

to
Feds 1329

NPS Form 10-900
(Rev. 8/86)
Wisconsin Word Processor Format (1331D)
(Approved 3/87)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

RECEIVED

OCT 25 1993

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

NATIONAL
REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in Guidelines for Completing National Register Forms (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries. Use letter quality printer in 12 pitch, using an 85 space line and a 10 space left margin. Use only archival paper (20 pound, acid free paper with a 2% alkaline reserve).

1. Name of Property

historic name Appleton Lock 4 Historic District

other names/site number N/A

2. Location

street & number Fox River at John Street N/A not for publication

city, town Appleton N/A vicinity

state Wisconsin code WI county Outagamie code 087 zip code 54911

3. Classification

Ownership of Property	Category of Property	No. of Resources within Property	
		contributing	noncontributing
<input type="checkbox"/> private	<input type="checkbox"/> building(s)		
<input type="checkbox"/> public-local	<input checked="" type="checkbox"/> district		<u>3</u> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site		<input type="checkbox"/> sites
<input checked="" type="checkbox"/> public-Federal	<input type="checkbox"/> structure	<u>3</u>	<input type="checkbox"/> structures
	<input type="checkbox"/> object		<input type="checkbox"/> objects
		<u>3</u>	<u>3</u> Total

Name of related multiple property listing:

Waterway Resources of the Lower Fox River

No. of contributing resources
previously listed in the
National Register N/A

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this X nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property X meets ___ does not meet the National Register criteria. ___ See continuation sheet.

Dr. William L. Kusch 14 Oct '93
Signature of certifying official Date
Corp of Engineers
State or Federal agency and bureau

In my opinion, the property X meets ___ does not meet the National Register criteria. ___ See continuation sheet.

[Signature] 9/21/92
Signature of commenting or other official Date
State Historic Preservation Officer-WI
State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

entered in the National Register
___ See continuation sheet Beth Boland 12/7/93
___ determined eligible for the National Register. ___ See continuation sheet
___ determined not eligible for the National Register.
___ removed from the National Register.
___ other, (explain:) _____
Signature of the Keeper Date

6. Functions or Use

Historic Functions
(enter categories from instructions)

Current Functions
(enter categories from instructions)

Transportation/water related

Transportation/water related

7. Description

Architectural Classification

(enter categories from instructions)

Materials

(enter categories from instructions)

Other: Lock

Other: Concrete Dam

foundation Stone

walls Stone

Concrete

roof N/A

other wood

Describe present and historic physical appearance.

The Appleton Lock 4 Historic District is located at mileage marker 29.8 on the Lower Fox River. Found in a large, open portion of the river valley that is east of downtown Appleton, the College Street Viaduct passes over the district. A Consolidated Papers industrial complex is immediately to the east. The district consists of a lock, a dam and a segment of canal, all of which are contributing structures, as well as three modern sheds that are non-contributing.

Appleton 4 Lock (Contributing):

The present lock, which is oriented generally on a NNE/SSW axis, was built in 1907 to replace one of composite construction.¹ The 144 by 35 foot lock chamber and adjoining wingwalls are comprised of quarried limestone blocks, the sides of which are capped with concrete coping and a pipe railing. Each of the four lock gates is constructed of squared wooden timbers that are laid horizontally atop one another and joined with structural ties. Adjacent to each gate is a concrete platform that contains a tripod. A vertical shaft extends the height of the tripod. A handle is fixed to the top of the shaft, while the bottom of the shaft contains a gear that drives a horizontally placed spar, the end of which is attached to a lock gate. (It is a horizontal rack and pinion system.) Depending on which way the handle is turned, the spar is either taken in, thus opening the lock gate, or it is pushed out, in which case the gate closes. The chamber is flooded by six butterfly valves that are set in the floor of the lock, three on each side, immediately upstream from the structure. As the valves are opened, water passes down into a culvert with a 90 degree turn, which then directs it under the upstream sill and straight into the chamber. Each valve is adjusted by a geared mechanism that sits on the lock's coping. A metal shaft connects the valve to the adjusting mechanism. The chamber is discharged through six small butterfly valves found at the bottom of the two downstream gates. There are three valves per gate. These valves are operated by the levers atop each gate. The gates contain a cat-walk that facilitates moving from one side of the lock to the other. The lock provides 7.6 feet of lift as it moves crafts from the 706.3 feet above sea level upper pool to the 698.7 feet above sea level lower pool. It can be filled in two minutes and forty-one seconds, and can be discharged in two minutes and thirty-one seconds.

Details about the lock's construction, as well as about subsequent changes and major maintenance activities prior to 1953, are as follows:

¹ Annual Report of the Chief of Engineers, U.S. Army, 1907 Part III (Washington, D.C.: Government Printing Office, 1907), 1911.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 7 Page 1 Appleton Lock 4 Historic District
Outagamie County, WI

-
- 1907 Original lock built prior to 1870. Rebuilt in 1884 and 1894, using dry rubble masonry and timber plank facing. After that work, lock was extended 9'8" to a length of 170', given new wood gates, and excavated to bedrock. Lock closed on 22 November 1906. It reopened on 2 May 1907. "The lock walls are composed of rubble masonry, faced with cut stone, and are 21.4 feet high, 10.5 feet wide on the bottom and 4.5 feet wide on top. The valve platform consists of 12 inch "I" beams extending across the full width of the chamber and supported through the center by a masonry wall containing 3 arches. The space between the "I" beams is filled with concrete, reinforced with iron bars and expanded metal. The filling valves are placed in openings between "I" beams. The miter sills are also made of steel channels and "I" beams, the space between the members being filled with concrete. This platform is a new design to supplant the old wood platforms, which require frequent repairs, and is considered a very successful and economic structure. The filling valves were provided with improved maneuvering gears, let into a recess in the coping of the walls and covered with steel floor plates, presenting a smooth surface to the lock walls."²
- 1908 New concrete tripod platforms built.³
- 1910 "...a wood shed was built for use of lockmaster."⁴
- 1913 Discharge valves replaced on lower doors.⁵

Lower Appleton Dam (Contributing):

² Ibid.

³ Annual Report of the Chief of Engineers, U.S. Army, 1908 Part II (Washington, D.C.: Government Printing Office, 1908), 1980.

⁴ Annual Report of the Chief of Engineers, U.S. Army, 1910 Part II (Washington, D.C.: Government Printing Office, 1910), 2140.

⁵ Annual Report of the chief of engineers, 1913: Appendix JJ -Report Upon the Improvement of Rivers & Harbors in the Milwaukee, Wis., District (Washington, D.C.: Government Printing Office, 1913), 2797.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 7 Page 2 Appleton Lock 4 Historic District
Outagamie County, WI

This dam is a concrete structure with an overall length of 549 feet. Built in 1934-1935, it is located adjacent to, and about 500 feet upriver of, the lock. The dam creates the pool that floods the canal in which Appleton lock 4 is located. It is generally oriented on a NE/SW axis.

Anchored to the river's rock bottom, the dam consists of two sections. The southwestern section, the one that accounts for the greatest portion of the dam's length, is a 320 foot spillway. The spillway is twenty one feet wide, and fixes the maximum level of the pool the dam creates at 706.25 feet above Sea Level. [The head impounded by the dam matches the 7.6 foot lift of the lock.] The northeastern portion of the dam is 229 feet, and contains nine sluiceways, each of which contains a fourteen by twenty foot, steel Tainter gate. The gates are operated by a "crab," a small electrically operated mechanism that moves from gate to gate on a track. The "crab" contains a wench, to which the chain on each end of the gate is attached. As the winch is activated, the chain is taken in or let out, and the height of the gate is adjusted accordingly. A steel catwalk, which facilitates inspections and maintenance, extends the length of the dam.

Placed atop the dam is a single story front gabled shed that was erected to shelter the electric "crab." Spanning the abutments adjacent to the first gate, the lift house is reached by the catwalk. It is clad with drop siding, roofed with asphalt shingles, and has walls bounded with pilaster strips. The single window in each side wall and the panelled door at the right of the lockside endwall have simple surrounds. A pair of heavy wooden doors in the opposite endwall swing out to allow passage of the "crab" to whichever gate must be adjusted.

The need for a new dam was noted by the Corps of Engineers in 1933.⁶ Construction started in 1934 and was completed in 1935.⁷ No structural changes are thought to have been made to this structure since its construction.

⁶ Annual Report of the Chief of Engineers, 1933: Extract - Report upon the Improvement of Rivers and Harbors in the Milwaukee, Wis., District (Washington, D.C.: Government Printing Office, 1933), 878.

⁷ Annual Report of the Chief of Engineers, 1934: Extract - Report upon the Improvement of Rivers and Harbors in the Milwaukee, Wis., District (Washington, D.C.: Government Printing Office, 1935), 1041; Annual Report of the Chief of Engineers, 1935: Extract - Report upon the Improvement of Rivers and Harbors in the Milwaukee, Wis., District (Washington, D.C.: Government Printing Office, 1936), 1184.

NPS Form 10-900a
(Rev. 8-86)
Wisconsin Word Processor Format
Approved 2/87

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 7 Page 3 Appleton Lock 4 Historic District
Outagamie County, WI

Canal (Contributing): circa 1850s

Approximately 750 feet of the Lower Fox navigation canal are included within this district. Generally running southwest to the northeast at this point, the canal's depth does not exceed six feet, and its width is approximately 125 feet across the top. There are no special embankment features along the canal, which has been dredged periodically throughout its history.

Lockshack (Non-contributing):

Located immediately adjacent to the left, downstream gate, this is a small, modern, metal structure with a generally flat roof.

Storage Shed (Non-contributing):

This small shed is next to the right, upstream gate. It too is a modern, metal structure.

Brick Shed (Non-contributing):

Built of concrete blocks, this small structure is centered between the upstream and downstream gates, on the river side of the lock. It is set back about forty feet from the lock wall.

___ See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties: nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance

(enter categories from instructions)

Transportation

Engineering

Period of Significance

1907-1941

Significant Dates

1907¹

1935²

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

N/A

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

Statement of Significance:

The Lower Appleton Dam and Appleton Lock #4 are significant components in the Lower Fox River Waterway System, a system which, as discussed in Cultural Resource Management in Wisconsin, was initially envisioned as part of the larger Fox-Wisconsin Waterway.³ Originally constructed by private interests between 1850 and about 1860, and rebuilt by the US Army Corps of Engineers between 1872 and 1941, the Lower Fox River system operated between Lake Winnebago and Green Bay. It is historically significant as a complete and operable mid-nineteenth century example of a river/canal, slack water transportation system, the technology of which was so well suited that it works effectively today. It is the only such system extant in Wisconsin. The system is also significant for its role in the evolution of Wisconsin's nineteenth century political and constitutional history. Further, it is an interesting chapter in the transportation history of the state.

¹Annual Report of the Chief of Engineers, U.S. Army, 1907 (Part III) (Washington, D.C.: Government Printing Office, 1907), 1911.

²Annual Report of the Chief of Engineers, 1935: Extract - Report upon the Improvement of Rivers and Harbors in the Milwaukee, Wis., District (Washington, D.C.: Government Printing Office, 1936), 1184.

³Barbara Wyatt, ed., Cultural Resource Management in Wisconsin (Madison: State Historical Society, Historic Preservation Division, 1986), Transportation 2/2.

NPS Form 10-900a
(Rev. 8-86)
Wisconsin Word Processor Format
Approved 2/87

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 8 Page 1 Appleton Lock 4 Historic District
Outagamie County, WI

History:

The Lower Appleton Dam was responsible for creating the pool that flooded the canal in which Lock 4 was located. It was this combination of lock and dam that enabled water craft to navigate the final downriver rapids at Appleton.

The Appleton Lock 4 Historic District consists of an historic lock, dam and canal segment built between 1907-1935 that meet the registration requirements set forth in Waterway Resources of the Lower Fox River multiple property form. The resources possess integrity of location, design and materials, and are property types significant to the operation of the waterway.

___ See continuation sheet

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 10 Page 1 Appleton Lock 4 Historic District
Outagamie County, WI

VERBAL BOUNDARY DESCRIPTION: *see note Section 10, page 3

PARCEL E: That part of the Northwest fractional Quarter of Section 36, Township 21 North, Range 17 East of the Fourth Principal Meridian, Outagamie County, Wisconsin, described as commencing at a 1" iron pipe set for the Northwest corner of said Section 36; thence South 46 degrees 45 minutes 30 seconds East 731.71 feet (measured), 729.62 feet (recorded) to the Point of Beginning near the left shoreline of the Fox River; thence North 82 degrees 47 minutes 20 seconds East 31.63 feet to a 5/8" rebar with an allied cap stamped "USAED DETROIT BOUNDARY MARK"; thence South 78 degrees 40 minutes 50 seconds East 97.25 feet to an allied cap stamped as before; thence North 81 degrees 11 minutes East 97.08 feet; thence North 62 degrees 52 minutes 40 seconds East 59.82 feet to an allied cap stamped as before; thence North 50 degrees 11 minutes East 56.05 feet to an allied cap stamped as before; thence North 38 degrees 13 minutes 50 seconds East 73.49 feet to an allied cap stamped as before; thence North 17 degrees 28 minutes 30 seconds East 167.63 feet to an allied cap stamped as before; thence North 27 degrees 13 minutes 50 seconds East 93.21 feet to an allied cap stamped as before; thence South 89 degrees 49 minutes 10 seconds East 25 feet to an allied cap stamped as before set for the left shoreline of the Fox River as it existed in 1899; thence Southerly, upstream, along the meanders of the left shoreline of the Fox River as it existed in 1899 a distance of 63 feet, more or less, to the said left shoreline; thence Southerly and Westerly, upstream, along the meanders of the left shoreline of the Fox River and across the first Ward Canal, a total distance of 674 feet, more or less, to the Point of Beginning and containing 0.40 acre, more or less. Bearings are based on reestablishment of 1899 survey information recorded as true by Polaris Observation.

PARCEL B: That part of the Northwest Fractional Quarter of Section 36, Township 21 North, Range 17 East of the Fourth Principal Meridian, Outagamie County, Wisconsin, described as beginning at a point on the North line of said quarter that bears North 87 degrees 51 minutes 10 seconds West 1062.22 feet from a 5/8" rebar set in the concrete road surface of John Street for the Northeast corner of said Northwest quarter; thence South 28 degrees 27 minutes 50 seconds West 314.28 feet; thence South 61 degrees 32 minutes 10 seconds East 30 feet to a 5/8" rebar with an allied cap stamped "USAED DETROIT BOUNDARY MARK" that bears South 23 degrees 00 minutes 40 seconds West 315.71 feet from the Point of Beginning; thence South 28 degrees 27 minutes 50 seconds West (recorded), South 28 degrees 28 minutes 15 seconds West (measured) 85.35 feet to a stone monument stamped "U.S."; thence South 33 degrees 20

X See continuation sheet

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 10 Page 2 Appleton Lock 4 Historic District
Outagamie County, WI

minutes 50 seconds West 201.28 feet to an allied cap stamped as before; thence North 63 degrees 08 minutes 40 seconds West 16 feet to the computed right shoreline of the Fox River as it existed in 1899; thence North 12 degrees 57 minutes 11 seconds East 512.18 feet, across the mouth of the U.S. Canal to the riverside face of the limestone wall on the right shoreline of the Fox River; thence North 05 degrees 03 minutes 40 seconds West 18.12 feet along the face of said wall; thence North 02 degrees 08 minutes 37 seconds West 15.97 feet along the face of said wall to the North line of the said Northwest fractional quarter; thence South 87 degrees 51 minutes 10 seconds East 176.54 feet along said North line and across the U.S. Canal to the Point of Beginning, containing 1.21 acres, more or less. Bearings are based on reestablishment of 1899 survey information recorded as true by Polaris Observation.

PARCEL A: That part of the Southwest fractional quarter of Section 25, Township 21 North, Range 17 East of the Fourth Principal Meridian, Outagamie County, Wisconsin, described as beginning at a point on the South line of said Southwest fractional quarter that bears North 87 degrees 51 minutes 10 seconds West 1062.22 feet from a 5/8" rebar set in the concrete road surface of John Street for the Southeast corner of said Southwest fractional quarter; thence North 28 degrees 27 minutes 50 seconds East, 600.37 feet to a 5/8" rebar with an allied cap stamped "USAED DETROIT BOUNDARY MARK"; thence North 06 degrees 52 minutes 50 seconds East 100 feet across a head race to an allied cap stamped as before; thence South 61 degrees 32 minutes 10 seconds East 66.78 feet; thence North 28 degrees 27 minutes 50 seconds East 206.40 feet; thence North 15 degrees 25 minutes 50 seconds East 220 feet; thence North 07 degrees 28 minutes 03 seconds West 214.38 feet to the intersection of the left shore of the U.S. Canal with the right shoreline of the Fox River, said point bearing North 22 degrees 01 minutes 14 seconds East 1295.86 feet from the Point of Beginning; thence Southwesterly, upstream, along the meanders of the right shoreline of the Fox River a total distance of 373 feet, more or less, to a point on the face of a concrete retaining wall that bears North 18 degrees 30 minutes 37 seconds East 939.59 feet from the Point of Beginning; thence North 60 degrees 43 minutes 13 seconds West 11.06 feet along the face of said wall; thence South 28 degrees 34 minutes 12 seconds West 108.69 feet along the face of said wall; thence South 07 degrees 31 minutes 16 seconds West 61.38 feet along the face of said wall; thence North 53 degrees 53 minutes 12 seconds West 1.5 feet along the face of said wall; thence South 36 degrees 06 minutes 48 seconds West 189.49 feet along the face of said wall; thence South 35 degrees 08 minutes 06 seconds West 99.64 feet along the face of said wall; thence South 08 degrees 14 minutes 06 seconds West 24.95 feet along the face of said wall; thence South 26

X See continuation sheet

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number 10 Page 3 Appleton Lock 4 Historic District
Outagamie County, WI

degrees 58 minutes 55 seconds West 144.37 feet along the face of said wall; thence North 73 degrees 02 minutes 22 seconds West 0.83 feet along the face of said wall; thence South 26 degrees 27 minutes 51 seconds West 75.33 feet along the face of said wall; thence South 28 degrees 49 minutes 24 seconds West 105.49 feet along the face of said wall; thence South 37 degrees 35 minutes 47 seconds West 33.09 feet along the face of said wall; thence South 01 degree 21 minutes 19 seconds West 15.14 feet along the face of said wall and U.S. Dam abutment; thence North 88 degrees 38 minutes 41 seconds West 4 feet along the face of said wall and U.S. Dam abutment; thence South 01 degree 28 minutes 06 seconds West 11.53 feet along the face of said wall and U.S. Dam abutment; thence South 64 degrees 08 minutes 18 seconds East 5.30 feet along the face of said wall and U.S. Dam abutment; thence South 22 degrees 24 minutes 08 seconds West 6.72 feet along the face of said wall; thence South 25 degrees 21 minutes 24 seconds West 62.22 feet along the face of said wall; thence South 25 degrees 39 minutes 23 seconds West 54.28 feet along the face of said wall; thence South 21 degrees 39 minutes 28 seconds West 21.04 feet along the face of said wall; thence South 02 degrees 08 minutes 37 seconds East 0.82 feet along the face of said wall to the South line of said Southwest fractional quarter; thence South 87 degrees 51 minutes 10 seconds East 176.54 feet, across the U.S. Canal and along the South line of said Southwest fractional quarter to the Point of Beginning, containing 5.05 acres, more or less. Bearings are based on reestablishment of 1899 survey information recorded as true by Polaris Observation.

*The property boundary descriptions given have not been audited or verified. They are not, at any time, to be used for any legal boundary descriptions. They are used here only for the purpose of describing the approximate property location.

___ See continuation sheet

NPS Form 10-900a
(Rev. 8-86)
Wisconsin Word Processor Format
Approved 2/87

United States Department of the Interior
National Park Service

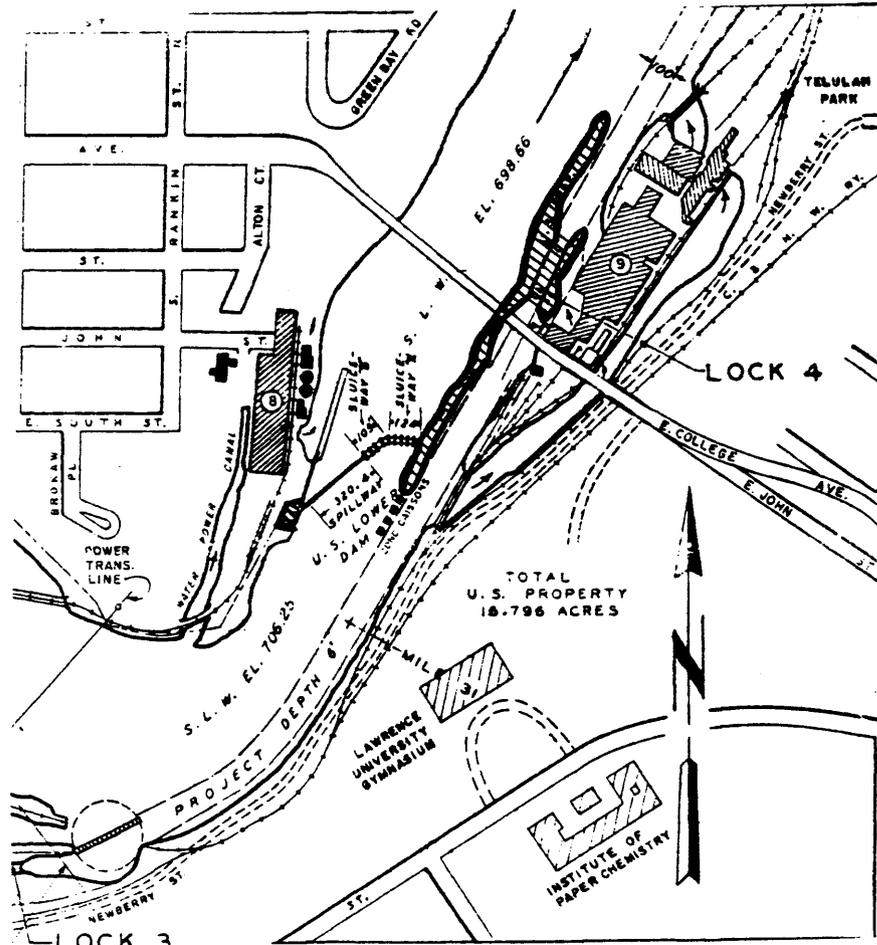
NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section number Photographs Page 1 Appleton Lock 4 Historic District
Outagamie County, WI

APPLETON LOCK 4 HISTORIC DISTRICT (Lock)
Fox River at John Street
Appleton, Outagamie County
Photo by Bill O'Brien
October 1988
View to North
Photo #1 of 2

APPLETON LOCK 4 HISTORIC DISTRICT (Dam)
Fox River at John Street
Appleton, Outagamie County
Photo by Bill O'Brien
November 1988
View to Northeast
Photo #2 of 2

___ See continuation sheet

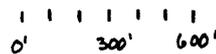


Appleton Lock 4

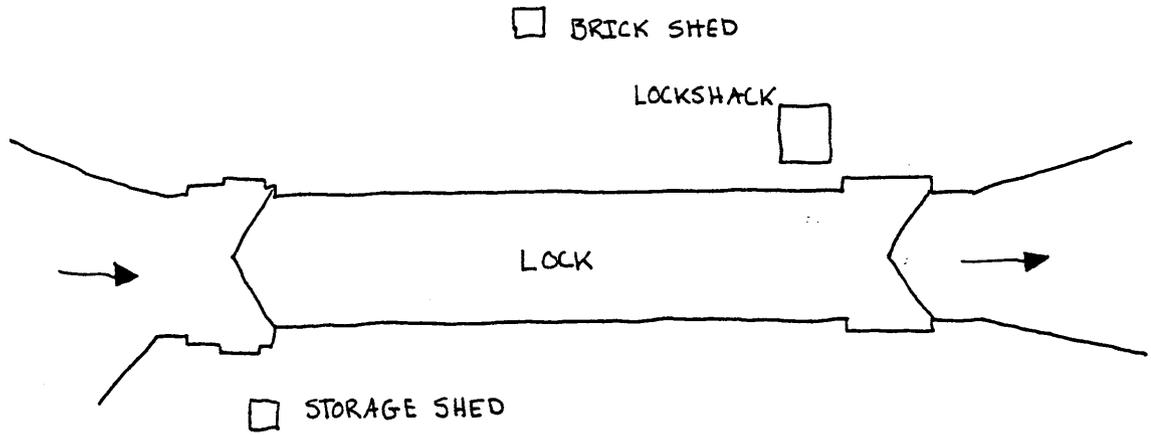


U.S. Gov't Property/
Historic District
Boundary

Fox River
outagamie County
Wisconsin



SKETCH MAP



1" = 50'

APPLETON LOCK #4

APPLETON LOCKS 4 HISTORIC DISTRICT

Waterway Resources of the Lower Fox River



Appleton Lock & Dam Dist, Appleton, Outagamie County, Photo # 1 of 2



Appleton Loue 4 Hist Dist, Appleton, Outagamie County, Photo #2 of 2