SG-2091

NPS Form 10-900
(Expires 5/31/2012)
Wisconsin Word Processing Format (Approved 1/92)

OMB No. 10024-0018

United States Department of Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900A). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Teweles and Brandeis Grain Elevator
other names/site number Midland Mill

2. Location

street & number 92 East Maple Street N/A **not for publication**
city or town Sturgeon Bay N/A **vicinity**
state Wisconsin **code** WI **county** Door **code** 029 **zip code** 54235

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant _ nationally _ statewide X locally. (_ See continuation sheet for additional comments.)

Daina J. Penkunas 12/20/2017

Signature of certifying official/Title Date

State Historic Preservation Office - WI
State or Federal agency and bureau

In my opinion, the property _ meets _ does not meet the National Register criteria.
(_ See continuation sheet for additional comments.)

Signature of commenting official/Title Date

State or Federal agency and bureau

Teweles and Brandeis Grain Elevator	Door County	Wisconsin
Name of Property	County and State	

4. National Park Service Certification

I hereby certify that the 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.
___ See continuation sheet.
__ removed from the National Register.
__ other, (explain:)

Barbara Wyatt — Signature of the Keeper — 2-5-18 — Date of Action

5. Classification

Ownership of Property
(check as many boxes as as apply)

	private
X	public-local
	public-State
	public-Federal

Category of Property
(Check only one box)

X	building(s)
	district
	structure
	site
	object

Number of Resources within Property
(Do not include previously listed resources in the count)

contributing	noncontributing	
1		buildings
		sites
		structures
		objects
1	0	total

Name of related multiple property listing:
(Enter "N/A" if property not part of a multiple property listing.)
N/A

Number of contributing resources previously listed in the National Register
0

6. Function or Use

Historic Functions
(Enter categories from instructions)
AGRICULTURE/SUBSISTENCE/processing

Current Functions
(Enter categories from instructions)
VACANT/NOT IN USE

7. Description

Architectural Classification
(Enter categories from instructions)
OTHER/Astylistic Utilitarian

Materials
(Enter categories from instructions)

foundation	CONCRETE
walls	WOOD
	Iron
roof	ASPHALT
other	

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for the National Register listing.)

_X_ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

_ B Property is associated with the lives of persons significant in our past.

_ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

_ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

_ A owned by a religious institution or used for religious purposes.

_ B removed from its original location.

_ C a birthplace or grave.

_ D a cemetery.

_ E a reconstructed building, object, or structure.

_ F a commemorative property.

_ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

COMMERCE

Period of Significance

1901-1953

Significant Dates

N/A

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

Russell and Lindsey (Builders)

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous Documentation on File (National Park Service):
- _ 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:
- X State Historic Preservation Office
- _ Other State Agency
- _ Federal Agency
- _ Local government
- _ University
- X Other

Name of repository:
Door County Library

10. Geographical Data

Acreage of Property less than one acre

UTM References (Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	16	469750	4963900
2			
3			
4			

☐ See Continuation Sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title	Timothy F. Heggland				
organization				**date**	October 4, 2016
street & number	6391 Hillsandwood Rd.			**Telephone**	608-795-2650
city or town	Mazomanie	**state**	WI	**zip code**	53560

Description:

This highly intact grain elevator was built in 1901 as the centerpiece of a no longer extant complex of buildings that was owned by the firm of Teweles & Brandeis. It is located on the west shore of the body of water known as Sturgeon Bay, which separates the east side of the city of Sturgeon Bay from its west side. The Teweles & Brandeis grain elevator is an Astylistic Utilitarian form rectilinear plan building that measures 40-feet-wide by 50-feet-deep, it is 90-feet-tall, and its walls are clad in wooden boards that are almost completely hidden from view by painted corrugated iron sheets that were installed at the time of construction in order to protect the building from fire. The elevator was built by Sturgeon Bay carpenter contractors Russell and Lindsey and its design is an excellent representative example of an iconic type of grain elevator that is known variously as a "country" elevator or "farmer's" elevator, examples of which can be found throughout the Midwest and the western states of this country and also in Canada.[1] This elevator's waterfront location was a logical choice for Teweles & Brandeis, which was a wholesale firm dealing in grain and produce, because prior to 1901 and for some years afterwards, much of the agricultural produce grown in Door County was shipped out of Sturgeon Bay by ships plying the Great Lakes.[2] Teweles & Brandeis continued to operate and upgrade their west side elevator until the firm was finally dissolved in 1953, after which it was owned by the Door County Co-Op, which operated it until the mid-1960s. Since then, the elevator has been unused and it is still vacant, but it is also almost entirely intact and is still in good condition and it continues to be a major visual landmark on the city's western shore.

As noted above, the city of Sturgeon Bay is situated on both the east and the west shores of Sturgeon Bay, the body of water that gave the city its name. Before 1894, the communities on each side of the Bay were separate governmental entities and each had been known by a variety of names up until 1894, when the community on the east side, which was then known as Sturgeon Bay, was united with the community on the west side, which was then known as Sawyer. This new entity then became known as the city of Sturgeon Bay and the Teweles & Brandeis elevator is located on the easternmost of several parcels of land that occupy a flat portion of the west shore of Sturgeon Bay that is now situated between the Michigan Street Bridge to the north, which was built in 1931,[3] and the Oregon Street Bridge to the south, which was built in 2008. This portion of the west shoreline of the Bay had

[1] Frame, Robert M. NRHP Multiple Property Listing: Grain Elevator Design in Minnesota. St. Paul, MN: Minnesota Historical Society, State Historic Preservation Office, 1989, Section E., p. 7. See also: Laird, Linda. *The American Grain Elevator: Function and Form*. Hutchinson, KS: Grain Elevator Press, 2012, pp. 21-22. Country elevators are typically owned by an individual firm while farmers elevators are owned by a group of farmers or by a farmer's co-op. Their designs, however, are virtually identical.

[2] Agricultural produce was also shipped from Sturgeon Bay by rail as well starting in 1894, this being the year in which the Ahnapee and Western Railroad finally reached that city. A siding of this railroad was constructed alongside the Teweles and Brandeis elevator when the elevator was built.

[3] This bridge is known as the Sturgeon Bay Bridge (AHI# 45917) and is listed in the NRHP under that name (NRHP 1/17/2008).

already changed considerably in the years between 1891 and 1898. During this period, the various owners of these shoreline properties sought to create a more favorable site upon which various commercial enterprises could be developed that needed to ship and receive materials by both land and water. Consequently, by dumping fill into the Bay and by building wood wharfs and docks along the shoreline that rested on sunken wooden pilings, these owners pushed the shoreline outward and made it more suitable for commercial purposes. One of the largest of these parcels was occupied by Lawrence's Dock, which was named for its owner, A. W. Lawrence, who owned several mercantile enterprises in Sturgeon Bay at this time including the city's first grain elevator (non-extant), which was located on the city's eastern shore and which had been built by Lawrence in 1884. Lawrence operated a refrigerated warehouse for produce and meat on his west shore dock and this dock had direct water access on three of its four sides. In 1901, Lawrence decided to build a grain elevator on his west shore dock that would be operated by the firm of Teweles & Brandeis and which would serve the farmers located to the west of the city. This plan necessitated changes to the dock itself, which was partially reconfigured to accommodate a new railroad spur track running from the nearby main line to the side of the new elevator, and the dock was also expanded to accommodate other new buildings. This enlarged dock still retained its three-sided water access, however, and once the elevator was completed, the dock was renamed for Teweles and Brandeis, who purchased it shortly after completion. The new elevator and its associated dock continued to serve this firm until 1953, when the firm was dissolved, although by 1944 a series of fires had already destroyed all of the historic buildings on the dock that had once been associated with Teweles and Brandeis, excepting only the elevator.[4]

After World War II ended, new projects continued to reshape the waterfront. The east-west-running Maple Avenue has always defined the south edge of the parcel that includes the Teweles & Brandeis dock and it still does today, just as the shoreline has always defined the parcel's north edge. When the new Michigan Street Bridge that spans the Bay was built some 250-feet north of the dock in 1931, Michigan Street (called S. Madison Ave. on the west shore) was continued southward from the west end of this bridge and this new road intersects with Maple Avenue about 200-feet west of the southwest corner of the dock's parcel. This new road thus effectively became the new west edge of the several parcels that included the dock's parcel. When the Oregon Street Bridge was completed some 100-feet east of the dock's parcel in 2008, the westerly extension of Oregon Street became the new eastern edge of the dock's parcel. During this same period, all of the land within and adjacent to the dock's parcel was filled in and the pilings that had once supported the Teweles & Brandeis dock and its neighbors were either covered over or removed. As a result, the elevator lost water access on its northwest and southeast-facing sides, both of which were filled in. Most of the land that lies adjacent to and west of the dock's parcel was then repurposed, much of it now being the site of the Door County Maritime Museum, built in 1969, and its associated parking lot. In addition, all of the other post-World War II buildings located on the dock's parcel that were once associated with the

[4] These historic buildings were then replaced with modern concrete block buildings, all demolished in the last few years.

Teweles & Brandeis elevator have now been demolished and this cleared land and the surviving elevator are now both owned by the City of Sturgeon Bay, which is currently exploring plans to redevelop this very valuable waterfront site.

The design of the Teweles & Brandeis elevator was dictated by the function that it serves.

> The grain elevator is a facility that stores dry, small cereal grains; it handles grain in bulk rather than in bags or sacks, and it stores, moves, and processes grain vertically. Vertical handling and storage are desirable because grain flows by gravity in tall, narrow bins, and thus less power and labor are needed. … All grain elevators consist of several components. The workhouse contains the lower floor while the headhouse (cupola) consists of two to five upper stories. The workhouse is derived from the fact that much of the receiving and unloading operations take place on the work floor of the first story, where the elevating (lifting) process begins. The headhouse is so named because the head drive of the vertical conveyor system is located there. The workhouse and the headhouse are collectively referred to as the mainhouse.
>
> The workhouse is the heart of the grain elevator. It contains a 'boot" into which the farmers dump their crop and a vertical belt-and-bucket conveyor that lifts the grain from the boot to the headhouse, from which it is spouted to a series of walled bins for bulk storage. At the bottom of the bins are openings out of which the grain empties into chutes connected to waiting transportation such as trucks and railroad cars.
>
> The first stage in grain elevator architecture was the vernacular iron-clad wood type. Constructed by local farmers and carpenters without a standardized plan or blueprint, the structure emphasized function over form. There are two subtypes based on framing. The studded type consists of balloon construction, also used in residential and commercial building. The cribbed type has walls of two-inch-thick planks, ranging from four to ten inches wide depending on the height of the elevator. These are laid flat, spiked through one another, and overlapped at the corners. Cladding of one-by-six-inch lapped boards is used for both subtypes. Distinctive features of the iron-clad wood elevator include tie-rods extending through internal bins that are anchored to horizontal braces on the exterior walls and the galvanized iron or tin cladding applied to the exterior walls. Cladding was used for weatherproofing as well as to protect the wood from sparks discharged from coal-powered locomotives passing nearby.
>
> The design and scale of the ironclad elevator includes a rectangular-shaped workhouse, forty to sixty feet high and surmounted by a two-to-three-story rectangular full or partial headhouse approximately fifteen to twenty feet high. Gable roofs are common for both workhouse and headhouse. Internal features include up to as many as twenty cribbed bins of various capacities

> for storing and blending the grain, the boot pit (the central dump that receives the grain), the wood elevator leg (the shaft that houses the belt-and-bucket conveyor system), the distributor wheel that directs movement of the grain to various bins, and the wood spouting system that channels grain to bins or load-out-chutes. Depending on the size of the structure, total storage capacity ranges from 10,000 to 50,000 bushels.[5]

The balloon frame and cribbed construction Teweles & Brandeis elevator is a fine example of the self-contained elevator subtype described above, it bins being of cribbed construction. The mainhouse has a rectilinear plan that measures 40-feet-wide by 50-feet-deep, and the workhouse portion of this building has a side-gable form and it is 50-feet-tall at the level of the northeast-southwest-running ridgeline of the steeply pitched, asphalt-shingle-clad, gabled main roof that shelters it. The main roof is then crowned by a centered, set-back, two-story-tall, rectilinear plan, 12-foot-wide by 20-foot-deep gable-roofed cupola or headhouse. This cupola gives the building an overall height of 90 feet and its own steeply pitched, asphalt-shingle-clad roof also has a northeast-southwest-running ridgeline as well. The entire building sits on a poured concrete foundation that was constructed in 1927 as a replacement for the building's original stone foundation, and some of the building's original timber sill plates were also replaced with steel I-beams at this time. The walls of the workhouse rest on this foundation and they are clad in horizontally laid one-by-six-inch wood boards that are nailed to the massive timber superstructure that supports the building. These walls are clad in corrugated steel sheets that are now painted with aluminum paint. This cladding was installed immediately after the elevator was completed to protect the building from fire and the walls of the headhouse are clad in the same manner.

Southwest-Facing Elevation

The 47.5-foot-wide southwest-facing elevation of the building consists of the 40-foot-wide southwest-facing elevation of the elevator's workhouse and also the 7.5-foot-wide southwest-facing side elevation of a very slightly recessed forty-foot-tall ell that was attached to the main building between 1911 and 1919. The concrete pad that underlies the elevator (and the ell) is clearly visible on this elevation and the recent demolition of a post-World War II era one-story-tall shed-roofed addition that used to link the elevator to a now-demolished collection of post-World War II buildings that once extended southwest from the elevator also resulted in the removal of the corrugated iron sheet cladding that originally covered the first floor or work floor portion of this side of the elevator's workhouse. As a result, the underlying structure of what is, after all, a wooden building, can here be clearly seen. This uncovered wall surface is four-bays-wide and each ten-foot-wide bay is defined by vertical, nearly one-foot-square wood posts that are part of the supporting superstructure of the elevator. The spaces between each of these posts are filled with horizontally laid one-by-six-inch or one-by-twelve-

[5] Wishart, David J. (ed.). Grain Elevators. Lincoln, NB: University of Nebraska, Encyclopedia of the Great Plains. <http://plainshumanities.unl.edu/encyclopedia/> Accessed, December 19, 2015.

inch wood boards and this sheathing is nailed to studs that are visible on the inside of the building. The left-hand bay of the four contains a single rectangular window opening that still contains its original two-over-two-light, double-hung, wood sash window while the next bay to the right contains a single entrance door opening containing its original five-panel wood entrance door, and both the door and the window originally served the elevator's office space inside. The third bay from the left contains a single oblong window opening that is covered by a top-hinged wood cover; two small square openings that originally contained wagon spouts are located above and to the left and right of this window opening. The uppermost, left hand opening of these two still retains its spout and the metal auger that delivered material from inside the elevator to a waiting wagon or truck outside can still be seen inside this spout. The right-hand bay contains a large rectangular door opening that contains a side-hinged wood board entrance door on the left and a wider side-hinged door to the right, and these doors both open into the work floor inside. Also clearly visible are the ends of the steel tie rods that pierce the main supporting posts and which provide additional structural bracing. The rest of this elevation of the workhouse is completely clad in rows of corrugated iron sheets and the only other obvious opening in it is a single square one that is located high up in the center of this elevation's gable end and it contains louvered slats and acts as a ventilator. Placed to the left and right of this ventilator are two oblong openings that from the outside appear to be filled with more of the iron sheeting that covers the rest of the exterior; however, these openings are actually filled with corrugated sheets of a translucent plastic or fiberglass material that allows light to enter upper portion of the workhouse. This gable end is then crowned by the slightly overhanging boxed wooden eaves of the workhouse's gabled main roof.

Placed above on the roof of the workhouse is the elevator's deeply recessed cupola and its 12-foot-wide southwest-facing elevation is clad completely in rows of corrugated iron sheets except for two rectangular window openings that are placed high up just below its gable end. These openings each contain a now partially damaged, but original three-over-three-light, double hung, wood sash window and the gable end above them is also crowned by the slightly overhanging boxed wooden eaves of the cupola's gabled roof.

The southwest-facing side elevation of the attached 7.5-foot-wide ell is also clad completely in rows of corrugated iron sheets except for two oblong, rectangular window openings, one of which is located in the first story of the elevation and one of which is placed at the top of it. These openings each contain just a single light and the ell is topped by a shed roof that also has slightly overhanging boxed eaves. In addition, there is a wagon spout protruding through the ell's wall surface not far below the ell's uppermost window and the metal auger that delivered material from inside to a waiting wagon or truck below can still be seen inside this spout.

Southeast-Facing Elevation

The 50-foot-wide southeast-facing elevation of the building consists of the 50-foot-wide southeast-facing elevation of the elevator's workhouse and also the 20-foot-wide southeast-facing elevation of the elevator's headhouse or cupola, which is centered on the roof of the workhouse, and both of these elevations are clad entirely in rows of corrugated iron sheets. There are no openings of any kind in this elevation of the headhouse and the only obvious opening in the workhouse's elevation is a single rectangular door opening located off center to the right in the first story of the workhouse. This opening is covered by a sliding wood board barn door and provides access to the work floor inside and in addition, two round wagon spouts pierce the wall surface above this door and these once delivered materials from inside to a waiting wagon or truck outside. Placed to the left of the door and these two spouts are two more oblong openings of the type described previously that are filled with corrugated sheets of a plastic or fiberglass material and these allow light to enter the interior of the work floor.

In addition, the forty-foot-tall ell that was attached to the main building between 1911 and 1919 is located at the extreme left hand side of the workhouse's southeast-facing elevation. This ell has a rectilinear plan, it is 7.5-feet-deep by 8.25-feet-wide and forty-feet-tall, it is completely clad in corrugated iron sheets, and it has a shed roof that has slightly overhanging boxed eaves. When it was first built this ell contained a kerosene-fueled engine in its first story that was used to power various aspects of the produce delivery system inside the elevator. This engine was accessed by a rectangular door opening in the first story of the southeast-facing elevation of the ell that still contains a wood board door that is now kept closed by a sheet of plywood that has been nailed across it.

The concrete pad foundation that underlies the elevator and the ell is clearly visible on this elevation as well.

Northeast-Facing Elevation

The 47.5-foot-wide northeast-facing elevation of the building consists of the 40-foot-wide northeast-facing elevation of the elevator's workhouse and also the 7.5-foot-wide northeast-facing side elevation of the forty-foot-tall ell that was attached to the main building between 1911 and 1919. This elevation of the workhouse is also clad entirely in rows of corrugated iron sheets and its first or work floor story is three-bays-wide. The nine-foot-wide, left-hand bay contains an entrance door opening that is now filled with a plywood sheet. Placed above it is another of the oblong openings like the ones described on the previous elevation and it too contains a translucent sheet of corrugated plastic or fiberglass. In addition, there are two wagon spouts located above this oblong opening. The center bay is actually a projecting ell that once provided access to a now non-extant seed warehouse that was also operated by Teweles & Brandeis. This one-story-tall shed-roofed ell is rectilinear in plan, it measures 4-feet-deep by 16-feet-wide, and it is completely clad in corrugated iron sheets. A single rectangular entrance

door opening is centered on its face and this opening still contains its original side-hinged wooden board door. A wagon spout is located on each side elevation of this ell and an opening for another one is located on the main wall surface of the workhouse above it. The 15-foot-wide right hand bay of the first story of the workhouse elevation contains just a single oblong opening like the ones described previously and it too contains a translucent sheet of corrugated plastic or fiberglass.

The rest of this elevation of the workhouse is completely clad in rows of corrugated iron sheets and the only other opening in it is a single square one that is located high up in the center of this elevation's gable end and it contains louvered slats and acts as a ventilator, which is also flanked by two more oblong openings that contain corrugated sheets of a plastic or fiberglass material that allows light to enter the upper part of the workhouse. The gable end is crowned by the slightly overhanging boxed wooden eaves of the workhouse's gabled main roof.

Placed above on the roof of the workhouse is the elevator's deeply recessed cupola and its 12-foot-wide, northeast-facing elevation is clad completely in rows of corrugated iron sheets except for two rectangular window openings that are placed high up just below its gable end. These openings each contain a now partially damaged, but original double hung, wood sash window and the gable end above them is also crowned by the slightly overhanging boxed wooden eaves of the cupola's gabled roof.

Also visible is the 7.5-foot-wide northeast-facing side elevation of the forty-foot-tall ell that is attached to the southeast-facing elevation of the workhouse. This elevation contains no openings and it is completely clad in corrugated iron sheets.

Northwest-Facing Elevation

The 50-foot-wide northwest-facing elevation of the building consists of the 50-foot-wide, northwest-facing elevation of the elevator's workhouse and also the 20-foot-wide, northwest-facing elevation of the elevator's headhouse or cupola, which is centered on the roof of the workhouse, and both of these elevations are clad entirely in rows of corrugated iron sheets. There are no openings of any kind in this elevation of the headhouse but there are a number in the work floor level of the workhouse's elevation. Centered on the work floor level of the workhouse elevation is a single rectangular door opening that contains a side-hinged wooden board door. To the left of this door are two more of the oblong openings described previously that contain translucent corrugated sheets of a plastic or fiberglass material and there are also three other small rectangular openings placed above these oblong ones that are now filled with plywood and which were probably originally openings for wagon spouts. Placed to the right of the center door opening are two rectangular window openings that now contain one-over-one-light, double-hung, wood sash windows that are old, but probably not original to the

building, and these windows once provided light to the elevator's office. In addition, there is also a still intact wagon spout positioned above the right-hand one of these two windows as well.[6]

Interior

Like the exterior, the interior of a grain elevator is dedicated totally to the function that it serves.

> Virtually all wooden country elevators are built around the wooden bin section of the elevator. The bins are supported by wooden timbers or steel beams. Some bins continue to the foundation, while other bins stop at the top of the ground floor. This floor is called the work floor and includes grain cleaning equipment and the lower end of the elevator leg or legs [which contain the endless conveyor bucket system, or elevator]. … The bins rise to the building's eaves, where a wooden floor is placed over them. This is the distributing floor, where the grain is distributed from the elevator head to the various bins. The cupola is built atop this level and gives the building the appearance of having a monitor roof. In the cupola, which is of studded construction, are the elevator heads, leg drives, and motor or line shafting, along with the grain distributor and spouting. The distributor is a movable metal spouting device that can be directed to the bin of choice. There usually is an automatic shipping scale to weigh outgoing grain for railcars, and there may be a rough grain cleaner or screen. Outside the elevator is the receiving driveway, with a shed housing the wagon or truck dumping device, a dump grate, and a large receiving scale.[7]

The Teweles & Brandeis elevator is a good representative example of the kind of elevator described above. This elevator contains nineteen, 10-foot by 10-foot square, thirty-foot-deep bins that are laid out on a 4 x 5 grid, while the twentieth square contains the elevator leg and also the "man-lift," this being a small platform designed to carry a single occupant up to the headhouse by means of a counter-weighted rope hoist and pulley mechanism. The elevator's nineteen bins are of cribbed construction and they are each composed of stacked 2x4 or 2x6 lumber that is laid flat and spiked together. In addition, diagonal bracing is also placed within each bin in order to help counter the very heavy lateral loads that occur when such a bin is partially or completely filled. These bins have a total capacity of 30,000 bushels, they have sloped or "hopper" bottoms, they could be filled with a variety of dry produce, and their contents are emptied into off-loading spouts through holes in their bottoms by utilizing the force of gravity. The entire building is supported by a framework composed of massive foot-square wooden posts and beams. These posts are laid out on a grid that includes the perimeter of the building and also two rows of posts inside and these vertical members support equally massive beams. Further support is given this wooden framework by the use of angled wood knee braces that

[6] This elevation was originally the side of the elevator that serviced both lake ships and railroad cars, which explains the number of wagon spouts that were once located on this side of the elevator.
[7] Frame, NRHP Multiple Property Listing: Grain Elevator Design in Minnesota. Sec. E, p. 16.

are attached to both the posts and the beams and still more support is provided by the use of steel tie rods that span the width of the building inside and these tie rods pierce the vertical posts in the process and the threaded ends of the rods are secured against the posts by flat steel bearing plates and nuts. This supporting framework is clearly visible inside the work floor as are the wooden studs that are placed in the bays between the perimeter posts and to which the exterior wood siding is nailed.

One enters the elevator's interior through the entrance door that is located on the right hand side of the building's southwest-facing elevation. Once inside, one is in the work floor portion of the workhouse. The work floor is essentially an open room into which various pieces of apparatus are positioned as needed and this floor occupies the entire first story of the workhouse, while the workhouse's upper portion or story is given over to the grain bins themselves. The floor of the work floor is of wood planks; sheets of plywood have been placed over portions of this floor. Placed just to the left as one enters the work floor is the shipping hopper, which is sided in wood boards, lined with metal sheets, and which has an open top. Grain from the bins above is directed to this hopper by one of seven round, movable, galvanized metal spouts that are connected to the bottom of the bins above and these spouts are used to convey grain to the hopper as needed. Placed just behind the hopper is the elevator leg, this being the conveyor bucket system that brings grain up to the head house and the distributor. This elevator is approximately two-feet-square and it is completely enclosed within a wooden box that extends the full height of the elevator and which prevents both spillage and contamination. Also located adjacent to the elevator leg is the man-lift which is essentially just a two-foot-square wooden platform to which are attached four vertical corner boards that are about six feet-long and to whose top ends are attached, four more boards, thereby forming an open cage. Persons (only one) stand on the platform inside this skeleton cage and pull themselves up to the headhouse using a rope, pulley, and counterweight.

Placed just to the left of the man-lift is the original semi-circular, cast-iron headhouse diverter that was used to mechanically divert incoming grain to any one of the nineteen grain bins, and located just a little further to the left and behind the diverter is the elevator's fanning mill, whose machinery is still operable and which is enclosed in a large wooden box. This electric-powered mill was used to separate weed seeds from grain seeds and to sort the seeds of grains, legumes, and other crops by specific weight. It was made by the A. T. Ferrell & Co., of Saginaw, MI, this being one of their "Clipper" models, and it was installed in 1927.[8]

Originally, a portion of the west corner of the work floor was partitioned off from the rest of the floor and the resulting space was used as an office that was originally heated with a wood stove and lit by lanterns, both of which were later replaced when the building was electrified.[9] One of this room's two

[8] Information printed on the mill itself. The A. T. Ferrell Co. was established in 1869 and it is still in business under that name in Indiana. See also: Sturgeon Bay: *Door County News*, June 23, 1927, p. 6.
[9] Fire Insurance Maps of Sturgeon Bay, Wisconsin. New York: Sanborn-Perris Map Co., 1904, p. 9.

original wood board partition walls has since been removed, but the other one is still extant and it contains an entrance door opening that opens onto the work floor, while a second office door that is located in the southwest elevation of the building is still extant and opens to the outside.

Integrity

When the Teweles & Brandeis elevator finally ceased operation in the mid-1960s, the building was essentially emptied of the few portable pieces of equipment that might have been usable and the building has been vacant since then. The structures that were added to the elevator over time to connect the elevator with other warehouse and processing buildings built and owned by Teweles & Brandeis have now been removed, including a roof over the loading/unloading area on the elevator's southwest-facing elevation that was added to the elevator in 1906. The other buildings on the site have now been demolished.[10] Fortunately, Teweles & Brandeis's elevator building is still highly intact and in good condition as well, thanks to the simple utilitarian nature of its design, the massive nature of its construction, and the absence of materials that would have been of value to thieves and vandals.

[10] *Door County Advocate*. August 30, 1906, p. 5. The elevator' original dump pit for receiving grain, which was located on the southwest side of the elevator, has now been filled in and its associated weighing scale has also now been removed.

Significance:

The Teweles & Brandeis Grain Elevator is an excellent, highly intact example of an Astylistic Utilitarian Form grain storage building of a type that was once frequently encountered in communities in Wisconsin and in many other Midwestern and western states as well. The locally significant elevator was built in 1901 for the firm of Teweles & Brandeis, who were locally important Sturgeon Bay dealers in produce and other agricultural products, and it is located on the west shore of Sturgeon Bay in the city of the same name. It is eligible under criterion C for Commerce. The intact survival of this elevator is in itself a factor that supports the potential listing of the elevator in the NRHP. In 1901 there was already one grain elevator of similar design on the eastern shore of Sturgeon Bay that had been built in 1884 and in 1903 another elevator of similar design was built close by to the one owned by Teweles & Brandeis. Today, none of these other elevators is extant and the Teweles & Brandeis grain elevator is now the only surviving example in Sturgeon Bay of this increasingly rare and highly threatened building type. It is also the best example of its type in Door County. Changes in the processing and manufacturing of agricultural products and changes to land use along the shoreline within the boundaries of the city of Sturgeon Bay have resulted in the demolition of all of the other historic buildings located on these shores and elsewhere in the city of Sturgeon Bay that were once associated with these industries. As a result, the Teweles & Brandeis grain elevator is now the only surviving historic resource in the city that can attest to the city's historically important role in support of Door County's agricultural production. The elevator's significance is further strengthened by its highly original exterior and interior.

Methodology
The Teweles & Brandeis grain elevator has been evaluated as being potentially eligible for listing in the National Register of Historic Places (NRHP) for its local significance under National Register (NR) Criterion A (History). Research designed to assess the elevator's eligibility under Criterion A was undertaken using the NR significance areas of Agriculture and Commerce, which areas are complemented by the Feed Crop and Grain Cultivation subsection and the Fruit and Vegetable Cultivation subsection of the Agriculture Theme study unit that are identified in the State of Wisconsin's Cultural Resource Management Plan (CRMP).[11] The results of this research is detailed below and demonstrates that the Teweles and Brandeis grain elevator is locally significant under NR Criterion A for its associations with the firm of Teweles & Brandeis, which owned and operated this elevator from 1901 until 1953, this being the period of significance. During this period, Teweles & Brandeis was the most important and innovative firm in Sturgeon Bay involved in the wholesale marketing of the agricultural produce grown in the area surrounding Sturgeon Bay and this elevator is

[11] Wyatt, Barbara (Ed.). *Cultural Resource Management in Wisconsin*. Historic Preservation Division, State Historical Society of Wisconsin, Madison, Wisconsin, 1986. Vol. 2, (Agriculture), pp. 5-1 —6-16.

now the sole remaining historic resource associated with the commercial activities of this locally significant firm.

History:

The highly intact Teweles and Brandeis grain elevator is eligible for listing in the NRHP at the local level of significance under Criterion A (History), because the firm of Teweles & Brandeis played a major role in the economic life of Sturgeon Bay and the surrounding area during the time it operated this elevator and this elevator is now the only surviving building that was associated with this locally significant firm.. In addition, the elevator is also now the only surviving building that was built in Sturgeon Bay prior to World War II that was associated with the storing and marketing of agricultural produce, and it is now the physical embodiment of the importance that agriculture played in the economic life of Door County in the years prior to World War.

A detailed history of the city of Sturgeon Bay and its built resources is embodied in the *Intensive Architectural/Historical Survey and Recommendations For Downtown Revitalization and Historic Preservation for Sturgeon Bay, Wisconsin*.[12] Consequently, the historic context that follows deals primarily with the history of the Teweles & Brandeis grain elevator itself and the firm that owned it.

Door County is surrounded by water on three sides: Green Bay to the west, and Lake Michigan to the north and east. The body of water known as Sturgeon Bay is deeply inset into the west shore of Door County and opens onto Green Bay. In the years prior to 1894, when a railroad line was finally constructed as far as Sturgeon Bay, this deep bay provided welcome shelter to ships plying the often stormy Lake Michigan and during this period these ships were the principal means by which both people and merchandise were shipped into and out of Door County in the ice-free months of the year.

As the land within Door County began to be exploited for agriculture, the timber that constituted the first resource to be harvested in the county was shipped to markets from the several saw mills located in the small communities located on both the east and west shores of the bay. Gradually, as settlement of the newly deforested land began, these two communities developed into larger ones, the one on the eastern shore being known first as Graham and then Sturgeon Bay, while the one on the west shore was first known as Bay View before being renamed Sawyer.[13] In Door County as elsewhere in Wisconsin, the newly cleared land in the county was soon converted into farmland, but

[12] Kriviskey, Bruce M. and Richard H. Zeitlin. *Intensive Architectural/Historical Survey and Recommendations For Downtown Revitalization and Historic Preservation for Sturgeon Bay, Wisconsin*. Milwaukee: Phaller Herbst Assoc., 1983.
[13] In 1894, Sawyer was annexed to the larger Sturgeon Bay and both were subsequently known by that name, although the west side continued to be called Sawyer by locals for many years thereafter.

the pursuit of agriculture in Door County came with both advantages and disadvantages. Because it is surrounded by water on three sides, Door County's winter climate is milder than that of land located elsewhere in Wisconsin at the same latitude, a situation that favored the growing of certain crops such as peas and fruit. On the other hand, the soil in the north half of the county on the eastern shore of Sturgeon Bay is only a few inches deep in many places, making it unsuitable for many forms of farming. As a result, farmers gradually learned how to take advantage of the conditions prevalent in the county.

> While an advance guard of farmers invaded the woods and felled the trees preparatory making farms as early as 1856, there was no farming worth mentioning until about 1870, and less than half of the present [1917] farms produced any crops whatever before 1880. Little by little the farmers' clearings grew up until by the close of the century almost all of the land fit for tilling was cleared. … Door County successfully grows all kinds of crops grown elsewhere in the state. It also grows several special crops which are but little grown elsewhere. Chief among these are peas. Owing to unusually favorable climatic conditions peas are grown more abundantly here than in any other county in the Middle West. Door County grows twice as many peas as the next largest pea growing county in the state, and almost one-half of the peas grown in the state are grown here. This is one of the chief centers for growing seed peas in the United States.[14]

At first, the challenges of farming in Door County were difficult to overcome and making a profit from farming for both grower and middleman still lay in the future. The economic fortunes of both of the villages on Sturgeon Bay changed for the better in 1882, when a mile-long shipping channel was finally completed that cut through the land that closed off the east end of the bay, thereby connecting Sturgeon Bay with Lake Michigan. This project, which was begun in 1873, permitted lake shipping to bypass the treacherous body of water located at the north end of Door County that was locally know as "Death's Door" because of the large number of shipwrecks that occurred there, and as a result, both villages experienced new growth and greatly expanded mercantile activity. Among those who embraced the new opportunities that the opening of the channel created was A. W. Lawrence, Sr. Augustus W. Lawrence, Sr. (1830-1911) was born in rural Maine in 1830 and worked on the family farm until he was 21. In 1851 he came to Wisconsin with his brother, William, and they settled on Washington Island, which is located immediately to the north of the northern tip of Door County, and worked first a commercial fisherman. In 1853, Lawrence moved to what is now Sturgeon Bay and once there he became involved in the operation of several of the sawmills that were then located along the east shore of what at that time was still a village. He eventually became a stockholder in the Sturgeon Bay Lumber Co., of which he was also the corporate secretary. In addition, Lawrence

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Holand, Hjalmar R., [14] *History of Door County Wisconsin: The County Beautiful*. Chicago: The S. J. Clarke Publishing Company, 1917, Vol. 1, p. 159. Volume 2, pp. 12-13 has a biographical entry for Isador Brandeis.

developed a 300-acre Door County stock farm where he dealt in "live stock and fancy-bred horse," but his principal enterprise, A. W. Lawrence & Co., started out as a 12x16-foot general store in Sturgeon Bay that at the time of his death had grown to become one of the largest dry goods stores in the county.[15]

As an adjunct to his flourishing dry goods business, Lawrence also decided to enter into the wholesale agricultural produce trade and to that end he commenced the construction of Sturgeon Bay's first grain elevator in order to have a place under his management where he could store grain owned by others and also grains that he himself had purchased for resale. Construction of the new elevator occurred in 1883 and by January of 1884 it was announced that the new elevator was open for business and would deal in wheat, corn, oats, rye, barley, and peas.[16] This elevator (non-extant) was located on the east shore of Sturgeon Bay, at the point where Kentucky St. (originally St. John St.) intersects with the shoreline. The new elevator had a gable-roofed workhouse that was 45-feet-tall at the eaves, a gable-roofed cupola gave it an overall height of 54-feet, and it had a 40,000 bushel capacity distributed within 18 bins and was clad in corrugated iron sheets to protect it from sparks "given off from steamboats and tugs."

Three years later a new competitor arrived in Sturgeon Bay. This was Moses Teweles (1832-1896), who was born in Prague in Bohemia, the son of Elias Jacob Joachim Teweles (1788-) and Esther Teweles, the second of Elias's three wives.[17] Moses Teweles came to this country in 1854 and resided first in Manitowoc, Wisconsin, then in Ahnapee and Kewaunee before moving to Sturgeon Bay in 1887. Teweles and his first wife, Hannah Steineger (18??-1875), were married in 1856 and had eight children (Jefferson, Rose, Sarah, Arthur M., Fanny, Ida, Emma, and David), by the time that Teweles moved to Sturgeon Bay, where he established himself as a dealer in hides, furs, wool, and rags. By 1890, Teweles was advertising himself as a commission merchant purchasing farm produce, including wheat, rye, oats, barley, peas, beans, clover and timothy seed, potatoes, butter, eggs, wool, and hay. At that time he had one warehouse located on the east side in Sturgeon Bay next to Chris Helm's saloon and another on Harris's dock in Bay View on the west side.[18] By 1892, his growing importance in the farm produce business in Sturgeon Bay and the surrounding area could be judged by the fact that it was he who compiled the weekly Sturgeon Bay Market Report that listed farm produce prices in the city's newspapers, and by 1893, his continued success emboldened him to take his son-in-law, Isidor Brandeis, into partnership with him.

[15] "A Pioneer Called." *Door County Democrat*, February 3, 1911, p. 1. Obituary of A. W. Lawrence, Sr.
[16] Sturgeon Bay: *Weekly Depositer Independent*. Dec. 28, 1883, p. 2; January 18, 1884, p. 3 (ad).
[17] Elias Teweles had 12 children by three different wives; Sara, Esther, and Rosalie.
[18] Sturgeon Bay: *The Republican*, October 23, 1890, p. 1 (ad).

Isidor Brandeis (1860-1935), was also born in Prague, Bohemia. He was the son of Sigmund and Eva Brandeis, and he came to this country in 1877, to Milwaukee, where he conducted a mercantile business. In 1888, Brandeis married Teweles' daughter, Fanny, and the success of his father-in-law's company eventually persuaded him to sell his own firm and move to Sturgeon Bay.[19] The new company was called M. Teweles & Co. and in 1894, Teweles brought his son, Arthur M. Teweles, into the business as well.[20] Arthur M. Teweles (1865-1938) was born in Sheboygan, Wisconsin, and before coming to Sturgeon Bay to work with his father he had already been in the commission business for some years working for his uncle, Ludwig Teweles, who was a younger half brother of Moses Teweles.[21] Ludwig Teweles (1841-1917) was born in Prague in 1841 and was a son of Elias Jacob Teweles and Sara Teweles. He subsequently moved to this country and at first peddled chicken feathers, feed, and seeds from farm to farm. Soon thereafter Teweles opened a general store in Kellnersville, Wisconsin, and also started a produce business in nearby Sheboygan. In 1865, Teweles founded the L. Teweles Seed Co. in Milwaukee, which became his principal business, and by the time of his death in 1917 he had brought his five sons into the business and had retired from day-to-day management.[22] In the years that followed, the L. Teweles Seed Co., under the leadership of Ludwig Teweles' sons, would become the largest family-owned seed business in the world and by 1964, when the firm celebrated its centennial; it was one of the nation's top three seed companies and was a recognized world leader in hybridization.[23]

M. Teweles & Co. in Sturgeon Bay also became more and more successful thanks to the leadership provided by the firm's new partners. Late in December of 1895, for instance, a news item in a local newspaper stated that the company had shipped nine carloads of dry peas on the ship Ludington, which was the largest single shipment that had ever been made from Sturgeon Bay to date.[24] Moses Teweles died just a month later, on January 11, 1896, and by April, his surviving partners had renamed their firm Teweles & Brandeis.[25] The following year, Isidor Brandeis initiated a change of company policy that was to have far-reaching effects for both the firm itself and for the farmers of Door County. In 1897, Teweles & Brandeis moved their Bay View/Sawyer operations into new quarters in the refrigerator warehouse located on Lawrence's Dock, in part because they were now handling five-

[19] Sturgeon Bay: *The Democrat*, July 13, 1893, p. 8.
[20] Sturgeon Bay: *Door County Democrat*, September 8, 1894, p. 1.
[21] Sturgeon Bay: *The Advocate*, August 30, 1890, p. 8.
[22] "Death of Ludwig Teweles." *The Grain Dealers Journal*. Vol. 39: 160, July 10, 1917, p. 160.
[23] Divine, Gene. "Teweles Seed 100 Years Old." *Milwaukee Sentinel*, August 8, 1964, p. 10. There is no evidence that the two firms founded by Moses and Ludwig Teweles had business dealings together, but the fact that Arthur Teweles was employed for a time by Ludwig and numerous news items in the Sturgeon Bay newspapers over the years that mentioned the frequent comings and goings between members of the two families all attest to the fact that there was a strong on-going relationship between them.
[24] Sturgeon Bay: *The Advocate*, December 14, 1895, p. 4.
[25] Sturgeon Bay: *Door County Democrat*. January 11, 1896, p. 1. Obituary of Moses Teweles.

times more produce on the west side of the Bay than in their warehouse on the east side, which was located on Court Street.[26] In an article that was written in 1953, the year that the firm of Teweles & Brandeis ceased operations, the author had the following to say about the year 1897.

> It was in 1897 that Isidor [Brandeis] received credit for making Bay View such a fine market for farm produce. Prior to his arrival in this community it was the custom to "shut up shop" in the latter part of October, when everything had been marketed. Mr. Brandeis saw greater possibilities and obtained the consent of his business associates to keep the warehouse open year round. The idea of a year round market induced farmers to come to Bay View and in a few years it changed from a small unimportant market place to the most important one on the peninsula.[27]

By this time, other companies had also been established along both shores of the Bay that dealt in one way or another with agricultural products. One of the largest of these was a cannery operation owned by the Reynolds Brothers that was erected on the east shore of Sturgeon Bay in 1896 on land that was originally the site of their lumber company. This factory, known as the Reynolds Preserving Co., originally canned peas, corn, and tomatoes and much of this produce was grown on their own land, which was located north of Sturgeon Bay.[28] The Reynolds Brothers subsequently went into the cherry business, their land was replanted with cherry trees, and their canning factory was then repurposed to process cherries instead.[29] Another firm that was a direct competitor of Teweles & Brandeis was Lyon Bros. and Co. This firm was begun in Sawyer in 1894 by B. Lyon, Oscar Lyon, and P. J. Linden and they began with a dry goods business in a frame store in Sawyer that burned down in 1899. The firm then built a new brick store in Sawyer to replace it; by 1904 they also operated two similar stores in the adjacent cities of Marinette, Wisconsin and Menominee, Michigan, which are located on the west shore of Green Bay across from Sturgeon Bay. Besides their retail operations, the firm also dealt in wholesale farm produce and operated warehouses for these products in both Sturgeon Bay and Menominee. They also dealt in coal, wood, and building materials, such as stone, brick, cement, and

[26] Sturgeon Bay: *Door County Democrat*, June 19, 1897, p. 4. Lawrence's Dock was owned by A. W. Lawrence, Sr. and because a refrigerated warehouse was located on this dock it was also called "the refrigerator dock" as well.
[27] B.F.T. "Recent Sale Ends Family Business Begun in 1880s." Sturgeon Bay: *Door County Advocate*, March 24, 1953, pp. 1-2.
[28] Sturgeon Bay: *The Advocate*: December 21, 1895, p. 5; January 11, 1896, p. 5; February 1, 1896, p. 5; April 4, 1896, p. 1.
[29] Jinkins, Ann and Maggie Wier. *Images of America: Sturgeon Bay*. Charleston, SC: Arcadia Publishing, 2006, pp. 123-125. Beginning in 1911, the canning factory was repurposed when the Reynolds Brothers turned their attention to the raising and processing of the cherries that were grown in Door County. By the 1940s their company had 1000 acres planted to cherries in Door County and they were the largest combined cherry-growing and packing operation in the world. Subsequently, the factory operations were taken over by the Fruit Growers Cooperative and it was the largest cherry processing plant in the world during its heyday. Today, however, all of the buildings in Sturgeon Bay that were once associated with this factory have now been demolished.

fire clay.[30] This firm was thus, in essence, a west side equivalent of the operations of A. W. Lawrence and Co. on the east shore of Sturgeon Bay.

Teweles & Brandeis continued to deal only in wholesale farm produce and by 1900 the firm needed larger storage facilities thanks to the steady growth of Door County's agricultural production. Beginning in the 1880s, Door County and the adjacent Kewaunee and Manitowoc counties had become early Wisconsin leaders in the growing of vegetable crops suitable for processing and especially for the growing of green peas, thanks to favorable climate conditions that were created by their lakeside locations.[31] By the turn-of-the-century, the farmland in Door County that was most favorable for growing crops had long since been cleared and farmers were now harvesting increasingly large crops of the products that were handled by Teweles & Brandeis, which by 1900 was routinely shipping out thousands of sacks of peas, oats, and other products in a single shipment. Another factor that was contributing to the firm's need for enlarged facilities was the arrival of the Ahnapee & Western Railroad in Sturgeon Bay.[32] Prior to 1894, all produce raised in the north part of Door County and most of the produce raised in the south part was sent to markets by ships plying Lake Michigan. Since Sturgeon Bay essentially divided Door County in two, this community became the natural location for facilities involved in the transshipment of Door County's farm produce. The coming of the railroad created an alternate means of shipping goods to market, one that was not hampered by winter ice and lake storms. By 1900 this new alternative was taking over more and more of the produce shipping market, not only in Sturgeon Bay, but also in every other community on Wisconsin's Great Lakes shores. The main line of the Ahnapee & Western came close to the base of Lawrence's Dock, where Teweles & Brandeis' west side warehouse was located, but to make the best use of this new mode of shipping a new facility was needed. As a result, early in 1901, Teweles & Brandeis began to look into the possibility of building a grain elevator of their own on the Lawrence's Dock.

A small notice in the February 2, 1901 newspaper noted that "Isadore [sic] Brandeis and E. L. Russell had taken a run over to Kewaunee, Luxemberg, and other points on the Green Bay & Western Railroad on Tuesday to look after a little matter of business."[33] E. L. Russell was a prominent Sturgeon Bay carpenter contractor and, given the events that were to follow, it is reasonable to suppose that the two men were on a trip to look at various grain elevators located on the railroad's

[30] Sturgeon Bay: *Door County Democrat*, August 6, 1904, p. 3. All the Sturgeon Bay buildings associated with Lyons Bros & Co. have also now been demolished.
[31] Wyatt, Barbara (Ed.). *Cultural Resource Management in Wisconsin*. Vol. 2, p. 6-5 (Agriculture).
[32] Door County was the last county in the state to receive railroad service and the Ahnapee & Western was the only railroad that ever serviced Door County.
[33] Sturgeon Bay: *The Advocate*, February 2, 1901, p. 5.

route to get ideas for a new elevator for Teweles & Brandeis. The first notice that a new elevator would be built occurred just a week later.

> An elevator is to be erected on the refrigerator wharf during the ensuing season by A. W. Lawrence. The plans are now being prepared by a competent architect, and the structure will undoubtedly be complete by the time the new crop is ready for market. It is to be located as far east as the present buildings on the wharf will permit, and to make room a part of the latter is to be removed. A spur will be run in from the main track of the railway and every facility afforded for the rapid and economical handling of the product of the farm. The necessary lumber is now being sawed out by Mr. Lawrence's mill located in Menominee county, and the material brought here by vessel after the opening of navigation. Mr. Lawrence also intends to open a lumber yard on the vacant ground adjacent to the refrigerator.[34]

By this date, much of the task of running Lawrence's east side businesses and his elevator on that side of the Bay had been taken over by his son-in-law, L. M. Washburn, and most of the firm's focus was now on its very successful dry goods operation. As a result, Lawrence appears to have been trying to maximize the profits that could be realized from entities he owned that were no longer central to his businesses and the redevelopment of his west side wharf was one of these. The exact nature of the relationship between Lawrence and Teweles & Brandeis at this point in time is uncertain, but the latter firm was already renting a part of the refrigerator warehouse owned by Lawrence for their business. It is probable that the two firms planned for Lawrence to build the elevator, which would then either be leased to Teweles & Brandeis or purchased by them.

New piles for the changes that were being made to Lawrence's dock arrived in Sturgeon Bay one week after the announcement above was written and another announcement concerning the elevator appeared early in March.

> The new elevator is to cost something like $7,000. Work has been commenced in clearing away the site, and the driving of piles will soon begin.[35]

The builders of the new elevator were E. L. Russell (1840-1923) and W. R. Lindsey, carpenter contractors who were based in Sturgeon Bay.[36] Work on the elevator continued throughout the summer. By the beginning of August the walls of the workhouse portion had been completed, and work on its roof and the cupola commenced soon thereafter.

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[34] Sturgeon Bay: *The Advocate*, February 9, 1901, p. 5. The name of the architect has not been discovered.
[35] Sturgeon Bay: *The Advocate*, March 2, 1901, p. 5.
[36] Sturgeon Bay: *The Advocate*, June 8, 1901, p. 5. E. L. Russell died in December of 1923. Sturgeon Bay: *Door County News,* December 13, 1923, p. 1. (Obituary of E. L. Russell).

> The cupola on the new elevator gives that structure an altitude of about 90 feet above the level of the bay. The architect is said to have advised going that high as it will enable the plant to do more and better work for less outlay in fuel.[37]

Finishing the new elevator before the fall harvest arrived in Sturgeon Bay was an imperative for the builders. Work on the building was pushed forward as fast as possible and local newspapers closely followed its progress:

> The new elevator is to be completed on or before September 1st. The structure has nineteen bins the aggregate capacity of which will be 30,000 bushels. While some of these bins will be filled and emptied probably almost daily during the season others containing different grain will remain until the owners feel disposed to put the cereal on the market. The elevator is supplied with all the conveniences of an up-to-date building of this kind, as a matter of course.[38]

> The job of covering the new elevator with corrugated iron is both a difficult and tedious one, as the building is so high that extraordinary efforts on the part of the workmen are required. The structure will be ready for the reception of grain early during the coming month nothing unforeseen happening meanwhile.[39]

By mid-September, machinery was being installed in the elevator, including a new fanning mill that was used to clean the grain, work continued on cladding the exterior, but was hampered by a shortage of the materials needed, and work also commenced on bringing a spur line from the railroad's main track up alongside the elevator, which track was completed by mid-October. By the end of October the elevator was in operation and farmers in the area were quick to realize the benefits that the new elevator offered them.

> A good many farmers from the central and eastern parts of Brussels now do their marketing in Sawyer, the new elevator enabling them to get quick dispatch at that point.[40]

Teweles & Brandeis's new elevator directly benefitted the firm as well. Their new fanning mill allowed one person to do in an hour what had previously taken three men a day to do and the improved access to a railroad line was also immediately beneficial as well.

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[37] Sturgeon Bay: *The Advocate*, August 10, 1901, p. 5.
[38] Sturgeon Bay: *The Advocate*, August 17, 1901, p. 5.
[39] Sturgeon Bay: *The Advocate*, August 31, 1901, p. 5.
[40] Sturgeon Bay: *The Advocate*, October 26, 1901, p. 5. The Town of Brussels is located in the southernmost part of Door County.

> Shipments by rail from the new elevator are now being made at irregular intervals, and the shippers find the change a marked improvement over the old method of doing business.[41]
>
> Large shipments of wheat and rye are being made from the elevator by rail to Green Bay and other points. With the new appliances a car is now laden in a very short time.[42]

By this time Teweles & Brandeis had also leased the former A. W. Lawrence elevator on the east side of the city for their use and because the fanning mill in their new elevator had paid for itself twice over in its first year of operation they installed a new one in their east side elevator as well just prior to the 1902 harvest.[43] Meanwhile, the firm's new elevator continued to be the destination of choice for farmers in the southern half of the county as the harvest commenced.

> The liveliest place out of the business streets is down at the elevator where hundreds of teams are to be found daily delivering peas and other products of the farm. The farmers never had such a cinch as they have this year, and they all appreciate the fact too.[44]

The obvious success of the new Teweles & Brandeis elevator was not lost on their competitors. In the fall of 1902, Lyons Bros. & Co. announced that they too would build a new 40,000 bushel 40x60-foot elevator of their own on a vacant lot located next to their existing west side warehouse that would also be serviced by a spur track from the railroad's main line. This elevator (non-extant) was also built by Russell & Lindsey and it was placed on a new dock that was located just to the north of the one occupied by Teweles & Brandeis; it too had both rail and water access.[45]

Even as the Lyons Bros. & Co. elevator was being built, Teweles & Brandeis commenced negotiations with A. W. Lawrence to purchase their new elevator, its dock, and the other buildings located on the dock.

> Teweles & Brandeis have an option on the Lawrence elevator, wharf and all the land adjoining, including the planing mill, and if a perfect title is forthcoming the property will pass into their hands. If the deal is closed the planing mill will be abandoned, as there is too much risk from

[41] Sturgeon Bay: *The Advocate*, November 9, 1901, p. 5.
[42] Sturgeon Bay: *The Advocate*, November 16, 1901, p. 5.
[43] Sturgeon Bay: *The Advocate*, August 30, 1902, p. 5.
[44] Sturgeon Bay: *The Advocate*, October 11, 1902, p. 5.
[45] Sturgeon Bay. *The Advocate*, October 25, 1902, p. 5. See also: December 6, 1902, p. 5; March 21, 1903, p. 5; September 12, 1903, p. 5.

> fire, the insurance people having screwed the rates up considerable on this account. The building will then be used as a warehouse for peas pickers and for storage.[46]

Three weeks later the transaction was complete and what had been called Lawrence's Dock was renamed Sawyer Dock by Teweles & Brandeis.[47] By September, the Lyons Bros. & Co. elevator was also complete and both firms were now set to handle the fall harvest of that year. Some of this harvest even found its way abroad.

> A consignment of peas recently went from here to Havana, Cuba, where they will be made into soup for the Cubans, no doubt. The firm of Teweles & Brandeis has established such an enviable reputation for the high character of the products that it handles that their goods will find a ready market all over the civilized world. This is a pretty good thing for Door county also.[48]

Late in 1904, one of the local newspapers started printing a series of articles about prominent Sawyer business firms and among these was a profile of Teweles & Brandeis.

> Among the best know business firms in Sawyer is that of Teweles & Brandeis, grain and produce buyers. Their business has brought them in contact with a large number of farmers, and during the years that they have been located in Sawyer have built up a business that speaks well for the firm. They also conduct the same line of business on the east side of the bay, it being in charge of Arthur Teweles, while the buying in this [west] part of the city is looked after by Isadore Brandeis.
>
> The company's property in Sawyer consists of a large elevator, dock property and large warehouses. The elevator has a capacity of 30,000 bushels of grain and is equipped with the latest machinery, which is run by an eight horse power Fairbanks-Morse gasoline engine. The elevator is equipped with a clipper cleaner and automatic scales, which are of great value in a business of this kind. The elevator stands 90 feet high, and is located where shipments can be made from it by either rail or boat. The firm makes a specialty of handling peas and thousands of bushels are shipped south each year, they being put up in bags and transported to the southern market by boat. The majority of the wheat, rye, and barley handled by the firm is shipped south in bulk by rail, the cars being run to the elevator on a side track where they are quickly loaded. Five men are generally kept employed about the elevator, and the handling of the grain is in charge of Jeff Teweles, an experienced man in that line of business.

[46] Sturgeon Bay: *The Advocate*, May 16, 1903, p. 5.
[47] Sturgeon Bay: *The Advocate*, June 6, 1903, p. 5.
[48] Sturgeon Bay: *The Advocate*, September 26, 1903, p. 1..

> The firm also owns the old planing mill building on their premises, which they utilize as a place to sort and pick over their peas, there being twelve girls employed in this work during several months of the year.
>
> The dock property owned by Teweles & Brandeis is situated at the foot of Maple avenue, and very convenient for the business interest of the city. At this dock all the boat transportation companies that run into this port, stop, and a great deal of freight [is] received and shipped over it. The dock has a frontage of 140 feet, and extends 150 feet out from the shore, the water being deep enough to accommodate the largest craft. Two large warehouses are built here, one at the end of the dock, 36x100 feet, which is used principally by Teweles & Brandeis for the handling of their peas, and the other, 45x110 feet connecting it on the west, and running along the south side of the dock, and used principally for freight brought here by the transportation companies. The dock business is in charge of Halver Halverson.[49]

In the years that followed, business went on as usual for Teweles & Brandeis and news items about the firm were confined mostly to routine mentions of crops bought and shipped and items relating to the maintenance of their elevators, such as painting the exteriors and the purchase of new fanning mills. In July of 1908, however, a news item appeared that announced the incorporation of a new competing company based in Sturgeon Bay.

> Among the companies recently incorporated at Madison under the laws of Wisconsin may be mentioned the Door County Equity Elevator Co., Sturgeon Bay; capital stock $8,000; incorporators Louis Klenke, Luke Keogh and George O. Whitford. The company will build and maintain an elevator in this city, and it is understood to have the backing and support of the farmers' union of this county.[50]

A week later, another announcement stated that Bernard Lyon, of Lyon Bros. & Co. had sold their west side elevator to the new corporation for $8,000. At first, business boomed at the corporation's new elevator and a year later the renamed Farmer's Equity Elevator Co. also purchased the former A. W. Lawrence elevator on the east side for $5,000, which elevator was at that time leased to the Cargill Grain Co. of Green Bay and had for some years prior been managed by Teweles & Brandeis.[51] Not to be outdone, Teweles & Brandeis, who had now lost access to the east side elevator, commenced construction of a new combined warehouse and office building on N. Cedar St. (now N. Third St.) on the east side of the city.

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[49] Sturgeon Bay: *Door County Democrat*, October 22, 1904, p. 3 (illustrated). The "transportation companies" were the several lake shipping firms.
[50] Sturgeon Bay: *The Advocate*, May 14, 1908, p. 5.
[51] Sturgeon Bay: *Door County Democrat*, May 8, 1909, p. 3.

> Teweles & Brandeis, local grain and produce buyers, have commenced work on their large new warehouse, near the A. & W. depot, and expect to have it completed within five weeks. The foundation of the warehouse is to be 138x36 feet, 9 feet deep, constructed of stone. Chris. Propsom has charge of the mason work. The warehouse will be 13½ feet high from top of basement and on top of this is to be a cupola 12 feet high and 24 feet long. The basement will contain the machinery and will be used for a storage room for hides, etc. The warehouse proper will be used for grain and general farm produce. An office will also be established on this floor. The warehouse will be ready for occupancy by the first of September.[52]

The firm's new east side warehouse was completed and open for business by the beginning of September in time for the beginning of the harvest season and a spur line from the main railroad line that led up to the new warehouse was also completed by this time as well.[53]

By 1911, poor management and a too rapid expansion plan and had caused the Door County Equity Elevator Co. to cease operations and in May of 1912 the company went into bankruptcy proceedings and both its east side and west side elevators were offered for sale.[54] Not surprisingly, a month later the east side elevator was purchased by Teweles & Brandeis, while the west side elevator was repurchased by Lyons Bros. & Co., leaving the produce-selling situation in Sturgeon Bay much as it had been before Door County Equity Co.'s arrival on the scene. The main difference was that Teweles & Brandeis now had sole ownership of the east side elevator and they also owned a large new warehouse on the east side of the city as well, which put the firm in a dominant position in the produce selling business in Door County that they would never relinquish.

As the years went by, changes in agricultural practice in Door County were reflected in the business practices of Teweles & Brandeis as well. Chief among these was a de-emphasis on crop raising and a great increase in dairying, particularly in the south half of Door County, which was reflected in the transition to a mill due to increased business that the firm did in the mixing and selling of animal feed to dairy farmers. Never-the-less, the firm continued to thrive as a new generation of partners took their place in the firm. Isidor Brandeis died on July 21, 1935, by which time his son, Stanley

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[52] "Work on New Warehouse." Sturgeon Bay: *Door County Democrat*, July 24, 1909, p. 1. At the same time, a new concrete foundation was also being placed underneath Teweles & Brandeis' west side elevator as well and there were also plans to build a new 25,000 bushel elevator behind the new warehouse, but later events made this unnecessary.
[53] "Are in New Quarters." Sturgeon Bay: *Door County Democrat*, September 4, 1909, p. 1. This one-story building had a brick-clad main façade and iron-clad side elevations and cupola and it is no longer extant.
[54] "Elevators to be Sold." Sturgeon Bay: *Door County Democrat*, May 17, 1912, p. 1.

Brandeis, was active in the firm, as were Solomon and Monroe Teweles, the sons of Arthur Teweles.[55] A year later, an editorial in a local newspaper celebrated the fortieth anniversary of the firm.

> Last Saturday, January 4, marked the fortieth anniversary of the establishment of the business of Teweles & Brandeis, pioneer dealers in farm products of all kinds. Forty years is but a short time, as history is written, but in the life of an average individual or business concern it is a span well worth considering. When it is understood that for almost the entire period of its existence (until the death of Mr. I. Brandeis in 1935) the firm of Teweles & Brandeis remained under the management of Mr. Brandeis and Arthur Teweles, who carried out a slogan of "Fair, Square, Liberal," in all their dealings with farmers and other patrons it is not hard to understand that the partnership would remain intact for so long a period and would be highly successful.
>
> The original business was established in the year 1894 by Moses Teweles, who later took into partnership with him his son-in-law, I. Brandeis, and in 1896 the present firm was formed, including Arthur Teweles, a son of the founder. The business has grown and prospered during all the years and the firm stands today as one of the leaders in its line in the state of Wisconsin. Two offices are maintained, one in Sturgeon Bay, managed by Sol. Teweles, and the other in Sawyer managed by Stanley Brandeis, sons, respectively, of Arthur Teweles and I. Brandeis.[56]

Two years later, though, the Teweles & Brandeis partnership was dissolved and Mrs. Isador Brandeis became the sole owner of the firm's Sawyer warehouse and elevator while Arthur Teweles became sole owner of the east side elevator and warehouse.[57] Less than two months later, Arthur Teweles also died and his business was afterwards carried on by his son, Solomon, while Mrs. Brandeis' son, Stanley, managed the west side business.[58]

Both firms continued in operation throughout the war years that followed, although the west side elevator owned by the Brandeis family that is the subject of this nomination had a narrow escape when a large fire destroyed all of the other buildings on that firm's dock and part of the dock itself on February 16, 1944.[59] The warehouse was rebuilt to the south and west of the elevator soon thereafter,

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[55] "Isidor Brandeis Dies on Monday." Sturgeon Bay: *Door County Advocate*, July 26, 1935, p. 1. Obituary of Isador Brandeis.
[56] "Teweles & Brandeis in Business For Forty Years." Sturgeon Bay: *The Door County News*, January 9, 1936, p. 2.
[57] "Teweles & Brandeis Partnership Dropped." Sturgeon Bay: *Door County Advocate*, January 28, 1938, p. 1.
[58] "Arthur Teweles Dies Wednesday." Sturgeon Bay: *Door County Advocate*, March 4, 1938, p. 1. Obituary of Arthur Teweles.
[59] "Fire Destroys Large Brandeis Warehouse and Dock in Sawyer." Sturgeon Bay: *Door County Advocate*, February 18, 1944, p. 1.

however, this one was built out of concrete block as was a smaller building adjacent to it that was used to store flour. Neither building is extant.

After the end of the war, both firms once again resumed their normal operations, but by this time many changes had begun to alter the produce selling business. Elevators such as the ones belonging to Teweles & Brandeis came into being because farmers typically lacked storage facilities of their own and because getting produce to markets in the days when horse-drawn wagons were the means of transport was an arduous and tedious business. With the coming of the railroads, large wooden grain elevators began to be constructed along railroad lines and farmers could deliver their produce to them instead and have their grain held awaiting favorable market conditions. This was the situation in 1901, when the west side elevator of Teweles & Brandeis was built.

After World War II, though, federal programs designed to encourage farmers to build their own metal grain storage facilities on their farms came into being, and since produce was by this time moved from farms to larger storage facilities using trucks, and because a comprehensive system of roads had also been developed, these larger storage facilities could be built not just along railroad lines but in any location that made commercial sense. As a result, the commercial importance of what by post-war standards were small scale storage facilities such as the Teweles & Brandeis elevator began to diminish and most of these early elevators were repurposed as feed mills serving dairy farms or farms dealing in animal production. In addition, by the end of the war the Teweles & Brandeis elevators' waterfront locations were no longer of much commercial importance because by this time small scale commercial lake shipping of the kind that had typified the early history of Sturgeon Bay had all but disappeared and shipping by rail and by truck had taken its place.

It was this changing world that the sons of Arthur Teweles and Isador Brandeis inherited after World War II ended and the changing grain storage conditions caused them to make similar decisions.

> Although previous generations of the Teweles and Brandeis families had given way to business successors the path was altered by the fact that there were no boys born in either Stanley's or Sol's family. Therefore, the possibility of another generation entering the business was somewhat slight.
>
> In October, 1951, Sol decided to dispose of his main office and feed store and the building [on N. Cedar St.] was sold to the Christy corporation, which now uses the building as a warehouse. Sol continued in the grain business, operating from the Teweles elevator, located on the waterfront near the railroad bridge. Final disposition of the Teweles holdings took place in early 1952, when the elevator was sold to the Barker-Washburn Lumber company.

> Recently, Mr. Brandeis decided to sell his business and property to the Door County Co-Op. The latter took possession on Monday.
>
> Thus ends the long life of a business which originated in this community and through the course of years firmly established itself in the minds of people throughout Door county.[60]

The elevator on the east side of the city was torn down in the 1950s or 1960s. The west side elevator, meanwhile, continued to be operated by the Door County Co-Op, which also had feed mills in Sister Bay and Forestville at that time, and it continued to be used until the 1960s, after which it was shuttered, and it has not been used since then and it is still intact but vacant. Today, the elevator and the land that surrounds it is owned by the City of Sturgeon Bay, which has recently torn down all the other buildings on the site that were used by the Co-Op, including those built by Teweles & Brandeis after the 1944 fire, and the City is now exploring the possibilities of redeveloping the site.

The Teweles & Brandeis grain elevator is therefore believed to be eligible for listing in the NRHP at the local level of significance under NR Criterion A (Commerce) because of its historic associations with the firm of Teweles & Brandeis, which firm was historically important in the history of commerce and agriculture in Door County and to the city of Sturgeon Bay. The elevator was built by this firm in 1901 and it was operated by them until 1953, when it was finally sold to another entity. During this period, Teweles & Brandeis was the most important and innovative firm in Sturgeon Bay involved in the wholesale marketing of the agricultural produce grown in the area surrounding Sturgeon Bay and this elevator is now the sole remaining historic resource associated with the commercial activities of this locally significant firm.

In addition, the Teweles & Brandeis grain elevator is also now the only surviving historic resource located in Sturgeon Bay that was associated with any of the various Sturgeon Bay firms that were important to the history of agriculture in Door County prior to World War II. By 1903, there were three grain elevators along the waterfront in Sturgeon Bay including this one. Today the Teweles & Brandeis elevator is the only one that survives, the former A. W. Lawrence elevator having been demolished during the 1950s or 1960s, while the Lyon Bros. & Co. elevator burned down on July 5, 1960 while in use as the Peninsula Feed Store.[61] In addition, all of the other buildings associated with these firms, their offices and warehouses, have also now been demolished as well, as have all the buildings associated with the Reynolds Bros. Preserving Co. and its successors, the buildings associated with the Van Camp Milk Condensery, built in 1917, and all the buildings associated with

[60] B.F.T. "Recent Sale Ends Family Business Begun in 1880s." Sturgeon Bay: *Door County Advocate*, March 24, 1953, pp. 1-2. See also: "Grain Elevator Sold to Barker." Sturgeon Bay: *Door County Advocate*, January 29, 1952, p. 1, and "Door Co. Co-Op In Expansion." Sturgeon Bay: *Door County Advocate*, March 3, 1953, p. 1.
[61] Jinkins, Ann and Maggie Wier. *Images of America: Sturgeon Bay,* p. 54 (illustrated).

the Hagermeister Brewery, which had been founded in 1866. As a result, the Teweles & Brandeis grain elevator located on the west shore of Sturgeon Bay is now the only surviving historic Sturgeon Bay building associated with the selling and processing of the farm produce grown in Door County and its historic significance is further enhanced by its highly intact state.

Architecture:

Although there are at least four different types of recognized grain storage building types, just two are commonly observed; the "country" elevator type, and the "terminal" elevator type.

> Grain elevators can be classified into four types based on function. The first and most numerous is the country, or local elevator sited along railroad tracks in the small towns of the Great Plains. Because of the large quantities of grain produced in the surrounding countryside, farmers need local storage facilities to handle surplus production before shipping to domestic or international markets. Country elevators allow local producers to hold their grain for a better price, protect it against waster and spoilage, accommodate large quantities during a peak harvest season, and charge lower storage rates than terminal elevators.
>
> The terminal elevator receives grain via rail or truck from the country elevators. These towering bins, up to 150 feet high and arranged in long parallel lines, have the capacity to hold several million bushels of grain. After receipt of the grain from country elevators, terminal operators sell huge shipments to flour manufacturers or store grain for later sale to domestic and foreign buyers.[62]

Country elevators typically have rectilinear plans that measure up to about 40x60 feet, they are about 70-90-feet-tall, they are crowned with either a full length or partial length cupola, and they may have a maximum of about 20 storage bins with a capacity of from 10,000 to 50,000 bushels. Terminal elevators are typically much, much larger than their country cousins and "they are usually located in terminal marketplaces, at large rail centers, or at points of transfer from one method of transportation to another." Essentially, though, the two types are functionally identical.

> All grain elevator do two things with grain: they "handle" grain, by moving or transferring it within the elevator, using elevating and conveying equipment, and they store grain, by keeping it in storage bins. Some elevators store great quantities of grain and some store little. Some elevators are designed primarily to handle grain at high speed, and have little storage function. These different functional emphases, coupled with different sizes and locations, create

[62] Wishart, David J. (ed.). Grain Elevators. <http://plainshumanities.unl.edu/encyclopedia/> Accessed, December 19, 2015. The other two elevator types are the processing elevator and the feed mill elevator.

> categories of grain elevators. Historically, this has produced the two major functional type of elevators, the terminal elevator and the country elevator.[63]

While the Teweles & Brandeis grain elevator is definitely a country elevator in terms of its design, it is also something of a hybrid in that it has the form and size associated with country elevators and it received produce directly from area farmers, but it also served as a small-scale terminal elevator, thanks to its waterfront location and its rail access.

No history of Wisconsin's grain elevators has yet been written and no overview of this resource type that is specific to Wisconsin exists either. There is, however, an excellent overview of grain elevators built in the neighboring state of Minnesota prior to 1945 that was prepared by Minnesota historian Robert M. Frame III in 1989. This overview is embodied in a NRHP Multiple Property Listing that Frame authored entitled *Grain Elevator Design in Minnesota,* and much of the information that this document contains is relevant to Wisconsin as well. In this very detailed document, Frame first identifies and describes the various types of elevators. He then goes on to describe the methods of construction that are common to each type and their evolution over time and he concludes by discussing their NRHP registration requirements. And these requirements, which are listed below, would likely be much the same for a listing in Wisconsin as well.

> Country elevators in Minnesota may be eligible for the National Register under Criterion A for their association with events that have made a significant contribution to the broad patterns of American history, Minnesota history, or local history, especially in relation to railroad, lake, or river transportation; the grain trade; grain processing; and the cooperative movement. In each of these cases, the significance will involve a firm, agency, or organization that owned and/or operated the elevator.
>
> A country elevator may be eligible under Criterion B for its association with a significant person, if it was a center of activity for that person and that person was not the designer or builder of the country elevator. If the person was noted as an entrepreneur, however, other properties may exist that better represent the person's achievements, such as an office or residence.
>
> Most country elevators will be eligible under Criterion C. They probably will be eligible because they embody distinctive characteristics of country elevator design and engineering or represent significant phases in the evolution of country elevator design and construction. They also may be eligible for their association with significant elevator engineers, builders,

[63] Frame, Robert M. NRHP Multiple Property Listing: Grain Elevator Design in Minnesota, Section E, p. 4.

contractors, or fabricators, who made significant contributions to the design and construction of country elevators.[64]

The Teweles & Brandeis grain elevator satisfies Frame's requirements for NRHP listing under Criterion A, but it is harder to know whether or not this elevator would also satisfy Frame's requirements for listing under Criterion C. So far as can be determined, the Teweles & Brandeis grain elevator is a typical representative example of the country elevator design and method of construction that was prevalent in Wisconsin at the time it was built, but in the absence of an actual overview of Wisconsin's historic grain elevators it is more difficult to decide whether or not it has significance based on Criterion C.

The Wisconsin Historical Society's Division of Historic Preservation (Wisconsin's State Historic Preservation Office, or "SHPO") maintains an on-line database that lists the state's inventoried historic and architectural resources. This database, known as the Wisconsin Architecture and Historic Inventory, or the AHI, contains more than 150,000 individual entries for non-archeological resources of all types, including such diverse types as buildings, bridges, and barns, and this inventory also includes surveyed grain elevators as well. No systematic survey of Wisconsin's grain elevators has yet been undertaken, so the ones that are currently listed in the AHI represent those that have been found during routine rural field surveys or in intensive surveys conducted in the state's cities. At the moment there are 58 separate grain elevators listed in the inventory and they are found in most of the counties located in the southern two-thirds of the state and in all of the counties bordering Lake Michigan and Lake Superior. These elevators range in size from the enormous concrete terminal type elevators that are found in the Great Lakes ports of Superior and Milwaukee to small wooden country type elevators, which are scattered throughout the rural portions of the state. Three grain elevators located in Door County are included in this inventory, including the Teweles & Brandeis grain elevator that is the subject of this nomination. Both of the other two are country type elevators, they are located along the former Ahnapee & Western Railroad line in the unincorporated community of Maplewood, Wisconsin, and they are considerably smaller than the Teweles & Brandeis elevator. The larger of the two (AHI# 120203) is located at 7606 County Highway H and it is believed to have once been operated by the firm of Knauf & Tesch, although this is not certain. The second one (AHI# 120204) is smaller still and is located just a short distance from the first one on the opposite side of County Highway H. Both of these Maplewood elevator are built of wood and they are still partially clad in corrugated iron sheets, but both of them have also now been substantially altered and have been converted to other uses. So far as is known, these three elevators are the only historic grain elevators remaining in Door County and the Teweles & Brandeis grain elevator in Sturgeon Bay is not

[64] Frame, Robert M. NRHP Multiple Property Listing: Grain Elevator Design in Minnesota, Section F, p. 13..

only the largest surviving grain elevator in Door County, it is also by far the most intact and it has a well documented history.

Currently, there is just a single NRHP-listed grain elevator in Wisconsin, this being the Chase Grain Elevator located in Sun Prairie, Wisconsin, which was listed in the NRHP in 2010 under Criterion C because it is an outstanding and very rare example of a Wisconsin country elevator that was built utilizing tile construction.[65] Perhaps, when a better understanding of Wisconsin's historic grain elevators is in place it will be possible to assess the merits of the Teweles & Brandeis elevator and other grain elevators like it based on this criterion. One thing is certain, however. When such evaluations are made, those country type elevators that stand the best chances of being listed in the NRHP will be those that have the highest degree of integrity and it is likely that the highly intact Teweles & Brandeis grain elevator will be among them.

The Teweles & Brandeis Grain Elevator is an excellent, highly intact example of an Astylistic Utilitarian Form grain storage building of a type that was once frequently encountered in communities in Wisconsin and in many other Midwestern and western states as well. It is eligible under criterion C for Commerce. The locally significant elevator was built in 1901 for the firm of Teweles & Brandeis, who were locally important Sturgeon Bay dealers in produce and other agricultural products, and it is located on the west shore of Sturgeon Bay in the city of the same name, and owned and operated it until 1953 The intact survival of this elevator is in itself a factor that supports the potential listing of the elevator in the NRHP.

[65] AHI# 153421, NRHP Reference # 10000540.

Major Bibliographical References:

The Advocate. Various issues.

The Democrat. Various issues.

Door County Advocate. Various issues.

Door County Democrat. Various issues.

Door County News. Various issues.

Frame, Robert M. NRHP Multiple Property Listing: Grain Elevator Design in Minnesota. St. Paul, MN: Minnesota Historical Society, State Historic Preservation Office, 1989.

Holand, Hjalmar R., *History of Door County Wisconsin: The County Beautiful* (2 vols.).. Chicago: The S. J. Clarke Publishing Company, 1917.

Jinkins, Ann and Maggie Wier. *Images of America: Sturgeon Bay*. Charleston, SC: Arcadia Publishing, 2006.

Kriviskey, Bruce M. and Richard H. Zeitlin. *Intensive Architectural/Historical Survey and Recommendations For Downtown Revitalization and Historic Preservation for Sturgeon Bay, Wisconsin*. Milwaukee: Phaller Herbst Assoc., 1983.

Laird, Linda. *The American Grain Elevator: Function and Form*. Hutchinson, KS: Grain Elevator Press, 2012.

Fire Insurance Maps of Sturgeon Bay, Wisconsin. New York: Sanborn-Perris Map Co., 1885, 1891, 1898, 1904, 1911, 1919.

The Republican. Various issues.

Weekly Depositer Independent. Various issues.

Wishart, David J. (ed.). Grain Elevators. Lincoln, NB: University of Nebraska, Encyclopedia of the Great Plains. <http://plainshumanities.unl.edu/encyclopedia/> Accessed, December 19, 2015.

Major Bibliographical References, Cont.:

Wyatt, Barbara (ed.). *Cultural Resource Management in Wisconsin* (3 vols.). Madison: State Historical Society of Wisconsin, Division of Historic Preservation, 1986.

Verbal Boundary Description:

Beginning at the north termination point of the angled west/northwest parcel line, continue along this west parcel line in a southwesterly direction approximately 304 feet to the jog in the parcel, at this point turning south and following a straight line approximately 163 feet to a point on the parcel line adjacent to E. Maple Street, turning east and following the parcel line approximately 108 feet to the corner of the parcel, turn 90 degrees north and follow the parcel line north approximately 154 feet to a point, the parcel line then turns toward the northeast and follow this parcel line approximately 228 feet, turn northwest and continue in a straight line approximately 68 feet to the point of beginning.

This is a portion of the legal parcel Lot 2, Certified Survey Map # 2952, Vol. 18, p. 57. SW¼ of the NE ¼ of Section 7, Township 27N, Range 26E: Formerly part of Lots 2-7, Block 8 of Plat 10, Bay View Plat.

Boundary Justification:

This boundary is a portion of the existing parcel and provides enough land to retain context for the building. The nominated boundary follows the existing parcel on the westerly, southern, eastern, and northeasterly parcel lines. The railroad spur that serviced this mill is no longer extant but its location is within the nominated boundary and roughly follows the western boundary of the nominated parcel. During the historic period, Sturgeon Bay actually wrapped around this parcel; the shore of Sturgeon Bay was adjacent to the west/northwest parcel line. The land that currently surrounds the nominated parcel is all infill and did not exist during the historic period. This boundary includes the nominated building and encompasses the footprint of the storage sheds for the building that are now demolished. This boundary excludes portions of the parcel that are unrelated to the historic property. The remaining portion of the parcel is vacant; therefore, this vacant land has been excluded so as to remove extraneous land.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Items a-d are the same for photos 1 – 20.

Photo 1
Teweles and Brandeis Grain Elevator
b) Sturgeon Bay, Door County, WI
c) Timothy F. Heggland, November 8, 2015
d) Wisconsin Historical Society
e) General View, View looking N
f) Photo 1 of 20

Photo 2
e) Southwest-Facing Elevation, View looking NE
f) Photo 2 of 20

Photo 3
e) Southeast-Facing Elevation, View looking N
f) Photo 3 of 20

Photo 4
e) General View, View looking W
f) Photo 4 of 20

Photo 5
e) Northeast-Facing Elevation, View looking SW
f) Photo 5 of 20

Photo 6
e) Northwest-Facing Elevation, View looking SE
f) Photo 6 of 20

Photo 7
e) Southwest-Facing Elevation Detail,
View looking NE
f) Photo 7 of 20

Photo 8
e) Work Floor Interior, View looking NE
f) Photo 8 of 20

Photo 9
e) Interior, Hopper, View looking NW
f) Photo 9 of 20

Photo 20
e) Bin Interior, View looking down and E
f) Photo 20 of 20

Photo 10
e) Work Floor Interior, View looking NW
f) Photo 10 of 20

Photo 11
e) Man-Lift Detail, View looking NW
f) Photo 11 of 20

Photo 12
e) Work Floor Interior, View looking SW
f) Photo 12 of 20

Photo 13
e) Work Floor Interior, View looking NE
f) Photo 13 of 20

Photo 14
e) Work Floor Interior, View looking NW
f) Photo 14 of 20

Photo 15
e) Interior, Fanning Mill, View looking SE
f) Photo 15 of 20

Photo 16
e) Work Floor Interior, View looking N
f) Photo 16 of 20

Photo 17
e) Work Floor Interior, View looking up and N
f) Photo 17 of 20

Photo 18
e) Work Floor Interior, Bin Bases, View looking up and NW
f) Photo 18 of 20

Photo 19
e) Work Floor Interior, View looking up and NW
f) Photo 19 of 20

Figure 1: Sketch first story floor plan of the Teweles and Brandeis elevator.

Figure 2: 1904 Sanborn-Perris Map, Sturgeon Bay.

Figure 3: 1906 postcard with Teweles and Brandeis Elevator on the Left and the Lyons Brothers Elevator (non-extant) on the right.

Figure 4: Early undated postcard showing Teweles and Brandeis Elevator.

Figure 5: Late 1930's aerial view showing Lyons Brothers elevator and Teweles and Brandeis elevator on the bottom (south) shore and the A. W. Lawrence elevator (non-extant) on the upper (north) shore next to the north end of the curving bridge.

Figure 1: Sketch of the first story of the Teweles and Brandeis Grain Elevator

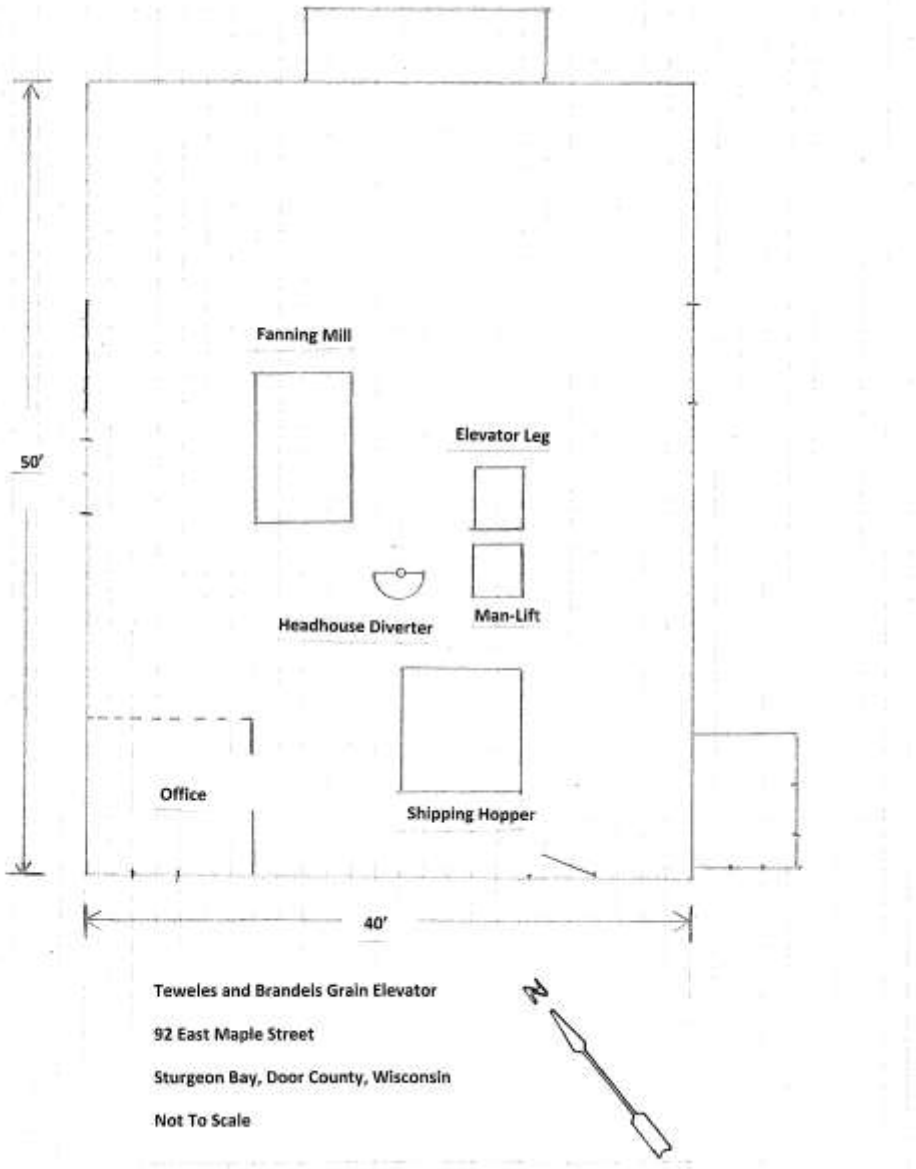


Figure 2: 1904 Sanborn-Perris Map, Sturgeon Bay

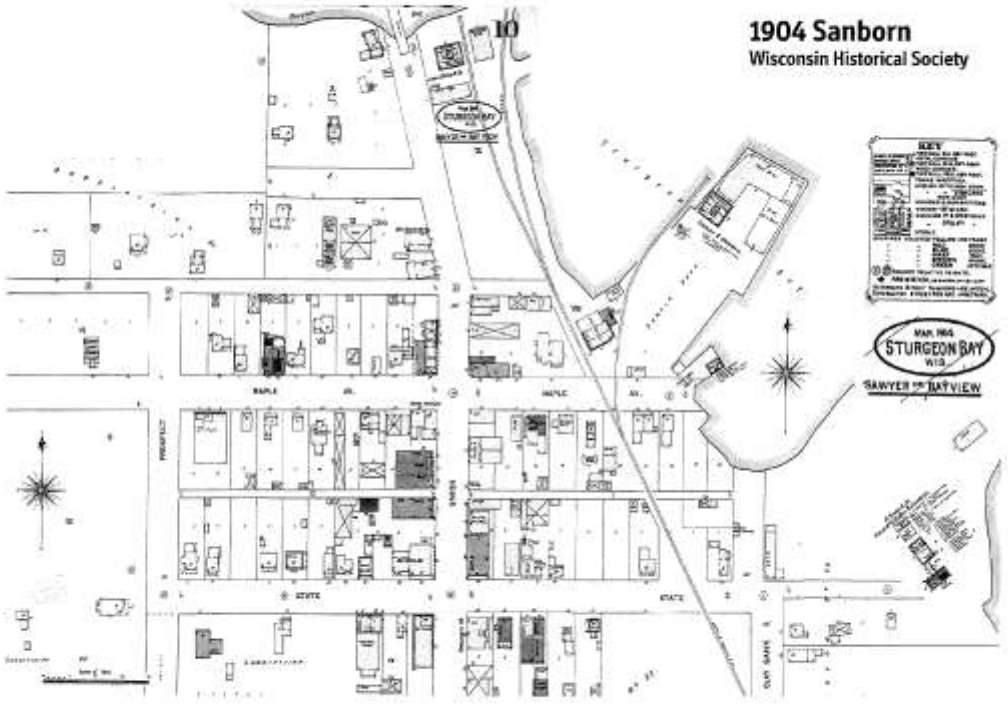


Figure 3: 1906 postcard with Teweles and Brandeis Elevator on the left and the Lyons Brothers Elevator (non-extant) on the right

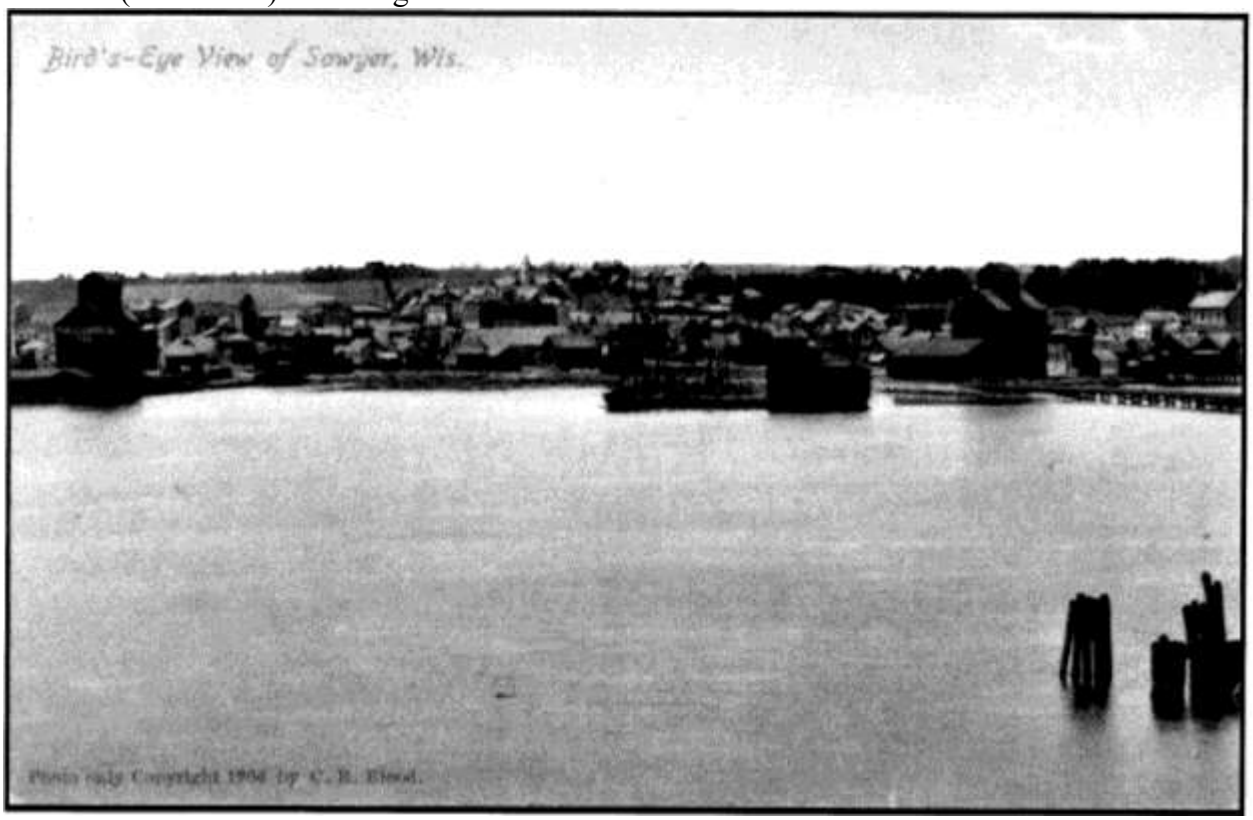


Figure 4: Early undated postcard showing Teweles and Brandeis Grain Elevator

Figure 5: Late 1930s aerial view showing Lyons Brothers elevator and Teweles and Brandeis elevator on the bottom (south) shore and the A.W. Lawrence elevator (non-extant) on the upper (north) shore next to the north end of the curving bridge.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF WISCONSIN
DIVISION OF HIGHWAYS
GEOLOGICAL AND NATURAL HISTORY SURVEY

STURGEON BAY WEST QUADRANGLE
WISCONSIN–DOOR CO.
7.5 MINUTE SERIES (TOPOGRAPHIC–BATHYMETRIC)
SW/4 STURGEON BAY 15' QUADRANGLE

Jewelers and Brandeis Grain Elevator
Sturgeon Bay, Door County WI
UTM Co-ordinates
Z E N
16 469750 4963900

Mapped, edited, and published by the Geological Survey and the National Ocean Survey in cooperation with the Wisconsin Division of Highways and Wisconsin Geological and Natural History Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1954-55. Revised from aerial photographs taken 1978
Field checked 1980. Map edited 1981

Bathymetry compiled by the National Ocean Survey from tide-coordinated hydrographic surveys. This information is not intended for navigational purposes

Projection and 10,000-foot grid ticks: Wisconsin coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 16
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 4 meters north and 5 meters east as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs
This information is unchecked

NATIONAL OCEAN SURVEY
HYDROGRAPHIC SURVEY INDEX

HYDROGRAPHIC SURVEY INFORMATON

Survey Number	Survey Date	Survey Scale	Survey Line spacing (Naut. Miles)
1-326	1865	1:16,000	.05-.15
1-1110	1906	1:10,000	.03-.40
1-1111	1906	1:10,000	.02-.10
NOS CHART 14919		AUG. 2, 1980	1:10,000

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 2.5 FOOT CONTOURS ALONG SHORELINE
NATIONAL GEODETIC VERTICAL DATUM OF 1929
BATHYMETRIC CONTOUR INTERVAL 1 METER
WITH SUPPLEMENTARY 0.5 METER CONTOURS
DATUM IS LOW WATER 576.8 FEET
INTERNATIONAL GREAT LAKES DATUM OF 1955

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route U. S. Route State Route

CONVERSION SCALES

Feet	Meters
15000	4500
14000	
13000	4000
12000	3500
11000	3000
10000	
9000	2500
8000	2000
7000	
6000	1500
5000	
4000	1000
3000	900
2000	800
	700
	600
1000	500
	400
	300
	200
	100
0	0

Feet	Meters
1	.3048
2	.6096
3	.9144
4	1.2192
5	1.5240
6	1.8288
7	2.1336
8	2.4384
9	2.7432
10	3.0480

To convert feet to meters multiply by .3048

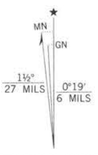
To convert meters to feet multiply by 3.2808

DEPTH GRADIENTS

Meters		Feet
0	LAND	0
5		16.4
10		32.8

Maximum depth

BASE MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
BATHYMETRIC SURVEY DATA COMPLIES WITH INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO) SPECIAL PUBLICATION 44 ACCURACY STANDARDS AND/OR STANDARDS USED AT THE DATE OF THE SURVEY
FOR SALE BY THE U.S. GEOLOGICAL SURVEY, RESTON VIRGINIA 22092
NATIONAL OCEAN SURVEY, ROCKVILLE, MARYLAND 20852
AND WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY
MADISON, WISCONSIN 53706
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

STURGEON BAY WEST, WIS.
SW/4 STURGEON BAY 15' QUADRANGLE
N4445–W8722.5/7.5

1981

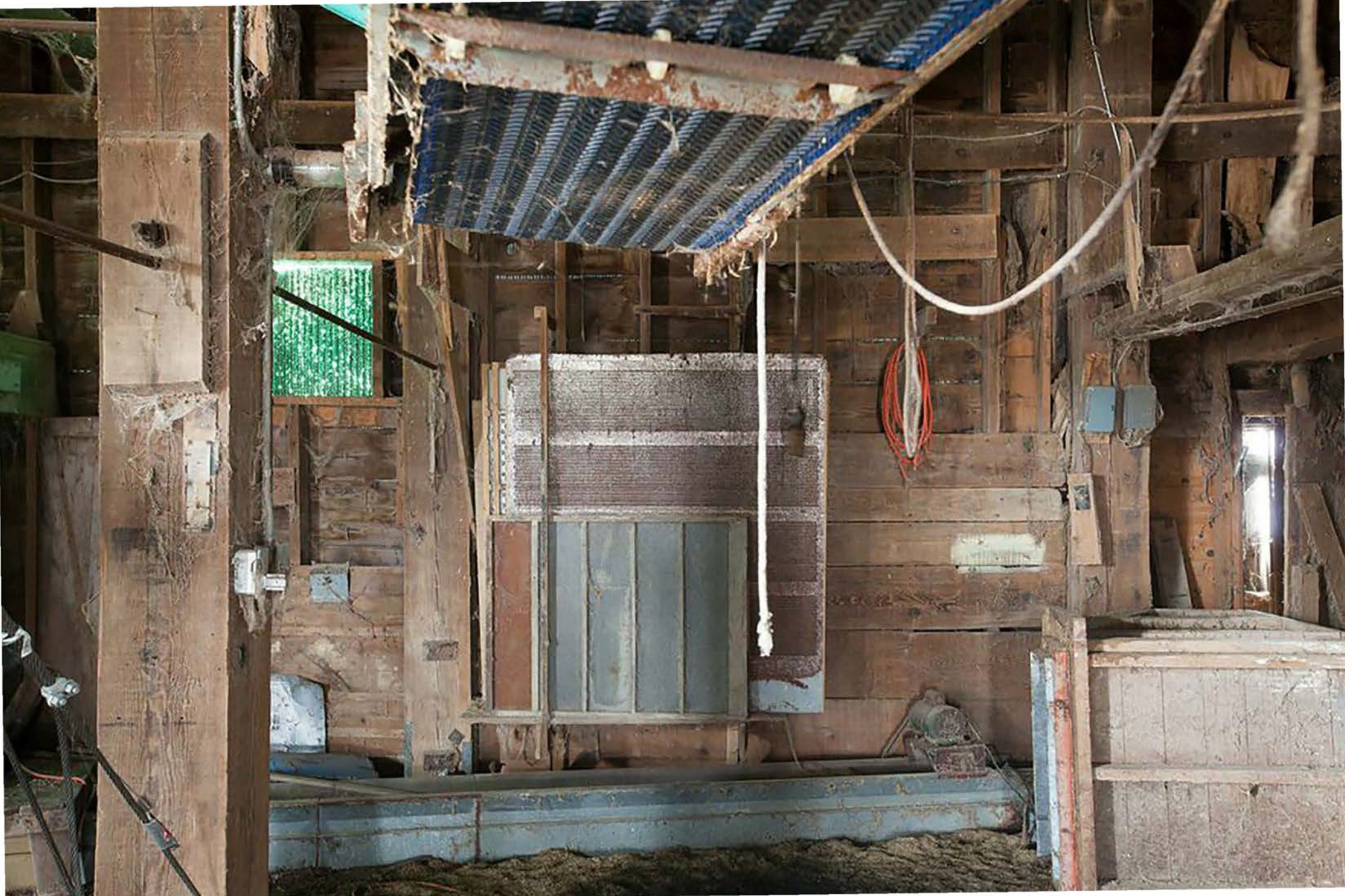
DMA 3573 IV SW–SERIES V861

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1981


Platinum
Commercial
(920) 338-0013
FOR SALE


A23-DKA


NO
SMOKING




EXPLOSI
NO SMOKING

National Register of Historic Places
Memo to File

Correspondence

The Correspondence consists of communications from (and possibly to) the nominating authority, notes from the staff of the National Register of Historic Places, and/or other material the National Register of Historic Places received associated with the property.
Correspondence may also include information from other sources, drafts of the nomination, letters of support or objection, memorandums, and ephemera which document the efforts to recognize the property.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

Requested Action:	Nomination
Property Name:	Teweles and Brandeis Grain Elevator
Multiple Name:	
State & County:	WISCONSIN, Door

Date Received:	Date of Pending List:	Date of 16th Day:	Date of 45th Day:	Date of Weekly List:
12/21/2017	1/29/2018	2/13/2018	2/5/2018	2/9/2018

Reference number:	SG100002091
Nominator:	State

Reason For Review:

X Accept _____ Return _____ Reject **2/5/2018** Date

Abstract/Summary Comments:

Recommendation/ Criteria

Reviewer Barbara Wyatt Discipline Historian

Telephone (202)354-2252 Date

DOCUMENTATION: see attached comments : No see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.

City of Sturgeon Bay
421 Michigan Street
Sturgeon Bay, WI 54235

Thad Birmingham
Mayor

920-746-2900 (Voice)
920-746-2905 (Fax)
sbmayor@sturgeonbaywi.org

BY EMAIL
BY US MAIL

August 1, 2017

Mr. Jim Draeger, State Historic Preservation Officer
Wisconsin Historical Society
816 State Street
Madison, Wisconsin 53706

Re: Former Teweles and Brandeis Grain Elevator
92 East Maple Street, Sturgeon Bay Wisconsin

Dear Mr. Draeger,

I am in receipt of a letter dated July 12, 2017 regarding the nomination for placement if the former Teweles and Brandeis Grain Elevator on the National Register of Historic Places. I have several concerns about this nomination and the unintended impact it may have on the City of Sturgeon Bay.

With respect to the nomination and application:

- This is an adversarial application. Several of the individuals named as board members are currently engaged in litigation against the redevelopment of the land on which this building is sited.
- The City of Sturgeon Bay or any of its sub agencies, including the Waterfront Redevelopment Authority, Plan Commission, and Historic Preservation Committee **have not** authorized, been afforded the opportunity to review and critique, or approved of any such nomination.
- The City of Sturgeon Bay **has not** received a signed copy of the nomination application from either the Wisconsin Historical Society or the applicant.

With respect to the land:

- The whole parcel of land is quite large. Much of the land is open and unused and has been slated for redevelopment. The land is inside a tax increment financing district, it is unknown how the placement of the land on a historic register would impact the City's ability to redevelop the site.
- Should the any part of the site be sold, as is common in redevelopment projects, 66.1111(3)(b) Wis. Stats. appears to require that a conservation easement be granted accordance with 700.40 Wis. Stats. Given the purpose for which the

property was acquired, blight elimination and redevelopment, requiring a conservation easement on the land would appear to preclude the city from being able to effectively redevelop the property. I am concerned that the historic preservation laws are being used in a backdoor manner to stymie redevelopment and blight elimination in the City.

- The site of this structure may be on a former dock, and hence, may be filled lakebed. While the City believes it has title to both the real estate and the structure, title has been challenged in circuit court (Door County Circuit Court Case 16-CV-23). Essentially the plaintiffs have alleged that the land the structure rests upon is below the ordinary high water mark and therefore subject to the rules of public trust property. It is conceivable that the structure, given it has no maritime or navigational purpose, would be an unenforced nuisance upon the public trust lands of the state of Wisconsin.
- There is documented soil contamination on much of the parcel. It is unknown how 66.1111 Wis. Stats. would affect the remediation of the site and redevelopment of the property.

With respect to the structure:

- The stability of the structure is a documented problem (see attachments). Two independent reports show the structure is failing and in need of significant investment in order for it to be stabilized.
- The Common Council has acted to begin seeking the most cost effective means of resolving the documented problems with the building, including dismantlement, salvage and or razing.
- The building lies within a tax increment district. Should the building be placed on the register, 66.1105(2)(f)(1)(a) Wis. Stats. prohibits the use of tax incremental financing from being used for the dismantlement or razing of the structure thus placing a significant strain on the City's general operating budget should it be determined that the building is not recoverable.
- No group has officially petitioned the City or any agency of the City to save the building or offered funds in support thereof.
- The building has been deemed a human health hazard and is currently subject to an order of the Sturgeon Bay Fire Chief under ss. 213.095(4), 101.14, and 299.01(6) Wis. Stats. (See attached report and summary of conditions).
- The structure is within the West Waterfront Redevelopment District. Perhaps the only viable means to renovate and retain the structure is to incorporate it into a new building with the assistance of tax incremental financing. Historic designation of the building might limit the options for potential renovation and reuse, thereby frustrating any attempts to save it. Furthermore, the City does not have the financial ability to maintain the structure.

On the significance of this structure as historic.

- In 2013 the City completed an Environmental Assessment for a CDBG project involving the site. As part of the assessment the City requested comments from Douglas Brethauer, Environmental Review Coordinator for the Department of Administration. The existence of grain elevator within the project site was specifically mentioned in the request letter, since the City believed at that time the building was listed in the Wisconsin Architecture and History Inventory (AHI). The City was informed by Mr. Brethauer on April 1, 2013 that the grain

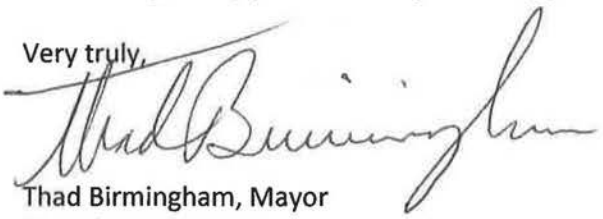
elevator (AKA Midland Mill) was no longer listed on the AHI and a section 106 review was not required.

- Many communities in Door County, including Sturgeon Bay had one or multiple grain elevators. Other still exist in Door County. Including in the hamlets of Maplewood and Brussels.
- This structure, does not represent any technological advance in the storage and handling of grain. The mechanics and means of conveyance in this structure are not significantly different than others.

In summary, the building is clearly in a dilapidated state and its prospects for renovation and re-use are questionable at best. The listing of the building on the state and national registers of historic places might actually hinder any remaining financially viable opportunity for saving it. There are several legal issues pertaining to the site that have not been resolved yet. The Sturgeon Bay Common Council and its boards and commissions have not had an opportunity to weigh in on the matter.

For these reasons, as Mayor of the City of Sturgeon Bay, I respectfully request you either delay considering this application or reject this application.

Very truly,



Thad Birmingham, Mayor
City of Sturgeon Bay

cc: Rep. Joel Kitchens
Sen. Frank Lasee
Gov. Scott Walker
file

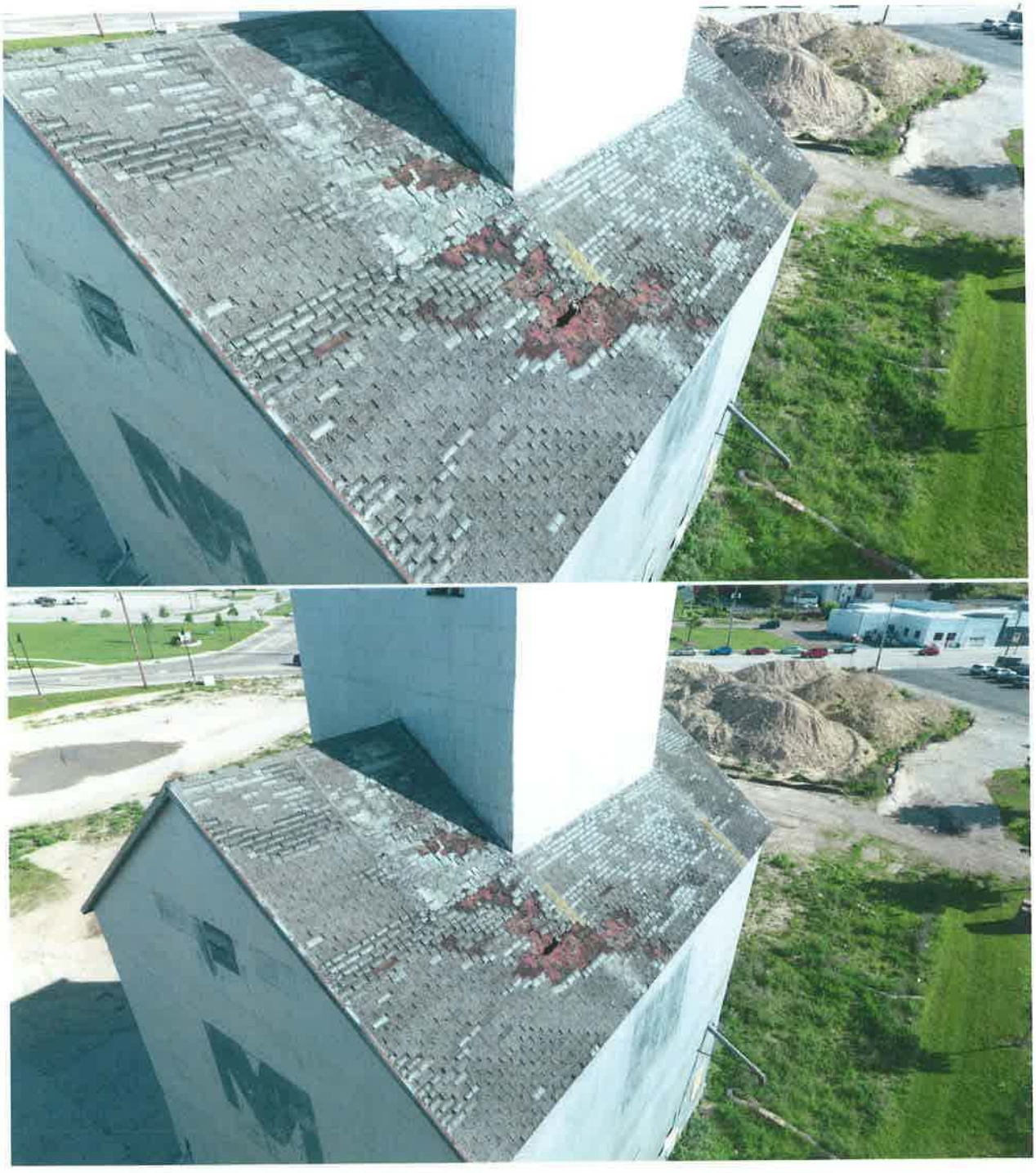
92 East Maple Street

Printed 08/08/2017 courtesy of Door County Land Information Office

... from the Web Map of ...
(//www.co.door.wi.gov)

Door County, Wisconsin
... for all seasons!

2017 Photos of the Midland (Former Tewles & Brandies) Elevator



2017 Photos of the Midland (Former Tewles & Brandies) Elevator

2017 Photos of the Midland (Former Tewles & Brandies) Elevator

Attachment 1

PLANNING DESIGNING CONSULTING ENGINEERING

Michael J. Till Associates

Board Certified Structural Engineers and Planners

~ Serving Door County for Decades ~

ONLINE : www.miketilldesignassoc.com
EMAIL: mjtill@mjtill.com

OFFICE LOCATIONS :
MAILING ADDRESS
915 MICHIGAN STREET
STURGEON BAY, WI 54235
(920)743-3545 OFFICE
(920)743-3546 FAX
(920)421-0375 CELL

2602 S. BAY SHORE DRIVE
SISTER BAY, WI 54234
(920)854-4811 OFFICE
(920)854-5900 FAX

Mr. Marty Olejniczak
Community Development Director
City of Sturgeon Bay, Wisconsin 54235

May 9, 2013

Subject : Request For Proposal, Structural Analysis and Architectural Review of the Granary Elevator Building West Waterfront Area, Sturgeon Bay, Wisconsin.

Mr. Olejniczak et al,

Thanking the City of Sturgeon Bay for the opportunity to bid on the above mentioned subject matter and hereby state the following :

On May 6, 2013, I picked up the key for subject property from you and Tony Depies around 9:00 AM at City Hall. I and two members of my staff subsequently met Marty on-site at about 10:30 AM for the purpose of viewing the current structural conditions of the structure.

Starting at the exterior northeast corner of the foundation/slab, we observed that said foundation has been severely subjected to local freeze/thaw cycles and/or assumed weak soils which over the many years has caused structural inadequacy as seen in the present construction… See annotated photographs attached herewith in order to further delineate the defective foundation, as well as other structural issues of concern, which does occur in and around the entire building.

Upon entering the locked southeast corner door, we observed that the south side "superstructure" wall had significantly "kicked-out" (see selected photos) most likely due to inadequate lateral resistance of supports from high velocity northerly winds.

Please see page two

Mr. Marty Olejniczak
Community Development Director
City of Sturgeon Bay, Wisconsin 54235

Report by :
Till Associates
May 9, 2013

The interior 12"x12" wood columns are "checked" (deep shrinkage cracks in the center of the columns and beams), a common condition occurring in solid timber framing applications that does reduce the strength over time of such elements (see selected photos). Also, several columns have been twisted out of plumb, most likely now a permanent distortion, a.k.a. deformations, at this stage of their lengthy use. However, these timbers could be salvaged and used in shorter structural spans or for decorative re-purposing, such as decorative elements in new construction (see selected photos).

The wooden first floor planks have a slippery brownish slime over the surface and are spongy and have weakened over time, as well as having an overabundance of assumed fermented-like grain breakdown causing said slime and slush. This could be a potential fire hazard with the aforementioned bio-fuel-like substance we encountered (see selected photos).

The building has not only been subjected to wind forces over its eighty-plus foot height (eight stories), but also to the action of yearly freeze/thaw cycles, which when combined have deteriorated the structural integrity of the building overall.

We also observed a condition where someone recently wrapped a logging size chain around one of the interior built-up beams about 12' above floor level at the southeast side with a turnbuckle device in an apparent attempt to stabilize the "kick-out" of the beam and column. This condition should be considered potentially dangerous regarding possible collapse of this "seat of the pants" structural engineering solution.

The structural board sheathing over the exterior stud walls are comprised of spaced boards laid horizontally with corrugated metal panel siding fastened to said wall sheathing. In general, spaced boards do not yield the most positive "Diaphragm Action" needed to optimize stability for such a tall wooden structure's exposure to lateral forces from wind loads potentially causing an Overturning Moment Factor in various sections of this building's interior and exterior components.

Please see page three

Mr. Marty Olejniczak
Community Development Director
City of Sturgeon Bay, Wisconsin 54235

Report by :
Till Associates
May 9, 2013

Please know that we can engineer a state approved resolution for this building and for the record, Till Associates has re-purposed many Historical buildings over decades of practice in Door County and further, know that this structure can be saved without a doubt… However, the cost, in our opinion, to not only structurally stabilize the building, but to bring it up to minimum commercial code standards would be, and again, in our opinion, estimated somewhere in the $500,000.00+ construction cost.

Hence, in summation, as a Wisconsin Consulting Structural Engineer, I hereby state that if your budget allows for the above mentioned required remediation and its estimated remediation construction cost, our estimated engineering fee for a detailed report would be plus $20,000.00 including in the report some preliminary structural solutions, as well as an explanation as to why said solutions are needed.

Commentary

As a resident, property owner and concerned citizen of Sturgeon Bay, I applaud efforts to save Old Historical Buildings whenever possible – I have done so many times throughout my Door County career, but only when subject property is not dangerous or is not a cost burden of which I believe this property contains both of these aforementioned objections… As a concerned citizen, I verbally reported this opinion to Marty at about 1:30 PM on May 6, 2013 after my visual on-site inspection was completed by going to City Hall requesting a private meeting with Mary in order to allow me to express my immediate fear regarding how dangerously risky it is for the City not to place barricades around all of the property and signage warning people not to enter said property (I personally observed a citizen meandering through the Grain Elevator Building when I was doing my preliminary inspection).

For the record, I suggested to Marty that all the buildings including the subject building be razed and not saved but with a demolition technique that would allow salvaging of the wonderfully patina aged timbers, struts and other structural components that could be re-purposed for use in new constructions (See Photos).

Please see page four

Mr. Marty Olejniczak
Community Development Director
City of Sturgeon Bay, Wisconsin 54235

Report by :
Till Associates
May 9, 2013

There also exists, at least in the Granary Elevator Building (which was the only building we observed/inspected on May 6, 2013) Antique/Primitive items that were mechanically used for operating the grain elevator over many years, up to the time of closing. I believe said items should perhaps be rescued by the City in order to possibly re-use in either the City's future plans (development of the subject site with businesses) or be donated to the Door County Historical Museum at 4th and Michigan Street – just a concerned citizen's thought on my part.

It is my belief that razing the Granary should be well supervised due to exceptional liability potential. I also believe that hauling of the debris by Barge should be investigated since the buildings are so close to the dock, thus quick removal of the unwanted residues of demolition, unless, of course, there is asbestos/lead or other known toxins that might negatively affect this suggestion. In addition to efficient and better economics which I believe barge hauling would render, the City could limit dump truck traffic throughout the City streets and highways because of hauling away by barge. Again, these are just an opinion of a citizen of Sturgeon Bay that happens to be a Certified Structural Engineer.

In closing, I wish to thank you once again for inviting Michael J. Till Associates in consideration of a "Request For Proposal" regarding the above mentioned project.

Respectfully Submitted,

Michael J. Till, P.E.,

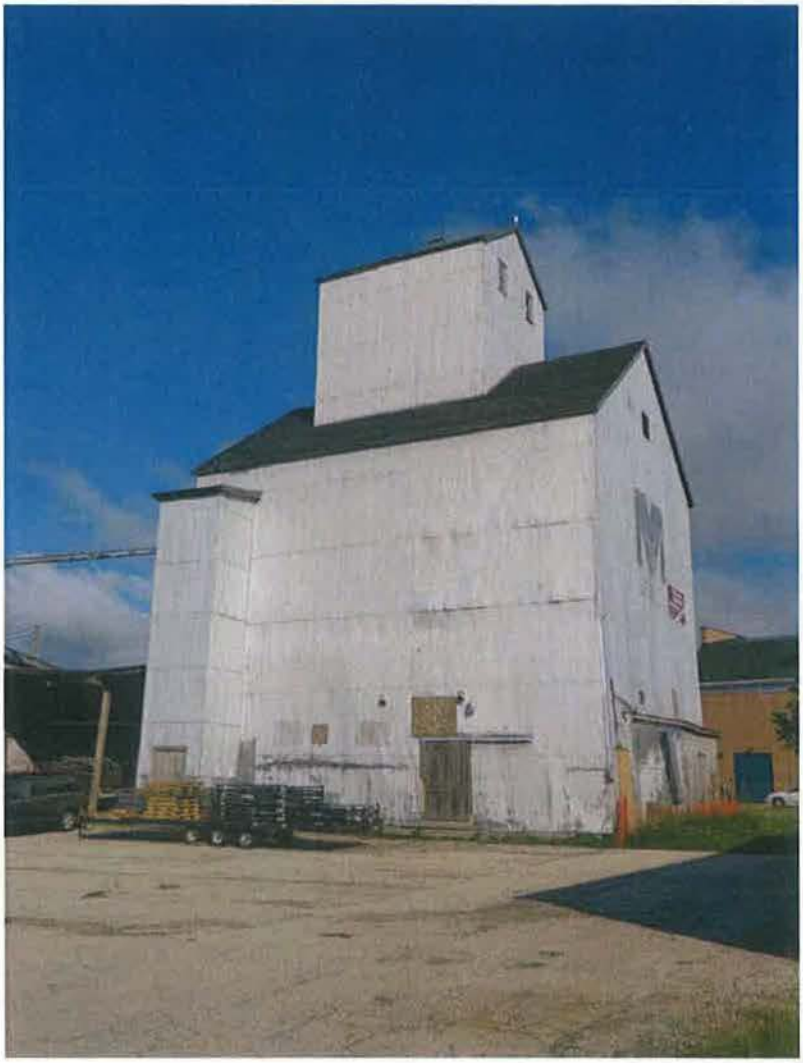
Michael J. Till, P.E., SECB

Encl. as stated above.

STRUCTURAL CONDITION ASSESSMENT REPORT FOR THE GRANARY ELEVATOR BUILDING

Sturgeon Bay, Wisconsin

MBJ Commission No. W13-314



MEYER | BORGMAN | JOHNSON

STRUCTURAL DESIGN + ENGINEERING

12 South Sixth Street, Suite 810
Minneapolis, MN 55402
(612) 338-0713
fax: (612) 337-5325

STRUCTURAL CONDITION ASSESSMENT REPORT FOR THE GRANARY ELEVATOR BUILDING
Sturgeon Bay, Wisconsin

MEYER | BORGMAN | JOHNSON

STRUCTURAL DESIGN + ENGINEERING

Date: July 15, 2013

Prepared for: Marty Olejniczak
City of Sturgeon Bay
421 Michigan Street
Sturgeon Bay, WI 54235

Prepared by: Chris Hartnett, PE (MN, PA), LEED
Meyer Borgman Johnson
12 South Sixth Street, Suite 810
Minneapolis, MN 55402
(612) 338-0713

PROFESSIONAL CERTIFICATION
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.

Name: David Holten, PE Wisconsin Reg. No. 31591

EXECUTIVE SUMMARY

The City of Sturgeon Bay recently purchased the Granary Elevator Building with the intent of salvaging and adaptively reusing it as part of a new waterfront redevelopment project. This assessment is intended to determine the current granary elevator condition, which includes an assessment of the global integrity and an investigation of deterioration due to decay fungi, water infiltration, and animal infestation. Finally, it discusses the viability of the granary elevator to support the intended future uses.

The scope of this investigation includes a brief history of the granary elevator, site observations to assess the structure's current condition, analysis of the structure's strength and stiffness, and conclusions drawn and recommendations made.

The granary elevator is a wood-framed structure, reportedly constructed in 1901. It bears on a cast-in-place concrete foundation that is likely supported on deep wood piles. The superstructure consists of a wood-framed post-and-beam frame that measures approximately 40 'x 50' x 15' tall; 19 grain bins that measure 30' tall bear on the frame and are arrayed in a 4 x 5 matrix (one bin is removed for a small man-lift). A 20' square head-house and a gable-framed roof structure cover the grain bins.

This investigation indicates that the granary elevator is in generally good condition and, with some modifications, will have sufficient capacity to support new retail loads associated with the waterfront redevelopment plans. Specific conclusions and recommendations include:

1. General

   Recommendation 1: Before future building observations are ordered, clean building of debris decaying grain. Disinfect granary elevator.

2. Future Uses

   Recommendation 2: As part of any adaptive reuse designs, perform additional investigations and calculations to confirm the findings in this report.
   Recommendation 3: Include the 'Granary Market' concept into the lateral system modifications of the granary elevator.
   Recommendation 4: The existing structure has the strength and stability to accept modifications to the grain bins for a new viewing area within the elevation of the grain bins.

3. Foundations

   The foundations were designed to support heavier loads than the future anticipated loads; therefore, the foundations, as built, have sufficient capacity to support the anticipated retail loads. Some foundation damage was uncovered within the foundation that requires further investigation and repair.

Recommendation 5: Investigate further the foundation grade beam conditions by removing selected main floor beams and visually inspecting a representative sample of the grade beams. Repair or replace broken or cracked grade-beams.
Recommendation 6: Remove the broken grade-beam on grid C and the steel beam under the north wall; replace these with new concrete grade–beams.
Recommendation 7: Uncover the bottom of a portion of the foundation to determine the foundation type. If the foundation is supported on wood piers, expose the tops of 3-4 piers to confirm their satisfactory condition.

4. Main Floor

   a. The visible portion of the main floor is in relatively good condition. Two areas are wet with decaying grain.
   Recommendation 8: Remove the decaying grain and dry the floor. Investigate the affected floor planks for decay fungi and loss of strength.
   Recommendation 9: Calculate plank wood joist strength and compare to the required strength for assembly loading (100 psf). Replace planks that do not have sufficient strength.
   b. The floor deflections between grids are not excessive; however, the rise and fall of the floor across grids is higher than is typically acceptable for retail use.
   Recommendation 10: Given the ease of shimming a wood floor versus raising a foundation, we recommend that the wood floor be shimmed, as needed, to meet retail use.

5. First-Level Framing

   a. This preliminary investigation indicates that that first-level framing has sufficient capacity to support anticipated retail loads. The general condition was recorded and all obvious and significant defects were observed (there were none).
   Recommendation 11: As part of the adaptive reuse designs, include a complete investigation of the first-level framing.
   Recommendation 12: Confirm the species and grading of the wood to more accurately determine the granary strength (and possibly increase calculated capacity).
   b. The first floor framing is 3 ½" out of plumb in the east/west direction and 7" out of plumb in the north/south direction. The small deflections and low stresses due to the out-of-plumb condition and wind forces, calculated by the 3-D computer model, indicate that the granary elevator is stable in its current configuration.
   Recommendation 13: No actions are required to strengthen or stiffen the structure in its current configuration, beyond the identification and repair of deterioration.
   c. If the decision is made to remove a portion of the corrugated metal siding, a new lateral system will be required to replace this load path.
   Recommendation 14: Additional calculations and coordination with the architectural plans will be required to determine a suitable lateral system.

6. Grain Bins

This preliminary investigation of the grain bins indicates that they are structurally sound and stable at this time. The wet and decaying grain at the bottom of two bins is accelerating the deterioration at the bottoms of the bins.
Recommendation 15: Confirm these findings during the adaptive reuse project with a close visual investigation of the grain bins.
Recommendation 16: Remove the decaying grain from the bins, allow sufficient time for the bins to dry, investigate for decay and deterioration of the bins in these areas.

7. Roofs and Head-House Structures

This preliminary investigation of the roof structure and the head-house uncovered no significant deterioration or overstress that would adversely affect their strength.
Recommendation 17: During the adaptive reuse design, confirm this with a thorough inspection of the roof and head-house structures.

TABLE OF CONTENTS

INTRODUCTION

1. Purpose of Assessment

The City of Sturgeon Bay recently purchased the Granary Elevator Building with the intent of salvaging and adaptively reusing it as part of a new waterfront redevelopment project that will include new dining and lodging, an outdoor gathering space and pier, and a 'Granary Market'. The Granary Market will attach to the granary elevator and serve as a marketplace for local merchants. The granary elevator is planned to be the historic anchor for the project. This assessment is intended to determine the current building condition, which includes an assessment of the global integrity of the structure to support lateral (wind) and building loads. It includes an investigation of local deterioration due to decay fungi, water infiltration, and animal infestation. Finally, it discusses the viability of the granary elevator to support the intended future uses.

2. Scope

a. History of the Granary Elevator

Historic exterior photographs and plat maps were provided by the City that showed the early exterior of the granary elevator and the development of the waterfront before and during the life of the elevator. Given the age and nature of the structure, it is unlikely that original design and construction drawings were created during its construction. No historic drawings were provided that would illuminate the granary's design, construction and subsequent alterations.

b. Site Observations

A site visit was conducted on June 28th by Chris Hartnett, PE, and David Holten, PE, to observe, measure and photo-document the building. The interior of the building was observed from the ground level and from a step-ladder. The exterior was observed from the ground. The inaccessible interior areas and the upper portions of the exterior were viewed through binoculars. A laser range-finder and a laser level were used to measure the column spacing, plumb and level. Piece sizes were measured with a tape measure, and column moisture content was measured using an electronic moisture meter. Wood grade and surface deterioration were visually observed, and interior deterioration was probed with an awl. All measurements were recorded on field notebooks, and the building was photo-documented using a digital zoom camera.

c. Analysis

The plumb measurements indicate that the building is out of plumb by approximately four inches. Also, there are several built-up wood posts that have somewhat questionable connections to the foundation below. When combined, these conditions create some concern about the lateral stability of the building against overturning plus wind loads. Therefore, a computer model was created to model the forces and the stresses on the existing wood frame. These stresses were compared to the code-mandated allowable stresses of the pieces to estimate the stability of the structure. This analysis was

conducted to confirm the current stability of the building and to inform the viability of removing an adjoining shed roof prior to attaching new structures to the granary.

d. Preliminary Evaluation and Recommendations
Based on the information gathered from the site visit and the results of the analysis, the building is evaluated for its capacity to support new design loads, and recommendations are given to repair and/or reinforce the structure to carry these loads. Preliminary recommendations are also provided to address the possibility of modifying the granary to support an elevated structural level (for an observation deck, etc.).

DESCRIPTION OF THE STRUCTURE

1. General Description
The granary elevator is a wood-framed structure that consists of four distinct systems: a cast-in-place foundation; a 15' tall first-level consisting of timber post-and-beam construction; a 30' tall matrix of wood grain bins that are constructed of wood cribbing; and balloon-framed wood roof and head-house structures. It measures approximately 40' east/west by 50' north/south (the canal lies to the north for the purpose of this report). The bins and supporting posts lie on a 5 x 6 orthogonal grid, spaced at approximately 10' on-center in each direction.

2. Foundation
Our understanding of the granary foundation is somewhat incomplete because it was mostly inaccessible during the site visit. Observations of the foundation were limited to a small opening in the east foundation wall, and a gap beneath a steel beam that supports the north wall of the building. These observations reveal north/south spanning concrete grade beams on grids A-F, which support east/west spanning grade beams on grids 1-6. The grade beams support the wood posts above. Between grids 2-3 and D-E there is a shallow basement area that is framed by concrete walls. It is not clear how deep the walls extend and if there is a concrete floor in this area (diagram 1).

Further investigation is required to determine whether the grade beams bear directly on the soil or if they are supported by wood piles. It is likely that they are supported by piles for two reasons:

- The fact that soil beneath and surrounding the granary is sand fill, built in the late 19th Century;
- The nearby Maritime Museum is supported on driven piles.
- The grade beams cantilever from grid 2 to the north; this would not be required if the building were founded on competent soils.

3. Superstructure
The Granary-Elevator superstructure that bears on the foundation consists of three systems (diagram 2):

- the main floor framing and first level wood-framed post-and-beam structure.
- 19 cribbed-construction square grain bins, laid out in a matrix of 4 x 5 bins.

- wood-framed gable roof and machinery head-house above.

4. First Level Wood Framing

The main floor of the elevator consists of wood planks that bear on wood joists. The joists appear to bear on the concrete grade-beams on the lettered grids. Much of the floor is covered with grain and equipment.

The lower 15' (approximately) of the granary elevator consists of 15' tall 12"x12" wood posts that support horizontal wood beams (12" wide x various depths) on-grid just below the grain bins. The interior posts are single heavy-timber pieces; the posts around the perimeter are built-up from five 2x12 pieces. The beam-to-column connections at the interior grids include knee-braces (12" wide x 2 ½" deep) that provide rotational resistance. Eight of 18 connections around the perimeter of the elevator have knee-braces, although 10 connections are missing knee-braces in either one or both directions. The locations of missing braces are consistent around the perimeter, leading one to believe that this may be an original condition (diagram 3).

5. Grain Bins

The granary houses 19 square bins arrayed in a 5 x 4 matrix that aligns with the numbered and lettered grids. One bin between grids 4-5 and C-D is removed to allow for a small one-person manual lift. The bins measure 10' square (approximately) and 30' tall, extending from 15' to 45' above the ground. The bin walls bear on the wood beams and posts below, and support the roof and head-house above; they create the exterior back-up walls at this elevation. The grain bins are made of 'cribbed construction', which consists of hand-sawn 2x4 planks laid flatwise, with long steel spikes driven through the plies to tie the walls together. This creates a matrix of 4" thick wood walls that is very rigid and strong to resist external wind loads and internal horizontal thrust loads created by the tall grain (diagram 4).

6. Roof and Head-House Framing

The granary is covered by a wood-framed gable roof that has a north/south spanning ridge beam. A 20' x 20' machinery head-house extends above the roof between grids B-D and 3-5. Sloped wood joists spaced at approximately 24" on-center bear on the east and west exterior bin walls, and on a center ridge beam (or the head-house wall structure). Wood planks create the roof deck, which is covered by asphalt roof shingles.

The head-house structure consists of six 10"x10" posts (four corner posts and one post each in the east and west walls) and 2x10 joists spaced at approximately 12" on-center. This structure bears on 10" wide wood sill plates that sit atop the grain bin walls.

7. Exterior Cladding

The granary elevator is clad in 4' x 8' corrugated metal sheets that are nailed to the supporting wood structure. This cladding provides protection against water and snow. It also creates a system of shear walls to resist lateral wind loads.

OBSERVATIONS AND ANALYSIS

1. Foundations

As stated above, the observations of the foundation were limited to two views: from one small opening in the foundation east wall, and through a gap beneath a steel beam that supports the north wall. The grade beams cantilever from grid 2 to the north to pick up the building wall at grid 1. The original construction likely included a concrete grade beam on Grid 1 that supported the north wall. The grade beam on grid C is broken at grid 2 where the inframing concrete beam intersects, causing the column at grid C1 to lose support and settle. It appears that a previous repair removed the grade beam on grid 1 and installed a 15" steel beam beneath the granary north wall to support the column on grid C1. The beam bears on grade beams at grids A, B, D, E and spans across grid C, supporting the wall above[1]. While this successfully supports the column, it may overstress the grade beams at grids B1 and D1. It also allows rodent infestation into the crawlspace (photos 1-3).

One common concern with old foundations is excessive settlement due to long-term soil compaction or foundation deterioration. Given that this foundation likely bears on wood piles driven deep into the soil, a possible failure mechanism is the deterioration of the piles and settlement of the structure.

Settlement was investigated by measuring first-floor elevations at the wood posts against a known elevation. A horizontal level plane was generated above the floor with a laser level, and the floor elevations at the posts were measured against this plane. Table 1 shows the floor elevation against an average elevation. The elevations are generally within 1" of the average elevation, which is quite stable for a building of this type and age. The columns around grid A2 are somewhat high, and the floor elevation at grid E4 is somewhat low. These likely indicate some movement of the foundation in these areas.

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[1] The concrete grade-beam beneath the east wall measures 13" wide x 9" deep. The steel beam measures 15" deep x 6" wide; ½" web thickness. These measurements indicate an S15x60 Standard Shape beam.

Table 1
Column Base Elevations
Floor Elevations Between Columns

Grids	A	a-b	B	b-c	C	c-d	D	d-e	E
1			1 2/3		- 1/3		- 5/9		
1-2		2 1/2		1		1/4		-1	
2	4		1 4/9		1/5		-0		-1 1/3
2-3		1 1/2		- 3/4		-1			
3	1 1/3		1/3		- 4/5		- 4/5		-1
3-4		1/2		- 3/4					
4			-1		- 5/9		-1		-2 1/3
4-5		- 2/9		- 3/4		-1 1/2			
5	- 1/3		- 2/3		1/5		- 1/5		- 1/3
5-6									
6							1/5		4/9

Notes: 1. 5 post bases & 8 floor elevations were covered by debris and were not measured.
2. Elevations are shown against the average elevation.

2. Main Floor

The wood planks that are visible are worn but are in serviceable condition. Water and bacteria from decaying grain is attacking the planks in two areas. The extent of the wood deterioration in these areas is not known.

The floor elevations at mid-span between grids were recorded and are shown in blue on Table 1. These elevations follow the surrounding column elevations and do not indicate excessive floor deflections between the columns.

3. First Level Framing

The matrix of wood posts that support the grain bins are in fair to good condition. The posts at the interior grids are solid 12" square timbers; the posts around the perimeter of the granary are built-up from five 2x12 posts. It is likely that the perimeter posts are not original to the building. Most of the posts appear to bear through the main floor to the foundation below; however, one post bears on a solid timber at about 1' above the floor. Several of the solid posts have splits that extend several inches into the post. Splits do not reduce wood post strength unless they extend through the thickness of the post, creating two separate parallel pieces. This condition was not observed. The wood appears to be equivalent to a #2 construction-grade wood (photos 4-6).

The wood beams and diagonal kickers were observed to be in good condition, when viewed from below. There is visible charring on wood members between grids 3-5 and 2-3, indicating a fire at one time. The beams were not accessible by ladder for further investigation. The kickers are connected to the beams and columns with three large nails at each end. There were no clear signs of deterioration or overstress in the beams or the kickers; however, this portion of the structure was not closely observed (photos 5-7).

Two common causes of wood deterioration are decay fungi attacking the wood cellulose structure, and insects boring into and ingesting the wood. Both of these require a moist environment, with a measured moisture content of 19% or greater. The moisture content of all columns was measured using a Delmhorst J-2000 Moisture Meter. The moisture content ranged from a low of 14.5% to a high of 17.5%. A rule of thumb for the moisture content of seasoned wood is for the moisture content to be approximately 20% of the average relative humidity of the surrounding air. A moisture content of 15% indicates an average relative humidity of approximately 75%. This may be a bit high for Sturgeon Bay, but is reasonable for the granary, given the water trapped in some bins above and dripping onto the floor. These moisture readings indicate there is no outside water source that is wetting the wood, and that the wood is too dry for decay fungi and insects to attack the wood.

In large timber posts it is not uncommon for moisture to wick into the interior of the columns from below, attacking the columns from within. Often the resulting deterioration is not visible on the surface of the post until significant damage has occurred. Therefore, all posts were probed with an awl to search for soft areas within the post. All posts were solid when probed.

The granary elevator is deflected 3 ½ inches to the east and 7 inches to the south between the floor and the bottom of bins at elevation 15 feet. This creates overturning forces that combine with the overturning forces caused by wind. These forces are presently resisted by a combination of the corrugated steel exterior walls acting in shear, and rigid connections between wood posts, beams and diagonal kickers. Close observation of the northeast corner of the granary revealed torn steel surrounding nailed connection to the corner column. This indicates a stress concentration that exceeded the shear capacity of the corrugated steel.

The high deflections and the torn steel in the north east corner of the granary created some concern about the current stability of the granary to resist lateral overturning forces. To answer this concern, a 3-D computer model was created using Risa Technologie's Risa 3D matrix analysis program (Version 10). This program models the structure's movement based on the combined stiffnesses of the wood-framed posts and beams, the corrugated steel skin, and the stiff wood bins above. Based on this movement and the piece geometries, the stresses within the pieces were calculated. The stresses due to the out-of-plumb condition were combined with the wind forces, and compared to the allowable stress of the wood. This computer analysis indicates that the combined stresses are within allowable stresses. See Appendix 1 for diagrams of the computer model.

4. Grain Bins

The cribbed-construction of the grain bins create stiff and strong bins that resist lateral wind forces with very little deformation, and have excess capacity against anticipated future loads. The bins were observed from within the roof space for deterioration and damage. Neither deterioration or damage was observed in the majority of the bins, although a thorough investigation of the bins was not conducted. Water is dripping from two bins, and the lower portion of one bin is filled with decaying grain. This indicates an environment conducive to wood decay at the bins' sloped bottoms and the lower walls (photos 8 & 9).

5. Roof and Head House

The roof and head house structures were viewed from within the roof area and from a small platform within the head house. A small amount of dry rot was observed at the bottom of one post that bears on the top of the grain bins; otherwise, there was no visible deterioration or decay. These structures above the grain bins appear to be plumb with no evidence of overstress. (photos 10-12)

CONCLUSIONS AND RECOMMENDATIONS

1. General

Recommendation 1: Before future building observations are ordered, clean building of debris decaying grain. Disinfect granary elevator.

2. Future Uses

a. The City of Sturgeon Bay intends to salvage and adaptively reuse the granary elevator as part of its waterfront redevelopment program. Based on the information gathered during the site visit report and the subsequent calculations, it is our conclusion that the existing granary is in generally good condition and retains sufficient capacity to support this intended use, with some modifications.

Recommendation 2: As part of any adaptive reuse designs, perform additional investigations and calculations to confirm the findings in this report. Include in the redevelopment plans reasonable modifications to address the discrepancies described below.

b. The plan may include building a 'Granary Market' that attaches to the Granary. This new structure may be incorporated into a new lateral system to replace the removal of the corrugated steel skin.

Recommendation 3: Include the 'Granary Market' concept into the lateral system modifications of the granary elevator

c. There has been some discussion about modifying the granary elevator to incorporate a viewing area within the grain bins. The discussion included removing an 8'-10' tall section of the bins for this use. It is feasible to remove the bin walls and replace them with a steel tube space frame that would bear on the bin walls at the perimeter of the granary. The space frame would include a grid of horizontal tubes on-grid to support the bin walls above.

Recommendation 4: The existing structure has the strength and stability to accept modifications to the grain bins for a new viewing area.

3. Foundations

The foundations were designed to support heavier loads than the future anticipated loads; therefore, the foundations, as built, have sufficient capacity to support the anticipated retail loads.

Recommendation 5: Investigate further the foundation grade beam conditions by removing selected main floor beams and visually inspecting a representative sample of the grade beams. Repair or replace broken or cracked grade-beams.

Recommendation 6: Remove the broken grade-beam on grid C and the steel beam under the north wall; replace these with new concrete grade–beams.
Recommendation 7: Uncover a portion of the foundation to determine the foundation type. If the foundation is supported on wood piers, expose 3-4 piers to confirm their satisfactory condition.

4. Main Floor

c. Overall, the visible portions of the wood plank floor appear sound – the wear is reasonable and deflections are minimal. A portion of the main floor is likely not suitable for public traffic due to bacteria associated with decaying grain. This environment is conducive to decay fungi that eat wood, reducing its strength.
Recommendation 8: Remove the decaying grain and dry the floor. Investigate the affected floor planks for decay fungi and loss of strength.
Recommendation 9: Calculate plank wood joist strength and compare to the required strength for assembly loading (100 psf). Replace planks that do not have sufficient strength.

d. The floor deflections between grids are not excessive; however, the rise and fall of the floor across grids is higher than is typically acceptable for retail use. It appears from Table 1 that these deflections are caused by differential settlement of the foundation below.
Recommendation 10: Given the ease of shimming a wood floor versus raising a foundation, we recommend that the wood floor be shimmed, as needed, to meet retail use.

5. First-Level Framing

a. This preliminary investigation indicates that that first-level framing has sufficient capacity to support anticipated retail loads. The general condition was recorded and all obvious and significant defects were observed (there were none).
Recommendation 11: As part of the adaptive reuse designs, include a complete investigation that closely observes all wood posts, beams, diagonal kickers, and connections to ensure that all visible defects and deterioration are observed. This should include moisture content readings and probes for soft and deteriorated wood beneath the surface. Replace damaged pieces that don't meet required capacity.

b. The strength of the wood used in the capacity calculations assumes a Douglas Fir Larch (North) and a #2 grade of wood.
Recommendation 12: Confirm the species and grading of the wood to more accurately determine the granary strength (and possibly increase calculated capacity). The species can be determined by sending wood samples to the University of Minnesota's Wood Sciences Lab for analysis. This is an inexpensive method to determine wood species. MBJ can determine the wood grade on-site, using a protocol developed by the Association of Preservation Technology (APT).

c. The small deflections and low stresses due to the out-of-plumb condition and wind forces, calculated by the 3-D computer model, indicate that the granary elevator is stable in its current configuration.

Recommendation 13: No actions are required to strengthen or stiffen the structure in its current configuration, beyond the identification and repair of deterioration.

d. One idea for future use is to remove a portion of the corrugated steel siding at the lower level to create an open market. The removal of the siding will eliminate the lateral load path for the building. A new lateral system will be required to replace this load path. This may include steel bracing within the existing structure, or the use of an adjacent new structure to brace/enhance the granary.
Recommendation 14: Additional calculations and coordination with the architectural plans will be required to determine a suitable lateral system.

6. Grain Bins

This preliminary investigation of the grain bins indicates that they are structurally sound and stable. A more thorough investigation is required to identify any local deterioration or decay that would affect strength. The wet and decaying grain at the bottom of two bins is accelerating the deterioration at the bottoms of the bins.
Recommendation 15: Confirm these findings during the adaptive reuse project with a close visual investigation of the grain bins.
Recommendation 16: Remove the decaying grain from the bins, allow sufficient time for the bins to dry, investigate for decay and deterioration of the bins in these areas.

7. Roofs and Head-House Structures

This preliminary investigation of the roof structure and the head-house uncovered no significant deterioration or overstress that would adversely affect their strength.
Recommendation 17: During the adaptive reuse design, confirm this with a thorough inspection of the roof and head-house structures that includes a close observation of the members, and measurement and strength calculations of selected members to confirm their capacity to meet current code-mandated loads.

Appendices: 1. Computer Model Diagrams
2. Photographs

Appendix 1 – Computer Model

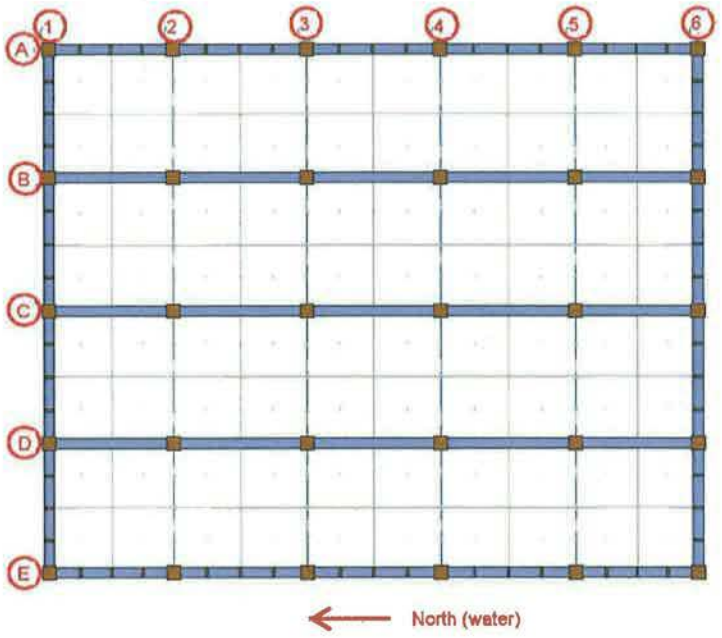

Diagram 1: Granary Elevator Floor Plan

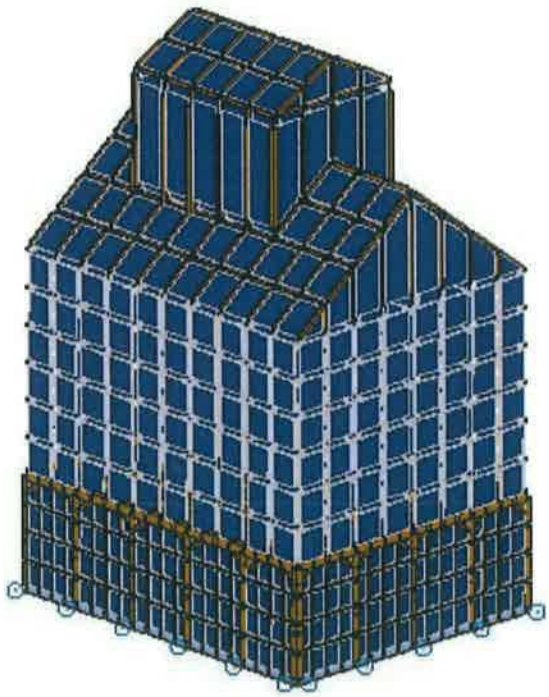

Diagram 2: Granary Elevator with Corrugated Steel Skin (blue) and Wood Framing

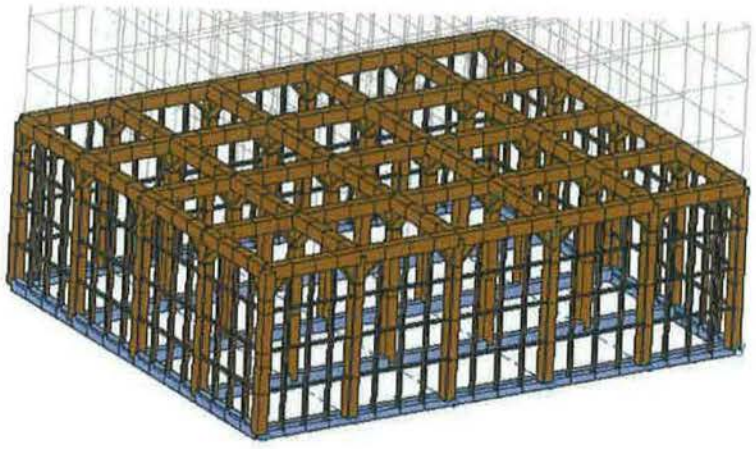

Diagram 3: Lower Level of Granary Elevator Showing Wood Framing

Diagram 4: Granary Elevator Showing Grain Bins and Wood Framing

Appendix 2 Photographs

Photo 1: Foundation wall at shallow basement

Photo 2: Foundation grade-beam with wood joists above

Photo 3: Steel beam under north wall

Photo 4: Interior solid posts

Photo 5: Typical built-up perimeter post

Photo 6: Built-up post showing first-level deflection

Photo 7: First-floor framing – post, beam and diagonal kicker

Photo 8: Grain bin showing cribbed-construction

Photo 9: Top of grain bins with roof framing beyond.

Photo 10: Dry rot at bottom of roof post.

Photo 11: Head-house wall and roof framing

Photo 12: Roof framing

Attachment 7

Final Report (executive summary only)

STRUCTURAL CONDITION ASSESSMENT REPORT FOR THE GRANARY ELEVATOR BUILDING PHASE II – FOUNDATION EVALUATION

Sturgeon Bay, Wisconsin

MEYER | BORGMAN | JOHNSON

STRUCTURAL DESIGN + ENGINEERING

Date: November 25, 2013 *(revised December 12, 2013)*

Prepared for: Marty Olejniczak
City of Sturgeon Bay
421 Michigan Street
Sturgeon Bay, WI 54235

Prepared by: Chris Hartnett, PE (MN, PA), LEED
Meyer Borgman Johnson
12 South Sixth Street, Suite 810
Minneapolis, MN 55402
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PROFESSIONAL CERTIFICATION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.

David S Holten

David Holten, PE Wisconsin Reg. No. 31591

MBJ Comm. No. W13-314.1
December 12, 2013

Meyer Borgman Johnson
Structural Design & Engineering

Funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act, Grant # NA13NOS4190043.

EXECUTIVE SUMMARY

The purpose of this analysis is to determine whether the elevator, in its current condition, has sufficient capacity to support the anticipated future loads. This report continues and refines a report produced by Meyer Borgman Johnson Structural Design and Engineering (MBJ), dated July 31, 2013. That report presented preliminary findings of the elevator superstructure – its construction, condition, and recommendations for future use. This report extends that evaluation into the elevator foundation. A site visit was conducted by Chris Hartnett, PE, on November 6th and 7th, 2013 to observe, measure and photo-document the building foundation.

The elevator can be described as having a 'soft-story', with a lower story (the 1st level) that is weaker and more flexible than the stories (the bins) above. This, when combined with the elevator's out-of-plumb condition, makes for the possibility of an unstable building. Based on the forces and deflections calculated during the analysis, a reinforcing strategy has been devised and preliminary recommendations made to modify the elevator for its proposed future use. These recommendations include sufficient detail for early cost-estimating.

The superstructure was described at length in Phase I of the evaluation, presented in our July 31, 2013 report. The foundation consists of 16" wide by 6'-0" deep concrete grade-beams that lie on the north/south lettered grids. The grade-beams bear on wood piles driven to competent soils. The wood piles lie below the water-table, are saturated with water, and are in very good condition. The western tilt of the building has caused the tops of the grade-beams to rotate several inches to the west. This rotation has rotated the interior grade-beams between 5 degrees and 16 degrees.

The original gravity-carrying system – 1st floor columns, concrete grade-beams, and wood piles – were designed for far higher loads than the future anticipated loads. The analysis presented in this report addresses whether deterioration or adverse modifications have reduced the elevator current capacity below acceptable levels. The slight westward movement of the elevator superstructure, and the resulting rotation of the concrete grade-beams, have caused the wood columns above to not align with the wood piles below. This misalignment, when combined with

the weight of the elevator above, forces the grade-beams further out of alignment. A new system is required to resist the lateral wind forces and the overturning forces caused by this misalignment

CONCLUSIONS AND RECOMMENDATIONS

1. Foundation Construction

The foundation consists of five concrete grade-beams supported on an array of 55 wood piles. The piles measure 12" in diameter.

Recommendation 1: No recommendation for future action.

2. Foundation Condition

The interior grade-beams are divided by construction joints at approximately 1/3 points along their length. The middle third between the joints is rotated 15 degrees to the west; the outside sections of the grade-beams are rotated five degrees. The tops of the wood piles lie below the water-table; therefore, there is insufficient oxygen to allow deterioration due to decay fungi or insect infestation.

Recommendation 2: The actions required to repair the grade-beams are addressed in recommendation 5 below. The wood piles require no future actions.

3. Gravity Loading

There is excess capacity within the original designs to respond to minor deterioration and adverse modifications. Several original columns were previously replaced with weaker built-up columns.

Recommendation 3: During the design phase of the future adaptive reuse project, analyze the replacement columns; repair or replace the weakened columns, as required.

4. Lateral Loading

The original lateral resisting system in the 1st level was not sufficiently stiff to resist wind loads without excessive deflections. New systems are required to resist future wind loads and to address the rotational forces caused by the rotated grade-beams.

Recommendation 4 – Superstructure Lateral System: There are two cost-effective solutions to resist future wind loads in the superstructure:

a. Build an adjacent structure that the elevator can 'lean' against. The lateral forces required to brace the elevator are not unreasonable for an adjoining building to resist.
b. Install diagonal steel rod braces in eight exterior bays and four interior bays. These could be designed to match the historic elevator aesthetic.

Recommendation 5 – Foundation Lateral System: Two systems are required to restore a viable east/west lateral system within the foundation:

a. Construct 25 new concrete tie-beams on the numbered grids to tie the existing grade-beam together, and resist additional rotation.
b. Construct four below-grade buttresses constructed against the west face of the elevator to transfer the east/west wind forces from the foundation to the soils.

Attachment 12

MCC Consulting & Contracting

SDVOSB

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CITY OF STURGEON BAY
GRANARY ELEVATOR BUILDINGS STRUCTURAL ENHANCEMENTS

Sturgeon Bay, WI

Conceptual Estimate
July 21, 2017

Prepared For:
City of Sturgeon Bay
421 Michigan Street
Sturgeon Bay, WI 54235

Project #180000

NOTES REGARDING PREPARATION OF ESTIMATE

This estimate was prepared based on the following documents provided by Meyer Borgman Johnson

1. Structural condition assessment report for the Granary Elevator Building Phase II - Foundation Evaluator dated December 12, 2013

2. Information regarding the project was also obtained via meetings, phone conversations, and email messages that clarified the project scope.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been generated from current material/labor rates, historical production data, and discussions with relevant subcontractors and material suppliers. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated.

Pricing reflects probable construction costs obtainable in the Sturgeon Bay, Wisconsin area on the bid date This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors with a minimum of 3 bidders for all items of subcontracted work and a with a minimum of 3 bidders for a general contractor. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Middleton Consulting has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, this statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Middleton Consulting's best judgment as professional construction cost consultants familiar with the construction industry. However, Middleton Consulting cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

ASSUMED CONSTRUCTION PARAMETERS

The pricing is based on the following project parameters:

1. A construction start date of _____
2. A construction period of 1-2 months.
3. The contract will be competitively bid to multiple contractors.
4. All contractors will be required to pay prevailing wages.
5. The contractors will have full access to the site during normal working hours
6. Estimate includes pricing as of July 2017.
7. The estimates provided are based on Recommendations 4 & 5 from page 14 of the Structural Condition Assessment Report.

EXCLUSIONS

The following are excluded from the cost of this estimate:

1. Professional Design Fees
2. Testing Fees
3. Owner Contingencies/Scope Changes
4. Construction Contingency
5. Premium Time / Restrictions on Contractor Working Hours
6. Cost Escalation Beyond a Start Date of July 2018
7. Finance and Legal Charges
8. Environmental Abatement Costs
9. Contaminated Soil Removal
10. Temporary Facilities

	COST SUMMARY		BUILDING TOTAL
01000	GENERAL REQUIREMENTS		$0
02000	EXISTING CONDITIONS		$0
03000	CONCRETE		$0
04000	MASONRY		$0
05000	METALS		$20,829
06000	WOODS, PLASTICS & COMPOSITES		$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		$0
08000	OPENINGS		$0
09000	FINISHES		$0
10000	SPECIALTIES		$0
11000	EQUIPMENT		$0
12000	FURNISHINGS		$0
13000	SPECIAL CONSTRUCTION		$0
14000	CONVEYING EQUIPMENT		$0
21000	FIRE SUPPRESSION		$0
22000	PLUMBING		$0
23000	HEATING, VENTILATING & AIR CONDITIONING		$0
26000	ELECTRICAL		$0
27000	COMMUNICATIONS		$0
28000	ELECTRONIC SAFETY AND SECURITY		$0
31000	EARTHWORK		$0
32000	EXTERIOR IMPROVEMENTS		$0
33000	UTILITIES		$0
	SUBTOTAL		**$20,829**
	ESCALATION TO MID-POINT OF CONSTRUCTION	2.0%	$417
	GENERAL CONDITIONS/BOND/INSURANCE	20.0%	$4,249
	CONTRACTOR'S FEES	10.0%	$2,550
	TOTAL ESTIMATED BID		**$28,045**

	COST SUMMARY	BUILDING TOTAL
01000	GENERAL REQUIREMENTS	$7,400
02000	EXISTING CONDITIONS	$0
03000	CONCRETE	$17,583
04000	MASONRY	$0
05000	METALS	$0
06000	WOODS, PLASTICS & COMPOSITES	$3,153
07000	THERMAL & MOISTURE PROTECTION SYSTEM	$0
08000	OPENINGS	$0
09000	FINISHES	$0
10000	SPECIALTIES	$0
11000	EQUIPMENT	$0
12000	FURNISHINGS	$0
13000	SPECIAL CONSTRUCTION	$0
14000	CONVEYING EQUIPMENT	$0
21000	FIRE SUPPRESSION	$0
22000	PLUMBING	$0
23000	HEATING, VENTILATING & AIR CONDITIONING	$0
26000	ELECTRICAL	$0
27000	COMMUNICATIONS	$0
28000	ELECTRONIC SAFETY AND SECURITY	$0
31000	EARTHWORK	$42,938
32000	EXTERIOR IMPROVEMENTS	$0
33000	UTILITIES	$0
	SUBTOTAL	**$71,074**
	ESCALATION TO MID-POINT OF CONSTRUCTION 2.0%	$1,421
	GENERAL CONDITIONS/BOND/INSURANCE 20.0%	$14,499
	CONTRACTOR'S FEES 10.0%	$8,699
	TOTAL ESTIMATED BID	**$95,694**

MCC Consulting & Contracting

City of Sturgeon Bay
Granary Elevator Building
Structural Enhancements

Conceptual Estimate
07/21/2017

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
RECOMMENDATION #4				
05000 METALS				
05900 Miscellaneous Metals				
1.5" dia. rod w/ threaded ends	444	LNFT	18.41	8,174
8"x8" 3/8" plate w/ eye bolt & anchor bolts	48	EACH	48.66	2,336
Turnbuckles (labor w/ rods)	24	EACH	155.00	3,720
Clevise & pins (labor w/ rods)	48	EACH	75.00	3,600
Engineering / Shop drawings	1	EACH	3,000.00	3,000
SUBTOTAL: Miscellaneous Metals				**$20,829**
TOTAL: METALS				**$20,829**
TOTAL: RECOMMENDATION #4				**$20,829**

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
RECOMMENDATION #5				
01000 GENERAL REQUIREMENTS				
01300 Temporary Facilities & Controls				
Remove grain	74	CUYD	100.00	7,400
SUBTOTAL: Temporary Facilities & Controls				**$7,400**
TOTAL: GENERAL REQUIREMENTS				**$7,400**
03000 CONCRETE				
03100 Concrete Formwork				
Formwork for butresses	70	SQFT	15.83	1,108
Formwork for grade beams	800	SQFT	12.52	10,014
SUBTOTAL: Concrete Formwork				**$11,122**
03200 Concrete Reinforcement				
Reinforcement in butresses, avg 250 lbs/cy	0	TONS	1,753.20	263
Reinforcement in grade beams	1	TONS	1,753.20	1,315
SUBTOTAL: Concrete Reinforcement				**$1,578**
03300 Cast in Place Concrete				
Concrete in buttresses, 4,000 psi	1	CUYD	201.14	241
Concrete in grade beams, 4,000 psi	15	CUYD	201.14	3,017
Concrete pumping	17	CUYD	95.56	1,624
SUBTOTAL: Cast in Place Concrete				**$4,883**
TOTAL: CONCRETE				**$17,583**
06000 WOODS, PLASTICS & COMPOSITES				
06100 Structural Wood				
Remove & reinstall wood plank decking	1	LSUM	3,153.42	3,153
SUBTOTAL: Structural Wood				**$3,153**
TOTAL: WOODS, PLASTICS & COMPOSITES				**$3,153**
31000 EARTHWORK				
31300 Foundation Excavation & Fill				
Excavate & backfill for butresses	4	EACH	734.56	2,938
SUBTOTAL: Foundation Excavation & Fill				**$2,938**
31500 Special Foundations				
Helical piers at butresses	8	EACH	5,000.00	40,000
SUBTOTAL: Special Foundations				**$40,000**
TOTAL: EARTHWORK				**$42,938**
TOTAL: RECOMMENDATION #5				**$71,074**

WISCONSIN HISTORICAL SOCIETY

TO: Keeper
National Register of Historic Places

FROM: Peggy Veregin
National Register Coordinator

SUBJECT: National Register Nomination

The following materials are submitted on this Twentieth day of December 2017, for the nomination of the (Teweles and Brandeis Grain Elevator) to the National Register of Historic Places:

1	Original National Register of Historic Places Nomination Form
1	CD with NRHP Nomination form PDF
	Multiple Property Nomination form
20	Photograph(s)
1	CD with image files
1	Map(s)
5	Sketch map(s)/figures(s)/exhibit(s)
	Piece(s) of correspondence
1	Other: Letter and structure report from the Mayor of Sturgeon Bay, WI

COMMENTS:

	Please ensure that this nomination is reviewed
	This property has been certified under 36 CFR 67
	The enclosed owner objection(s) do or do not constitute a majority of property owners
	Other: