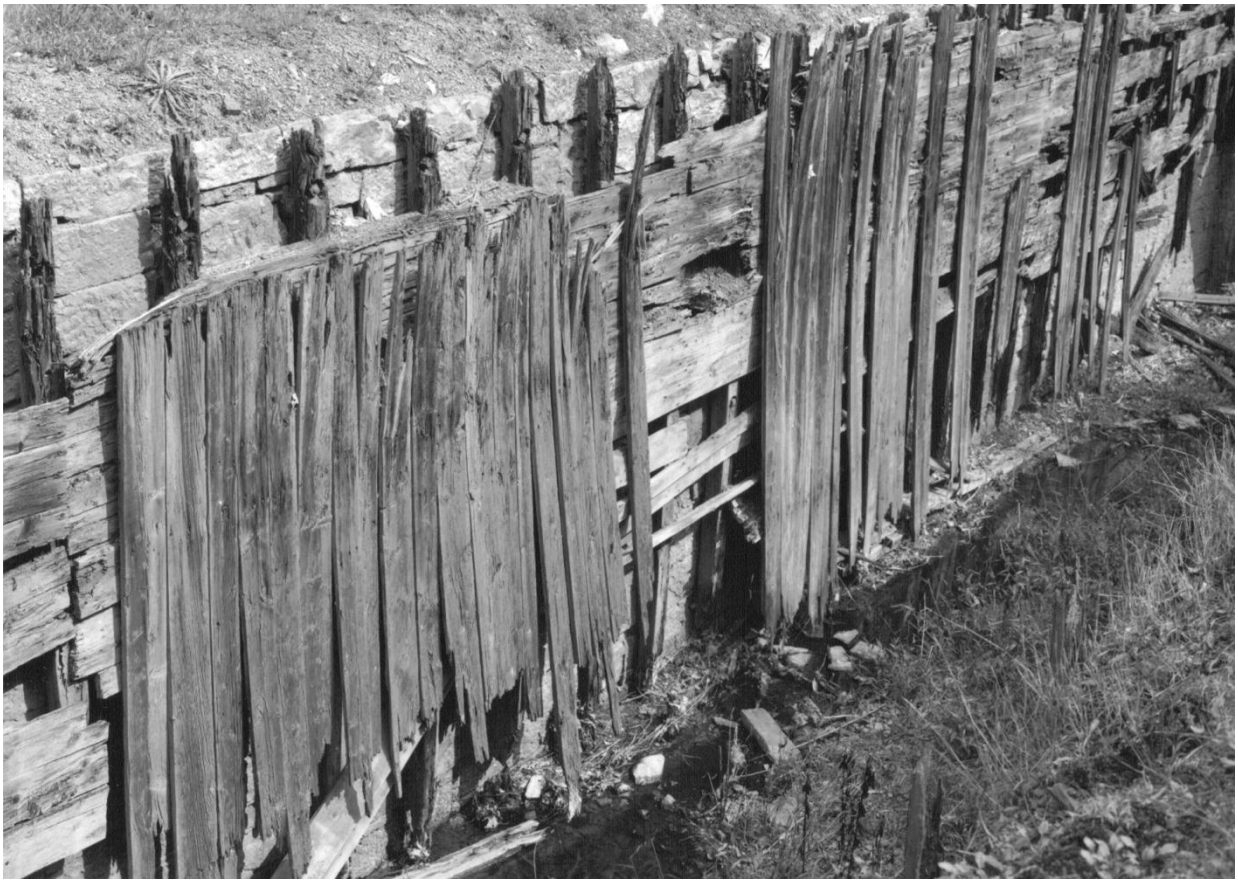


Illustration 7: This close-up shows the square washers on the rods that held the vertical studs in place. Many of the nails appearing in this view are wire nails and suggest that the sheathing had to be replaced in recent years. Taken at Lock #64-2/3. Photo: A. W. Franzen, August 1967

Illustration 8: Close-up of the stonework of the lock sidewalls. Two of the stud fastening rods appear as they protrude from the stonework. It is obvious from their condition that the rods will have to have their ends cut and replaced. The rods are four feet long and would be next to impossible to pull loose. The rods are roughly thirty inches apart and give an indication of the size of the stone and how it was laid up. Photo: A. W. Franzen, August 1967

Illustration 9: Near view of creosote dip tank. Heat was applied beneath the tank to accelerate the absorption of the creosote. The concrete dike at the base of the tank kept spillage from reaching the fire. Photo: Jack Boucher, December 1960