NPS Form 10-900
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United States Department of the Interior
National Park Service

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NATIONAL REGISTER

National Register of Historic Places Registration Form

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.

1. Name of Property

historic name J. B. Courtney Woolen Mills
other names/site number Kelley Knitting Company; Northside Knitting Mills

2. Location

street & number 301 East Water Street ☐ not for publication N/A
city, town Appleton ☐ vicinity N/A
state Wisconsin code WI county Outagamie code 087 zip code 54911

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
[X] private	[X] building(s)	2	____ buildings
[ ] public-local	[ ] district	____	____ sites
[ ] public-State	[ ] site	____	____ structures
[ ] public-Federal	[ ] structure	____	____ objects
	[ ] object	2	0 Total

Name of related multiple property listing: N/A

Number of contributing resources previously listed in the National Register 0

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.

Signature of certifying official — Date 5/12/93

State Historic Preservation Officer-WI

State or Federal agency and bureau

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

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

[X] entered in the National Register. [ ] See continuation sheet.
[ ] determined eligible for the National Register. [ ] See continuation sheet.
[ ] determined not eligible for the National Register.
[ ] removed from the National Register.
[ ] other, (explain:) ____

Entered in the National Register — Helen Ryan — 7/15/93

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
INDUSTRY/PROCESSING/EXTRACTION/ Manufacturing Facility	INDUSTRY/PROCESSING/EXTRACTION/ Manufacturing Facility

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
LATE VICTORIAN	foundation CONCRETE walls ASBESTOS CONCRETE roof ASPHALT other WOOD

Describe present and historic physical appearance.

The J.B. Courtney Woolen Mills property consists of two structures occupying a parcel of land in the Appleton Water Power block on the north bank of the Fox River. The property is immediately adjacent to the Fox River Paper Company Historic District (National Register of Historic Places, April 1990).

DESCRIPTION

The main structure, Building A, is a three-story, gable-roofed building of post-and-beam construction. The building, constructed in 1880, is astylistic utilitarian in design, although of a vernacular style characteristic of mid-nineteenth century industrial buildings in America, especially in New England (See Architectural Significance for a more complete discussion of the stylistic influences). The 30 X 75 foot mill is oriented approximately in north-south fashion with the north end butted against the original north bank of the river; a 10 X 20 X 10 foot ell-shaped, one-and-a-half story office wing is attached to the northeast corner at the second floor level.

The present foundation of the mill consists of a single story of concrete block masonry laid upon a concrete footing and floor slab. This foundation, constructed in 1927, replaced the original wooden ground story, which was probably constructed on stone pillars over the river. The office wing has a random rubble masonry foundation enclosing the boiler room, which dates from c. 1884.

The exterior covering of the mill is primarily asbestos shingles over wooden planking. The north end of the building, including the office wing, is covered with rough-faced concrete block. The roof consists of asphalt shingles over open-spaced wood planks.

As originally constructed, the long (east and west) sides of the mill building had five evenly-spaced windows (double-hung type, nine over nine) on each of the three floors, plus one window (double-hung type, six over six) on the upper two floors at the north end of the building.

☒ See continuation sheet

Following 1927 alterations, the number of windows on the lower story has been reduced to three evenly spaced casement-type windows on the east wall and to a single casement-type window on the west wall (the northernmost two have been blocked up). The east wall also has steel double doors adjacent to the office wing.

Most of the upper story windows remain, but many have been modified. On the east wall, the windows from south to north (left to right in the photos) are as follows:

Window	Second Floor	Third Floor
1	Altered	Altered
2	Altered	Altered
3	Original	Altered
4	Original	Altered
5	Original	Altered
6	Removed	Altered

All of the altered windows are of the double-hung type with plywood in lieu of glass in the lower half and a single pane in the upper half. The present operator has been gradually removing these altered windows and replacing them with original windows taken from storage. These windows retain their original "bubble" glass.

On the west wall, the windows from south to north (right to left in the photos) are as follows:

Window	Second Floor	Third Floor
1	Original	Altered
2	Original	Altered
3	Altered	Original
4	Absent	Original
5	Altered*	Absent
6	Altered*	Original

As on the east wall, the altered types are double-hung with plywood and glass combination. The altered* types were reduced in size by the use of concrete block masonry inserts (to permit additional earth fill on the embankment). Both of these windows are today completely filled with plywood sheets. The two window locations marked absent coincide with the location of the interior staircase. It is probable that windows were never installed at these locations.

The east wall also has two windows at the extreme north end in the 1927 addition. These windows, one on each of the second and third floors, are of the double-hung, six over six type. Due to the embankment, no window was ever installed on the first floor.

The south end of the building, facing the Fox RIver, has three evenly-spaced casement windows on the lower level (the middle one replaces a former door), and two double-hung type windows on the upper two levels. Both second floor windows are twelve over twelve originals. The third floor windows are also original. The attic level has two smaller (double-hung, six over six) original windows.

1927 ADDITION

Windows in the office wing and north wall of the building all date from 1927 and are of the double-hung, six over six type. All windows and doors in this area have concrete lintels, and the windows also have concrete sills.

Due to the embankment that marks the original shoreline of the river, the first floor is accessible at the north end only by means of a steel door in the south wall of the office wing. This door leads to the boiler room. An earlier window in this wall was bricked-up at an unknown date. This south wall has one window on each of the second and third floors.

The east wall of the office wing is dominated by the cream brick chimney which contrasts sharply with the limestone foundation wall and rock-faced concrete walls. This wall has one large and one small (one over one) window on each of the second and third floors.

The north wall of the office wing has a single window on each of the two floors; the west wall of the wing has no windows, but has a door, the main customer entrance, on the second floor.

The north wall of the main building has a central steel double door for material movement in the center of the second (ground-level) floor. There is one window to the right of the door. The third floor has two symmetrically-placed windows, while the attic level has a single centered window.

The entire exterior of the building is without ornamentation or embellishment.

The interior of the building is largely unchanged since its construction. The post-and-beam framing system, complete with wooden pegs (trunnels) in the mortised joints, is readily visible throughout. Several posts have been replaced by cast iron columns. Utilization of the interior is also much the same as it has been over the 111-year history of the structure.

The first floor is used for washing the wool, and includes storage and mechanical spaces.

The second floor contains two carding machines, unchanged since 1920. The north end of the floor houses the office, which is being restored and which contains original wooden pulley wheels and other historic items on display, and the rack room (wool batt storage).

The third floor formerly housed a spinning jenny for yarn manufacture. This machinery was removed when the activity became uneconomical, and today the main floor area is used mainly for spreading out the washed wool to dry. The north end is also used for rack storage. The flooring on this level is replacement material, the original flooring having absorbed an excess amount of lanolin (oil) from the wool.

The attic level is also used occasionally for wool drying.

Personnel access from the first to the third levels is accomplished by means of an enclosed stairway constructed along the inside of the west wall. Access to the attic is via a vertical ladder in the north end. The movement of materials between floors is possible using a hoist which passes through the lower floors at the south end of the building.

Although all traces of the original water power generation system were

removed not later than 1927, the original vertical passageway for the drive shaft may still be seen in the northeast corner of the mill building, and the original cast iron pulley frames are still in use, adapted to electric power. As noted above, at least one of the large wooden pulleys has been preserved for display.

The second building on the site is a small 16 X 20 ft. two-story wood frame structure used since its construction between 1901 and 1911 as a wool warehouse. This building originally straddled the water power canal, but now rests upon a concrete slab foundation (slowly sinking into the filled ground) approximately upon its original location.

The exterior of the building is covered with asbestos shingles, while the roof has asphalt shingles. Wall openings are limited. The south wall has a doorway in the southeast corner of the first floor, a window to the left of center of the first floor, and window in the center of the second floor. This window is of the double-hung type, six panes over six; all other windows have been boarded up. The east wall has no openings. The north wall has one window in the center of the first floor level. The west wall also has a single window, installed slightly to the right of center on the first floor level.

The interior of the wool warehouse consists of a single room on each floor. A stairway rises along the inside of the north and west walls. A cream brick chimney is located at the center of the south wall, but no longer functions or extends through the roof. Like the main mill building, the wool warehouse lacks exterior and interior ornamentation.

The site itself contains no visible historic features. The water power canal has been completely filled in, there has been substantial filling along the current Fox River shoreline and along the high embankment that marks the original shoreline, and a paved access road to the adjacent Lawrence University tennis courts has been installed. Deep archaeological investigations may still reveal valuable information, however.

ALTERATIONS

A review of the Sanborn fire maps (1) reveals that changes on the site of the J.B. Courtney Woolen Mills have been part of a dynamic process

since the construction of the original mill building in 1880 (2).

The original construction consisted of the 30 X 60 foot, three-story mill; a single story irregularly-shaped addition at the northeast corner of the mill, used as a dyeing house and also to house the steam boiler used to heat the buildings; and a free-standing wash house cantilevered over the edge of the canal.

In 1880, the mill itself was elevated over the Fox River, with only the north end anchored to the embankment. The south end rested on part of a stone quarry, now covered by the river. The building may have been supported by stone columns or by wood pilings; the use of stone for this purpose was standard practice in New England. The ground floor was constructed entirely of wood.

By 1886, the dyeing house vanished and a new boiler room was constructed at the northeast corner of the mill building. Constructed of random rubble masonry with its roof level with the ground at the top of the embankment, the boiler room house the equipment used to heat the building and provide hot wash water. The similarity of materials and workmanship to that of the foundation of the adjacent Victoria Flour and Feed Mill suggest that both were constructed nearly simultaneously in 1884. The room was originally topped by a 35 foot high iron smokestack. A small office building straddling the canal was constructed near the wash house. Electric lights were used to illuminate the interiors of the buildings.

By 1891, the iron stack was extended to 50 feet, but no other major changes occurred.

Many important changes occurred during the 1891 to 1901 period. The extant wool warehouse was constructed over the canal between the office and wash house. The steam boiler was being used to generate power as well as heat, although the water wheel was also available. The iron smokestack was apparently replaced by the existing cream brick chimney during this period. Also, most of the extant wool carding machinery was installed during this period.

The water wheel was removed in 1904, when the mill was purchased by John Courtney. A water turbine was installed in 1917, but apparently

was not successful, as it had been taken out of use by 1924. The sole source of power on site by the latter date was electricity.

Both the mill building and the site underwent major reconstruction in 1927. First, the water power canal was filled in throughout almost its entire length and the office and wash house were demolished. The wool warehouse was placed upon the concrete slab where it stands today.

The mill itself received a significant expansion with a one-and-a-half story office wing being constructed over the boiler room (The boiler was still being used to heat the building; the present bòlier in this location, although replaced by a modern hot-water furnace, dates from 1931.). The building was also extended northward across it s entire with by 15 feet. This new construction is readily identifiable by its rough-faced concrete block facing. The original north wall was retained without change as an interior partition; the hoist used for external movement of materials may still be seen in the attic.

The major work of reconstruction also involved placing a concrete footing and floor slab under the mill, and replacing the rotting wood walls at the lower level with concrete block masonry. In the process, all visible traces of the water flume and power generation machinery were removed.

The river shoreline has been gradually extended southward by filling. By 1927, it had reached the south end of the building (contributing to the deterioration of the structure). The current shoreline, about ten feet from the building, was established in 1966.

The asbestos shingles that cover the exterior of the mill today were installed in the 1940s. An investigation revealed that the exterior covering in 1927 was red brick-pattern asphalt paper. The horizontal flush wood planking beneath appears to have been painted red; this was probably the original exterior finish.

At least one bibliographic source reports that the original mill was "razed" in 1927. It is clear from an examination of the building that it would be more accurate to say that the mill was "raised" to permit the reconstruction of the first floor. There can be no question that the mill is the original Nineteenth Century structure, based upon these

considerations:

1) Correlation with the original shape, dimensions, and location as shown on the Sanborn fire maps.
2) Use of post-and-beam framing, including trunnels.
3) Interior layout corresponding to nineteenth century industrial practice.
4) Persistence of pre-electric power distribution facilities.
5) Widespread use of square nails in wood framing.
6) Absence of a roof ridge pole.
7) Continued use of the original boiler room.
8) Retention of the original "bubble" glass windows.

The many alterations of the buildings and site over the long period of 113 years of the J.B. Courtney Woolen Mills are often typical of industrial properties, whose changing uses and technological advances result in alterations to the physical structure. Although the appearance of the street front elevation dates from the 1927 alteration and cladding materials have also changed, the building still largely retains a historic identity reflecting the span of its historic period of activity from 1880 to 1943.

ENDNOTES

1. Diagrammatic and Detailed City Maps Published for Use By Fire Insurance and Mortgage Companies (chicago: Sanborn-Perris Map Co. Ltd.: 1883, 1886, 1891, 1901, 1911, 1924/1934).

2. "Another Woolen Mill," Appleton Crescent, 3 January 1880, p.2.

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)	Period of Significance	Significant Dates
ARCHITECTURE	1880-1927	1880
INDUSTRY	1880-1943	1904
		1927

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
Unknown

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

The J.B. Courtney Woolen Mills of Appleton is being nominated for its local significance under National Register of Historic Places Criteria A and C. With respect to Criterion A, the building reflects the historical importance of the woolen industry to Appleton. The period of significance reflects the historic period of its operation. It continues today as the oldest operating woolen mill in the state. With respect to Criterion C, the building is a simple local example of a modified, small industrial building of the late-Nineteenth Century, and embodies characteristics of a distinctive style of vernacular architecture which has not hitherto been documented in detail in the state. Its architectural significance begins with its construction date (1880) and continues to 1927 when it largely achieved its present appearance.

HISTORICAL BACKGROUND

The birth of the woolen industry in Wisconsin is closely linked to the spread of sheep farming in the state. According to Cultural Resource Management (1), sheep farming in Wisconsin preceded the development of a mature livestock agriculture, grazing on pastureland not devoted to wheat. Providing both raw material for the ubiquitous spinning wheel and a cheap source of meat, sheep (driven in from southern Illinois and the Ohio Valley) complemented the cash-crop economy and spread with settlement throughout the territorial period. Early concentrations of sheep were found in the southeast counties, where pastureland was most plentiful and settlers from the British Isles and Vermont were most prominent.

Between 1845 and 1850, Wisconsin's sheep population exploded, climbing from 30,000 to over 125,000. The increase, which included large numbers of purebred sheep, continued throughout the 1850s as wheat farmers supplemented their incomes with wool and mutton. Sheep raising spread with the establishment of new settlements to the north and west of the southeastern concentrations.

☒ See continuation sheet

The Civil War was a "watershed" in Wisconsin sheep production and, therefore, in the wool processing industry. In response to the shortage of Southern cotton and the great demand for woolen army blankets and uniforms, the population of Wisconsin sheep increased sharply. Sheep farming required little capital investment and their rapid rate of reproduction, combined with the non-perishability of wool, made sheep operations very profitable.

By 1864, Wisconsin growers placed four million pounds of wool on sale. Most of this material was being shipped to out-of-state markets for processing. Sheep production increased three-fold by decade's end (to over one million head in 1870), reaching a peak in the traditional southeastern district, but spreading northward so that Outagamie and Manitowoc counties (whose early settlers included many British immigrants and Yankees) both supported more than 10,000 head in 1870. Responding to the extensive amounts of wool being shipped eastward, Wisconsin businessmen began to erect local woolen mills to process the fiber, particularly in the southeast, southcentral, and southwest counties.

The availability of cheap water power was a major factor in producing the concentration of woolen mills in the city of Appleton, which was located on the northern edge of the sheep-raising belt in the state.

Originally founded in association with Lawrence University, Appleton was first platted in 1848, and was incorporated as a village in 1853. During this period of rapid growth, many investors, primarily easterners, recognized the importance of the community's location on the Fox River to its industrial development. Dropping 170 feet from Lake Winnebago to Green bay, and controlled by a series of dams and associated locks constructed in the 1850s by Morgan L. Martin's Fox-Wisconsin Improvement Company, the Fox River provided sufficient and consistent power for the support of numerous industries. By the 1880s, several canals had been constructed in the flatlands along the river at Appleton. The availability of this cheap power source beginning in 1856, plus the access to the major markets and sources of raw materials provided by the arrival of the railroads -- the Chicago and Northwestern in 1861 and the Milwaukee and Northern, via Manitowoc and the Lake Michigan shore, in 1872 -- promoted the growth of several key industries in the area. Although paper milling, which began in the 1870s,

ultimately became dominant in the Fox River Valley, woolen mills also occupied a place of importance, as did lumber and flour milling in the nineteenth century. Almost all of these early operations were powered by water.

The first woolen mill in the community was that of the Appleton Woolen Factory, which was completed in January, 1862. Originally owned by George W. Spaulding and J.W. Hutchinson, the company went through several reorganizations over the years and has been known by the name of Appleton Woolen Mills since 1880 (2). It currently has about 260 employees.

The original plant, on South Island, was destroyed by fire in 1863, and its replacement was also destroyed by fire in 1881. The company, in a new structure, expanded in 1888 and again in 1902, buying the Reesburg Woolen Mills (3). The current plant, located at 2100 North Ballard Road, was constructed in the 1970s. The original plant is no longer extant.

The Kelley Knitting Company was founded in 1880 on the Appleton Water Power Block by William H. Kelley, his wife Louise, and his brother Nathan. The Kelley family erected a 30 X 60 foot three-story structure with a water wheel on the site for the purpose of wool carding and yarn spinning (4). The mill was purchased by Stephen Olson in August 1885; he operated the plant as the Northside Woolen Mills until April 1889, when it was acquired by Adolph and Augusta Spiering (5). Spiering also spun and dyed yarns in a building located one block to the west, but retained the Northside Woolens name.

John B. Courtney, a veteran of the Massachusetts textile industry, purchased the factory in 1904. Courtney had become a "boss spinner" at the nearby Appleton Woolen Mill in 1895. The mill subsequently passed to Courtney's sons Giles and Daniel, then to Giles' sons James and Kenneth in 1942. Kenneth Courtney became sole owner in 1973. His son Thomas is the current operator of the plant, which continues to be known as the J.B. Courtney Woolen Mills; Tom Courtney is in the process of purchasing the property and will thus become the fourth generation of the family to own the building on its original site (6).

R.E. Zwicker, a German immigrant, founded the Zwicker Knitting Mills on

West Wisconsin Avenue in 1906. The company moved to 122 North Richmond Street in 1910, then to its present location at 410 North Richmond in 1919. The current factory, which employs 1400 persons, was constructed in the 1950s and enlarged later (7).

These three operations comprise the last survivors of a much larger woolen industry in Appleton. The firms that are no longer in existence include: The Superior Knitting Company which was founded in 1938 by F.J. Dutcher, who was also associated with the Appleton Mills. The firm specialized in lumbermen's stock; The Fox River Knitting Company, which was organized in the former Victoria Flour and Feed Mill adjacent to the Courtney Mill in 1900. It also manufactured lumbermen's mittens and socks. Its founders were John Steinborg, William Dutcher, and David Nottage. The company subsequently relocated to the former Zwicker Mill on Wisconsin Avenue; The Weber Knitting Mills were started in 1919 in the former Zwicker Mill at 122 North Richmond by Joseph and John Weber; The Steinborg Knitting Mills were founded in 1925 by John Steinborg and others; The Appleton Knitting Company was established c. 1900 near the John Street Bridge, but became the Appleton Rug Works in 1907; The Crescent Knitting Mills operated fifty knitting machines in its plant at the intersection of Oneida and Washington streets; and finally, a Mrs. Elizabeth Koehn was reported in 1906 to have a carding business in her home on North Richmond. None of these operations are extant today (8,9).

Wisconsin woolen mills numbered fifteen in 1859, nineteen in 1865, and fifty-four in 1871. In that year, 1,620,000 pounds of wool were converted into cloth and yarn -- nearly one-half of all the wool that was produced in the state (10). However, wool production in Wisconsin began to decline as early as 1880 because of the increased profitability of dairy and hog operations in the state. Further, the decline in wool prices led to greater emphasis on mutton rather than wool production in areas where sheep were still common. This in turn forced the Wisconsin woolen industry to become dependent upon imported wool. Today, wool clothing has been largely replaced by synthetic fibers, but woolen blankets have increased in popularity since the 1973 oil embargo. Many of Wisconsin's woolen mills now primarily produce yarn, or woolen batts for custom quilts and blankets.

The 1991 Directory of Wisconsin Manufacturers (11) lists the following woolen industries in Wisconsin (SIC Codes 2231, Wool Weaving and Finishing; 2259, Knitting Mills; 2281, Yarn Spinning Mills; 2299, Textile Goods):

Company	Founded
Appleton Mills (Appleton)	1862/1880
Chippewa Carding Mill Quilt Yarn Shop (Chippewa Falls)	1940
J.B. Courtney Woolen Mills (Appleton)	1880/1904
Crescent Woolen Mills (Two Rivers)	1923
Kaufman Woolen Mills (Cato)	1978
Perkins Woolen Mill (Waukesha)	1979
Portage Woolen Mills (Portage)	1924
Straus Knitting Mills (Frederic)	1915?
Wausau Woolen Company (Wausau)	1950
Wisconsin Knitting Company (Milwaukee)	1979
Zwicker Knitting Mills (Appleton)	1906

With three operating woolen mills, Appleton remains a center of the woolen industry in Wisconsin. The J.B. Courtney Woolen Mills, although the smallest of the three firms, is located in the oldest occupied mill structure in the city, and probably the oldest in the state.

INDUSTRIAL SIGNIFICANCE

The Courtney Woolen Mill represents a locally important component of the area's woolen industry. As sheep raising spread to the Fox River Valley from the southern reaches of the state, an industrial infrastructure was necessarily created to convert raw wool into finished products. The Courtney Woolen Mill is an important link in the history of the woolen industry, and due to the presence of intact historic machinery can allow an excellent understanding of the late Nineteenth and early twentieth century textile industry. Its continual operation up to the present has served to enhance its historic integrity.

The highly intact interior allows an excellent understanding of the historic practice of wool processing. Most of the wool currently processed by the plant arrives pre-washed from a supplier in

Philadelphia in bales. The raw wool is run through a picking machine to remove clumps and tangles, and then is run through a carding machine which has rollers covered with tiny metal card-teeth (The word "card" refers to the Latin word "cardus," meaning thistle. The teazel thistle was originally used for this purpose, but metal card-teeth made by machine were introduced in 1784). The fibers are reversed in the carding process, root to tip and tip to root, to ensure meshing of the fibers. Important factors in carding include the size of the rollers, speeds, inclination of the teeth, and the density of the card clothing. The two carding machines used by the Courtney mill bear patent dates ranging from 1886 to 1912; they have not been altered since 1920. An 1882 finishing machine, used to comb out the shorter fibers to create a smoother and more lustrous batt, is also present but no longer in use. These machines were probably first acquired for the Spiering works between 1889 and 1904. Thus, the company continues to produce its woolen and polyester batts in precisely the same manner as the Kelley and Spiering works originally did in the same building.

Some local wool and some recycled wool are still processed, requiring washing. Following the production of batts, the subsequent steps in the transformation of wool into garments are dyeing, spinning of yarn using a "jenny" or "mule," then the knitting of the finished garment. Only undyed batts are produced today by the Courtney works.

In summary, the J.B. Courtney Woolen Mills is significant to the history of the woolen industry. Both the building and its mode of operation are important to an understanding of the woolen industry as a whole.

ARCHITECTURAL CONTEXT

The buildings of the J.B. Courtney Woolen Mills are important examples of nineteenth century industrial vernacular architecture, especially as it was adapted to the textile industry in the United States. Because these building types have not been well-documented in the state -- Cultural Resource Management in Wisconsin, for example, lists no textile buildings and no discussion of the distinctive architecture of the industry -- the following extended discussion of the architectural evolution of the mill building is incorporated here to provide a proper context for an evaluation of the J.B. Courtney property.

Nineteenth Century Industrial Buildings

The American factory building of the nineteenth century, derived from the designs of the early textile mills, became what one architectural historian has called "one of the most successful vernacular building types in the recent history of architecture." (12)

The country's first successful mechanized cotton-spinning manufactory was established in 1790 on the banks of the Blackstone River in Pawtucket, Rhode Island. New England provided an almost perfect location for the textile industry, with its abundance of rivers, surplus of capital, source of labor, and its cool, damp climate (cotton fibers become stronger when exposed to humidity). As a consequence, between 1790 and 1850, some 1400 factories devoted to the spinning and weaving of cotton alone were opened in New England. The factories and the workers' houses that surrounded them typically shared a "common vocabulary of forms and elements that fall into the vernacular building tradition, a tradition fundamentally unaffected by the vicissitudes of architectural fashion." (13) The versatile utilitarian design of the textile mill was soon adopted by other industries in the nineteenth century, not only in New England but across the entire United States.

Modern textile manufacturing actually began in England in the 1760s as the result of technical improvements in weaving and spinning, principally the development of the "water-frame" by Richard Arkwright, which converted unspun cotton into yarn, using a mechanical system that incorporated multiple spindles. Because it required a significant source of power, the spinning frame (unlike the spinning wheel) could not be operated by hand, but had to be powered by a horse gin, steam engine, or water wheel. Water power was clearly more economical than either horse or steam. under this system, the spinning frames were linked by pulleys and leather belts, and/or rotating shafts and gears, to a wooden wheel which was driven by a constant flow of water. The water, diverted by means of a canal or headrace, flowed down a sluice into wooden buckets arrayed along the outer rim of the wheel, then spilled out of the buckets at the base of the wheel into a wheelpit and then was directed through a lower channel, or tailrace, back into the river. To obtain sufficient power, factories were usually located just below a point where a significant natural drop, normally at least ten or fifteen feet, in the river occurred or where a dam could be constructed.

The latter option, by impounding excess water in a pond behind the dam, helped to ensure a constant supply of power all year around. Millponds and races were thus common features of water-powered factories throughout both Britain and the U.S.

As was common American building practice at the time, early factory buildings were constructed entirely of wood, their heavy timber frames usually being covered by vertical wood siding. With the exception of one or two rows of wooden columns, the floors were open from one end to the other. The machines on each floor were powered by a single long, rotating wood shaft that ran horizontally down the entire length of the building. This horizontal shaft was in turn connected by a geared vertical shaft to the water wheel. As a result, factory buildings tended to be long and narrow; when more space was needed, more floors were added. Each floor was about twelve feet high to allow adequate spaces for the shafts and belts, usually suspended from the ceiling, that powered the machinery. The work areas around the machines were naturally illuminated by windows set into the long walls of the mill building at regular intervals. These functional constraints resulted in the adoption of a vernacular convention for industrial building design.

The internal structure of most industrial buildings, including mills, continued to be wood until the end of the century, largely because it was cheap and abundant. To control fires, the arch-enemy of every textile mill, a new system of wood framing, in which the major piers and beams were increased in size and reduced in number, was adopted in U.S. mill construction by the 1830s. To further retard the spread of fire, smaller floor joists were eliminated and four-inch-thick floors consisting of two layers of planking laid at right angles to one another were placed directly on top of the beams. This method of construction, which came to be known as "slow-burning construction," created fewer of the air pockets and hollows that trapped heat and flames, while the massive timbers were more likely to char on the surface than burn through quickly, allowing more time to control the fire.

As metal working became more advanced, attempts were made to replace the traditional wood framing with "fireproof" iron and steel construction. Although cast iron and wrought iron posts were introduced in the 1850s and became common after the Civil War, metal columns were found to buckle and deform when exposed to intense heat, leading to the

rapid collapse of entire buildings. Only late in the century were insulating materials developed -- terra cotta, asbestos, and ultimately concrete. By this time, however, reinforced concrete construction was beginning to revolutionize the factory form with the "daylight" factories of the first decades of the twentieth century.

Although the first factories were built entirely of wood, more and more factories were erected with exterior walls of fire-resistant stone or brick. Red brick eventually became the popular material. Windows in each exterior bay were made as large as possible, until by the end of the nineteenth century the wall had become a thin skeletal system of tall, narrow bays formed by brick piers with inset horizontal spandrels.

Early factory buildings were usually constructed with pitched roofs and a small cupola or belfry at one end (which housed a bell that regulated the hours of work). To better light the upper level, a row of dormer windows called trapdoor or eyebrow monitors was inserted into each side of the roof in the early nineteenth century. This system. with the closely related clerestory lighting system introduced in the same period, came to characterize small American textile factories before the Civil War. This was especially true of industrial buildings, such as railroad engine houses, where the ventilation provided by clerestory or monitor windows was at least as important as the light.

External stair towers became a common feature in factory construction during the middle part of the nineteenth century. Many towers had an exterior door on each floor, so that raw materials could be maneuvered between floors by means of hoists and pulleys. Besides freeing the interior spaces for manufacturing, the staircase and hoist area could be isolated from the main building in case of fire. The staircases were typically enclosed for additional protection. Bathrooms were sometimes housed in the towers too.

The highly visible cupola and stair tower frequently received a more decorative treatment than other parts of the factory. Especially after the Civil War, the stair tower and cupola were often combined into a single prominent structure, whose elaborate ornamentation contrasted significantly with the otherwise utilitarian appearance of the mill. Styles included various historical styles, as well as reflecting the popular, even eclectic, tastes of the period.

As the need for greater floor space grew, the pitched roof with monitor lights began to be replaced after mid-century by utilitarian flat roofs or by the briefly fashionable Mansard roof. Both configurations provided more usable attic space and conformed more closely to the shape of the underlying mill. Ultimately, the flat roof became the characteristic form in American industrial design.

Although steam engines had begun to be used widely throughout the United States for smaller industrial applications by the end of the Civil War, water remained the most economical means of generating large quantities of power for the factory until the beginning of the twentieth century. The water turbine, which produced power more efficiently than the wheel, was introduced from France after 1850. Thus, large industries continued to congregate along large rivers until the electric motor was perfected near the end of the century. Electric power, and the electric light bulb, removed the limits previously established for plant design: machines no longer had to be located along the line of a single power shaft, and manufacturing could be decentralized in more economical complexes of single-story buildings that could be illuminated with electric light and could therefore enclose much larger areas. Finally, mills were no longer tied to water sources. Because of these many changes, it is not possible to speak of a definitive twentieth century factory building; happily many functional examples of the nineteenth century factory still exist.

The availability of water power was the main reason for the original location of the Courtney mill upon its site. Property deeds in the "Appleton Water Power Block," which was fed by the Appleton Water Power Canal, read "with privileges that first party now has to take water for hydraulic purposes on said lot from race or canal constructed across said lot, without obstructing passage of the water to others through the canal." (14) Water power apparently served as the principal, if not sole, source of production power for Kelley and Spiering's operation of the mill from 1880 to 1904 -- for unspecified reasons, the original water wheel was removed when the property was sold to John Courtney. A water turbine was installed in 1917, and used until 1927, when all water power features were removed as part of the building's renovation. Filling of the water power canal began shortly afterward, and only a small remnant survives adjacent to the old Oneida Street Bridge. Steam power was also available on the site by no later than

1901 (15). Electric lights were in use by no later than 1886, and electricity had become the sole source of power by 1924, three years before the water turbine was actually removed (16). Remnants of the original shaft and pulley power transmission system may still be seen at the ceilings of the Courtney mill. Parts of the system, including cast iron frames, are still employed to support pulley wheels.

The rather simple manner of construction of the J.B. Courtney Woolen Mills, lacking embellishment as well as towers or cupolas, contrasts well with the much more elaborate construction of the buildings of the adjacent Fox River Paper Company Historic District (national Register of Historic Places, April 1990), which with their brick exteriors, stair towers, flat roofs, and greater size typify the industrial buildings of the late Nineteenth Century. This contrast is valuable in understanding the architectural context of both complexes, since their construction was roughly contemporaneous.

As noted under the "Industrial Context" heading above, the Courtney mill is virtually the last functioning survivor of the once-flourishing woolen industry in Appleton. Two other factories, Appleton Mills and Zwicker Knitting Mills, continue in operation, but occupy buildings of recent construction. One other historic woolen mill building does exist, however, directly adjacent to the Courtney mill.

This structure, identified as Building W of the Fox River Paper Company Historic District, was built in 1884 as the Victoria Flour and Feed Mill. It was occupied from 1900 to about 1906 by the Fox River Knitting Company, and later by the Victoria Merchant Custom Mill. The building was purchased c. 1928 by the Fox RIver Paper Company and employed as a garage. It is described in the NRHP nomination as being constructed of cream brick on a random rubble foundation. It measures 35 X 50 feet and has three levels including basement. Its gable ends face north and south. The water Street facade has had three large openings with overhead doors added to the first level. The Nomination notes, "Building W has likely undergone considerable change along its front facade since its construction prior to 1883 (sic). An addition to the front was removed, the asphalt roofing replaced the original, and the overhead doors were added. However, if the building's significance is dated to its absorption by the Fox River Paper Company, probably in the late 1920s,

then this alteration is coincident with its function as a garage." (17) Although not specifically treated in the district nomination, this building is also a fine example of the nineteenth century industrial form represented by the Courtney mill. This building has a limited association with the woolen industry in Appleton, however, and has not, therefore, been included in this nomination within the context of the textile industry.

ARCHITECTURAL SIGNIFICANCE

In summary, the J.B. Courtney Woolen Mills derives its architectural significance as an example of nineteenth century American industrial architecture as applied to the textile industry. Constructed in 1880, the Courtney mill is a fine example of the adaptation of the mid-nineteenth century small textile factory which was common in New England to late-nineteenth century Wisconsin. Classified as astylistic utilitarian under Wisconsin vernacular terminology, the plant is nonetheless distinctive in appearance if not in style. Among its features, characteristic of the genre, are:

1) Its heavy fire-resistant timber post-and-beam framing
2) Exterior wood siding (now covered by asbestos shingles)
3) Enclosed interior stairway
4) Pitched roof
5) Doorways for the exterior movement of materials
6) The long, narrow orientation of floors (with a single line of posts) and with regular, rhythmic window placement
7) And most significantly, a location chosen to exploit readily available water power

The J.B. Courtney Woolen Mills also reflects the evolution of late nineteenth century vernacular industrial buildings in the twentieth century. Changes in technology and production methods required substantial physical changes in the physical fabric and layout to accommodate the discrete separation of office functions, abandonment of waterpower and eventual replacement with electricity, and increased use of fire-resistant building materials. It thus typifies a historical pattern of reconfiguration and adaptation that continues to this day. The absence of a thorough inventory of industrial buildings of all types

within the state of Wisconsin makes it difficult to document more than a claim of local significance at this time.

ENDNOTES

1. Barbara Wyatt, editor, Cultural Resource Management in Wisconsin, Vol. 3, Agriculture 8-10 (Madison, WI: State Historical Society of Wisconsin, 1987).
2. "Woolen Industry Here Dates From Civil War," Appleton Post-Crescent, 30 April 1932, p.26.
3. Ibid.
4. "Another Woolen Mill," Appleton Crescent, 3 January 1880, p. 2.
5. Abstract of Title, compiled by Outagamie Loan & Title Co., Appleton. Location of record, Outagamie County Courthouse, Appleton.
6. "Courtney Cards On," Appleton Post-Crescent, 1 February 1987, p. 1, Business & Money section.
7. Classified Directory of Wisconsin Manufacturers (Madison, WI: Wisconsin Manufacturers & Commerce, 1991), p.?
8. "Woolen Industry Here Dates From Civil War," idid.
9. Classified Directory of Wisconsin Manufacturers, ibid.
10. Frederic Merk, Economic History of Wisconsin During the Civil War Decade (Madison, WI: State Historical Society of Wisconsin, 1916), p. 55.
11. Classified Directory of Wisconsin Manufacturers, ibid.
12. Reyner Banham, Concrete Atlantis: U.S. Industrial Building and European Modern Architecture 1900-1925 (Cambridge, MA: MIT Press, 1986), pp. 38-39.
13. Ken Breisch, Serge Hambourg, et al., Mills and Factories of New England (New York: Harry N. Abrams, Inc., 1988), p. 25.
14. Abstract of Title, ibid.
15. Diagrammatic and Detailed City Maps Published for Use by Fire Insurance and Mortgage Companies (Chicago: Sanborn-Perris Map Co. Ltd.. 1883, 1886, 1891, 1901, 1911, 1924/1934).
16. Ibid. Hydroelectric power was available in Appleton in 1882. The Appleton Mills works on South Grand Chute Island were reportedly the first industrial buildings in the U.S. to be electrified. See "Woolen Industry Here Dates From Civil War."
17. Joyce McKay, National Register of Historic Places Nomination for the Fox River Paper Company Historic District, May 1989,

located at the State Historical Society of Wisconsin, Historic Preservation Division, Madison, p. 7-11.

9. Major Bibliographical References

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: _____

10. Geographical Data

Acreage of property Less than one acre

UTM References

	Zone	Easting	Northing
A	16	388030	4901460
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

Commencing at the NE corner of Lot 7, Block 14, of the Appleton Plat, thence S 71°15' W along the south line of East Water Street 21.0 ft., thence S 18°45' E 161.87 ft. more or less to the south line of Lot 18 of the Appleton Water Power Block, thence N 67°55' E 66.2 ft. more or less along the south line of said lot,

☒ See continuation sheet

Boundary Justification

The description includes all of the property historically associated with the buildings. The legal description is based upon a 1934 revision of the title.

☐ See continuation sheet

11. Form Prepared By

name/title Steven R. Milquet, P.E., AICP, President

organization Uniplan Associates date March 16, 1993

street & number P.O. Box 28216 telephone (414)494-7073

city or town Green Bay state Wisconsin zip code 54304-8216

BIBLIOGRAPHY

Abrahams, Paul
1982 An Intensive Survey of Outagamie County Historical Industrial Sites. Report submitted to the Historic Preservation Division, State Historical Society of Wisconsin, Madison.

Anonymous
n.d. Abstract of Title to Part of Lot 8, in Block 14, Appleton Plat, Appleton, Wisconsin. Recorded by Outagamie Loan & Title Co., Appleton.

Appleton Post
1880 "Another Woolen Mill," 3 January 1880.

Appleton Post-Crescent
1932 "Woolen Industry Here Dates From Civil War," 30 April 1932.
1974 "Appleton Mill's Specialty: Recycling Wool Stuffing from Quilts from Maine to california," 2 June 1974.
1987 "Courtney Cards On," 1 February 1987.

Breisch, Ken, Serge Hambourg, et al.
1988 MILLS AND FACTORIES OF NEW ENGLAND. Harry N. Abrams, Inc., New York.

Jansen, Bob
1991 "Recycle That Building," Inside the Fox Cities, Appleton, April - May issue.

Maddex, Dianne, editor
1985 BUILT IN THE USA: AMERICAN BUILDINGS FROM AIRPORTS TO ZOOS. National Trust for Historic Preservation, Washington, D.C.

McKay, Joyce
1989 National Register of Historic Places Nomination for the Fox River Paper Company Historic District, submitted to the Historic Preservation Division, State Historical Society of Wisconsin, Madison.

Mergy, Mary
1984 "The Courtney Mill," History Today, Outagamie County Historical Society, Appleton, September - October issue.

Merk, Frederick
1916 ECONOMIC HISTORY OF WISCONSIN DURING THE CIVIL WAR DECADE, State Historical Society of Wisconsin, Madison.

Milquet, Steven
1992 Personal Interviews with Kenneth and Thomas Courtney

R. L. Polk and Company
1893-WISCONSIN STATE GAZETTEER AND BUSINESS DIRECTORY. R.L. Polk & Co.,
1928 Detroit.

Ryan, Thomas Henry, editor
1911 HISTORY OF OUTAGAMIE COUNTY, WISCONSIN. Goodspeed Historical Association, Chicago.

Sanborn-Perris Map Company Limited
1883-Diagrammatic and Detailed City Maps Published for Use by Fire
1934 Insurance and Mortgage Companies. Sanborn-Perris Map Co. Ltd., Chicago, 1883, 1886, 1891, 1901, 1911, 1924/1934.

Wyatt, Barbara, editor
1987 CULTURAL RESOURCE MANAGEMENT IN WISCONSIN. State Historical Society of Wisconsin, Madison.

thence N 18°45' W 158.2 ft. more or less to the south line of East Water Street, thence S 17°15' W 45.3 ft. to the point of beginning.

Photo 1 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, view looking southeast

Photo 2 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, view looking southwest

Photo 3 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, view looking northwest

Photo 4 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, view looking northeast

Photo 5 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, view looking west with detail of foundation

Photo 6 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building, detail of boiler room entry and foundation

Photo 7 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building and environs, view looking southeast. Building W of the Fox River Paper Company Historic District at right

Photo 8 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building and environs, view looking northwest

Photo 9 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Wool warehouse, view looking northeast

Photo 10 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Wool warehouse, view looking southwest

Photo 11 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, first floor looking south

Photo 12 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, second floor looking south

Photo 13 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, third floor looking south

Photo 14 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, attic looking south

Photo 15 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, office looking southeast

Photo 16 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, office looking northwest

Photo 17 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, carding machine

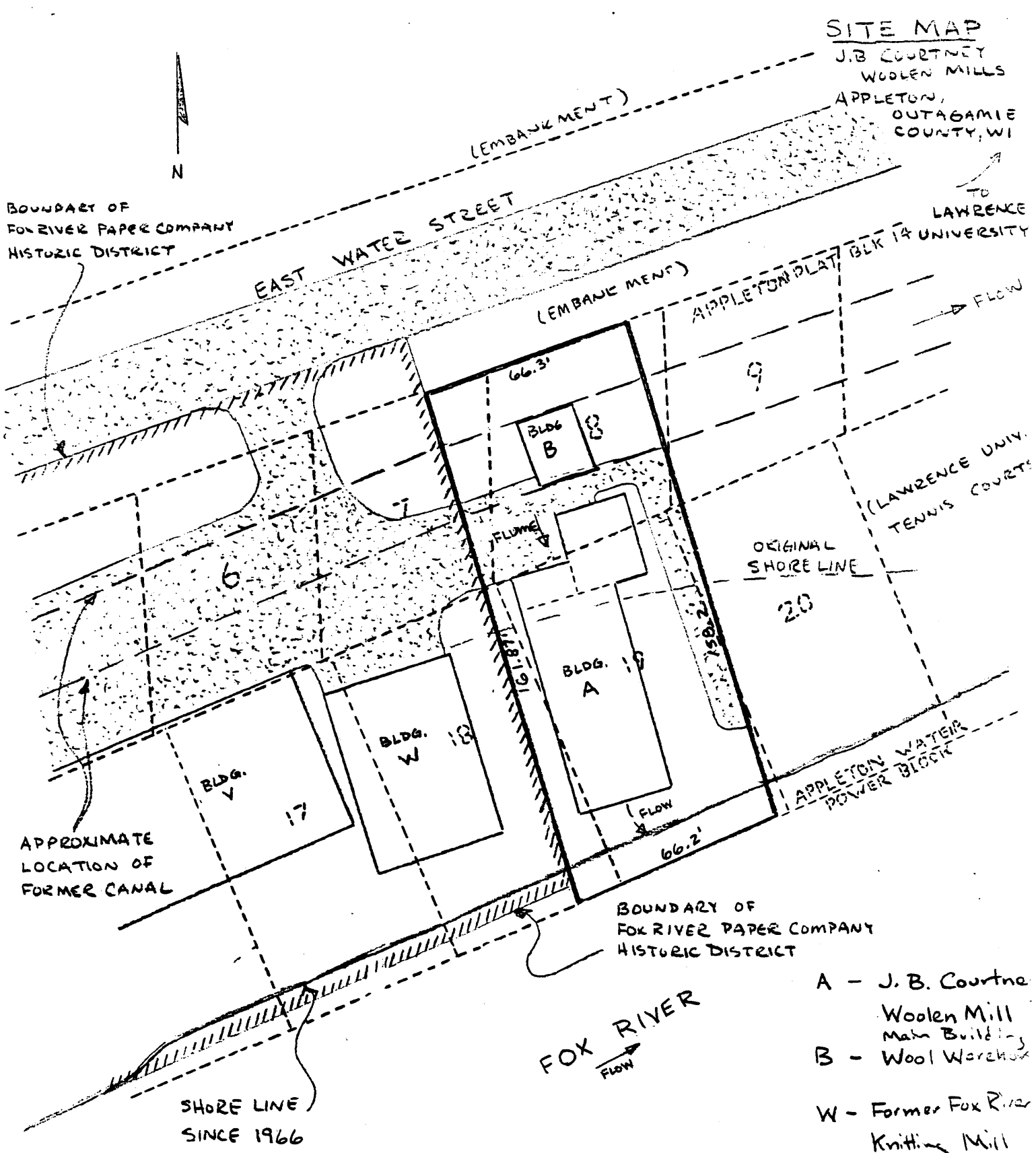
Photo 18 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, carding machine detail

Photo 19 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, pulley frame detail

Photo 20 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, material hoist

Photo 21 of 21
J.B. Courtney Woolen Mills
Appleton, Outagamie County, WI
Photo by Mark Courtney, June 1991
Neg. at WI Historical Society
Main building interior, wooden pulley block detail

Kenneth Courtney
d.b.a. J.B. Courtney Woolen Mills
301 E. Water Street
Appleton, WI 54911



SCALE 1" = 40'

8/91 SRM

KEY TO
PHOTOGRAPHY

J.B. COURTNEY
WOOLEN MILLS
APPLETON,
OUTAGAMIE
COUNTY, WI