

United States Department of the 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 National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any 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 certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).

1. Name of Property

Historic name Waggener Dairy Barn

Other names/site number Waggener Farm, Rock 'N' Horse Farm

Name of related Multiple Property Listing N/A

2. Location

Street & number 1700 Boyce Lane

N/A

 not for publication

City or town Festus

X

 vicinity

State Missouri Code MO County Jefferson Code 099 Zip code 63028

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 at the following level(s) of significance:

 national statewide X local

Applicable National Register Criteria: A B X C D

Burk A. DePort SHPO 2-9-22
Signature of certifying official/Title Date

Missouri Department of Natural Resources
State or Federal agency/bureau or Tribal Government

In my opinion, the property meets does not meet the National Register criteria.

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

 entered in the National Register determined eligible for the National Register

 determined not eligible for the National Register removed from the National Register

 other (explain:)

Signature of the Keeper

Date of Action

Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

5. Classification

Ownership of Property

(Check as many boxes as apply.)

<input checked="" type="checkbox"/>	private
<input type="checkbox"/>	public - Local
<input type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal

Category of Property

(Check only **one** box.)

<input checked="" type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input type="checkbox"/>	structure
<input type="checkbox"/>	object

Number of Resources within Property

(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
3	1	buildings
0	0	sites
0	0	structures
0	0	objects
3	1	Total

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

AGRICULTURE/SUBSISTENCE: Processing

AGRICULTURE/SUBSISTENCE: Animal Facility

Current Functions

(Enter categories from instructions.)

VACANT: Not in Use

7. Description

Architectural Classification

(Enter categories from instructions.)

OTHER: Wisconsin Dairy Barn

Materials

(Enter categories from instructions.)

foundation: CONCRETE

walls: WOOD

roof: METAL

other: BRICK

☒

NARRATIVE DESCRIPTION ON CONTINUATION PAGES

Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

8. Statement of Significance

Applicable National Register Criteria

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

- ☐ 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 old or achieving significance within the past 50 years.

☒

STATEMENT OF SIGNIFICANCE ON CONTINUATION PAGES

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

Previous documentation on file (NPS):

☐ preliminary determination of individual listing (36 CFR 67 has been requested)

☐ previously listed in the National Register

☐ previously determined eligible by the National Register

☐ designated a National Historic Landmark

☐ recorded by Historic American Buildings Survey # _____

☐ recorded by Historic American Engineering Record # _____

☐ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

☒ State Historic Preservation Office

☐ Other State agency

☐ Federal agency

☐ Local government

☐ University

☐ Other

Name of repository: _____

Historic Resources Survey Number (if assigned): _____

Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

10. Geographical Data

Acreage of Property 11 acres

Latitude/Longitude Coordinates

Datum if other than WGS84: _____

(enter coordinates to 6 decimal places)

1	<u>38.149779</u> Latitude:	<u>-90.388115</u> Longitude:	5	<u>38.14818</u> Latitude:	<u>-90.389652</u> Longitude:
2	<u>38.148813</u> Latitude:	<u>-90.387668</u> Longitude:	6	<u>38.148967</u> Latitude:	<u>-90.38964</u> Longitude:
3	<u>38.148722</u> Latitude:	<u>-90.387859</u> Longitude:	7	<u>38.149036</u> Latitude:	<u>-90.389581</u> Longitude:
4	<u>38.148173</u> Latitude:	<u>-90.387211</u> Longitude:			

Verbal Boundary Description (On continuation sheet)

Boundary Justification (On continuation sheet)

11. Form Prepared By

name/title Debbie Sheals, with Mason Martel and Rose Campbell
organization Building Preservation, LLC date January 4, 2022
street & number 29 South Ninth St. #210 telephone 573-874-3779
city or town Columbia state MO zip code 65201
e-mail debsheals@gmail.com

Additional Documentation

Submit the following items with the completed form:

- **Maps:**
 - A **USGS map** (7.5 or 15 minute series) indicating the property's location.
 - A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Continuation Sheets**
- **Photographs**
- **Owner Name and Contact Information**
- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

Figure Log:

Include figures on continuation pages at the end of the nomination.

1. Aerial photo. Waggener Dairy Barn Boundary, including latitude and longitude coordinates.
2. Context map.
3. Site plan and boundary map.
4. Survey of full 312.67 acres.
5. Aerial photo of the barnyard taken in 1976, looking southeast.
6. Additional photos of the feed chute.
7. Current First Floor Plan of the Waggener Dairy Barn.
8. Current Second Floor (Loft) plan of the Waggener Dairy Barn.
9. Interior Views of Other Dairy Barns. (Two pages)
10. Modern map of the Public Land Survey System (PLSS) in Jefferson County, Missouri.
11. Excerpt of 1876 atlas map of Jefferson County, Missouri.
12. Excerpt of 1910 Map of Jefferson County showing nearby railroad lines.
13. "Loading Cream at Iron Mountain Railway Station."
14. Table Showing the top five dairy-producing counties in Missouri as of 1920. Compiled with data from the 1920 Census of Agriculture.
15. Table of the top five dairy-producing counties in Missouri as of 1930. Compiled with data from the 1930 Census of Agriculture.
16. Excerpt from 1898 atlas of Jefferson County showing land owned by Berry and Waggener.
17. Diagram of an early gambrel roof framing system.
18. Table of National Register-Listed Wisconsin Dairy Barns.
19. Map of Properties in the Local Study Group.
20. Photos of the Local Study Group.
21. Table, Characteristics of the Local Study Group.
22. Other Wisconsin Dairy Barns in the Study Group.
23. Interior View of Barns in the Study Group.
24. Pattern Book Image of a Wisconsin Dairy Barn.
25. Comparison between the "James Flaring Base Ventilator," and a ventilator found on the Waggener Dairy Barn.
26. Forms Used to Build Concrete Silos.
27. Area Property lines
28. Photo Key

Waggener Dairy Barn

Name of Property

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Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log:

Name of Property: **Waggener Dairy Barn**

City or Vicinity: **1700 Boyce Lane**

County: **Jefferson**

State: **Missouri**

Photographer: **Deb Sheals**

Date

Photographed: **Numbers 2, 4, 5, 8, 10, 11, 20, 21: Dec. 9, 2019; all others December 9, 2020**

Description of Photograph(s) and number, include description of view indicating direction of camera:

1. Southeast and southwest elevations with attached milk house. Camera facing north.
2. Southwest and northwest elevations. Barn D (Pole Barn) can be seen in background, right. Camera facing northeast.
3. Northwest elevation. Camera facing southeast.
4. Detail, northwest elevation. Camera facing east.
5. Silo, ventilators, and dormers on northwest elevation. Camera facing southeast.
6. Silo and northwest end of barn with pole barn to the right. Grain silo. Camera facing west.
7. Interior view of silo, looking up to the roof structure.
8. Silo and west corner of Barn. Camera facing northwest.
9. Southeast elevation of Barn A and milk house. Camera facing west.
10. Barn A and Milk House connection, camera facing southwest.
11. Northeast corner of Barn A. Camera facing west
12. Interior, first floor. Camera facing southwest along center aisle. Historic ventilation/feed chutes visible in ceiling rafters.
13. Interior, first floor. Camera facing southwest. Historic concrete floor segment with waste trough, and stairs to loft.
14. Interior, first floor. Camera facing northeast towards doors to silo. Historic concrete walk to milk house door on the right.
15. Interior, first floor. Camera facing east to historic feed room and doors to silo.
16. Interior, historic spring trough in milk house. Camera facing east.
17. Interior, milk house. Camera facing southwest.
18. Hay loft. Camera facing northeast to silo end.
19. Hay loft. Camera facing southwest to hay door.
20. Site. Camera facing north.
21. Site. Camera facing east.
22. Barn B. Pump House (Barn C) can be seen in background, right. Camera facing east.
23. Barn B. Camera facing west.
24. Barn C. Camera facing east.

National Register of Historic Places
Continuation Sheet

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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Summary

The Waggener Dairy Barn at 1700 Boyce Lane is in a rural area of Jefferson County, Missouri, approximately seven miles southeast of the city of Festus. The large frame dairy barn was built ca. 1919 following the Wisconsin Dairy Barn type. It is two and one-half stories, with a high concrete foundation, horizontal lap siding, and a tall gambrel roof that features two large metal ventilators. The main section of the barn has a rectangular footprint that measures approximately thirty two feet by eighty feet. There is an original one-story milk house off one long side wall, and a round concrete silo on one short end. The silo is topped with an unusual cross-gable roof that is supported with large triangular brackets that are similar to those on the gambrel ends of the dairy barn; the roof is an early feature but may not be original. The interior of the barn is largely open, with iron pipe columns flanking a wide center aisle on the first floor and exposed wood framing in the hay loft above. The attached silo and milk house, as well as the rooftop ventilators and the roof framing system are all character-defining features of this building. They are also all common elements of Wisconsin Dairy Barns. The concrete foundation and lower walls of the barn and the concrete walls of the silo are also character-defining. The barn also retains its original low first floor ceiling, and portions of early concrete flooring that has integrated waste chutes.

There are three other outbuildings on the property: a multipurpose barn (Barn B) with vertical plank walls, and a smaller machine shed and pump house (Barn C) that has corrugated tin-covered walls. Those two buildings appear to have been built within ten years of the main barn, and each has been assigned a construction date of ca. 1925. Each is a contributing building, as is the original dairy barn (Barn A). There is also a large metal-sheathed pole barn (Barn D) that was constructed ca. 1965. It is a non-contributing resource due to age. The four buildings are the only resources on the nominated parcel, which is a barnyard that consists of eleven 11 acres of land. Neither the dairy barn nor the historic outbuildings have seen significant exterior changes, and all three contributing buildings are in fair to good condition. Although the non-contributing pole barn is large, it is significantly lower than the dairy barn, and located at the edge of the barnyard, for minimal impact upon the historic setting.

Elaboration

Setting and Site

The Waggener Dairy Barn and its outbuildings are located in rural Jefferson County in Township 39N, Range 6E. The property is on the south side of Boyce Lane, a narrow paved county road. The area contains a mix of steep wooded hills and open cultivated fields. Although the property is less than two miles from Interstate 55, land in the immediate vicinity of the barnyard is sparsely-developed, with widely-spaced houses and small farmsteads. (Figures 1 and 2.)

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Waggener Dairy Barn

Name of Property

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N/A

Name of multiple listing (if applicable)

The only other grouping of buildings visible from the barn property are located almost directly across Boyce Lane to the north, in U.S. Survey 1885. (Photo 20.) That property contains a two-story frame house, a smaller log cabin, and a few small outbuildings. The two-story house, which may date to the nineteenth century, has a new concrete foundation, vinyl siding, and new windows. The small log cabin was built around 1930, and the buildings appear to be less than fifty years old. Although records indicate that the property occupied by the two-story house was associated with the barnyard at the time that the dairy barn was built, it has also had separate owners for much of its history, and it is presently under separate ownership. The two-story house no longer retains historic integrity or an association with the dairy barn, and that property has therefore been excluded from the boundaries of the nominated parcel.

Boundaries of the Nominated Parcel

The property being nominated here encompasses eleven acres. It is part of a nearly 315-acre parcel of land that lies mostly in U.S. Survey 1856. Deed records from the late 1800s show that the property was by that time part of a larger parcel that included all of the land in Survey 1856, as well as the southern part of land in Survey 1885, to the north. That early parcel has since been subdivided and sold to different owners. The Waggener Dairy Barn and the other three barns on the nominated property are the only buildings on the current larger parcel.

The nominated property is a roughly triangular tract at the north end of a larger parcel. (Figures 3 and 4.) The eleven-acre parcel is bounded on the northwest by Boyce Lane, and on the northeast by the property line of the larger tract. The southern boundary of the nominated tract runs just a few yards from the buildings. The parcel includes only the land in the immediate vicinity of the buildings, plus enough land to reflect the general setting of the farmstead.

Barnyard

The barnyard is accessed by a small gravel drive off Boyce Lane that is situated near the center of the nominated parcel. (See Site Plan.) The lane is edged with white vinyl fencing and flanked by ornamental concrete block gateposts. One of those gateposts has an attached metal sign that reads "ROCK N HORSE FARM." The land northeast of the drive is part of a steep hillside, and the rest of the tract is generally level, with a gentle slope to the southwest.

All of the buildings on the property are oriented to the path of Boyce Lane, which runs northeast to southwest in that location. The original large dairy barn, which was built ca. 1919, sits at the edge of the gravel drive, about fifty yards southeast of Boyce Lane. It is sited with its long side walls parallel to the roadway. There is a smaller frame multipurpose barn near the end of the drive, about forty yards south of the dairy barn. That barn is historic; it was probably built shortly

National Register of Historic Places
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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

after the dairy barn, ca. 1925.¹ It is oriented with its long side wall parallel to the internal driveway. A third early outbuilding, the pump house, sits across the driveway from the multipurpose barn. It appears to also have been constructed ca. 1925 and is also historic. The fourth barn on the property is a non-historic pole barn that was built ca. 1965. It sits between the dairy barn and the public road.

The four barns are the only buildings on the property. Each is described in more detail below. Each of the three early barns is a contributing building. The non-historic pole barn is a non-contributing building due to age. The period of significance corresponds to the construction dates of the contributing resources, ca. 1919 to ca. 1925.

Architectural Description

Dairy Barn. Built ca. 1919. Contributing Building. (Photos 1-19.)

The Waggener Dairy Barn is a two-story frame barn with a concrete foundation, and concrete and frame walls. The lower part of the first floor walls are of poured concrete and the upper sections are sheathed with horizontal siding. The first story of the barn is approximately 9 feet tall and the hayloft within the high gambrel roof is one and one-half stories. The gambrel roof features flared eaves, ornamental triangular brackets and corrugated metal roofing. The roofing is early but probably not original. Two large ornamental ventilators are located at the ridge of the roof, which also has two small shed-roofed dormers on each side. The body of the barn has a rectangular footprint. There is a round poured concrete silo attached to the short northeast wall and a one-story milk house off the long southeast wall.

The large barn is intact and in good condition. All window sashes and doors in the building are early or original, as are the roof brackets and ventilators. There are two types of horizontal siding in place, shiplap on two walls and narrower lap siding on the other two. Both types of siding appear to be early; it is not clear which type is original. There are also two kinds of windows. Most barn openings have small early or original nine-light wood sashes that pivot inward. The milk house has tall rectangular windows that have 2/2 hung sashes. All siding and doors are painted red and all trim and poured concrete wall surfaces are white.

Dairy Barn: Southwest Elevation (Photos 1 and 2.)

The symmetrical southwest elevation is divided into three bays. Due to the slope of the land, more of the concrete wall is exposed on this elevation than the others. The wall above the concrete is sheathed with shiplap siding. The peak of the roof on this end of the building extends out over the center of the upper wall to form a hay hood. The hood is supported by ornamental triangular brackets that are historic. A large hay door below the hood is sheltered by

¹ Resources and materials are described in this document as original, historic—dating to the period of significance, and non-historic—built after the period of significance.

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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

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N/A

Name of multiple listing (if applicable)

a door that slides up and down with the help of counterweights inside the building. The door is early but may not be original.

The second floor on that wall has a central doorway that is directly below the hay door. The sliding hay door can be raised or lowered to cover one or the other of the upper doorways. It is likely that both doorways were used to load hay into the loft. The second-floor doorway is smaller than other doors on this elevation. It is flanked by secondary openings that may have been window openings at some point. None of the second-floor openings have any kind of covering or infill; they are historic but may not be original. There is also a large doorway centered on the first floor. That doorway is covered from the inside with an historic sliding wood door. It is flanked by nearly square nine-light hopper windows that pivot inward.

Dairy Barn: Northwest Elevation (Photos 3-5.)

The long flat northwest elevation faces Boyce Lane. The lower part of the wall is of painted concrete and the upper part is sheathed with horizontal shiplap. (Photo 5.) Working left to right while facing the wall, there is a small one-story frame shed addition next to the silo, then a single pivoting window and a wide double doorway. The doorway has a pair of ornamental sliding doors that appear to be original. (Photo 4.)

The shed addition is relatively early but may not be historic. It has a concrete foundation that is lower than that of the main barn, and there is a window in the northeast end of the barn that now opens into the shed, indicating the shed was built later. The shed has frame walls that are clad in horizontal shiplap siding. The tin-covered shed roof slopes to the exterior wall; it is shaped to follow the curve of the silo and has exposed rafter ends. The shed contains a large early plank door that has narrow vertical shiplap.

The rest of that wall contains ten evenly-spaced pivoting hopper windows. There are two shed dormers located high in the gambrel roof above, directly below the two large metal roof ventilators. Each dormer contains a pair of six-light pivoting hopper wood windows that are original.

Dairy Barn: Northeast Elevation and Silo (Photos 3-9.)

The short northeast wall is nearly covered by the small lean-to and a round poured concrete silo. Like the other walls, the walls have a short section of poured concrete, with horizontal siding above. The siding is narrower than that on the southwest and northwest walls and is bullnosed rather than shiplap. There is one nine-light pivoting window on the first floor south of the silo. A tall narrow doorway just above that window opens to the hay loft. There is no evidence of a door or other covering for that doorway, which appears to have been added in recent decades.

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Waggener Dairy Barn

Name of Property

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N/A

Name of multiple listing (if applicable)

The original round silo is a full three stories tall. (Photos 6-8.) It has poured concrete walls and is topped with a complex frame structure that consists of a cross gable roof which overhangs the top of the silo. The roof structure is historic and may be original. It has definitely been in place since 1976, the date of the earliest known photo of the barnyard. (Figure 5. 1976 aerial of the barnyard.) The gable ends of the silo roof are sheathed with shiplap siding, and triangular wood brackets support the roof overhang. (Photo 4.) Three of the gable ends in the silo roof have small vertical hatches or window openings that currently have no sashes or other coverings. There is also a small rectangular opening on a frame feed chute that runs between the end wall of the barn and the silo. That feed chute shelters rectangular hatches in the concrete wall of the silo which were built to access feed within the silo. (Hatches are at the bottom in photo 7.)

Dairy Barn: Southeast Elevation (Photos 1, 8-11.)

The long southeast elevation partially mirrors the northwest elevation. It has a similar arrangement of nine evenly-spaced nine-light wood windows and nearly identical doors on the north end of the wall. The lower wall is also of painted concrete, but the upper wall differs in that it is sheathed with the same type of narrow lap siding used on the northeast end wall. The major difference, however, is that it contains a central link to the attached milk house, which sits a few feet away from the southeast wall. The narrow connector has concrete and shiplap walls and a shallow gable roof. Each of its side walls has a pivoting nine-light window that matches those used on the northwest elevation. (Photo 10.)

Dairy Barn: Milk House (Photos 1, 9-11, 16, 17.)

The milk house is a low one-story frame building with a rectangular footprint and a gable roof that is covered with asphalt tab shingles. The northern end of the roof has a cross gable that corresponds to the spring room inside the building. The walls each have a concrete base and shiplap siding that is comparable to that on the main barn.

The concrete base on the southeast wall of the milk house spans the space between the milk house and the dairy barn, forming a small, enclosed area. There is no evident seam on the concrete to indicate that the enclosure was an addition. Its purpose is currently unknown. One early published barn plan shows a boiler and steam generator in a similar enclosure, and it is possible that area also housed a generator when new.²

The windows of the milk house differ from the barn in that they are tall rectangular openings filled with 2/2 hung wood windows, all of which are early or original. The milk house has a door into the barn connector, plus one exterior door on its northwest wall and one on its southeast wall. The doorways and the door into the barn are all historic; the other doors are modern.

² Breeder's Gazette, *Farm Buildings* (Chicago, IL: Sanders Publishing Co., 1916), 143.

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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Dairy Barn: Interior (Photos 12-15, 18-19.)

The interior of the dairy barn contains few partitions. The first floor is open; the only interior walls enclose a small feed room in the east corner. The feed room, which is historic, has early or original sliding doors. A wide central aisle that runs lengthwise through the barn is flanked by round metal structural posts that support heavy wood and metal ceiling beams. The structural posts and feed room are historic and probably original. The center aisle runs from an exterior door on the southwest end wall to a pair of wood doors on the northeast end wall. (Photos 12 and 14.) The northeast doors lead to a small room that accesses the silo and the feed chute. (Figure 6. Feed Chute.) Such doors were commonly used to provide access to the feed chute and prevent dust from entering the dairy barn.

There is also a wide cross aisle between the sliding doors that are close to the northeast end of the barn. The cross aisle and the northeast end of the main aisle have concrete floors, and the rest of the first floor has a mix of concrete and dirt flooring. Concrete flooring in place near the cross aisle and at the west corner of the barn includes square troughs. (Photos 13 and 14, and Figure 7. First Floor Plan.) The one at the west end leads to an exterior drain, presumably used to funnel animal waste out of the barn. (Photo 13.) There is also a narrow concrete walkway between the center aisle and the door that leads to the milk house, and all of the support posts have concrete footings. The concrete flooring all appears to be historic and may be original. It is possible that other historic concrete flooring was removed when the barn was converted to a horse barn in the 1960s.

The walls and ceiling of the first floor have exposed wood framing that is historic. The lower two-thirds of the exterior walls are constructed of original poured concrete, and the upper walls are lined with evenly spaced windows. The interior window openings feature angled casing that acts as a track for the windows, which tilt inward when open. (Photos 12 and 14.) The casing and window sashes are all early or original; they are generally intact but in fair to poor condition.

The hay loft is accessed by a narrow steep stair located in the southwest end of the first floor. (Photos 12 and 13.) There are no walls or other interior partitions in the loft. (Photos 18 and 19.) It has a wood floor that contains four hatches to the first floor; they were likely used for ventilation as well as transferring feed to the stalls. Two of the hatches are located directly below the rooftop ventilators. The loft also has exposed gambrel roof framing that is in good condition. It appears that the wood floor and roof framing are original. Two of the feed chutes are covered with widely spaced slats that may be modern. (Figure 8. Current Hay Loft Plan.)

The location of the dormers high on the roofline means that they were likely operated from inside the hay loft using a temporary ladder. They were probably left open in hot weather to aid in ventilation. There is also a small opening near the top of the northeast side of the loft that

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Waggener Dairy Barn

Name of Property

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N/A

Name of multiple listing (if applicable)

leads to the feed chute on the side of the silo. That opening may have been used to load grain into the silo, which has several rectangular doors that open into the feed chute. (Photo 7 and Figure 6.) The feed chute has a ladder along one wall that provided access to those doors. Silage would have likely been taken out of the silo from one of the doors in the chute, using a bucket and pulley system, or something similar.

The interior of the milk house is more finished than the barn, with concrete floors, painted plank walls and ceilings, and painted casing around the windows. (Photos 16 and 17.) The flooring, wall coverings, and window casing all appear to be original.

The milk house has two separate rooms. The northeast room (to the right in Figure 7) features a built-in concrete spring basin which consists of a low concrete trough through which spring water still circulates. (Photo 16.) It would have been used to keep milk cold when the dairy was in operation. The other room contains a wood panel workbench that is only a few decades old, and a doorway that leads to the connector between the milk house and the dairy barn. Barn plans of the time period show that milk houses often contained equipment for sanitizing equipment and milk containers as well as separating milk from cream, and in some cases bottling the milk. It is likely that the rooms of the Waggener milk house had similar functions.

Outbuildings

Multipurpose Barn (Barn B), ca. 1925. Contributing building. (Photos 21-23.)

The multipurpose barn has a rectangular plan and a gable roof with corrugated tin roofing. It has short concrete foundation walls and a dirt floor. The original vertical plank wall cladding painted the same dark red color as the other two historic barns on the property. The structural system of the barn consists of a mix of round and sawn timbers.

The northwest end of the barn contains a large corn crib that appears to be historic. An early or original wide wagon bay southeast of the corn crib is accessed by a large open doorway on each of the long side walls. The southeast end of the barn is largely open, with a full-height center aisle that is flanked by shorter animal stalls and storage areas. Most of the northeast wall of the barn is open to the adjacent lane; that part of the building may have been used for wagons or tractor storage when new. That area currently contains a large modern horse stall. The vast majority of the materials of the barn are historic, and it is in fair condition overall.

Machine Shed (Barn C), ca. 1925. Contributing Building. (Photos 21-22, 24.)

The machine shed is the smallest building in the barnyard. It has a rectangular plan, and a side facing gable roof with exposed rafter ends. The roof and the walls are covered in corrugated metal sheeting that is painted red. It has a high, poured concrete foundation, and wood-framed walls. The structural system consists of widely-spaced sawn wood support posts, with exposed

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sawn wall studs and ceiling joists. The northwest end of the building is enclosed, with two small rooms that have historic horizontal wall planks and concrete floors. The back room contains a pump for the well, and the front room has a small, bracketed brick chimney that is early or original.

The rest of the building is open, with open vehicle bays lining the southwest wall. That area has dirt floors and no wall finishes, and there are no doors on the vehicle bays. It is likely that it was originally used to store various machinery and farm implements. A photo taken in 1976 shows a tractor in one of the vehicle bays. (Figure 5.) Overall, the building is in fair condition, with few modern changes.

Pole Barn (Barn D), ca. 1965. Non-contributing Building. (Photos 6, 20.)

The large pole barn has a gable roof and vertical metal siding. The roof is carried by a wood truss framing system and is supported by large wood or metal posts. The interior of that building is one large open space. It is in good condition.

Alterations

There have been no major additions or other exterior alterations to any of the barns. The interior of the dairy barn was remodeled in the 1950s or 1960s, when the farmstead began to house horses as well as cattle. Those changes included adding horse stalls and removing some concrete flooring. Stalls were added to the machine shed around the same time. The impact of that remodeling project was largely reversed in early 2021, via the removal of those modern horse stalls. The ground floor of the dairy barn today is open save for a double row of support posts. (Photos 12 and 14.) The machine shed has been returned to its early open floorplan.

It is difficult to determine the overall impact the mid-century remodeling project had on the dairy barn, due to the lack of historic photos to show what was in place during the period of significance. Photos of other dairy barns of the same period do, however, offer an indication of what the first floor of the Waggener Dairy Barn may have looked like when it was new. Barn plan and equipment books of the day included numerous interior photos of barns that used their equipment to help sell their products. Publications of the companies like the James Manufacturing Company of Fort Atkinson Wisconsin, later known as the Jamesway Company, are a good source of interior views. (See Figure 9. Interior views of working dairy barns.) The James Company specialized in equipment for the dairy industry; their offerings included everything from stanchions and ventilators to full architectural plans for dairy barns.³

³ *Complete System of Jamesway Ventilation* (Ft. Atkinson, WI: James Manufacturing Company, 1921), 20.

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A review of early published images as well as other dairy barns in Jefferson County indicate a likelihood that the first floor of the Waggener barn was built with a stanchion system. Stanchions were used to keep the dairy cows under control while they were being milked. Most stanchion systems utilized relatively slender pipe railings of various configurations to keep the cows separated and under control without blocking the flow of air in the barn with heavy wood partitions. That layout can be seen in at least one other dairy barn in Jefferson County that is still in operation, as well as various barn catalogues of the 1910s. (See Figure 9.) Although the Waggener Dairy Barn no longer contains stanchions or mangers, the current open plan is typical of dairy barns of the 1910s and 1920s. The pipe columns in the center of the barn are original and little changed, and there is also enough concrete flooring left in place to show that the barn builders followed the common practice of using concrete to maintain a clean and comfortable environment for the animals.

The only other possible alteration of note concerns the roof of the silo, which is at least 45 years old but may not be original. The current roof has a square base that overhangs the round silo, with large triangular brackets supporting the overhangs. (Photo 4.) The brackets are not an exact match to those on the main barn, which may indicate that they, and possibly the silo roof structure, were added later. The current cross-gable configuration of the roof is unlike any roof seen in barn catalogues of the day or on other barns in the area, but that variation does not necessarily mean it was a later addition. The current roof is known to have been in place since 1976, the date of the oldest known photo of the barn, and it reflects the ongoing use of the silo.

Assessment of Historic Integrity

The historic barns on the property all feature a good deal of original fabric, and as a group, they reflect their long agricultural history. The large dairy barn retains the exterior character-defining features of the Wisconsin Dairy Barn property type. Those include a rectangular floorplan with a low first floor, a gambrel roof with ventilators, an attached concrete silo, and a milk house fed by an active spring. The Waggener Dairy Barn property meets all seven characteristics of historic integrity under the National Register criteria as follows:

- **Location:** The historic barns all occupy their original site, adjacent to agricultural fields and woodlands that were part of the original farm. None of the buildings in the nominated property have been moved.
- **Setting:** The current rural setting is comparable to what was in place when the barnyard was part of a larger dairy farm. The farmstead is located in a wide creek valley that features open agricultural fields edged by wooded hillsides and stream beds. Although this part of the county has seen residential development in recent decades, those newer developments are not visible from the nominated property.
- **Design:** The Dairy Barn exhibits a higher level of architectural design than one might expect to find in a small barnyard. That level of styling invites speculation that the barn

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was built with the help of architectural plans supplied by a plan service. Distinctive architectural details that remain in place include ornamental eave brackets, horizontal weather board siding accented with wide corner boards, and sliding barn doors that have ornamental bracing. Although the interior layout of the first floor of the barn was altered in the 1950s or 60s to accommodate new horse stalls, the impact of that change was greatly reduced by recent removal of the modern stalls. The barn today has an open layout that is comparable to that found in other dairy barns in the 1910s and 20s.

- **Materials:** Almost all materials in and on the barns are historic. That includes the distinctive rooftop ventilators, horizontal wood siding, ornamental brackets, and elaborate doors on the dairy barn. The poured concrete of the large silo is also original. The dairy barn also retains original poured concrete walls and foundation, as well as some historic concrete flooring. The loss of some historic flooring and possible early milking stanchions in the dairy barn is notable, but not so severe that the barn fails to evoke its period of significance. The smaller historic barns also retain significant amounts of original materials, including wall cladding, exposed framing members and some roofing.
- **Workmanship:** The dairy barn exhibits a high quality of workmanship, especially in exterior details such as the roof brackets on the barn and the ornamental cross bracing used on the barn doors. The elaborate structural system of the gambrel roof and the poured concrete silo and barn walls are also notable.
- **Feeling:** Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.⁴ The rural setting contributes to the historic feeling, and the intact buildings in the barnyard continue to reflect their long history of agricultural use.
- **Association:** Association is the direct link between an important historic event or person and a historic property.⁵ The barn offers a good representative link to the early twentieth century dairy industry in Jefferson County.

⁴ Patrick W. Andrus and Rebecca H. Shrimpton, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Washington, DC: United States Department of the Interior, National Park Service, 1995), 45.

⁵ Andrus and Shrimpton, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, 45.

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N/A

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Summary

The Waggener Dairy Barn, located at 1700 Boyce Lane in Jefferson County, Missouri south of Festus, was built ca. 1919. It is locally significant under National Register Criterion C, in the area of ARCHITECTURE. It is a typical early twentieth-century dairy barn that is a good local example of the Wisconsin Dairy Barn property type. The barn features a large, reinforced concrete silo that reflects technological changes and growth in the early-twentieth-century dairy industry. The term Wisconsin Dairy Barn refers to one of the first common barn types that utilized a gambrel roof and other new technologies, many of which were developed in the late 1800s at the University of Wisconsin Agricultural Experiment Station in Madison.⁶ The period of significance for the property, ca. 1919-1925, corresponds to the construction of the three contributing buildings found there. The dairy barn was built during an especially productive period for the dairy industry in Jefferson County. Jefferson County was routinely in the top five dairy-producing counties in Missouri in the early twentieth-century; in 1910 for example, Jefferson County ranked third in the volume of dairy products in the state. The property being nominated includes the barn and its immediate surroundings; it is an open parcel of land that encompasses approximately eleven acres. It includes the dairy barn, which is a contributing building, plus two smaller frame barns that were built in the same general time period as the dairy barn. There is also a larger pole barn that was constructed in the 1960s. The smaller frame barns contribute to the historic setting of the dairy barn, and each is counted as a contributing building. The newer pole barn is a non-contributing building, due to age. Neither the large dairy barn nor the two ca. 1925 barns have seen exterior changes of note, and the barnyard today looks much as it did when the dairy barn was in operation.

Elaboration

Jefferson County

Jefferson County, located thirty miles south of the present-day St. Louis metropolitan region, was controlled by the Spanish in the 1700s. In 1803, the land was acquired by the United States as part of the Louisiana Purchase from France. On December 8, 1818, Jefferson County was established by the territorial legislature. It was named after President Thomas Jefferson, who authorized the Louisiana Purchase, which brought the land into the United States.⁷

Under Spanish rule, early settlers had been granted tracts of land that were usually located along major bodies of water. Those tracts were established before the land was surveyed into

⁶ Elizabeth L. Miller, "University of Wisconsin Dairy Barn," National Register of Historic Places Nomination (Washington, D.C.: United States Department of the Interior, National Park Service, 2002, NRIS #02000600), 7.1.

⁷ *Jefferson County: Its Settlers, Origin and Development* (Jefferson County Clerk, 1988), <https://www.jeffco.org/uploads/County%20Clerk/Elections/Jefferson%20County%20Facts%20.pdf> accessed June 2020, 2.

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the orthogonal system of Townships, Ranges and Sections now common to most of the state. The early land grant surveys are easily identified on maps, as they consist of uniquely-shaped tracts of land adjacent to waterways.⁸ (Figure 10. Excerpt of map showing land surveys in Jefferson County, Missouri.) The Waggenger Dairy Barn is located on the north edge of Survey 1856, just a few yards south of the border of Survey 1885. (Figure 4. Survey of property.)

By 1876, the land where the dairy barn is located was owned by John L. Marsh.⁹ A county atlas published that year shows that Marsh owned more than 1300 acres in the area, including most of Survey 1856 and seventy acres in the southeast corner of Survey 1885. (Figure 11. 1876 atlas map of Jefferson County.) That map also shows a county road running east-west near the north boundary of Survey 1856. Boyce Lane, which now goes just north of the dairy barn, appears to run south of the path of that early road. The 1876 atlas map shows a house and possibly an orchard on Marsh's land north of the roadway, but no buildings in Survey 1856 to the south.

There is currently a house north of Boyce Lane that is in the general location of the house shown on the 1876 atlas, but it is unclear if it is the one shown on the atlas map. The house has seen significant alterations over the years, including new windows and siding, as well as a new foundation. The house lot is no longer associated with the barn property.

Marsh was interested in lead mining rather than agriculture, which offered limited opportunities in the area in the early to mid-1800s.¹⁰ The hilly topography had historically made it difficult to raise field crops; in 1803, there were only two grain mills in the entire county.¹¹ While the land was not well-suited to growing crops, it was good for raising livestock. As one history of Jefferson County later noted, "its abundance of pure water, extensive ranges for pasture, and its nearness to the market...has superior advantages for the raising of all kinds of stock."¹²

Despite Jefferson County's many natural advantages for raising livestock, getting products to larger markets in nearby St. Louis was a challenge, as there were few improved roads that connected much of the county to St. Louis. That problem persisted until 1858, when the St. Louis, Iron Mountain and Southern Railroad was completed through Jefferson County.¹³ That railroad was to be one of three that was close to Survey 1856. Around 1893, two other railroads

⁸ *Goodspeed's History of Franklin, Jefferson, Washington, Crawford, & Gasconade Counties, Missouri* (Chicago: Goodspeed Publishing Company, 1888), 370.

⁹ 1876 Atlas map of Jefferson County, Missouri. (*An Illustrated Historical Atlas Map of Jefferson County, Missouri, 1876* (Philadelphia, PA: Brink, McDonough & Company, 1876), 20, 24.

¹⁰ Dave Hollemann, "Wm. S. McCormack Cemetery," Jefferson County Historical Society, accessed July 2020 <http://www.jeffcomohistory.org/DavesCemArticles/WmSMcCormackCemetery.pdf>, 2.

¹¹ *Goodspeed's History of Franklin, Jefferson, Washington, Crawford, & Gasconade Counties*, 374.

¹² *Goodspeed's History of Franklin, Jefferson, Washington, Crawford, & Gasconade Counties*, 380.

¹³ *Jefferson County: Its Settlers, Origin and Development*, 4.

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were completed in the area. One of them, the Missouri River and Bonne Terre Railroad, ran less than one mile west of the dairy barn. Construction of those railroads provided efficient options for shipping dairy products to St. Louis. (Figure 12. 1910 map of nearby railroad lines.)

Jefferson County Dairy Industry

With expanded railroad service, local farmers were able to ship products to St. Louis and elsewhere, and a profitable dairy industry began to develop. The growth of the dairy industry in Jefferson County is reflected in data collected from the Agricultural Census. In 1850 there were approximately 2,713 dairy cows on farms throughout the county. By 1880, that number had more than doubled, to 6,112 cows.¹⁴ In 1902, farms in Jefferson County produced some 3,302,440 gallons of milk and 413,215 pounds of butter. All told, dairy products in Jefferson County were valued at \$423,450 in that year.¹⁵ A 1902 description of the county noted that "Milk and butter are sent to St. Louis daily from all stations along the Iron Mountain Railroad."¹⁶ (Figure 13. "Loading Cream at Iron Mountain Railway Station.")

While the value of dairy products produced in Jefferson County decreased in the 1910 census, the county was still the third-largest dairy producer in the state by value. The 1910 census shows that Jefferson County produced \$386,180 worth of dairy products. That number was barely exceeded by St. Louis County's production of \$386,473 worth of dairy products. Jackson County, near Kansas City, was the largest producer of dairy products in the state, with \$721,171.¹⁷

The 1910 census also showed Missouri's emergence as an important dairy-producing state. According to that census, the state ranked sixth in the number of cattle on farms, and ninth in the number of dairy cows on farms.¹⁸ Missouri was also ranked fifth in the nation according to overall farm value.¹⁹ The 1920s and 1930s were an especially profitable time for the dairy industry in Missouri. A 1920 report by the State Dairy Commissioner highlighted the growth of Missouri's dairy industry. According to that report, there were approximately 919,000 "milk cows" in the state, producing 4,043,600,000 gallons of milk. The Missouri state dairy industry was valued at \$25 million at that time.²⁰ Census records show that in 1920, Jefferson County

¹⁴ *Goodspeed's History of Franklin, Jefferson, Washington, Crawford, & Gasconade Counties*, 381.

¹⁵ Walter Williams, *The State of Missouri: An Autobiography* (Columbia, MO: E. W. Stephens Press, 1904), 414.

¹⁶ Williams, *The State of Missouri: An Autobiography*, 414.

¹⁷ *Thirteenth Census of the United States, Taken in the Year 1910, Volume V: Agriculture 1909 and 1910* (Washington, D.C.: United States Department of Commerce, Bureau of the Census, 1914), 762-765.

¹⁸ *Thirteenth Census of the United States Volume V: Agriculture*, 333, 351. Missouri did not make the top 10 list of states with the most dairy cows in the 1900 census.

¹⁹ *Thirteenth Census of the United States Volume V: Agriculture*, 39.

²⁰ Missouri State Board of Agriculture, *The Missouri Year Book of Agriculture* (Jefferson City, MO: Hugh Stephens, 1921), 175-176.

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was the fifth largest producer of dairy products by value, at \$603,194.²¹ (Figure 14. Table of the top five dairy-producing counties in Missouri in 1920.)

In 1929, the *St. Louis Post-Dispatch* reported that St. Louis had been selected by the National Dairy Association to be the permanent host city of the National Dairy Show. In an article written about that selection, S. H. Anderson, the Executive Secretary of the National Dairy Association in Missouri, stated "Missouri now ranks tenth among the states of dairy products. With the development of the industry, which will follow the establishment of the National Dairy Show within its borders...there is no reason why it should not in a few years be among its leaders."²² With its location close to St. Louis, and easy access to the dairy markets there via the railroad, Jefferson County was in an excellent position to benefit from the growing regional dairy trade.

The 1930 census shows that Jefferson County remained in fifth place in dairy production by value for all Missouri counties, with \$826,392 worth of dairy products.²³ (Figure 15. Table of the top five dairy-producing counties in Missouri in 1930.)

Waggener Dairy Barn

The Waggener Dairy Barn was constructed ca. 1919, during that boom in the dairy business in Jefferson County. It was built by or for Stokely T. Waggener, who had purchased most of Marsh's property in the county with his business partner, B. C. Berry, in 1896.

The Waggener family has a history of farming in Jefferson County going back to the early 1800s. According to one history of Jefferson County, a man called "Captain Waggener" settled in the area around 1839 and built a home that was located approximately five miles east of the present-day barn.²⁴ That man was most likely Reuben G. Waggener, a Virginia native who piloted a steamboat along the Missouri River. Reuben Waggener was listed in the 1850 census as a farmer. He lived on that farm with his wife Mary and their five children. The youngest child was Stokely Waggener, who was one at that time.²⁵

Census records indicate that Stokely lived on his parents' farm until at least 1880. Soon after, he opened a store in Festus which became one of the more prominent businesses in the

²¹ *Fourteenth Census of the United States Volume VI Part 1: Agriculture* (Washington, D.C.: United States Department of Commerce, Bureau of the Census, 1922), 589-599.

²² "Missouri to be National Dairy Center," *St. Louis Post-Dispatch*, September 13, 1929.

²³ *Fifteenth Census of the United States Volume III: Agriculture Part 1-The Northern States* (Washington, D.C.: United States Department of Commerce, Bureau of the Census, 1932), 765-779.

²⁴ Eschbach, Walter L., and Malcolm C. Drummond, *Historic Sites of Jefferson County, Missouri* (Harland Bartholomew and Associates: 1968), 64.

²⁵ 1850 Census page for Stokely T. Waggener, Ancestry.com.

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county. Stokely was the president of the Waggener Store Company, which was described in 1933 as one of the “oldest and best known business establishments in Jefferson County...”²⁶

In 1896, Berry and Waggener purchased about 1,388 acres from John L. and Cecil Marsh, and Carrie and Clifford Fleming. That purchase included a number of different parcels, including “70 acres of the S end of Survey 1885 & all of Survey 1856...” which included the nominated property.²⁷ (Figure 16. 1898 atlas map of Jefferson County.) It appears that they used Marsh’s former landholdings as investment property rather than personal residences or farms. There is no evidence that either man ever lived in Survey 1856. The house that is located at the south end of Survey 1885 may have been rented by someone who was farming some of that land.

B. C. Berry died in 1909, and the partnership was dissolved. Although probate and deed records are inconclusive, it appears that the land then passed to Stokely Waggener, who retained ownership until his death.²⁸ Around 1919, Waggener had a modern new dairy barn and two other outbuildings constructed on land he owned in Survey 1856.²⁹ As was the case with his partnership with B. C. Berry, there is no evidence to suggest that Waggener lived or worked on the farm. He most likely leased it out while focusing his attention on running his store in Festus. It is not clear how successful the farm operation was, as no records from the time have been found.

That dairy barn was probably built from standardized plans, which were widely available by that time. Most plan books provided dozens of different barn layouts that could be modified to suit an owners’ individual needs. Those books often provided a photo or drawing of each barn plan, along with a brief description and a basic floorplan. One book, published by the Loudon Machine Company of Fairfield, Iowa, even provided tables to help determine ventilation needs and silo capacity.³⁰ In addition to plan books, many state universities provided guidance on barn construction that included information on the latest methods and innovations.

Stokely Waggener may have also received advice on the construction project from his older brother, J. T. Waggener. J. T. Waggener was a member of the Missouri State Legislature who served at least one term as the president of the Iron Mountain Farmers’ Dairy Company, starting in 1891.³¹ As an active member of that organization, J. T. Waggener would have been familiar with the latest trends in the dairy industry, including standards for farm buildings.

²⁶ “Stokely Waggener, Uncle of Piedmontains, Dead,” *Wayne County Journal-Banner*, January 5, 1933, 4.

²⁷ Jefferson County Deed Records, Book 44, page 185.

²⁸ Partnership Estate files of B. C. Berry and Stokely T. Waggener. (1912.) Files located at the Jefferson County History Center at Jefferson College.

²⁹ Jefferson County Property Tax Assessment Records, 1919 and 1920.

³⁰ *Louden Barn Plans* (Fairfield, IA: Loudon Machine Company, 1914), 20.

³¹ *St. Louis Globe-Democrat*, September 2, 1891, 5.

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N/A

Name of multiple listing (if applicable)

Wisconsin Dairy Barn

The Waggener Dairy Barn is a typical early twentieth-century dairy barn that exhibits many of the character-defining features of the Wisconsin Dairy Barn, a form that was in common use between 1900 and the 1930s. The term Wisconsin Dairy Barn appears to have been coined by cultural geographer Alan Noble, who included a description of the property type in *Wood, Brick and Stone: The American Settlement Landscape*, which was published in 1984.³² Noble based his analysis largely on exterior features, using the term to describe two-story dairy barns that featured relatively narrow rectangular floor plans, low first floors lined with windows, and high gambrel roofs with large ventilators. Early examples also frequently included attached silos, and milk houses became common appendages in the early 1900s. All those elements are character-defining features of the Waggener Dairy Barn.

The Wisconsin Dairy Barn form can most accurately be classified as popular architecture. Like the Bungalow and Foursquare house types of the same period, it falls somewhere between vernacular and high style architecture. Wisconsin Dairy Barns came into use at a time when an increasing number of everyday buildings were constructed using mass-produced plans and building materials. Through plan books, agricultural experimental stations, and other public sources, barn builders were able to access modern designs and building materials for a reasonable cost.

Noble credited the Wisconsin Experimental Station at the University of Wisconsin in Madison with influencing the development of the Wisconsin Dairy Barn type, which was one of the first to feature a gambrel roof. Early work at the station included holding events and demonstrations to educate farmers around Wisconsin of the latest agricultural practices.³³ The station also pioneered several important advances in the design and construction of dairy barns, and even created standardized barn plans for public distribution.³⁴

The Wisconsin Dairy Barn form developed around the turn of the twentieth century, when increasing attention to scientific principles of farming spurred what one author called “a metamorphosis of the traditional farm barn.”³⁵ Barn construction began to shift from vernacular building forms and methods that were based on tradition and the use of readily available

³² Allen G. Noble, *Wood Brick and Stone: The North American Landscape Volume 2: Barns and Farm Structures* (Amherst, MA: University of Massachusetts Press, 1984), 45-46

³³ Miller, “University of Wisconsin Dairy Barn,” 8.5.

³⁴ “Model Barn Framing Details,” architectural drawing (Madison, WI: University of Wisconsin Architectural Engineering Department, College of Agriculture, no date), in Timothy F. Heggland, “Robinson, John C. and Mary, Farmstead” National Register of Historic Places Registration Form (Washington, D.C.: United States Department of the Interior, National Park Service, 2009), 8.4, Figure 6.

³⁵ Glenn A. Harper and Steve Gordon, “The Modern Midwestern Barn, 1900-Present,” in *Barns of the Midwest*, ed. Allen G. Noble and Hubert G. H. Wilhelm (Athens, OH: Ohio University Press, 1995), 215.

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N/A
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materials, to new designs and construction methods that were influenced by expanding information and transportation systems, and a more scientific approach to agriculture.

Between the late 1890s and 1910, heavy timber braced-frame structural systems gave way to lighter plank-frame construction methods that utilized smaller sawn structural members and allowed for much more open interior spaces.³⁶ Plank-frame truss systems were particularly effective for gambrel roofs, in that they eliminated the need for interior cross bracing, creating large open lofts that were well suited to hay storage. Additional feed storage was provided by silos, which increased in use in that same period. Silos first started appearing in Wisconsin around 1880, and by the 1910s they were nearly requisite for dairy barns across the country, including Wisconsin Dairy Barns.³⁷

Those framing systems also made it possible to adjust the size of the second-floor haylofts by varying the height of their sidewalls. As a result, the sidewalls of some barns, including the Waggener Dairy Barn, are less than ten feet tall, while others extend as much as twenty feet. (See Figure 17. Diagram of an early gambrel roof framing system with taller sidewalls.) All Wisconsin Dairy Barns have just two stories, however—a lower first floor used for stock and a second-floor loft that is open to the peak of the gambrel roof.

The first floor of most dairy barns, including Wisconsin Dairy Barns, were typically relatively short; Noble described them as being “rarely higher than eight or nine feet,” and noted that the low ceilings conserved heat in the winter.³⁸ That low first floor height distinguishes dairy barns from horse barns in many plan books of the time. Horse barns were also sometimes built with gambrel roofs, but they tend to have taller first floor spaces to accommodate equine use.

Barn construction methods and building forms were also modified in that period to address a growing emphasis on sanitation. Sanitation was particularly important in dairy barns. As one historian observed, “Fresh air, ample sunlight and a clean warm barn made for healthier animals, which, in turn, meant increased profits of the farmer.”³⁹ Unlike another early gambrel barn form, the Erie Shore Barn, Wisconsin Dairy Barns are characterized by relatively narrow rectangular plans, which generally did not exceed thirty-six feet in width.⁴⁰ That was wide enough to allow for a central isle and two rows of cattle stanchions but narrow enough to take advantage of the natural light and fresh air supplied by rows of small windows that lined each of the long side walls. The primary advantage of this arrangement was that it made feeding easier

³⁶ Lowell J. Soike, “Within the Reach of All: Midwest Barns Perfected,” in *Barns of the Midwest*, 147-148.

³⁷ Ingolf Vogeler, “Dairying and Dairy Barns in the Northern Midwest,” in *Barns of the Midwest*, 108.

³⁸ Noble, *Wood Brick and Stone*, 46.

³⁹ Harper and Gordon, “The Modern Midwestern Barn,” 220.

⁴⁰ Noble, *Wood Brick and Stone*, 61.

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N/A
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and was more sanitary.⁴¹ Barn builders also began using poured concrete and other masonry systems for foundations, floors, and even portions of the exterior walls. Concrete was moisture-proof, easier to clean, and even promoted as being “rat-proof.”⁴²

The Wisconsin Dairy Barn quickly became one of the most popular large barn types in the dairy belt, which includes Wisconsin, Michigan, New York, Pennsylvania, New Hampshire, and Vermont.⁴³ Noble estimated in 1984 that one half to three quarters of all dairy barns in Wisconsin used that building form and noted that it was also popular in other areas, including some parts of Missouri. He observed that “important concentrations [of the form] appear around St. Louis, the Quad Cities area of Illinois, Chesapeake Bay, and northern New Jersey...”⁴⁴

Wisconsin Dairy Barns can also be found in states outside of the Dairy Belt, including Oklahoma, Kansas, and South Dakota. In South Dakota, the property type is included in an architectural history of the state created by the State Historic Preservation Office.⁴⁵ A number of barns identified as Wisconsin Dairy Barns have been listed in the National Register of Historic Places. A preliminary review of National Register records has identified eight listings that include buildings classified as “Other: Wisconsin Dairy Barn.”⁴⁶ (See Figure 18. Table of National Register Listed Wisconsin Dairy Barns.)

Common Wisconsin Dairy Barn Features

The scientific farming principals that spurred the development of the Wisconsin Dairy Barn were enthusiastically adopted by extension services, agricultural experimental stations, and commercial barn plan book publishers. By the early 1910s, most if not all barn plan books offered multiple variations of the Wisconsin Dairy Barn form, which could be adapted to a variety of locations, building materials, and farm sizes. (Figure 24. Pattern Book Image of a Wisconsin Dairy Barn.) Large dairy operations, for example, could simply use longer barns, which could be more than 100 feet in length without a noticeable loss of efficiency. (At 34 feet by 80 feet, the Waggener Dairy Barn is a medium to large example of the form.)

Thanks to the widespread use of standardized plans, many of the dairy barns built in the United States in the early twentieth century incorporate features of the Wisconsin Dairy Barn. Those features include two stories, rectangular plans with rows of windows along the long side walls,

⁴¹ Alfred Hopkins, *Modern Farm Buildings* (New York: Robert McBride & Co., 1920), 32.

⁴² Harper and Gordon, “The Modern Midwestern Barn,” 220.

⁴³ Noble, *Wood Brick and Stone*, 45.

⁴⁴ Noble, *Wood Brick and Stone*, 61.

⁴⁵ Stephen Rogers and Lynda B. Schwan, *Architectural History in South Dakota* (Pierre, SD: South Dakota State Historic Preservation Office, 2000), 15.

⁴⁶ That search was conducted using the National Archives catalog search feature, available at <https://catalog.archives.gov/search?q=%22national%20register%20of%20historic%20places%22> (accessed October 2020.)

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tall gambrel roofs with prominent rooftop ventilators above low ground floors, attached silos, and integrated milk houses. Each contributed to the effectiveness of the barn, and together they created a comfortable and efficient environment for dairy farmers and their animals.

Plan Shape and Patterns of Fenestration

Long rectangular footprints are a hallmark of the Wisconsin Dairy Barn. Relatively narrow floorplans, paired with numerous windows in the long side walls, provided cross ventilation and ample natural light, which Noble noted was one the property type's "most important advantages."⁴⁷ All of the National Register listed barns and eleven of the seventeen barns in the local study group have even rows of windows placed low on the long side walls. All of the cited examples, including the Waggener barn, have rectangular footprints.

Farmers took care to orient the long barns to maximize ventilation and natural light. In "Dairying and Dairy Barns in the Northern Midwest," cultural landscape historian Ingolf Vogeler discusses factors dairy farmers had to consider when planning a barn. One of the most important considerations was the barn's orientation. According to Vogeler, a north-south orientation allows the greatest amount of light into the barn and can help keep it cooler in the summertime.⁴⁸ The Waggener Dairy Barn is oriented in a similar manner.

Gambrel Roofs

Gambrel roofs are one of the most distinctive features of the Wisconsin Dairy Barn. Nine of the seventeen barns in the local study group have gambrel roofs. Numerous publications of the time provided detailed information on barn construction methods and explained options for certain features, including roof framing. According to a Bulletin produced by the Wisconsin Agricultural Experiment Station, building a gambrel roof using the "braced rafters" system required ten percent less lumber, and took less labor to build than a similarly-sized barn using other framing methods.⁴⁹ Another advantage of this system was that it did not require the type of large cross beams that were used in gable roof systems.⁵⁰

Using the braced rafter system, the weight of the roof was carried from the rafters to the outside walls, and down to the foundation. The floor of the hay loft consisted of wood planks and joists that were frequently supported by two rows of girders and columns along the center aisle. According to one estimate, this allowed for "2.8 tons (of hay) for each 2 feet of length" to be stored in the loft above the stalls.⁵¹ The Waggener Dairy Barn uses a comparable braced rafter

⁴⁷ Noble, *Wood Brick and Stone*, 45.

⁴⁸ Vogeler, "Dairying and Dairy Barns in the Northern Midwest," 104.

⁴⁹ Norman Sheffield Fish, *Bulletin 369: Building the Dairy Barn* (Madison, WI: Agricultural Experiment Station, University of Wisconsin, 1924), 9.

⁵⁰ Fish, *Bulletin 369: Building the Dairy Barn*, 7.

⁵¹ Fish, *Bulletin 369: Building the Dairy Barn*, 9.

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framing system, along with similar girders and columns which together would have supported approximately 235 tons of hay in the loft. (Photos 18-19.)

Ventilation

Wisconsin Dairy Barns frequently feature large rooftop ventilators.⁵² Seven of the seventeen barns in the local study group have rooftop ventilators. Those ventilators helped to minimize the amount of moisture inside the barn, to maintain cool and sanitary conditions for the animals inside. Many ventilation systems of the time utilized a network of vents and ducts to move air up from the stalls on the ground floor to the cupolas on the roof. According to a bulletin produced by the University of Wisconsin, the systems were more efficient in the wintertime than leaving the windows open, since that let in more cold air than necessary.⁵³ Alan Noble observed in 1984 that due to the need for ventilation, "conspicuous roof ventilators are thus usually an exterior feature of Wisconsin dairy barns."⁵⁴

While the Waggener Dairy Barn's ventilation system is simpler than systems on some other barns, the rooftop ventilators are a prominent feature. (Photo 3.) The ventilation system includes hatches in the floor above the central isle that could be opened to vent hot air up through the hay loft to the ventilators above. (Photos 12 and 14. The square openings in the framing are hatches to the hay loft.) The hatches did double duty by providing an easy way to move feed from the loft to the first floor of the barn.

The ventilators on the Waggener Dairy Barn were manufactured by the James Manufacturing Company, later known as the Jamesway Company.⁵⁵ (Figure 25. Comparison between the "James Flaring Base Ventilator," and a ventilator found on the Waggener Dairy Barn.) Their distinctive round ventilator caps, which are identifiable by an ornamental spire and a wind vane that includes the silhouette of a farm animal, were extremely popular. Farmers even had the option of customizing the ventilator to fit the function of the barn by choosing different animals for the windvanes, including cows, horses, and pigs.

A review of National Register records and other sources has shown that Jamesway ventilators were used on barns in several states, and they appear to be included in renderings in a number of plan books as well. The ventilators on three of the seven local barns that have ventilators are Jamesway products. Although the wind vanes on the Waggener barn have seen some damage, enough original fabric remains to identify them as a Jamesway product, including portions of the cow's rear feet on the cross bar. (See Figure 25.)

⁵² Miller, "University of Wisconsin Dairy Barn," 8.8.

⁵³ Fish, *Bulletin 369: Building the Dairy Barn*, 17.

⁵⁴ Noble, *Wood Brick and Stone*, 46.

⁵⁵ *Complete System of Jamesway Ventilation* (Ft. Atkinson, WI: James Manufacturing Company, 1921), 20.

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Milk Houses

Silos and milk houses are two other aspects of the Wisconsin Dairy Barn property type that are described by Vogeler as “distinctive and important element(s) of the dairy landscape.”⁵⁶ Those elements are often, but not always, attached to Wisconsin Dairy Barns. In addition to the Waggener barn, seven or eight of the barns in the local study group have attached milk houses. A sanitary milk house was an integral aspect of a successful dairy operation. Milk houses were used to separate and store fresh milk from the unsanitary barn environment until it could be transported to market or for further processing. They also housed milking equipment, such as “a cooling tank, or ice box, separator, churn, a stove or boiler, and the vessels used in milking.”⁵⁷ Like the milk itself, the equipment used had to be kept scrupulously clean. Storing everything away from the animal stalls kept outside contamination to a minimum.

Most resources that were available to farmers in the early- to mid-1900s advised that milk should not be kept inside the main barn. Instead, milk houses were often located just outside the barn, often with an enclosed connector like the one on the Waggener Dairy Barn for ease of use. One bulletin that was published by Michigan State College, in Lansing, stated that farmers should also put the milk house close to a “circular service drive,” which would allow for the milk to easily be loaded onto a truck.⁵⁸ The Waggener milk house is adjacent to an open courtyard that would have provided ample access to trucks.

Fresh milk was transported from the barn to the milk house, where it was typically placed in large cans and weighed.⁵⁹ Those cans would then be placed in a cooler to keep the milk below 50 degrees Fahrenheit. Before electricity was installed on many farms, milk houses utilized natural springs and streams to maintain the correct temperature. This meant that the milk house might be located far away from the barn if there was no source of water nearby, which was not necessary at the Waggener farm. The Waggener milk house was built to access one of several springs on the property, and spring water still runs through the large cooling trough in the milk house today. It is likely that the milk house at the Waggener Dairy Barn also contained mechanical refrigeration to store milk at the correct temperature.

Silos

Silos are one of the largest and most permanent features of early-twentieth-century dairy barns. Eleven of the barns in the local study group have silos. Additionally, at least four other silos that have outlived the barns they were originally associated with were observed during fieldwork for the local barn survey.

⁵⁶ Vogeler, “Dairying and Dairy Barns in the Northern Midwest,” 109.

⁵⁷ Foster and Carter, *Farm Buildings*, 190.

⁵⁸ J. S. Boyd, C. W. Hall, R. L. Maddex, and D. L. Murray, *Milkhouses: Planning and Construction* (Lansing, MI: Michigan State College Cooperative Extension Service, 1954), 7.

⁵⁹ Hopkins, *Modern Farm Buildings*, 27.

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Before silos became widely used in the early twentieth century, farmers largely regarded dairying as a seasonal business. In “Silos: An Agricultural Success Story,” historian Peggy Lee Beedle explained that the “main obstacle to winter dairying was finding sufficient succulent food to maintain cows’ milk production.” Well-constructed silos, Beedle continued, “opened the door to year-round dairying, making it a lucrative full-time occupation.”⁶⁰ Silos provided a way to store large amounts of feed for extended periods and mitigated feed spoilage from exposure to moisture and air.

As a 1912 bulletin published by the University of Missouri Agricultural Experiment Station stated, storing feed for winter and other adverse weather conditions was not a new concept in the 1880s when farmers and university agricultural researchers started to investigate the best silo practices and construction.⁶¹ For centuries, farmers had been storing feed in underground pits, but fodder was frequently lost to decomposition. The first modern silos were introduced in the 1870s in Europe and were shallow, rectangular or square buildings made of brick or wood.⁶² By the 1880s, dairy farmers and university agricultural experiment stations in the U.S. began, according to farm journals of the time, “‘Americanizing’ the silo—making it more efficient and affordable.”⁶³

With the University of Wisconsin’s Agricultural Experiment Station (Wisconsin Station) leading the way, the shape and size of silos evolved through the last two decades of the nineteenth century. One major development in silo construction was a shift to round silos. Round silos, like the one attached to the Waggener Barn, mitigated issues prevalent in square and rectangular silos, including air pockets in corners that led to feed spoilage.⁶⁴ Silos also changed from horizontal to upright with the discovery that, as Beedle explained, “the weight of the silage itself produced enough compression to exclude air—provided the silo was deep enough.”⁶⁵ By the turn of the twentieth century, an affordable model for a round silo was perfected at the Wisconsin Station, and round, upright silos became the norm.⁶⁶

Silo building materials were also studied and refined in the 1890s and 1900s. Initially, silos were made of wood and fieldstone, but those materials needed frequent maintenance, and were only cost effective if a supply of lumber or stone were located nearby. By 1900, concrete and ceramic tile became the most popular materials for silo construction. Tile and concrete were

⁶⁰ Peggy Lee Beedle, “Silos: An Agricultural Success Story” (Madison, WI: State Historical Society of Wisconsin and the Board Regents of the University of Wisconsin, 2001), 2-3 and 5.

⁶¹ E.H. Eckles, “Bulletin 103: The Silo for Missouri Farmers,” University of Missouri Agricultural Experiment Station (Columbia, MO: 1912), 293.

⁶² Noble, *Wood, Brick and Stone*, 69-70.

⁶³ Beedle, “Silos: An Agricultural Success Story,” 3.

⁶⁴ Beedle, “Silos: An Agricultural Success Story,” 3 and 12.

⁶⁵ Beedle, “Silos: An Agricultural Success Story,” 7.

⁶⁶ Beedle, “Silos: An Agricultural Success Story,” 12; Noble, *Wood, Brick and Stone*, 77.

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more airtight, they increased silage storage with the capacity for higher construction heights, and required less maintenance than stone, brick, and wood.⁶⁷

The advantages of concrete silos were touted by the Wisconsin Station and cement companies who recognized potential profits in the dairy industry.⁶⁸ A 1911 Wisconsin Station bulletin, for example, stated that a "concrete silo cannot burn down; it never leaks; it is ready to fill without repairing; it will not blow over."⁶⁹ Three types of concrete silo models were developed at that time using concrete blocks, cement-stave, and reinforced concrete. The reinforced concrete silo attached to the Waggener Dairy Barn is an example of a "monolithic" silo, constructed with solid concrete walls of reinforced concrete. Monolithic silos, as Beedle put it, were "extensively promoted in the early decades of the twentieth century."⁷⁰

The University of Missouri's Agricultural Experiment Station (Missouri Station), which was created in 1888, also started to advocate for the construction of silos across the state by 1911. That year, the Missouri Station published a periodical by agronomist F.H. Demaree called "The Reinforced Concrete Silo."⁷¹ One year later, in May of 1912, the Missouri Station published another bulletin, "The Silo for Missouri Farmers," specifically about the benefits of silos.⁷²

The Missouri Department of Agriculture (MDA) began explicitly promoting silos in 1912. According to an address published in the *Missouri Agriculture Report*, one successful dairyman discussed the ways he made his profits in the dairy industry and contended that "it is a case of putting up a silo or being put out of business by competition. It is no longer a time for discussion but a time for action."⁷³ Another publication in 1913 stated that "the development of the dairy industry in Missouri and the interest taken by cattle feeders in silage has made the silo problem a foremost consideration in this state."⁷⁴ The early 1910s therefore brought a concerted effort by the MDA and the Missouri Station to educate and assist in the construction of silos across the state by disseminating plans and sending personnel to help farmers build silos.

That program proved to be a success. By 1914, Missouri had 6,726 silos, forty percent of which were built in 1913 alone. Missouri ranked seventh in the number of silos per state and had an

⁶⁷ Noble, *Wood, Brick and Stone*, 77.

⁶⁸ Noble, *Wood Brick and Stone*, 77.

⁶⁹ C.A. Ocock and F.M. White, "Bulletin 214: Concrete Silo Construction," University of Wisconsin Agricultural Experiment Station (Madison, WI: 1911), 1.

⁷⁰ Beedle, "Silos: An Agricultural Success Story," 14.

⁷¹ F.H. Demaree, "Circular 49: The Reinforced Concrete Silo," University of Missouri Agricultural Experiment Station (Columbia, MO: University of Missouri, 1911), 115-122.

⁷² Eckles, "Bulletin 103: The Silo for Missouri Farmers," 296.

⁷³ John Hosmer, "The Development of a Dairy Farm," in *Missouri Agriculture Report* (Jefferson City, MO: Missouri State Department of Agriculture, 1912), 382 and 384.

⁷⁴ "Report of the Director," Agricultural Experiment Station (Columbia, MO: University of Missouri, 1913), 437; "Report of the Director" (Columbia, MO: University of Missouri, 1912), 244.

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average capacity of 110 tons per silo.⁷⁵ With the advantages of silos proving themselves after a drought in the state in the summer of 1913, Mexico, Missouri promoted June 6th, 1914 as “Silo Day.” That event was covered in Jefferson County, with a Festus newspaper noting that the day was dedicated to trying to “place a silo on every farm in [Audrain] county” through silo educational initiatives and demonstrations by manufacturers.⁷⁶ Around the same time, Jefferson County newspapers started to report on local silo construction and feature advertisements for silo manufacturers and materials.

The enthusiasm for the promotion of silos in Missouri slowed with the start of World War I. After the war, however, the MDA significantly increased their silo promotion efforts. In 1919, the *Missouri Agriculture Report* stated that “a good silo on a farm is a mark of prosperity and progressiveness” and that “it is truly unfortunate that so few farmers appreciate the worth of the silo.”⁷⁷ To educate Missouri farmers about the benefit of silos, a statewide “Silo Campaign” started in 1919 and continued through 1924. The 1920 MDA annual report, for example, strongly promoted for the campaign:

We appeal for a Missouri silo campaign, more intensive, more vital, more forceful, than ever before. The organization should be most carefully made, combining educational, commercial, and financial forces of every class and kind that be induced to co-operate—not for a month, not for three months, but for not less than two years of honest-to-goodness and truly systematic silo campaigning.⁷⁸

The campaign’s slogans and goals changed each year. The 1921 slogan, for instance, was “One Silo for Every Ten Farms.”⁷⁹ In 1922, the campaign focused on increasing the number of silos in the state to be on par percentage-wise with Wisconsin, the leader of the dairy industry. “If Wisconsin on her 177,000 farms has 56,000 of 120-tons silos,” the *Missouri Agriculture Report* stated, “then surely and most certainly Missouri with her 263,000 farms should have at least 20,000 silos at the close of 1922 instead of 14,871, her present number.”⁸⁰ The MDA repeatedly stressed to dairymen that the “silo is truly the watch-tower of practical prosperity, and the number of silos will have much to do with the permanent development of the dairy industry in Missouri.”⁸¹

The silo attached to the Waggener Barn was constructed during this time of silo promotion and educational outreach in Missouri. In many ways, the Waggener silo is representative of the

⁷⁵ “Concrete Silos: A Booklet of Practical Information for the Farmer and the Rural Contractor,” Universal Portland Cement (Chicago: 1914), 12.

⁷⁶ “Silo Day,” *Tri-City Independent* (Festus, Missouri), April 17, 1914, 6.

⁷⁷ “Silos,” *Missouri Agriculture Report* 1919, 264 and 412.

⁷⁸ *Missouri Agriculture Report*, 1920, 240.

⁷⁹ *Missouri Agriculture Report*, 1921, 141.

⁸⁰ *Missouri Agriculture Report*, 1922, 428.

⁸¹ *Missouri Agriculture Report*, 1922, 193.

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most popular practices of the era as detailed in state and national dairy industry publications. Along with its concrete construction, the location of the Waggener silo on the narrow side of the barn aligns with the most recommended arrangements for dairy farms.⁸² Locating the silo on the narrow side allowed for easy access to the feed that was stored within the silo walls from the central aisle. Loading the silo with feed was another factor for farmers to consider, so silos, like the Waggener silo, were generally built close to a road or path.⁸³

Silo publications at the time also emphasized access points to facilitate filling and feeding. The Waggener silo can be accessed from the hay loft through an opening near the top of the northeast wall. (Photo 8. The silo opening is at the top of wall.) It can also be accessed from the outside, and from within a small feed chute that runs between the wall of the barn and the side of the silo. A ladder on the side wall of the chute provides access to multiple small doors approximately two-feet-wide and three-feet-high, spaced about four feet apart in the side of the silo. The enclosed area at the base of the chute is slightly larger, to allow for mixing of feed. That area is separated from the main barn by a pair of wide wood doors. (Figure 6. The base of the silo can be seen in the lower image.)

Dairy publications also included information and detailed charts concerning the appropriate silo sizes, which were determined by the number of cows and the length of the feeding period. The Waggener silo, which measures at approximately sixteen-feet in diameter and forty-feet in height, has the capacity to store about 145-150 tons of silage, which would support a herd of forty to fifty cows over a 200-day feeding period.⁸⁴ It is on the larger side of silo construction that ranged in height from twenty-seven to forty-feet, according to data in a Missouri Station publication.⁸⁵

Along with the recommendations for a silo's size and location, dairy industry publications included information on the forms needed to construct a poured concrete silo. (See Figure 26.) As one Missouri Station publication explained, buying silo forms from manufacturers was costly, and it was much more cost effective for farmers to collaborate and build their own wooden forms. "One set of forms," the publication noted, "may be used for several silos and in this way the cost of construction can be reduced."⁸⁶ As manufactured silo forms became increasingly more affordable due to rise in silo construction nationwide, it was still recommended that farmers collaborate to purchase or rent forms as a group. "If a number of farmers in a community wish to build their own silos," a 1924 Missouri Station publication suggested, "it may

⁸² A.C. Ragsdale, E.A. Trowbridge, and J.C. Wooley, "Bulletin 214: Why Build A Silo?—And How," University of Missouri Agricultural Experiment Station (Columbia, MO: University of Missouri, 1924), 7.

⁸³ W. A. Foster and Deane G. Carter, *Farm Buildings* (New York: John Wiley & Sons, Inc., 1922), 157.

⁸⁴ Ragsdale, Trowbridge, and Wooley, "Why Build a Silo?—And How," 6.

⁸⁵ Ragsdale, Trowbridge, and Wooley, "Why Build a Silo?—And How," 6.

⁸⁶ Eckles, "The Silo for Missouri Farmers," 300.

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pay them to purchase a set of steel forms. The work can be done better and at a more rapid rate when such forms are used.”⁸⁷

Similarities in construction methods used for the silos in the study group invite speculation that some Jefferson County farmers shared forms and/or silo contractors. As mentioned above, eleven out of the seventeen barns surveyed near the Waggener Barn have silos. Those eleven farms collectively have seventeen silos, thirteen of which are made of reinforced concrete. The thirteen reinforced concrete silos are similar in height and most feature the same small door openings to the chutes with concrete poured between the openings. The type of openings to the silo chute was, as one manual noted, a matter of “individual preference,” and the forms required to build continuous and separate door openings were different, therefore indicating that the farmers either shared forms or plans in the construction of the silos in the local study group.⁸⁸

Although concrete silos were widely recommended in the early twentieth century, they did not appear in every locale in Missouri. For example, a 1910 Missouri Station publication stated that the plastered wood or “Gurler” silo was particularly popular in parts of Missouri “where there is still a local supply of native lumber.”⁸⁹ In 1912, the Missouri Station recommended building stones based on local supply that “may be used to advantage in the construction of silos.”⁹⁰ A 1924 Missouri Station publication, furthermore, stated that “wood stave silos are more numerous in Missouri than any other type” due to how easily they were to build and often were purchased as a complete set.⁹¹ The information about the types of silos in Missouri further supports the likelihood that farmers in the local study group collaborated or shared plans.

Despite the many similarities in the local study group, the roof of the Waggener silo is unusual. Although silo roofs were not mandatory, experts began to recommend them to keep birds out, prevent silage freezing, increase storage capacity, and gave the farm laborers more room and protection from the elements when filling and unloading. The most recommended silo roof materials for concrete silos of the time was wood, metal, and concrete. In silos built during the first three decades of the twentieth century, roofs were usually conical, gambrel, or low dome. The Waggener silo’s cross-gable roof therefore is unusual in comparison to other contemporary silos, and unique to the local study group.

Gable roofs and windows or hatches were not unheard of, however. Most publications of the era noted the importance of incorporating dormer windows or trap doors into silo roofs. A 1917

⁸⁷ Ragsdale, Trowbridge, and Wooley, “Why Build a Silo?—And How,” 10.

⁸⁸ Ocock and White, “Bulletin 214: Concrete Silo Construction,” 8-9.

⁸⁹ P.M Brandt, “How to Build a Gurler Silo,” University of Missouri Agricultural Experiment Station (Columbia, MO: 1914), 67.

⁹⁰ “Circular 49: The Reinforced Concrete Silo,” University of Missouri Agricultural Experiment Station, 122.

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University of Michigan publication, for example recommended that “a better way” for silo roof windows “is to put this opening in the front of a small gable since it makes better construction and better appearance. Two gables are more desirable than one, for the opening of the second one will provide means of ventilation when the silo is being filled.”⁹² The Waggener silo has rectangular openings in the gable ends of the roof that are now empty, but probably originally held windows and/or small hatch doors. Gables on silos were not a twentieth century invention, however, as Noble discussed in *Wood, Brick and Stone*. “When silos were rectangular,” Noble wrote, “a gable roof was most common and, at first, the circular silos often used such an incongruous covering.”⁹³ The Waggener silo harkens, though most likely inadvertently, to those early building traditions.

Although silo roof suggestions and construction differed, there was a consensus in several farm journals and publications that silo roof enhanced a silo’s overall appearance. Some silos, like the Waggener silo, included eaves specifically, as one booklet stated, to “add much to the appearance.”⁹⁴ A lecturer at the annual gathering of The Illinois Farmers’ Institute in 1913, furthermore, also observed that “the upper portion of a well-built silo showing above the sloping roof of some of the other buildings adds very materially to the general appearance of the group of buildings.”⁹⁵ Some silo roofs, for example, matched the roof of the adjacent barn specifically for appearance. In the case of the Waggener Dairy Barn, the silo roof incorporates elements of the main barn such as overhanging eaves, triangular brackets and shiplap siding. As concrete silo publications noted, the design of a silo roof was an aspect of “individual preference,” and the Waggener silo is an example of a distinctive, yet practical form that is still functional.⁹⁶

The number of silos in the local study group exemplifies the prominence of the dairy industry in Jefferson County. The silos, which mostly now stand empty, also represent shifts in profitable industries in the area. As historian Peggy Lee Beedle explains, the silos are a symbol of the once-prosperous dairy industry and provide insights into technological progress. Silos, “as much as any other farm building,” Beedle asserts, “have made a significant impact on the rural landscape.”⁹⁷

Local Comparisons

Although several early-twentieth-century barns in Jefferson County exhibit characteristics commonly associated with Wisconsin Dairy Barns, a review of local examples shows that very

⁹¹ “Why Build a Silo?—And How,” University of Missouri Agricultural Experiment Station, 14.

⁹² K. J. T. Esblan, “Farm Concrete” (New York: MacMillan, 1917), 162.

⁹³ Noble, *Wood, Brick and Stone*, 77.

⁹⁴ “Farm Concrete,” University of Michigan Agricultural Experiment Station, 162.

⁹⁵ “Planning the Silo,” *Eighteenth Annual Report of the Illinois Farmers’ Institute*, quoted in Will County Rural Historic Structural Survey, Wesley Township, 64.

⁹⁶ Ocock and White, “Bulletin 214: Concrete Silo Construction,” 8.

⁹⁷ Beedle, “Silos: An Agricultural Success Story,” 3.

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few have enough of those features to be considered a good example of the type. Because there are no known architectural or historical surveys of barns in Missouri or Jefferson County, it is not known how many early-twentieth-century dairy barns are still extant in the county. Barns are often overlooked when historic sites are catalogued. One book of historic sites in Jefferson County, for example, describes just one barn, a stone building that was built in 1855 in Hematite, about four miles west of Festus. That building was originally used as a mill, later converted to a dairy barn, and later yet to a residence.⁹⁸

New comparative data for local dairy barns was gathered in 2021 via a reconnaissance level survey of properties located in a seventy square-mile area in southeast Jefferson County. (Figure 19. Survey Map.) That study area includes land along the path of two early railroads, the Missouri River and Bone Terre Railroad (Plattin Road) and the St. Louis and Iron Mountain Railroad (State Highway P). (See Figure 12. For Early Railroad Lines.) Rural areas close to Festus and Pevely, which were important shipping points for dairy products, were also explored. Preliminary research using a combination of online aerial photographs and Google Earth identified twenty-three early barns that had rectangular footprints and appeared to have some characteristics of the Wisconsin Dairy Barn property type. Follow-up site visits of those properties identified seventeen early twentieth-century barns that exhibit at least some of the character-defining features of the Wisconsin Dairy Barn property type. (Those omitted were either too new or no longer extant.) Those seventeen barns are referred to hereafter as the local study group. (Figure 20. Photos of the Study Group.)

Fieldwork included photographing and recording basic information about each of the barns, including construction materials as well as the presence of features common to dairy barns in general and Wisconsin Dairy Barns in particular. Five core characteristics that define the Wisconsin Dairy Barn property type were documented: roof type, presence of rooftop ventilators, windows along the long side walls, number of stories, relative height of the first floor. The presence of separate milk houses and silos were also noted. Although the latter two features were not included in Noble's early description of the property type, they had become extremely common by the early 1900s, especially in barns built from mass-produced plans. (Figure 21. Table of the local study group.) Each of those characteristics are discussed in more detail in the following sub-section.

The local survey identified only a few good local examples of the Wisconsin Dairy Barn property type. Aside from the Waggener Dairy Barn, only three other barns have gambrel roofs and at least five of the other character-defining features listed above. Two of those (#3 and #8) can accurately be described as Wisconsin Dairy Barns. (Figure 22.) Survey property #3 is a large frame barn located roughly a mile from the Waggener Barn, at 3303 Plattin Road. That barn,

⁹⁸ Walter L. Eschbach and Malcolm C. Drummond, *Historic Sites of Jefferson County, Missouri*, 102.

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which is believed to have been built around the same time as the Waggener Dairy Barn, contains many similar features, such as ground floor walls that are partly of concrete, a gambrel roof, large rooftop ventilators, rows of windows in the side walls, and an attached milk house. It is slightly smaller than the Waggener Barn and does not have a silo. It has seen some alterations in recent decades, including the addition of modern vinyl siding and asphalt shingle roofing. The large hay door in the gambrel roof has been replaced with four small hung windows that are flanked by modern shutters. The interior of the building was not available. It is now part of a modern residential complex and does not appear to be used for agricultural purposes.

The other Wisconsin Dairy Barn in the local study group, the Peterein Barn (Survey property #8) is in West City Park in Festus. (Figure 22.) That large frame barn has all the typical Wisconsin Dairy Barn features except a milk house. The exterior of the Peterein Barn is more intact than the one on Platin Road (#3), with early metal roofing, early vertical plank siding, and early or original barn doors that are comparable to those on the Waggener Barn. A large concrete silo located near one of the side walls is also intact, albeit missing a roof. Numerous small window openings along the side walls contain newer hung windows. The interior of the building was not available. Although the barn is currently closed to the public, it was used at some point for gatherings, a function that likely resulted in interior alterations as well as the addition of frame handicap ramps and exit stairs.⁹⁹ (Figures 20 and 22.)

The third barn with all of the typical features (#17) varies from the others in overall size and number of silos. It is located on Sandy Creek Road west of Pevely. It is markedly larger than any other barn in the study group, with six concrete silos, and twenty-four windows on each long side wall. The Waggener barn, by comparison, has eleven windows per side wall. Although the larger barn is clearly a dairy barn, the use of multiple silos precludes categorizing it as a Wisconsin Dairy Barn, which is more commonly associated with small-scale operations.

The study group also includes four barns that have rounded roofs with a Gothic arched profile instead of a gambrel. They are comparable to Wisconsin Dairy Barns but lack the requisite gambrel roofline; Allen Noble classified that barn type as a "round-roof barn."¹⁰⁰ The Gothic arch barn roof was introduced around the 1920s and became popular due to its ability to hold more hay in the loft area, and the fact that the rafters could be produced in a factory and shipped to the farm.¹⁰¹ The barn at 2385 Platin Road (#3) is one of the best examples of a round-roofed dairy barn in the study group. It has a notably high curved roof with small rooftop ventilators, small windows on the lower side walls, and an attached silo and milk house. This

⁹⁹ Information on current use was provided by the City of Festus.

¹⁰⁰ Noble, *Wood Brick and Stone*, 61.

¹⁰¹ Susan Granger and Scott Kelly, *Historic Context Study of Minnesota Farms, 1820-1960* (St. Paul, MN: Minnesota Department of Transportation, 2005), 5.65.

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barn reflects the evolution of the dairy barn form as materials and construction methods improved. The interior of the barn was not available, but it did not appear to house milk cows in 2021.

Interior Features of the Local Study Group

Another round-roofed dairy barn (#16) appears to be the only barn in the group that is still part of a working dairy farm, and it is one of the few barns in the study group for which interior access was possible. It is part of the Martin Dairy Farm at 2296 Sandy Creek Road, near Pevely. It is the only barn in the study group that has stone walls, which feature well-crafted ashlar masonry and large window openings that have dressed stone sills. It is possible that the stone walls are part of an older building, but it is known to have been a barn since before 1954.¹⁰² The Martin barn has a relatively low rounded roof that may be newer than the stone walls. A milk house attached to one end wall is also of stone, but the stonework on that building is less refined and appears to have been done at a later date. The interior of the building, which houses dairy cows, has an open plan, with even rows of round support posts and cross aisles that are edged by slightly raised platforms lined with pipe rail stanchions. Those interior features all appear to be well over fifty years old. (Figure 9.)

The only other survey property known to retain interior features related to use as a dairy barn is Survey property #4, which is a short distance south of the Waggener Barn. It varies somewhat from the traditional Wisconsin Dairy Barn form but does have many features typical of early dairy barns and it is known to have housed dairy cattle for decades.¹⁰³ The frame barn has a roughly L-shaped plan, with each leg of the “L” topped by a gambrel roof. (The photo in Figure 20 shows only the largest leg; the other is out of view.) A tall concrete silo is located at the juncture of the two sections. A small milk house is adjacent to the largest leg. The gambrel-roofed sections appear to date to the 1910s or 1920s and the milk house may have been added a decade or two later. The main wing of the barn appears to have been used for milking. It has a wide center aisle that is lined with large, poured concrete mangers and square wood support posts. It is flanked by equally wide aisles that have poured concrete floors with integrated waste gutters. The mangers and possibly the floors appear to have been added later, but they have clearly been in place for many decades. The barn is currently vacant.

Only two other barn interiors within the study group were accessible, in survey properties #5 and #14. Both of those are medium-sized frame barns that appear to have served multiple functions. Neither has interior features directly related to milk production. Each has a concrete silo. Neither has a connected milk house, but #5 did have the ruins of a separate springhouse nearby that may also have been used as a milk house. (Figure 23.) Survey property #5 is a modest gable-roofed barn that has dirt floors and a wide center bay that is open to the peak of

¹⁰² “Herculaneum, MO, 1954” (U.S. Geological Society, Rolla, MO, 1954, photo revised 1968.)

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the roof, with animal stalls and utility areas along the side walls. The other barn, #14, also has a gabled roof and frame walls. It has a high stone foundation, and the lower level of the barn is divided into three long bays that may have been used for cows or other animals. The lower level of the barn has a dirt floor and open wood racks that may have been used to hold feed at some point.

The Waggener Dairy Barn is the most intact example of a Wisconsin Dairy Barn in the local study group. It has all exterior features commonly associated with the property type and it offers a significant and increasingly rare link to Jefferson County's early dairy industry.

Later Owners

Although Stokely Waggener died in 1933, the barnyard continued to house dairy operations into at least the middle of the century. Stokely Waggener wrote a detailed will in late 1932 that left instructions on how to divide his sizeable estate.¹⁰⁴ While Waggener's will and probate do not mention any land holdings, a review of Jefferson County assessment books shows that his estate likely had some involvement with the land following his death. In 1940, the assessment book lists "Waggener, S. T." as the owner of the barn property, which included 315 acres in the north part of Survey 1856. The estate also owned an unknown amount of land in the south part of Survey 1885 at that time.¹⁰⁵

Between 1940 and 1947, ownership of the barnyard passed to Frank and Marty Gallina and Arthur and Bernadine Peterson. In 1947, J. E., Leo, Nick and William Milla purchased 470 acres from the Gallina and Peterson families.¹⁰⁶ All of the land included in that sale was located on the south side of modern-day Boyce Lane. That purchase included the Waggener Dairy Barn and two other barns on the property but excluded the house across Boyce Lane.

The bill of sale for that transaction stated that the property was "familiarily known as the Waggener Farm." An inventory of the property that was included with the sale indicates that the land was still used for dairy production. Among the listed items were various farm implements, including 22 ten-gallon milk cans, two milk strainers, and two milk buckets. The inventory also listed nearly 50 cows, including 26 "high grade" Holstein Heifers, 11 calves, and nine milking shorthorns. In addition to the animals, the inventory listed typical farm implements such as an Oliver 70 Tractor and Cultivator, one tractor trailer, a manure spreader, two plows and numerous hand tools.¹⁰⁷

¹⁰³ Conversation between Deb Sheals and the current resident of the property, March, 2021.

¹⁰⁴ "Last Will and Testament of Stokely T. Waggener." (1932.) Probate file located at the Jefferson County History Center at Jefferson College.

¹⁰⁵ "Land Assessment and Tax Book of Jefferson County, State of Missouri, for the Year 1940," 28.

¹⁰⁶ Jefferson County Deed Records, Book 168, pages 127-129.

¹⁰⁷ Jefferson County Deed Records, Book 168, pages 130-131.

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Although the number of animals that were on the dairy farm when Waggener owned it is not known, the 1947 inventory can give some insight into the scale of that operation. According to information from the 1930 census, there were 3,697 dairy cows in Jefferson County living on 372 dairy farms. That averages about 10 cows per farm in the county, meaning that the Waggener farm would have been well above the county average. The inclusion of milk cans in the inventory shows that the farm had the capacity to store 220 gallons of fresh milk at any one time.

In 1958, the Milla family sold the same 470-acre parcel to Dr. Roger H. and Merian Allbee.¹⁰⁸ The Allbees also bought the house and land across the road around the same time. They lived nearby into the 1990s and used the house across the street from the dairy barn as a guest house.¹⁰⁹ Dr. Allbee was a surgeon in the Army Medical Corps from 1931 to 1957. According to his obituary, Dr. Allbee was “one of the original staff members of Jefferson Memorial” Hospital in Crystal City.

The Allbees continued to use the barns on the property for animals but focused more on horses than cows; Dr. Albee’s obituary noted that the farm was used for raising “cattle and hunting and jumping horses.”¹¹⁰ In addition to raising animals, Dr. Allbee hosted several horse shows at the farm, including one event in 1962 that served as a fundraiser for the Jefferson Memorial Hospital.¹¹¹ Under Albee ownership, the interior of the dairy barn was remodeled for equine use. That project included the installation of open wood framed horse stalls and the likely removal of some of the early concrete flooring. Any built-in stanchions in the dairy barn that may have survived to that time period were also likely removed as part of that project. Open frame horse stalls were also added to the interior of the machine shed.

Merian Allbee died in 1981, and Dr. Allbee retained ownership of the land until his death in February 1992. After his death, the land passed to his son, Robert Allbee, and the Allbee Brothers, LLC. Sometime after Robert Allbee acquired the property, land to the east of the dairy barn was subdivided into the Huntington Trails neighborhood. In January 2020, Allbee Brothers, LLC sold 312.67 acres to the current owner, Rock N Horse Farms, LLC.¹¹² (Figure 4. Survey of Full 312.67 acres.)

Recent Changes

¹⁰⁸ Jefferson County Deed Records, Book 278, page 99.

¹⁰⁹ “Roger H. Allbee, 85; Longtime Surgeon in Jefferson County,” *St. Louis Post-Dispatch*, February 21, 1992, 11; Rich Bay, email to Deb Sheals, July 16, 2020.

¹¹⁰ “Roger H. Allbee, 85; Longtime Surgeon in Jefferson County,” 11.

¹¹¹ “St. Louisans Enter Horse Show,” *St. Louis Post-Dispatch*, October 2, 1962, 7.

¹¹² Jefferson County Recorder of Deeds, 2020R-002671.

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The property has seen few changes since changing hands in 2000. Site work included clearing the overgrown site and extending the central lane to the south for access to adjacent fields and woodlands. Interior work has been limited to the removal of the modern horse stalls from the machine shed (Barn C) and the first floor of the dairy barn (Barn A). A small modern plywood enclosure was also removed from the southwest end of the hay loft in the dairy barn.

Decline of Agriculture in Jefferson County

After many decades as a top dairy-producing county, Jefferson County currently ranks near the middle in dairy production in Missouri. In 2017, the United States Department of Agriculture reported that the county produced approximately \$761,000 worth of milk from cows, compared to the \$826,392 that was reported in the 1930 census.¹¹³ The 1930 production would be worth \$12,432,003.72 in 2018 dollars.¹¹⁴

According to the Missouri Department of Agriculture, in 2016, there were 705 farms in Jefferson County, and the agriculture industry altogether employed 3,207 people. Of that number, just 814 people were employed in the areas of crop, livestock, forestry, and fisheries production.¹¹⁵

As a result of the decrease in dairy production in Jefferson County, many dairy barns that were built during the peak production period of the 1920s – 1940s are no longer in use and are in poor condition. Much of the former farmland near the Waggener Dairy Barn has been subdivided into large, secluded residential properties. (Figure 2t. Screenshot of nearby property lines.)

Conclusion

As a hub of dairy activity, Jefferson County was home to numerous dairy barns in the twentieth century, and it is likely that many of them utilized the popular Wisconsin Dairy Barn form. The subsequent decline of the dairy industry in the county has resulted in the loss of early agricultural resources, and ongoing residential development there means that trend is likely to continue. Only three of the seventeen barns in the local study group, for example, appear to house farm animals, and at least four have been remodeled to serve non-agricultural functions. The Waggener barn offers a good representative example of an agricultural property type that is increasingly rare in Jefferson County.

¹¹³ "Jefferson County, Missouri," *2017 Census of Agriculture* (Washington, D.C.: United States Department of Agriculture, 2017), accessed August 2020.

¹¹⁴ "CPI Inflation Calculator", <https://www.in2013dollars.com/1930-dollars-in-2018#:~:text=In%20other%20words%2C%20%24100%20in%20year%20between%202018%20and%202020>.

¹¹⁵ "Jefferson County: Economic Contributions of Agriculture, Forestry & Related Industries," (Jefferson City, MO: Missouri Department of Agriculture, 2016), accessed August 2020, <https://agriculture.mo.gov/economicimpact/county-pdf/Jefferson.pdf>.

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The Waggener Dairy Barn is a good local example of the Wisconsin Dairy Barn property type, and its reinforced concrete silo reflects common local and statewide trends in farm management and operations. The large dairy barn is locally significant under National Register of Historic Places Criterion C, in the area of ARCHITECTURE. It represents a significant link to the agricultural history of Jefferson County, which was a major dairy-producing area in the state of Missouri. The period of significance, ca. 1919-ca. 1925 corresponds with the construction of the three contributing buildings on the property. Since its construction ca. 1919, the dairy barn has seen a century of continual use as an agricultural facility. It is still clearly recognizable to its time and place when Jefferson County was among the top five dairy-producing counties in the entire state. The barn retains the exterior character-defining features of the Wisconsin Dairy Barn property type, including a gambrel roof with ventilators, a low ceiling on the first floor, a rectangular plan, side walls lined with windows, an attached milk house and an attached silo.

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Waggener Dairy Barn Timeline

- 1876 Land owned by John L. Marsh and Co.¹¹⁶ The atlas map shows a house in the approximate location of a house now located north of Boyce Lane, but no outbuildings are indicated.
- 1896 S. T. Waggener and B. C. Berry buy 1388.96 acres from John L. and Cecil Marsh, and Carrie and Clifford Fleming. That purchase included "70 acres of the S end of Survey 1885 & all of Survey 1856..."¹¹⁷
- 1909, Feb. B. C. Berry dies. Probate records made in 1912 show that as the surviving partner, Waggener was the executor of the estate, which included the barn property. The probate file showed that Berry and Waggener owned more than 2,000 acres in the area at the time, including much of the land in Surveys 1856 and 1885.¹¹⁸
- 1919-1920 A 1920 tax card for the property shows that there was a barn on this parcel of land, presumably the large dairy barn.¹¹⁹ The dairy barn has therefore been assigned a construction date of ca. 1919.
- 1939-1940 S. T. Waggener's estate owns 315 acres in the north part of that survey, valued at \$1,600. Note: Stokely Waggener died in 1933.¹²⁰
- 1947, Feb. Warranty Deed from Frank and Marty Gallina, Arthur and Bernadine Peterson to J. E., Leo, Nick, and William Milla. Each of the Millas gets an undivided 1/4 share of 470 acres in Surveys 1885 and 1856. A bill of sale for that transaction stated that the 470-acre property was "familiarily known as the Waggener Farm."¹²¹
- 1958, Sept. J. E. and Virginia Milla sell the entire 470 acres to Roger and Marion Allbee.¹²²
- 1992 Dr. Allbee dies. The land passes into the ownership of his son, Robert Allbee, and Allbee Brothers, LLC.
- 2020, Jan. Allbee Brothers, LLC sells 312.67 acres to Rock N Horse Farms, LLC, (Kevin McDaniel).¹²³

¹¹⁶ *An Illustrated Historical Atlas Map of Jefferson County, Missouri, 1876*, 24.

¹¹⁷ Jefferson County Deed Book 44, page 185; Quoted in "Wm. S. McCormack Cemetery," by Dave Hollemann, 2.

¹¹⁸ Partnership Estate files of B. C. Berry and Stokely T. Waggener. (1912.) Files located at the Jefferson County History Center at Jefferson College.

¹¹⁹ Call to Jefferson County assessor's office.

¹²⁰ 1940 Land Assessment and Tax Book of Jefferson County, page 28.

¹²¹ Jefferson County Deed Records, book 168, page 127-129.

¹²² Jefferson County Deed Records, Book 278, page 99.

¹²³ Jefferson County Recorder of Deeds, record number 2020R-002671

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Waggener Dairy Barn
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N/A

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Verbal Boundary Description

Beginning at a found iron pin being the most southern corner of Lot 7A of Boundary Line Adjustment Plat Lot 7 of Huntington Trails and part of U.S. Surveys 1856 and 1885, Township 40 North, Range 6 east, recorded in Plat Document Number 2017TP-000030 of the aforesaid records; thence with the western boundary lines of said Lot 7A, North 43 degrees 15 minutes 18 seconds West 273.16 feet to a found iron pin; thence North 59 degrees 17 minutes 19 seconds East 65.25 feet to a found iron pin; thence North 27 degrees 03 minutes 42 seconds West 68.73 feet to a found iron pin; thence North 28 degrees 31 minutes 46 seconds West 114.27 feet to a found iron pin; thence North 7 degrees 45 minutes 30 seconds West 135.86 feet to a found iron pin; thence North 24 degrees 46 minutes 14 seconds West 73.11 feet to a point in the center of Boyce Lane County Road, from which point a found iron pin bears South 24 degrees 46 minutes 14 seconds East 21 feet distant; thence with the center of said County Road, South 58 degrees 38 minutes 56 seconds West 191.49 feet; thence South 55 degrees 24 minutes 47 seconds West 207.56 feet; thence South 56 degrees 15 minutes 38 seconds West 111.74 feet; thence South 43 degrees 46 minutes 19 seconds West 47.26 feet; thence South 32 degrees 14 minutes 33 seconds West 53.10 feet; thence due South 313.59 feet; thence due East 1,003.93 feet to the point of beginning.

Boundary Justification

The boundaries have been drawn to include the dairy barn and its outbuildings, plus enough land to reflect the general setting. The resulting 11-acre parcel contains all of the surviving agricultural buildings that were associated with the property during the period of significance.

Although records show that a residential property located on a separate parcel north of Boyce Lane may have had been associated with the barnyard at times, that house no longer retains historic integrity or an association with the dairy barn. The boundaries have therefore been drawn to include only the historic barns located south of Boyce Lane.

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N/A

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Figure 1. Aerial photo. Waggener Dairy Barn Boundary, including latitude and longitude coordinates. (Source: Google Earth.)



1	38.149779	-90.388115
2	38.148813	-90.387668
3	38.148722	-90.387859
4	38.148173	-90.387211
5	38.14818	-90.389652
6	38.148967	-90.38964
7	38.149036	-90.389581

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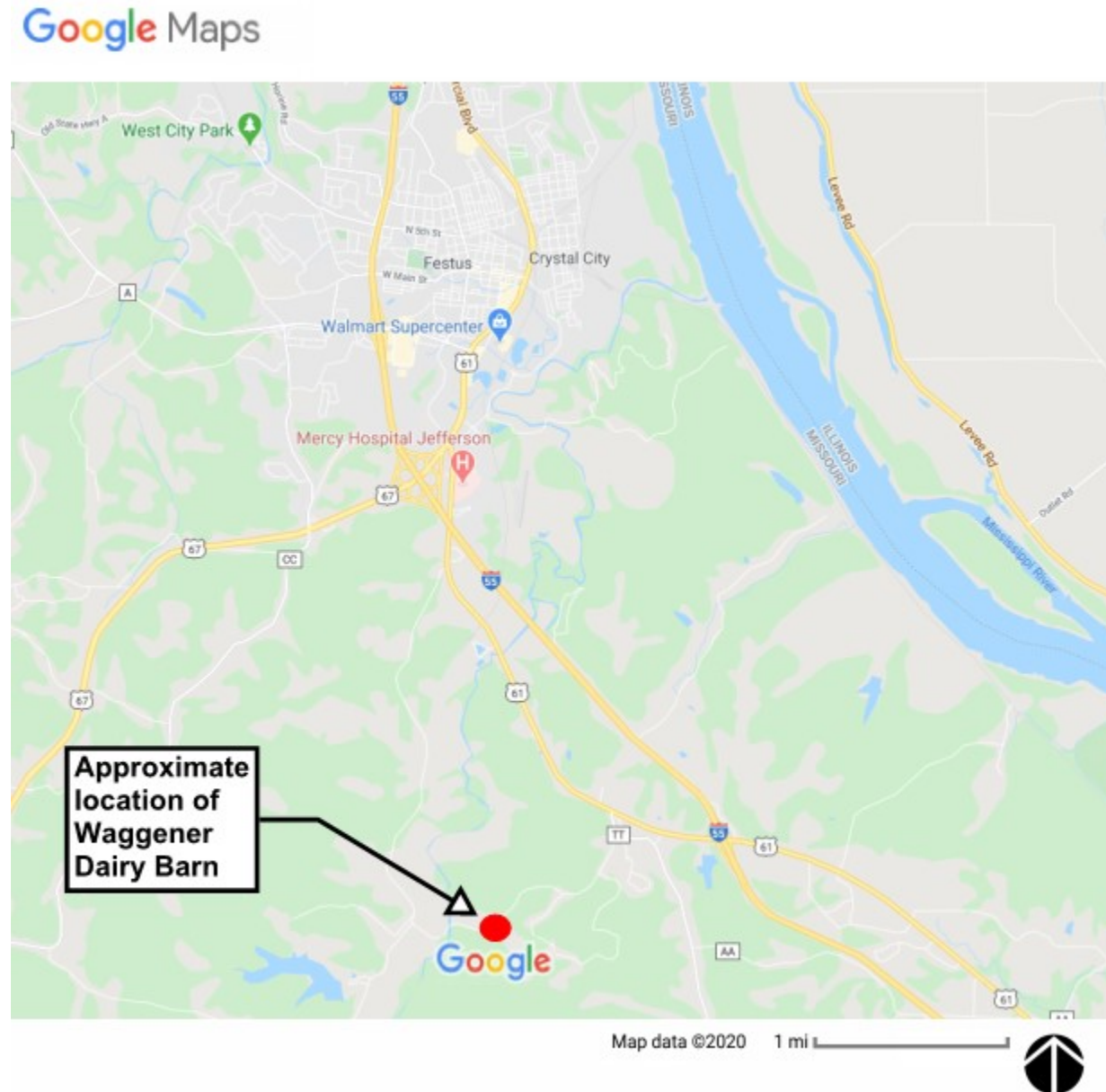
Name of Property
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 2. Context map. (Source: Google Maps.)



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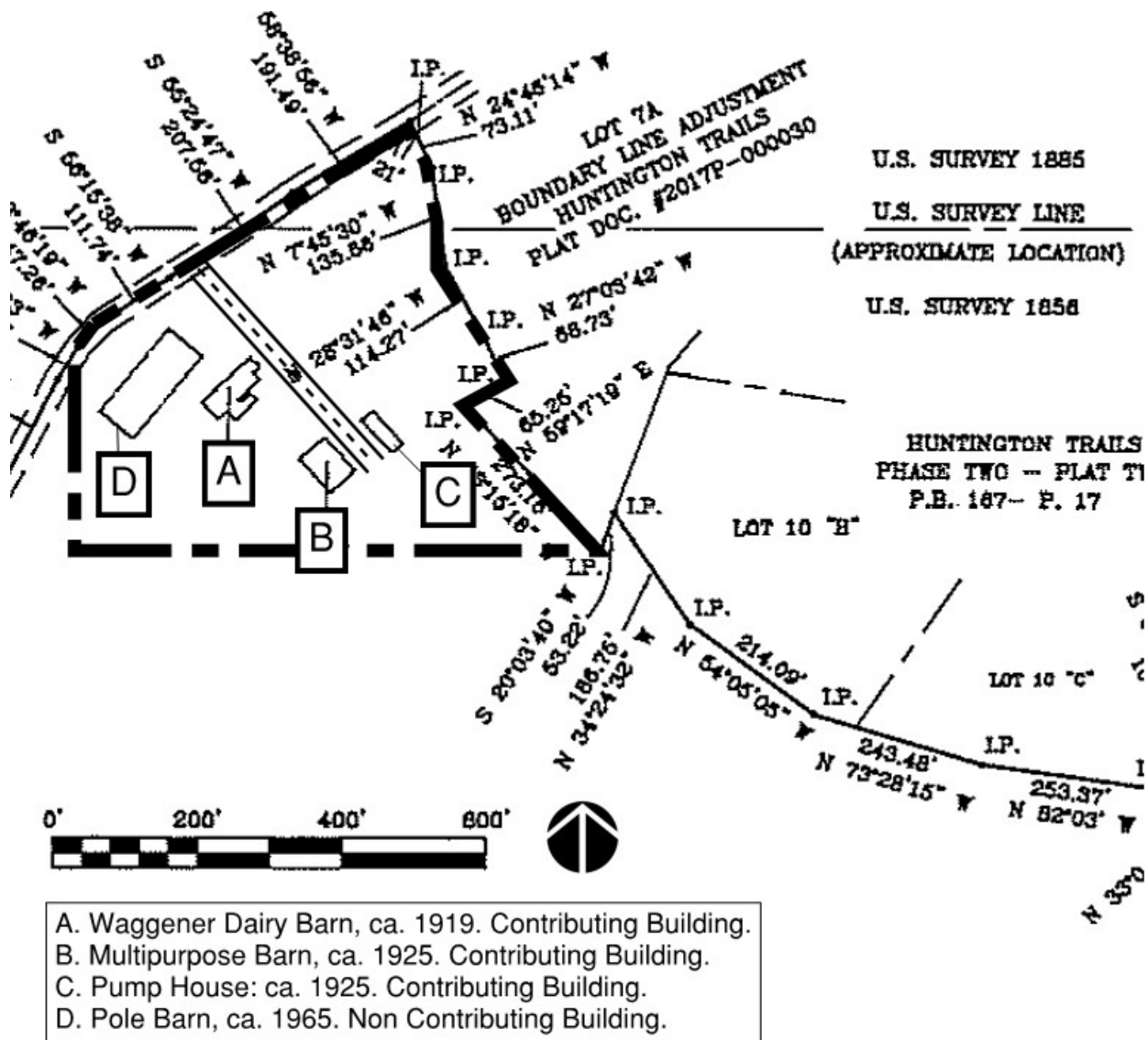
Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 3. Site plan and boundary map. (Excerpt of survey conducted by William T. Hurtgen, Jeffco Surveying, LLC, December 10, 2019.)



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Waggener Dairy Barn

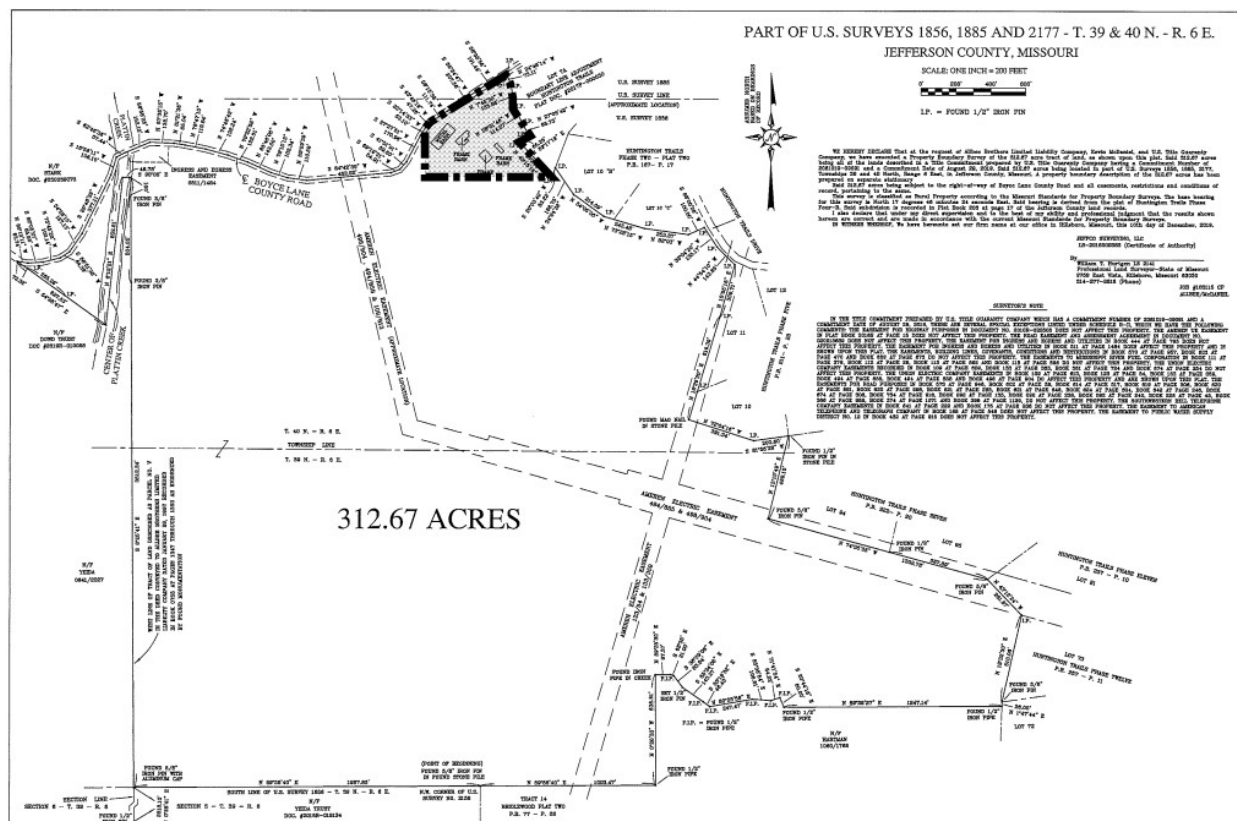
Name of Property
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 4. Survey of full 312.67 acres. (Survey conducted by William T. Hurtgen, Jeffco Surveying, LLC, December 10, 2019.)



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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 5. Aerial photo of the barnyard taken in 1976, looking southeast. (Photo from Vintage Aerial.com, 2020.)



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Section number Photos Page 45

Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 6. Additional photos of the feed chute. (Deb Sheals 2020 and 2021.)



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Waggener Dairy Barn

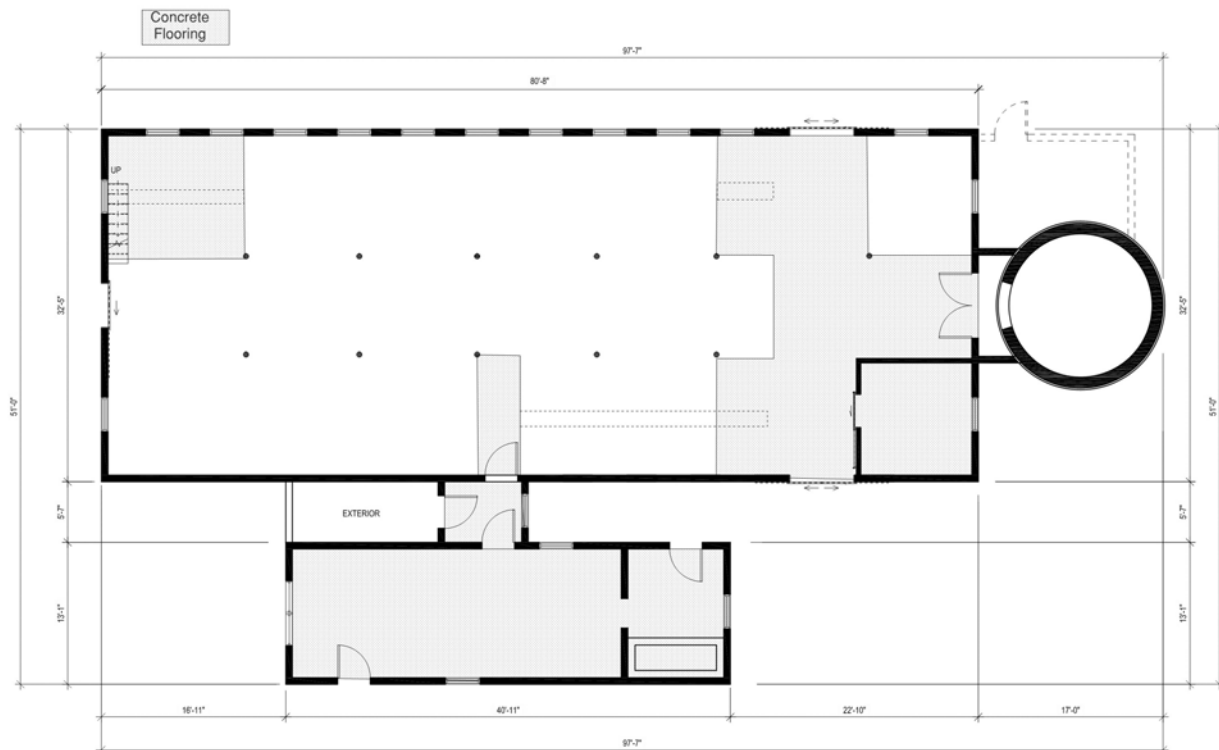
Name of Property
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 7. Existing First Floor Plan of the Waggener Dairy Barn. (Plan by Space + Form Architects, LLC, 2021. Notes added by Deb Sheals.)



1/4" = 1'-0" EXISTING FIRST FLOOR PLAN
SCALE 1/4" = 1'-0"

National Register of Historic Places
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Waggener Dairy Barn

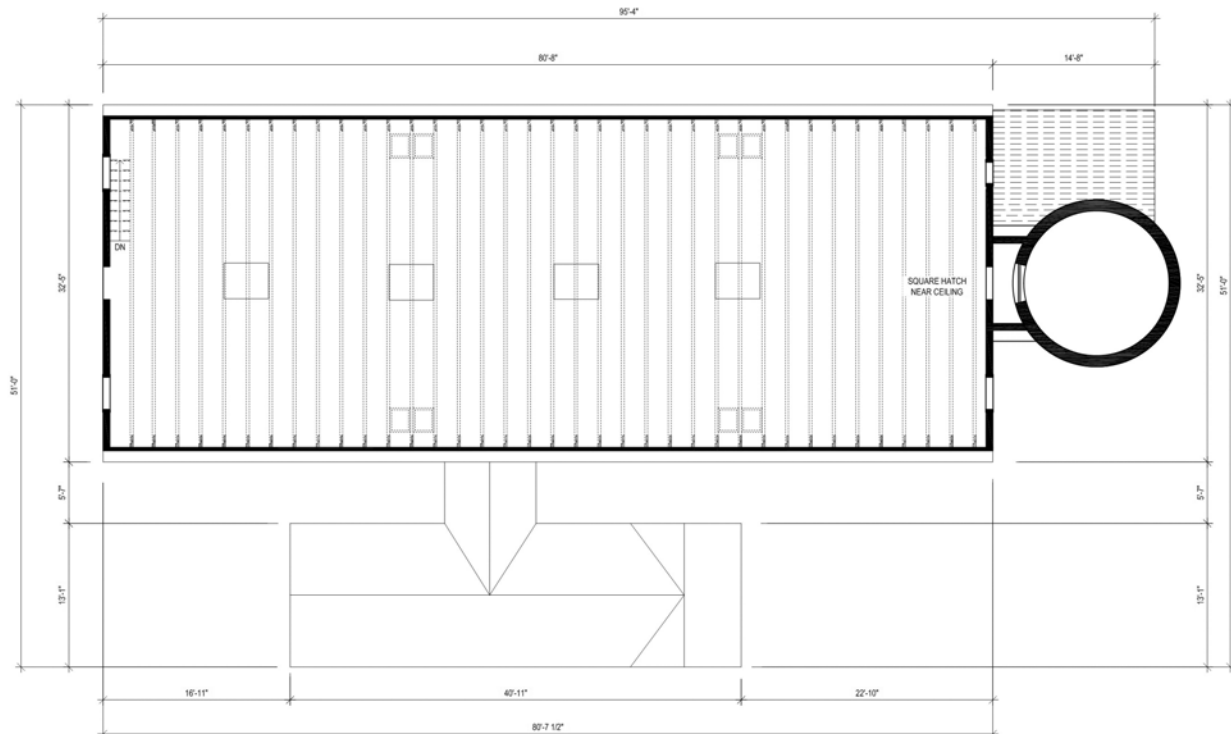
Name of Property
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 8. Existing Second Floor (loft) plan of the Waggener Dairy Barn. (Plan by Space + Form Architects, LLC, 2021.)



1 EXISTING SECOND FLOOR PLAN
EC-2-01 SCALE 1/4" = 1'-0"

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Continuation Sheet

Section number Photos Page 48

Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 9. Interior Views of Other Dairy Barns. Top: Martin Dairy Farm, Jefferson County, MO (Photo by Deb Sheals 2021.)

Bottom: Catalogue page from a 1917 Jamesway Company Catalogue. (*The Jamesway*, Ft. Atkinson, WI: James Manufacturing Company, 1917, 86.)



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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 9, continued. Interior Views of Other Dairy Barns.

Top: Eshback Dairy Barn, Delaware Water Gap National Park, Pennsylvania. The barn was built using plans and equipment from the Jamesway Company. (Photo by Deb Sheals 2021.)

Bottom: Catalogue page from a 1917 Jamesway Company Catalogue. (*The Jamesway*, Ft. Atkinson, WI: James Manufacturing Company, 1917, 86.)



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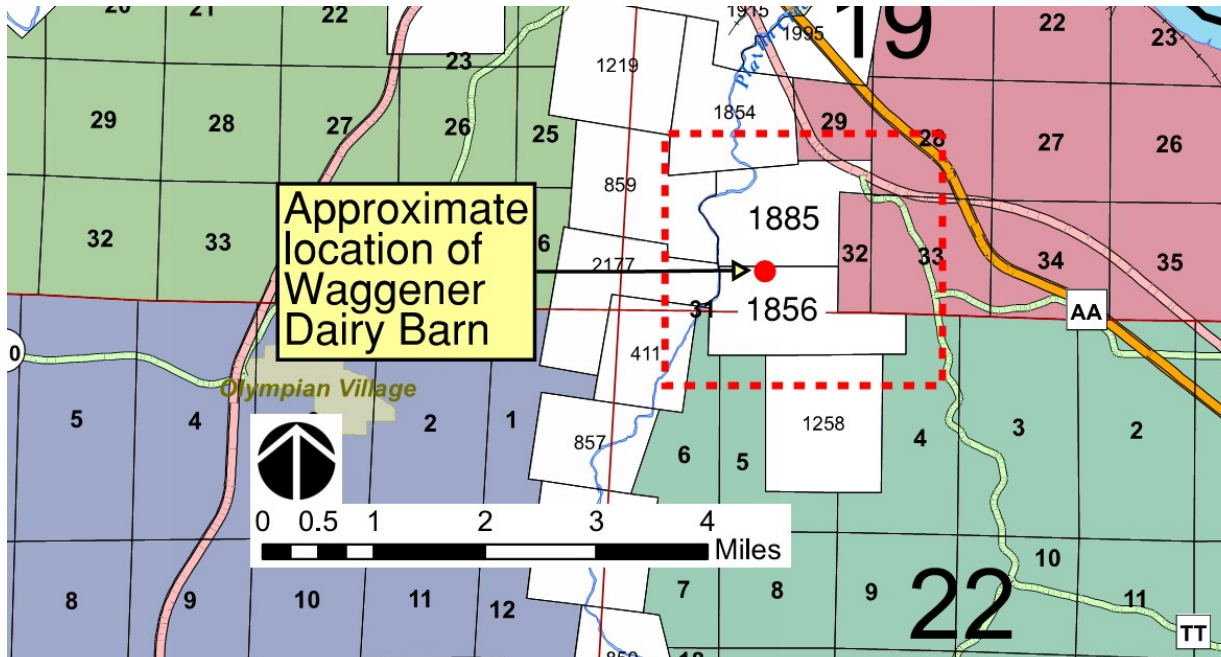
Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 10. Modern map of the Public Land Survey System (PLSS) in Jefferson County, Missouri. ("Public Land Survey System (PLSS)," Jefferson County, Missouri Map Gallery <http://jeffcomo.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=3c3a394c65164966ba385ce30a383f08> (accessed July 2020.)



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Waggener Dairy Barn

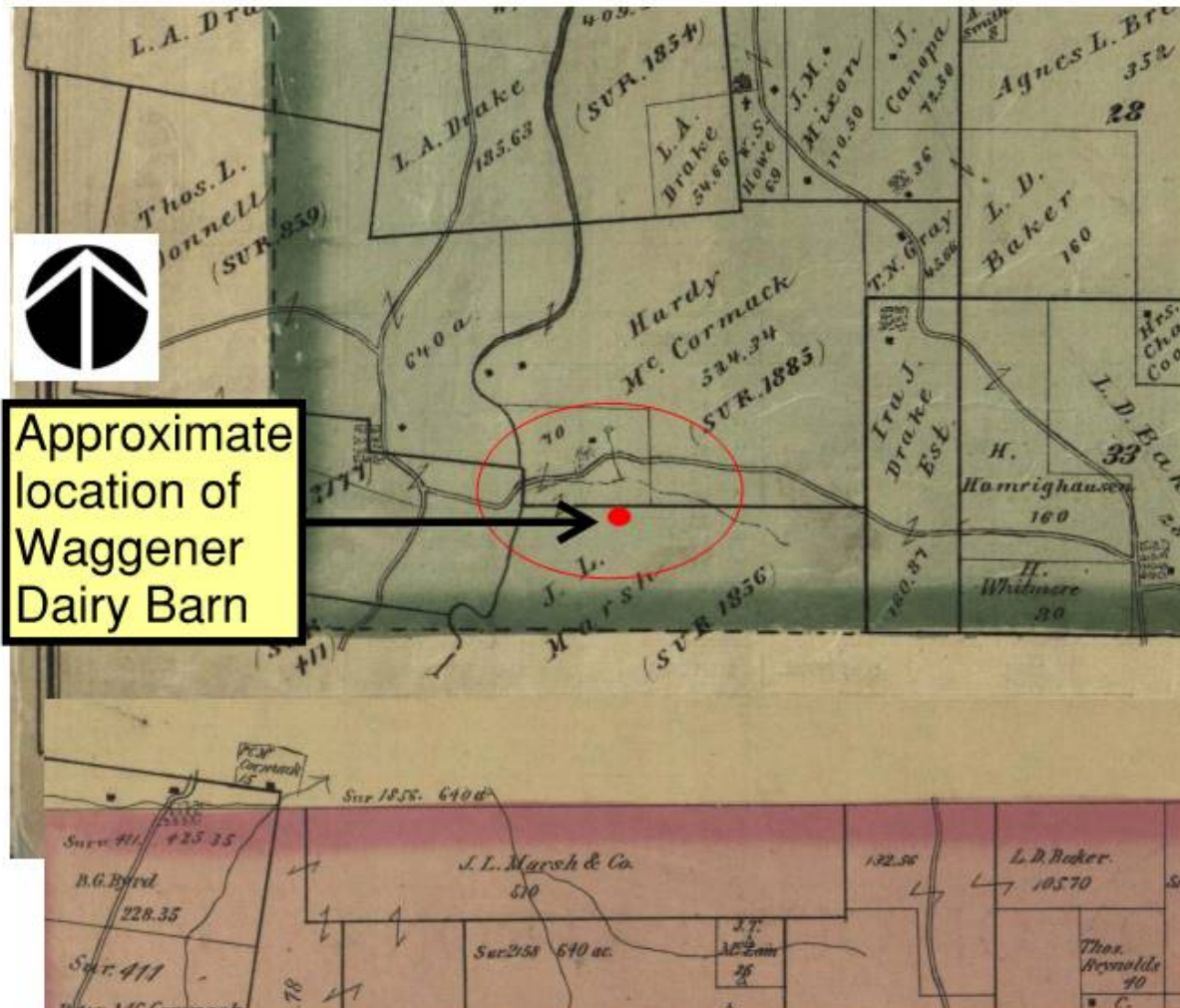
Name of Property
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 11. Excerpt of 1876 atlas map of Jefferson County, Missouri. (*An Illustrated Historical Atlas Map of Jefferson County, Missouri, 1876* (Philadelphia, PA: Brink, McDonough & Company, 1876), 20, 24.)



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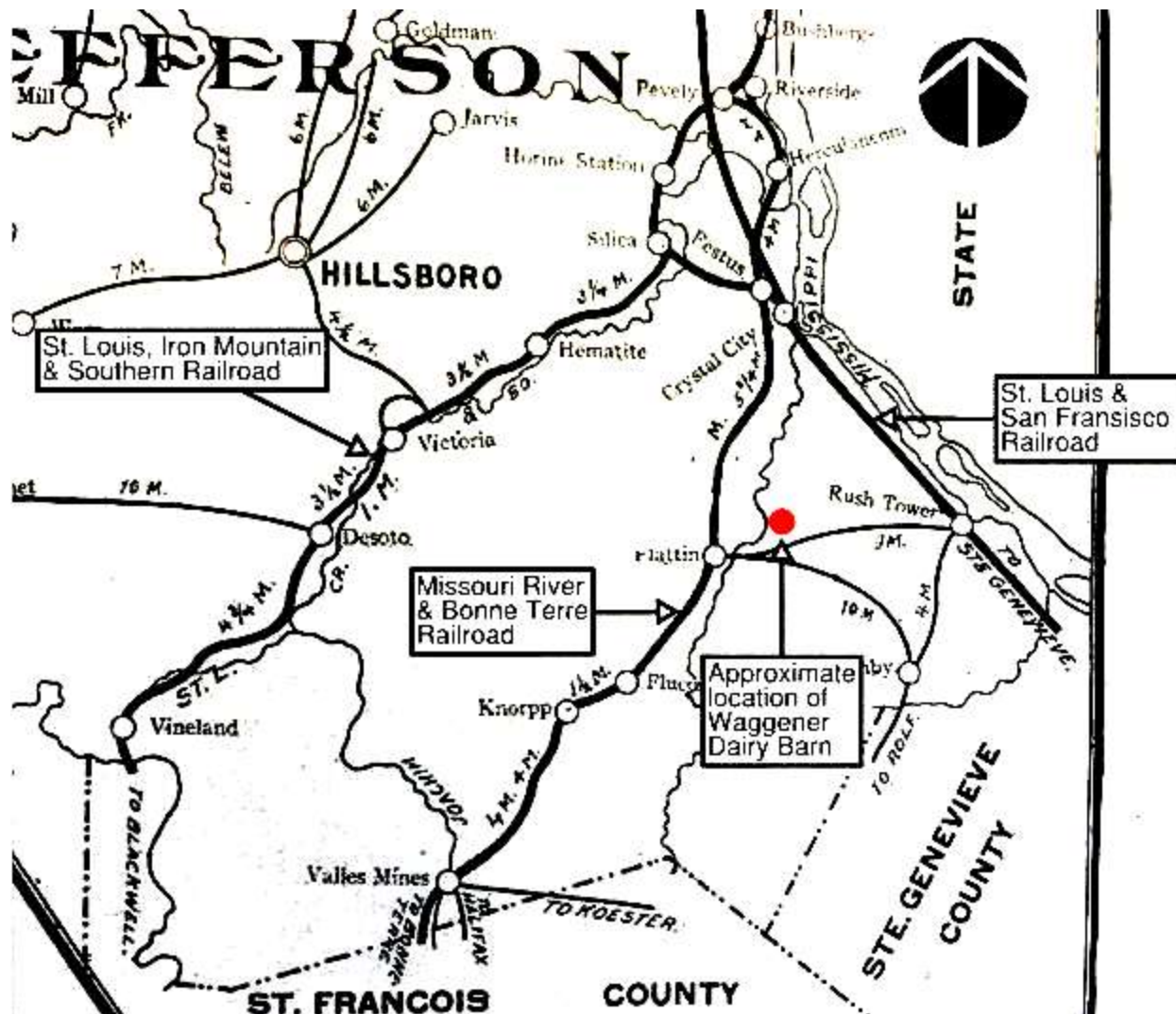
Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 12. Excerpt of 1910 Map of Jefferson County showing nearby railroad lines. (Walter Williams, *The State of Missouri: An Autobiography* (Columbia, MO: E. W. Stephens Press, 1904), 415.)



National Register of Historic Places
Continuation Sheet

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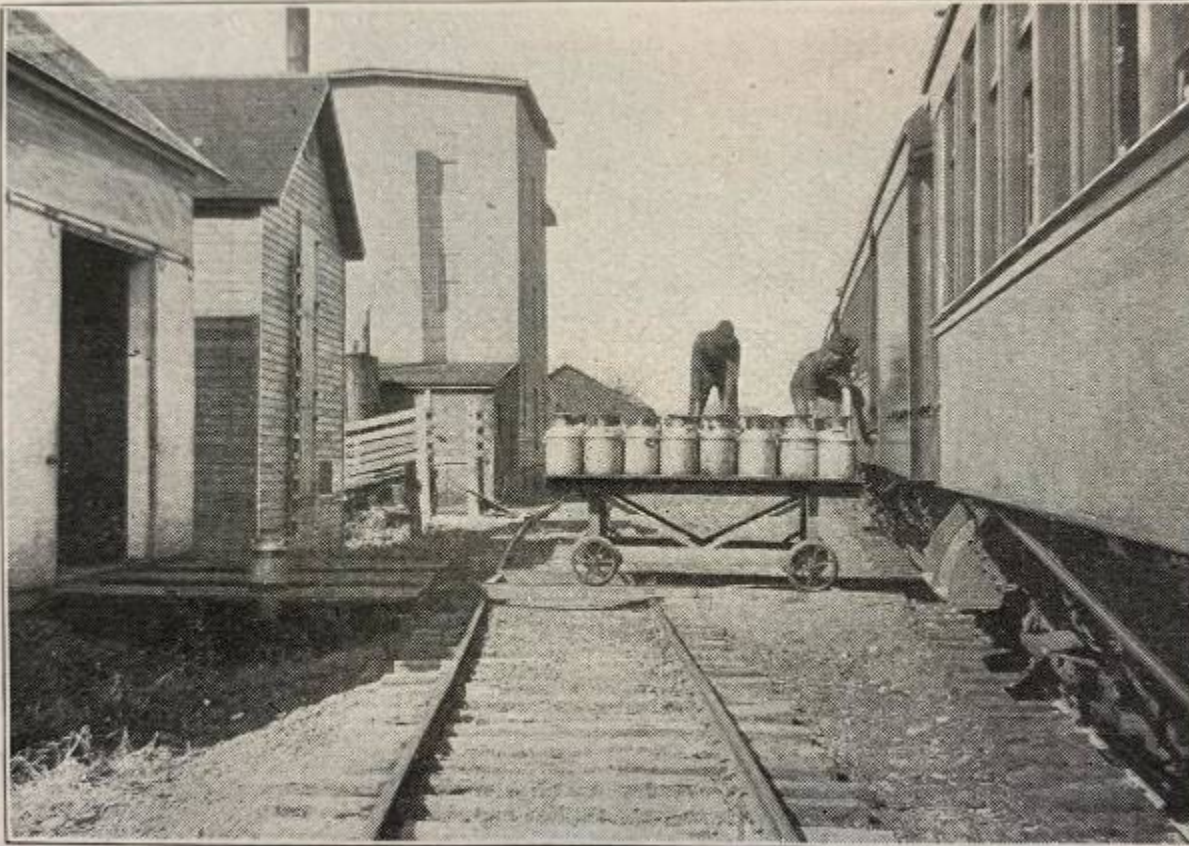
Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 13. "Loading Cream at Iron Mountain Railway Station." (Walter Williams, *The State of Missouri: An Autobiography* (Columbia, MO: E. W. Stephens Press, 1904), 142.)



LOADING CREAM AT IRON MOUNTAIN RAILWAY STATION.

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Continuation Sheet

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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 14. Table Showing the top five dairy-producing counties in Missouri as of 1920.

Compiled with data from the 1920 Census of Agriculture. (*Fourteenth Census of the United States Volume VI Part 1: Agriculture* (Washington, D.C.: United States Department of Commerce, Bureau of the Census, 1922), 589-599.)

County	Value of all dairy products produced in county	Number of dairy cows in county
Jackson County	\$1,460,000	21,744
Greene County	\$1,204,072	27,416
St. Louis County	\$693,086	11,483
Webster County	\$619,563	16,248
Jefferson County	\$603,563	13,328

Figure 15. Table of the top five dairy-producing counties in Missouri as of 1930. Compiled with data from the 1930 Census of Agriculture. (*Fifteenth Census of the United States Volume III: Agriculture Part 1-The Northern States* (Washington, D.C.: United States Department of Commerce, Bureau of the Census, 1932), 765-779.)

County	Value of all dairy products produced in county	Number of dairy farms in county	Average production per farm
Jackson County	\$2,668,867	615	\$4,339.6
Greene County	\$2,047,377	1,005	\$5,430.7
Webster County	\$1,197,716	716	\$1,486.6
Newton County	\$1,385,545	932	\$1,672.8
Jefferson County	\$826,392	372	\$2,221.5

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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 16. Excerpt from 1898 atlas of Jefferson County showing land owned by Berry and Waggener. (*Standard Atlas of Jefferson County, Missouri* (Chicago, IL: Geo. A. Ogle & Co., 1898), 5.)

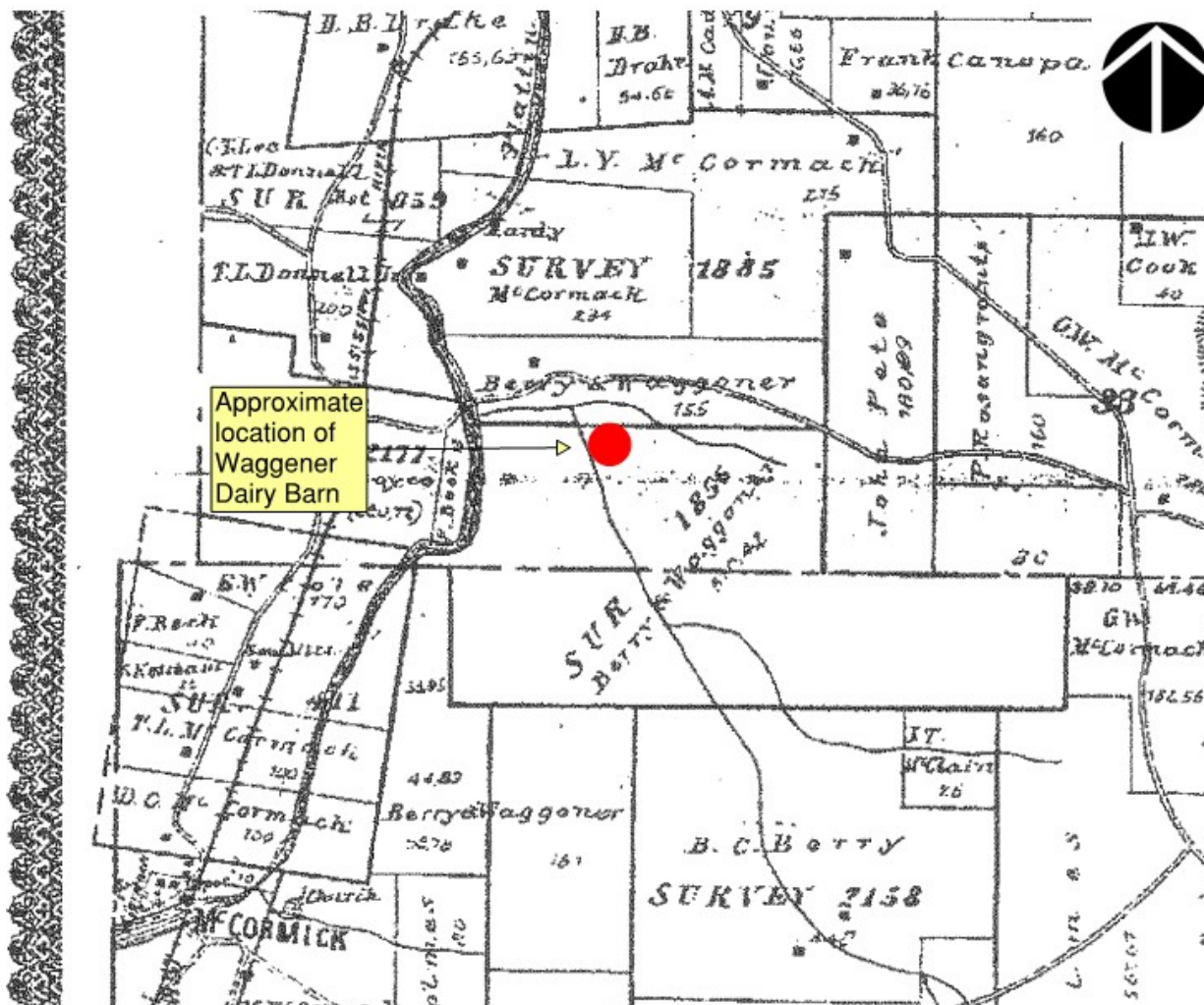


Figure 17. Diagram of the "Braced Rafters" framing system. (Norman Sheffield Fish, *Bulletin 369: Building the Dairy Barn* (Madison, WI: Agricultural Experiment Station, University of Wisconsin, 1924), 9.)

National Register of Historic Places
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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

National Register of Historic Places
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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 18. Table of National Register-Listed Wisconsin Dairy Barns. All National Register nominations were found using the National Archives catalog search feature, available at, <https://catalog.archives.gov/search?q=%22national%20register%20of%20historic%20places%22> (accessed October 2020.) Jefferson County barns were identified via Google Earth and the Jefferson County Assessor's Office.

Barn Name	State	Construction Date	Gambrel Roof	Ventilators	Rectangular Plan	Side Windows	Silo	Milk House	NRIS #
Bennie L. Aupperle Dairy Barn	OK	1934	Yes	No	Yes	Yes	No	No	12001038
Olaf Stordahl Barn	SD	1918	Yes	No	Yes	Yes	Yes	Yes	02000575
Beskow Barn	SD	ca. 1917	Yes	Yes	Yes w/ lean-to	Yes	No	No	03001072
Johnson Barn	SD	1918	Yes	No	Yes w/ lean-to	Yes	No	No	05000950
Hoffman Barn	SD	1920	Yes	Yes	Yes	Yes	Yes	No	05001188
Rockwood Lodge Barn and Pigsty	WI	1938	Yes	Yes	Yes	Yes	Yes	Yes (plans show it within barn footprint)	04000412
Robinson, John C. and Mary, Farmstead	WI	1932	Yes	Yes	Yes	Yes	No	No	09001221
Murphy Farms Number 1	WI	1918-1920	Yes	Yes	Yes	Yes	Yes	Yes (creamery wing)	12000314
3130 Armbruster Road	MO	ca. 1910	Yes	Yes	Yes	Yes	No	No	N/A
3361 Armbruster Road	MO	ca. 1930	No	Yes	Yes	Yes	No	Yes	N/A
3303 Platten Road	MO	ca. 1920	Yes	Yes	Yes	Yes	No	Yes	N/A
2385 Platten Road	MO	ca. 1930	No	Yes	Yes	Yes	Yes	No	N/A

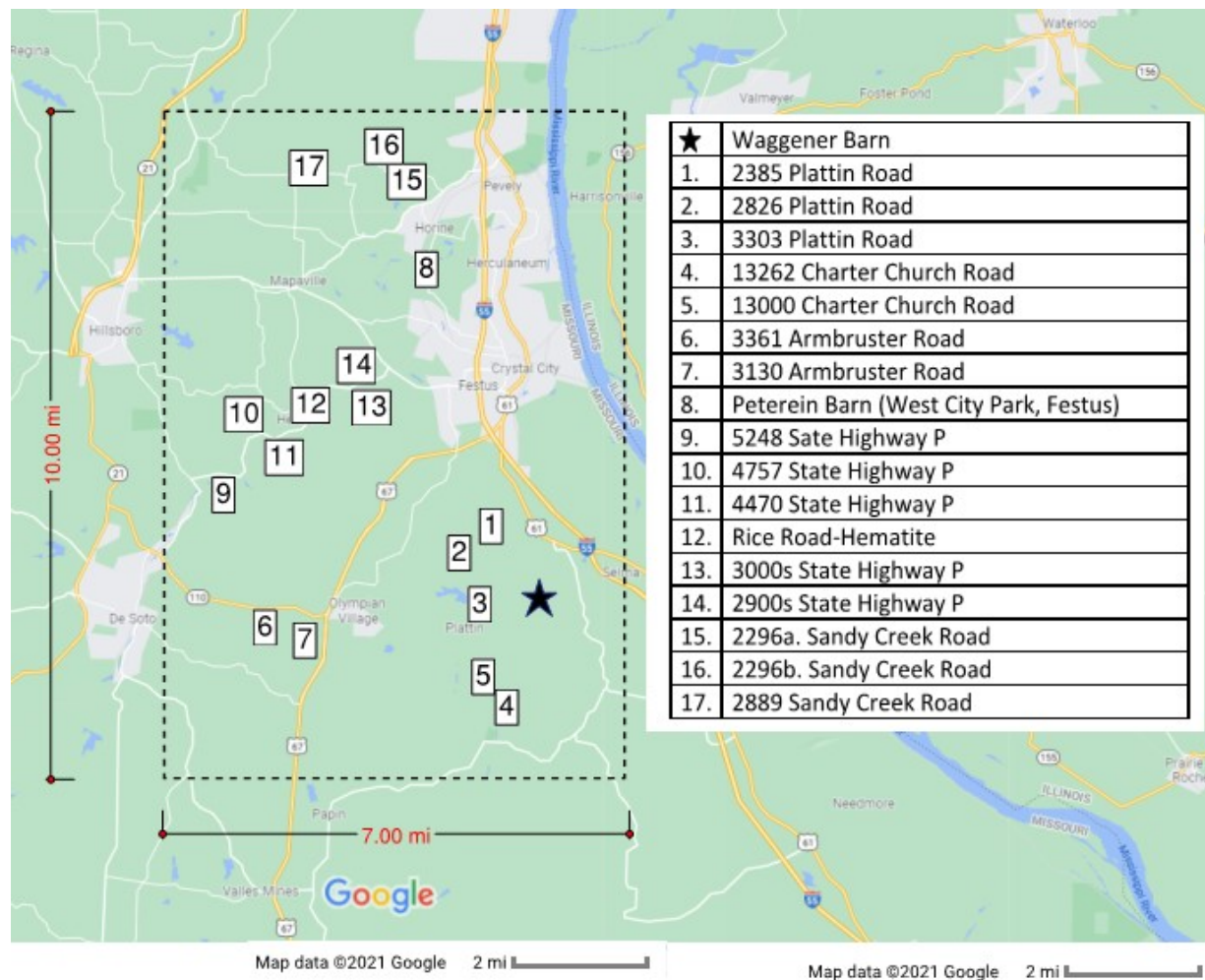
National Register of Historic Places
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Section number Photos Page 58

Waggener Dairy Barn

Name of Property
Jefferson County, Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 19. Map of Properties in the Local Study Group



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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 20. Barns in the Local Study Group (1 of 3).
(All photos by Deb Sheals 2021.)

Field # 0

Address

1700
Boyce Lane

**Waggener
Dairy Barn**



Field # 1

Address

2385
Plattin Road



Field # 2

Address

2826
Plattin Road



Field # 3

Address

3303
Plattin Road



Field # 4

Address

13262
Charter Church
Road



Field # 5

Address

1300
Charter Church
Road



National Register of Historic Places
Continuation Sheet

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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 20. Barns in the Local Study Group (2 of 3).
(All photos by Deb Sheals 2021.)

Field #6

Address

3361
Armbruster Road



Field #7

Address

3130
Armbruster Road



Field #8

Address

Peterein Barn
(West City Park,
Festus)



Field #9

Address

5248
State Highway P



Field #10

Address

4757
State Highway P



Field #11

Address

4470
State Highway P



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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 20. Barns in the Local Study Group (3 of 3).
(All photos by Deb Sheals 2021.)

Field # 12

Address

Rice Road-
Hematite



Field # 13

Address

3089
State Highway P



Field # 14

Address

2900s
State HWY P



Field # 15

Address

2296a
Sandy Creek
Road Martin
Dairy Barn



Field # 16

Address

2296b
Sandy Creek
Road



Field # 17

Address

2889
Sandy Creek
Road



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Section number Photos Page 62

Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 21. Characteristics of the Local Study Group.

Field Number		Address	Gambrel Roof?	Ventilators?	Side Windows?	No of stories	Low first floor?	Milk House?	Silo?
0	1700	Boyce Lane Waggener Dairy Barn	Yes	Yes	Yes	2	Yes	Yes	Yes
1	2385	Plattin Road	No, Round roof	Yes	Yes	2	Yes	Yes	Yes
2	2826	Plattin Road	Yes	Yes	No	1.5	No	No	No
3	3303	Plattin Road	Yes	Yes	Yes	2	Yes	Yes	No
4	13262	Charter Church Road	Yes	No	Yes	2	No	Yes	Yes
5	1300	Charter Church Road	Yes	No	No	1.5	No	Yes	Yes
6	3361	Armbruster Road	No, Round roof	Yes	Yes	2	Yes	Yes	No
7	3130	Armbruster Road	Yes	Yes	Yes	2.5	Poss.	No	No
8		Peterein Barn (West City Park, Festus)	Yes	Yes	Yes	2	Yes	No	Yes
9	5248	State Highway P	Yes	No	Yes	2	Yes	No	Yes
10	4757	State Highway P	No, Round Roof	No	Yes	1.5	Yes	No	No
11	4470	State Highway P	No	No	Yes	1	Yes	No	Yes
12		Rice Road-Hematite	No	No	No	2	No	No	Yes
13	3089	State Highway P	No	No	One side	2	No	No	Yes
14	2900	State HWY P	No	No	No	2	No	Possibly	No
15	2296a	Sandy Creek Road Martin Dairy Barn	No, Round roof	No	Yes	1.5	Yes	Yes	Yes
16	2296b	Sandy Creek Road	Yes	No	No	2	No	No	Yes
17	2296	Sandy Creek Road	Yes	Yes	Yes	2	Yes	Yes	Yes

National Register of Historic Places
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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 22. Other Wisconsin Dairy Barns in the Study Group.

Top: #8 Peterein Barn, West City Park, Festus. (Photo Deb Sheals, 2021. The silo is on the opposite side of the barn, see photo in Figure 20.) Bottom: #3 3303 Plattin Road (Hillsboro, MO: Department of the County Assessor, <https://jeffersonmo-assessor.devnetwedge.com/> accessed September 2020.)



National Register of Historic Places
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Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 23. Interior Views of Barns in the Study Group.

(Photos by Deb Sheals 2021.)

Top: #4, 13262 Charter Church Road. Bottom: #14, 3089 State Highway P.



National Register of Historic Places
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Waggener Dairy Barn

Name of Property

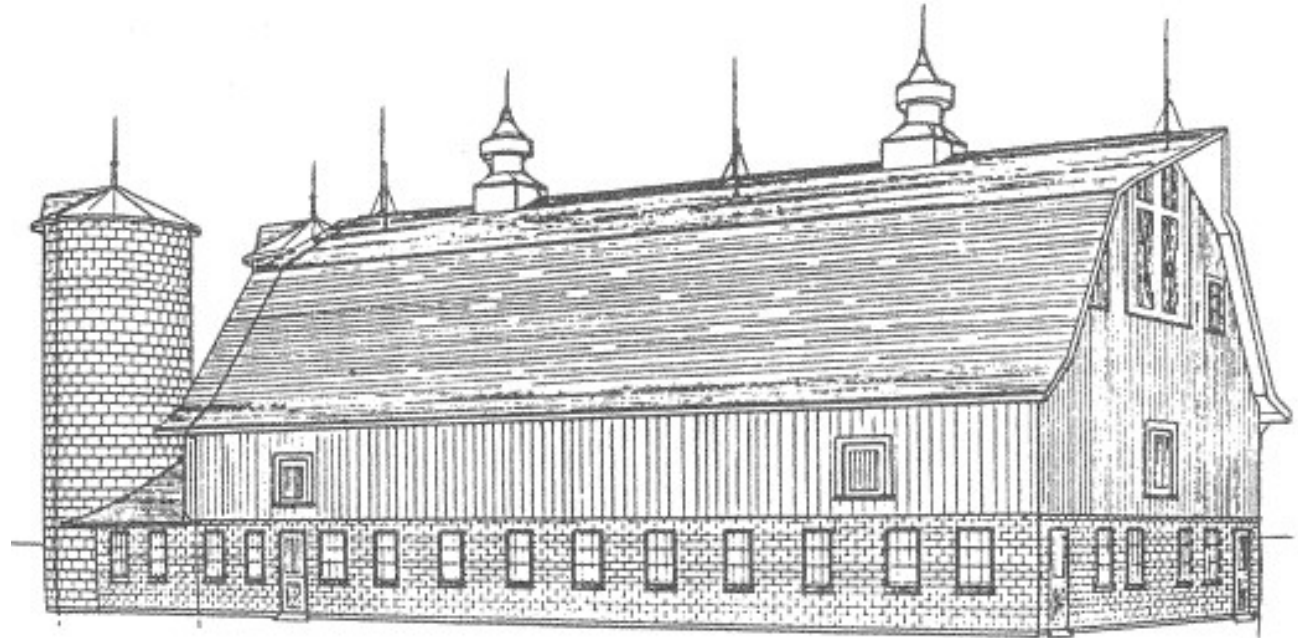
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 24. Pattern Book Image of a Wisconsin Dairy Barn. Drawing of a Wisconsin Dairy Barn published by the Kansas Agricultural Experimental Station in 1925. (Drawing from *Bulletin* 236, (Manhattan, KS: Kansas State Agricultural College, Agricultural Experiment Station, 1925), 4.)



National Register of Historic Places
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Waggener Dairy Barn

Name of Property

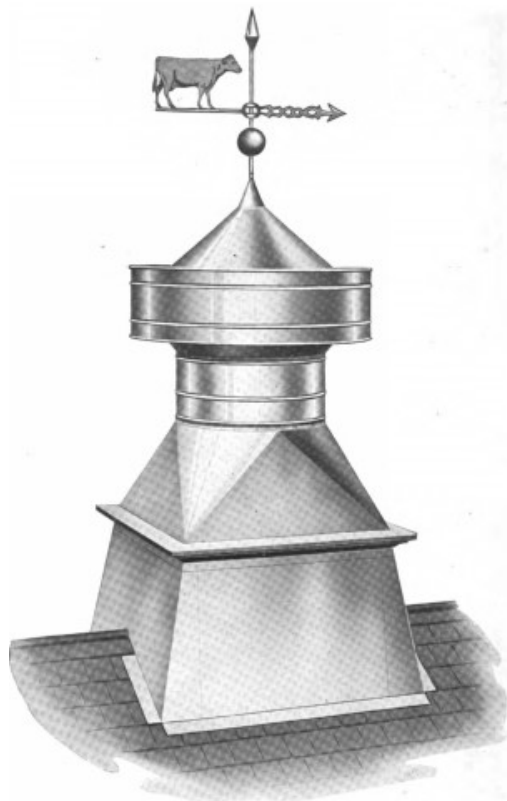
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 25. Comparison between the “James Flaring Base Ventilator,” (left) and a ventilator found on the Waggener Dairy Barn (right). (*Complete System of Jamesway Ventilation*, Ft. Atkinson, WI: James Manufacturing Company, 1921, 20.)



James Flaring Base Ventilator



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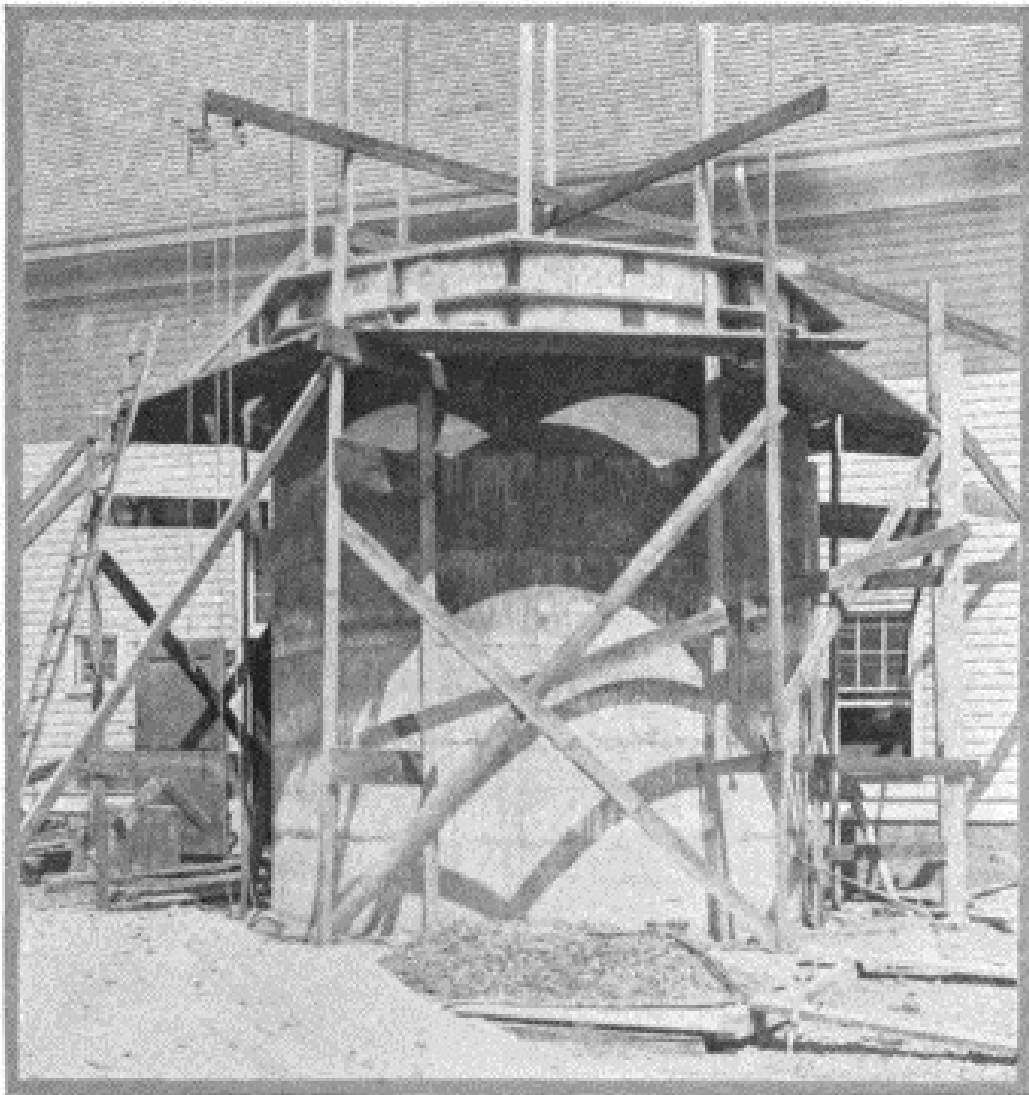
Waggener Dairy Barn

Name of Property
Jefferson County, Missouri

County and State
N/A

Name of multiple listing (if applicable)

Figure 26. Dairy industry publications and manuals provided information on the construction of silos, including how to build and use wooden silo forms. ("Concrete Silos: A Booklet of Practical Information for the Farmer and the Rural Contractor," Universal Portland Cement, Chicago: 1914, 60 and 92.)



Third stage in the use of University of Wisconsin silo forms, showing method of building scaffolding, hoisting material and other essential details.

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Waggener Dairy Barn

Name of Property

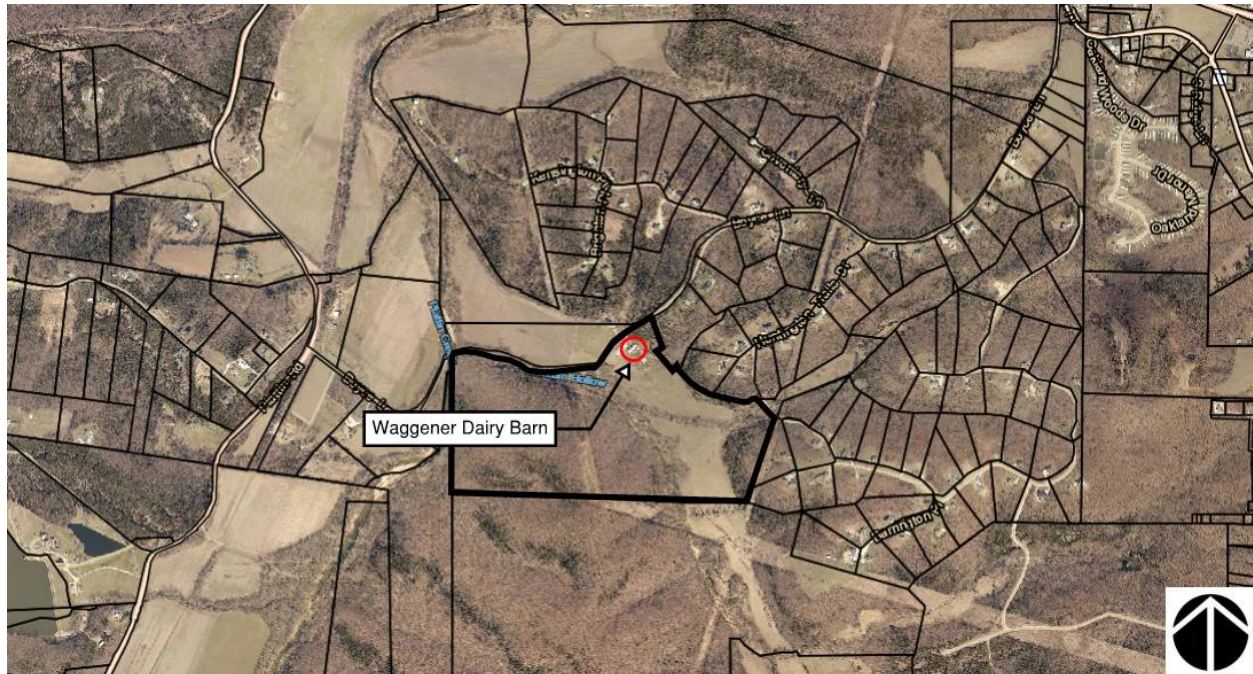
Jefferson County, Missouri

County and State

N/A

Name of multiple listing (if applicable)

Figure 27. Property lines near the Waggener Dairy Barn, showing newer residential subdivisions. ("Jefferson County, Missouri Property Viewer," (Hillsboro, MO: Department of the County Assessor), accessed September 2020.)
<http://jeffcomo.maps.arcgis.com/apps/webappviewer/index.html?id=efafd2634c3c494ab61f03bbcd759ec7>



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Waggener Dairy Barn

Name of Property

Jefferson County, Missouri

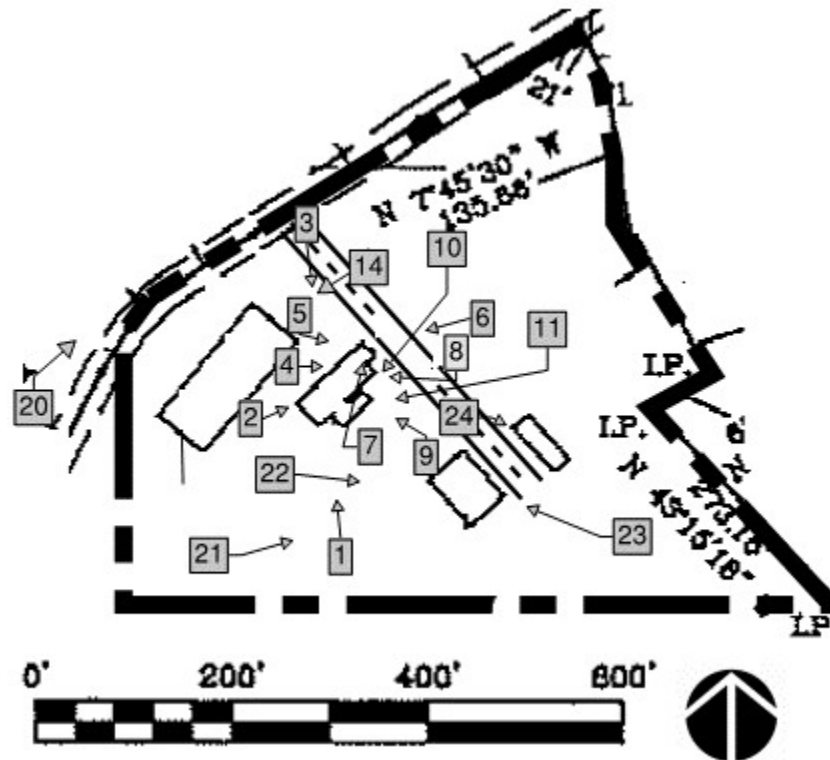
County and State

N/A

Name of multiple listing (if applicable)

Figure 28. Photo Key. (Deb Sheals, 2020.)

Exterior



Interior

