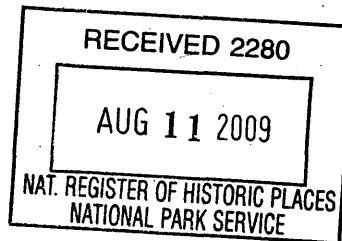


United States Department of the Interior  
National Park Service

National Register of Historic Places  
Registration Form



755

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

1. Name of Property

historic name Bridge Street Bridge  
other names/site number Elkhart County Bridge #387 039-186-33398

2. Location

Carries Bridge Street over the St. Joseph River  
street & number \_\_\_\_\_ N/A  not for publication  
city or town Elkhart N/A  vicinity  
state Indiana code IN county Elkhart code 039 zip code 46526

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this  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 36CFR Part 60. In my opinion, the property  meets  does not meet the National Register criteria. I recommend that this property be considered significant  nationally  statewide  locally. (  See continuation sheet for additional comments.)  
[Signature] 8/4/2009  
Signature of certifying official/Title \_\_\_\_\_ Date \_\_\_\_\_  
Indiana Department of Natural Resources  
State or Federal agency and bureau \_\_\_\_\_

In my opinion, the property  meets  does not meet the National Register criteria. (  See continuation sheet for additional comments.)  
\_\_\_\_\_  
Signature of certifying official/Title \_\_\_\_\_ Date \_\_\_\_\_  
State or Federal agency and bureau \_\_\_\_\_

4. National Park Service Certification

I hereby certify that the property is:  
 entered in the National Register.  See continuation sheet.  
 determined eligible for the National Register  See continuation sheet.  
 determined not eligible for the National Register  
 removed from the National Register  
 other, (explain:) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
[Signature] \_\_\_\_\_  
Signature of the Keeper \_\_\_\_\_ Date of Action \_\_\_\_\_  
Edson H. Beall 9.24.09

Bridge Street Bridge  
Name of Property

Elkhart IN  
County and State

**5. Classification**

**Ownership of Property**  
(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

**Category of Property**  
(Check only one box)

- building
- district
- site
- structure
- object

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

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

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

N/A

**Number of contributing resources previously listed in the National Register**

N/A

**6. Function or Use**

**Historic Functions**  
(Enter categories from instructions)

TRANSPORTATION: Road-Related

**Current Functions**  
(Enter categories from instructions)

TRANSPORTATION: Road-Related (vehicular)

**7. Description**

**Architectural Classification**  
(Enter categories from instructions)

OTHER: Reinforced Concrete beam  
Beam

**Materials**  
(Enter categories from instructions)

foundation CONCRETE

walls CONCRETE

roof

other

**Narrative Description**

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

**8. Statement of Significance**

**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for 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 of age or achieved significance within the past 50 years.

**Narrative Statement of Significance**

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

**Areas of Significance**

(Enter categories from instructions)

TRANSPORTATION \_\_\_\_\_  
ENGINEERING \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Period of Significance**

1939-1957 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Dates**

N/A \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Person**

(Complete if Criterion B is marked above)

N/A \_\_\_\_\_  
\_\_\_\_\_

**Cultural Affiliation**

N/A \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Architect/Builder**

William S. Moore (design engineer) \_\_\_\_\_

H.L. Maddocks, Logansport, IN (builder) \_\_\_\_\_  
\_\_\_\_\_

**9. Major Bibliographic References**

**Bibliography**

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

Previous documentation on file (NPS):

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

**Primary location of additional data:**

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: \_\_\_\_\_

Bridge Street Bridge  
Name of Property

Elkhart IN  
County and State

### 10. Geographical Data

Acreage of Property Less than 1 acre

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

1 

1	6	5	8	3	9	8	0	4	6	14	1	9	0
Zone		Easting						Northing					

2 

Zone		Easting						Northing					

3 

Zone		Easting						Northing					

4 

Zone		Easting						Northing					

See continuation sheet

### Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

### Boundary Justification

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

### 11. Form Prepared By

name/title John Warner

organization \_\_\_\_\_ date 05-01-2007

street & number 5018 Broadway Street telephone 317/ 283-5450

city or town Indianapolis state IN zip code 46205

### Additional Documentation

Submit the following items with the completed form:

#### Continuation Sheets

#### 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.

#### Photographs

Representative **black and white** photographs of the property.

#### Additional items

(Check with the SHPO or FPO for any additional items)

### Property Owner

(Complete this item at the request of SHPO or FPO.)

name Elkhart County Commissioners

street & number 117 N. 2nd St. telephone 574/ 535-6743

city or town Goshen state IN zip code 46526

**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. 470 *et seq.*).

**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 18.1 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 Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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**Section 7 – Description**

The Bridge Street Bridge is located in Elkhart County, on the western side of downtown Elkhart, Indiana. Also known as Elkhart County Bridge # 387, it runs east to west and carries Bridge Street over the St. Joseph River. It is a three-span box beam bridge supported on two piers and two abutments. The shorter east and west spans extend from their abutments to their respective piers and are 67 feet long; the center span is 116 feet long. The overall length of the bridge, including abutments, is 272 feet. The roadway of the cantilevered slab deck is 40 feet wide, with side walks 6 feet wide on each side of the roadway (photographs 1 and 2).<sup>1</sup>

The substructure of the bridge consists of reinforced concrete abutments and two reinforced concrete piers anchored in the substratum. In the original plans, the pier's concrete footings were to rest on 40-foot long wooden pilings driven into the soil (photographs 3 and 4). The actual construction of the footings did not follow the original plans due to unstable soil conditions found during test borings. The changes made are discussed in detail in the Statement of Significance. The engineer drew up additional plans to deal with the problem but these plans are not available at the county engineer's office. The piers are 8 feet in width, 9 feet and 8 inches in depth, and 34 feet tall from the top of the footing to the top of the pier. As a measure of economy the engineer specified the reuse of steel from the "old bridge" as reinforcement for the section of the piers "outside the outer arch ribs." The abutments are reinforced concrete. An expansion joint, between the rear wall of each abutment and the ends of the east and west beam (the 67-foot spans) permits the shorter spans of the superstructure to expand and contract.<sup>2</sup>

The Bridge Street Bridge is a rigid design constructed using six concrete continuous-framed, hollow, box beams (two outer ribs and four intermediate ribs). The beams that support the roadway rest upon metal roller bearings, two sets for the outer ribs and one set each for the intermediate ribs that allow the ends of the beams to move in expansion and contraction within the limits of the expansion joint at the abutments (photographs 5, 6, 7, and 8). There are transverse diaphragms between beams for additional support (photograph 9).<sup>3</sup>

The beams are advanced, in design, for the period and demonstrate evolving bridge building techniques that greatly reduced the dead load of a solid structure and allowed longer spans. The cross section of an outer rib of a short span measures 2 feet 8

<sup>1</sup> William S. Moore, *Concrete Arch Bridge Across St. Joseph River at Bridge Street, City of Elkhart, Elkhart County, IN*. (South Bend, IN: Wm. S. Moore, engineer, 1938), plans, Sheets 3 and 4.

<sup>2</sup> *Ibid.*

<sup>3</sup> Moore, *Concrete Arch Bridge*, Sheet 2; James L. Cooper, *Artistry and Ingenuity in Artificial Stone* (Greencastle, IN: DePauw University, 1997), 213.

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inches wide x 7 feet 9 inches high at the pier and tapers down to a cross section that measures 2 feet 8 inches wide x 3 feet 4 inches high at the abutment. Outer ribs of the longer center arch span measure 4 feet 8 inches wide x 7 feet 9 inches high at the haunch tapering to 4 feet 8 inches wide x 3 feet 8 inches high, in cross section, at the crown. The intermediate ribs are smaller in width, 2 feet x 8 inches, but possess the same height as the outer ribs.<sup>4</sup>

The hollow construction is achieved by internal forms. The contractor created the hollow spaces in the beams by building hollow wooden boxes (formwork) that mimic the interior dimensions of the beams, encased the hollow forms in the metal reinforcing (with a predetermined separation distance between the two), formed up the exterior surfaces (sides and bottoms) of the beams, and made the pour. The reinforcing system rods for the center span rise out of the frame's side most distant from the beam to its right, arc through the knee towards the top of the beam, and then one line of reinforcing steel after the other shifts diagonally to the lower region of the beam where the rods are hooked around longitudinal rods. The pattern of the reinforcing scheme is demonstrated in photograph 3.<sup>5</sup>

The exterior surfaces of the outer ribs form the spandrels. The lower edge forms a shallow elliptical curve that springs from the pier. The surface of the spandrel has a bird-wing detail extending longitudinally from the vertical edge of the pier in both directions (photograph 10). The wing motif visually divides the spandrel walls into four horizontal parts. The first section just below the edge of the deck is a raised projection that begins at the side of the pilaster and extends approximately thirty feet; the projection terminates with a squared end that is mitered on its lower corner. This detail repeats twice more below the first projection in successively shallower relief and shorter lengths, creating the stepped appearance of stylized wings of a bird. The combination of stylized wings and massive pier take on the appearance of a large bird, perhaps an American eagle. The length of the relief corresponds to segments of the railing above (photographs 11 and 12).<sup>6</sup>

The cantilevered deck of the bridge projects outward from the outer rib by approximately five feet. The railings along the deck are divided into sections. The sections of railing are approximately nine feet long and four feet high. The center span of the bridge has twelve sections on each side, with seven sections above each of the short spans. The railings are formed of concrete and feature vertical ovals between the bottom

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<sup>4</sup> Moore, *Concrete Arch Bridge*, Sheet 4.

<sup>5</sup> Cooper, *Artistry and Ingenuity*, 183 -184.

<sup>6</sup> Moore, *Concrete Arch Bridge*, Sheet 3.

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and top rails. A section of railing adorns each wing wall of the bridge. These sections are approximately eleven feet in length and feature twelve ovals per section. There are solid concrete posts between railing sections. The posts and the coping on top of the railing have beveled edges (photograph 13).<sup>7</sup>

The light patches on several railing posts denote the locations of railing lights that, at one time, provided illumination for traffic using the bridge. There were four parapet lights located on the north railing and five on the south railing. These recessed lights, originally incorporated into the interior (roadside) surfaces of the center and end posts of the bridge, were removed and replaced by three metal posts fitted with overhead arc lamps; two on the north side of the bridge and one on the south (photographs 14 and 15).<sup>8</sup>

Architecturally, the piers of the Bridge Street Bridge evoke the Art Moderne style; illustrative of the times and circumstances, the style was sometimes known as WPA Moderne. The original plans called for Art Deco-style detailing but the blending of both styles gives the bridge a truly unique look. The piers are approximately 8 feet wide, project 10 feet at their bases, tapering to 3 feet at the top. The rounded edges of the piers are stylized cascades. Widest at the base, the piers taper as they extend upward toward the bridge deck, forming an imposing pilaster that terminates several feet above the railing. The cutwater of the piers curves outward in plan view, forming a semi-circle on each side of a central pilaster. A pair of horizontal grooves appears in the face of the piers. The pilaster projects slightly at the base and curves inward as it continues beyond the railing above. The front of the pilaster has a set of concave cuts that run its entire length. The sides of the pilasters taper inward as they project from the spandrel walls through a series of shallow steps, or cascades (photograph 11). The frame and beams are not attached to the pier pilasters, allowing them to move independent of the pilasters.<sup>9</sup>

There are four plaques on the bridge of two distinct types. One set is located at each end of the bridge, attached to the second outermost post section of the railing (photographs 16 and 17).

Overall, the Bridge Street Bridge is in good condition. The roller bearing at the expansion end of the north side outer rib is deteriorated and restoration work is planned in the future. Some reinforcement steel is exposed on the northwestern corner where water infiltration and subsequent damage occurred in the past (photograph 18). The light patch on the surface of the railing post marks the prior location of one of the original

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<sup>7</sup> *Ibid.*

<sup>8</sup> Moore, *Concrete Arch Bridge (5 Special Light Posts Required)*, Sheet 7.

<sup>9</sup> Cooper, *Artistry and Ingenuity*, 190-191.

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lights. A section of railing on the south side of the bridge required replacement. The new concrete replicates the original materials and design. It is noticeably newer in appearance due to its lighter color, finer aggregate, and rougher edges (right half of photograph 14).

Overall, the Bridge Street Bridge is in good condition. Original plans are available at the Elkhart County Engineer's office in Goshen, Indiana.



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**Section 8 – Statement of Significance**

The Bridge Street Bridge is eligible for the National Register of Historic Places under Criterion A for its association with events that have made a significant contribution to the broad patterns of our history. It demonstrates the development of transportation infrastructure in support of growth and expansion in Elkhart, Indiana; reflects a trend that reshaped American cities during the early years of the automobile age; and illustrates the influence of the federal government during the Depression in financing projects that provided jobs for the unemployed. The Bridge Street Bridge is also eligible for the National Register under Criterion C as an early example of a box beam, rigid frame, and reinforced concrete construction. Its design embodies engineering advances that made steel reinforced concrete hollow beam bridges lighter, stronger, and available for use in longer spans, in the middle decades of the twentieth century. The center span is the longest of beams built in Indiana before World War II.<sup>1</sup> The period of significance for the Bridge Street Bridge is 1939-57.

The earliest non-Native American residents of the region near present-day Elkhart were French trappers trading with the local tribes of Pottawatomie and Miami. In the first decades of the nineteenth century white settlers began to move in and establish a presence upon the land. In 1831, Dr. Havilah Beardsley purchased a full section of land, from Pierre Morain, a Pottawatomie chief, which included the confluence of two rivers, the Elkhart and the St. Joseph. Local tradition claims that Dr. Beardsley named his newly-platted settlement “Elkhart” after an island in the vicinity whose shape resembled the heart of an elk. Elkhart’s location at the confluence of these two rivers meant that the city would be forever divided as it expanded were it not for the significant role played by bridges in connecting different parts of the expanding city into a community.<sup>2</sup>

As is the case with settlement in any region dominated by bodies of water, the two rivers constituted a blessing and a curse. The blessing, obvious to the early settlers and future generations, was abundant water power available for harnessing to drive early mills and later factories that produced goods for local and distant markets. The curse was just as obvious to local folks. Floods, most common in the spring, severely curtailed travel in the town and throughout the region. Early settlers relied on fords or public ferries to cross most streams or rivers but inclement weather often denied their use. By the 1850s, wooden bridges crossed some of the streams and by the late 1880s, metal bridges began to span the largest of the watercourses and provided all-weather access from surrounding settlements and from growing suburbs into the city of Elkhart. By

<sup>1</sup> James L. Cooper, *Artistry and Ingenuity in Artificial Stone*, (Greencastle, IN.: De Pauw University, 1997), 190.

<sup>2</sup> Geo. W. Butler, *The Manual of Elkhart* (Elkhart, IN: Mennonite Publishing Company, 1889), 1-3.

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1890, Elkhart had a total of nine bridges, eight metal bridges and one wooden, spanning the two rivers and tying together the expanding residential and industrial sections of the town.<sup>3</sup>

From late in the nineteenth century, a bridge at the site of the Bridge Street Bridge provided citizens of Elkhart access to a wonderful park donated to the city by John McNaughton. McNaughton, an immigrant from Scotland who arrived in the Elkhart area circa 1845, made his presence known as a real estate developer, a vice president of the Elkhart Hydraulic Company, and one of the original owners of the Citizens' Street Railway Company. The previous iron bridge, replaced by the present concrete structure, and the street railway served the up and coming suburbs of Riverside, Highland Park, and Riverview, all touted as "...the finest and most eligible residence property in and about the city," along with McNaughton Park, known in the 1890s as Riverside Park. Used as a local gathering place for chautauqua, political, and other private and public meetings, the park continued this cultural presence in the community into the early decades of the twentieth century. In 1938, the county commissioners approved a request from the mayor of Elkhart for bridges, new and replacement, over the St. Joseph River. One of the bridges to be replaced was the "present narrow iron structure at Bridge Street." One result of the mayor's advocacy is the present rigid-frame, box beam, concrete bridge designed by William S. Moore.<sup>4</sup>

The bridge, built with support from the Public Works Administration (PWA), was a joint venture of the federal and local governments. Created in 1933, this federal agency funded public improvements and reduced unemployment during the Great Depression. The PWA provided grants to municipalities to finance public construction of bridges and other works. The recipient community made application and complied with PWA rules. Local designers, contractors, and workmen were used in the project and the local government provided a share of the project cost. By the time this bridge project got started, more than 25,000 WPA projects, encompassing expenditures in excess of 3.7 billion dollars, provided millions of man-hours of labor for the unemployed throughout the nation.<sup>5</sup>

An example of direct efforts to reduce unemployment in local areas is demonstrated by a required clause added to the bidding specifications for the Bridge

<sup>3</sup> Butler, *The Manual of Elkhart*, 3-5.

<sup>4</sup> "John McNaughton," Winey Book #4, page 28. The Winey Books are a collection of albums containing historical information on Elkhart from newspaper articles and other sources. They are maintained in the Elkhart Public Library; "2 New Bridges Are Advocated," *Elkhart Truth*, 28 June 1938, 1.

<sup>5</sup> "The Case for PWA," *Engineering News-Record* 119 (23 September 1937): 514-5; "Six-Year PWA Program Totals Six Billion," *Engineering News-Record* 123 (12 October 1939): 53.

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Street Bridge that stated "...the contractor binds himself to use local labor exclusively in the construction of the aforesaid bridge...." Another control imposed on upon all parties was the formation of a committee with representatives from the governor's office, the state federation of labor, and a county member to approve minimum wages for various skill levels of workers involved in the construction. This action did not restrict the contractor from paying more than the minimum approved hourly wage. The highest wage approved at the beginning of the project was \$1.50 an hour for welders, electricians, iron workers (rod men), and cement finishers, just to name a few. At various times during construction, the contractor sought approval to raise the minimum wage of a number of positions or to dual qualify an individual worker so that he could be used in different job capacities.<sup>6</sup>

The engineer of the Bridge Street Bridge, William S. Moore, designed numerous structures in Elkhart and St. Joseph counties in the first half of the twentieth century. Moore was a civil engineering graduate of Purdue University. He was the first chief engineer of the Indiana State Highway Commission, and later set up a private engineering office in South Bend, where he provided engineering services such as surveying, subdivision development, sewer system plans, and bridge design.<sup>7</sup>

Moore's greatest achievement is the Bridge Street Bridge over the St. Joseph River in Elkhart, Indiana. Moore designed a 308-foot, three-span, continuous and framed structure, whose center span contains the longest beams, built in Indiana prior to World War II. The reinforcing of the 67-foot end spans is integrated and therefore continuous with the adjacent one in the center span. Additionally, his design happens to be the only cellular superstructure known to have been built in Indiana before the World War II.<sup>8</sup>

Cellular construction was not new to the bridge building community. Engineers in Washington State had already built a few hollow or box beam structures by the time Moore designed this bridge but his application of the construction technique permitted a significant reduction in weight, allowed for longer spans, and required fewer and lighter piers with the attendant reduction in cost. An article in the *Engineering News-Record*, written by an engineer in Washington State, succinctly describes the benefits of applying this construction technique to girder spans of 100 to 250 feet in length "...as the most economical if built of the hollow, cellular type." The article goes on to say that "hollow box-girders are of minimum section and weight, make use of the full roadway slab as a compression flange for positive bending ... and if braced with transverse internal diaphragms, undoubtedly have the strongest section that can be made with a given

<sup>6</sup> *County Commissioner's Records, Elkhart County, Indiana, Record # 25, 1937 - 1944, 134.*

<sup>7</sup> Cooper, *Artistry and Ingenuity*, 182-183.

<sup>8</sup> Cooper, *Artistry and Ingenuity*, 190-191.

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quantity of material.” In other words, an efficient bridge constructed with a minimum of material that still meets engineering standards.<sup>9</sup>

The Bridge Street Bridge project began, on 15 August 1938, with a decision by the county commissioners to accept Moore’s offer to file an application with the WPA for a grant in aid for the construction of a concrete bridge over the St. Joseph River in Elkhart County. At the next meeting on 13 September 1938, the Board alerted the County Council of the need for an additional appropriation for the current year of \$70,000.00 for construction of the bridge to be funded by a bond issue.<sup>10</sup>

Moore signed a contract, for professional services, with the county commissioners on 19 September 1938 and agreed to receive “... 5% of the cost of the work” as his engineer fees. The total estimated cost of the bridge was \$106,000.00; the WPA agreed to fund 45 percent of the total cost not to exceed a dollar value of \$56,454.00. The Board evaluated the WPA’s offer and accepted the conditions of the agreement. On 17 October, with the funding issues resolved, the Board reviewed Moore’s plans for the bridge, accepted them, and directed the auditor to advertise for bids.<sup>11</sup>

In November 1938, the Board made its official request to the County Council to approve the bond issue for \$70,000.00 and set a date for the sale of the bonds. On 30 November, the Board selected the bid of Barlett-Knight, a firm from Chicago. Barlett-Knight’s offer of a premium of \$905.00 and an interest rate of 2.25 percent was the best of nine bidders.

Six bidders applied for the contract for the bridge. The bids ranged from a low of \$106,000 to a high of \$130,000; five of the firms were from Indiana and one from Chicago. On 6 December 1938, the Board reviewed the various bids and awarded the contract to the firm H.L. Maddocks Company from Logansport, Indiana, for \$106,000 with the stipulation that additional unforeseen work be priced at specified rates.<sup>12</sup>

Construction of the east pier, the first tangible work, proceeded slowly. After test borings in early 1939 at the site of the east pier, Moore determined that the “unstable conditions we found under the proposed East Pier due to the fine sand and silt” required his and Maddocks’ quick attention or the project would rapidly fall behind schedule. Moore’s solution involved driving sheet piling, 26 feet long, within the perimeter of the cofferdam thereby forming a solid box anchored in a layer of clay; the clay and sand

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<sup>9</sup> Reducing Dead Weight,” *Engineering News-Record* 117 (5 November 1936): 656; F.R. Easterday, “Concrete Box-Girders of Record Span,” *Engineering News-Record* 120 (3 March 1938): 339.

<sup>10</sup> *Commissioner’s Records*, Record #25, 1937 – 1944, 116.

<sup>11</sup> *Commissioner’s Records*, Record #25, 1937 – 1944, 129.

<sup>12</sup> *Commissioner’s Records*, Record #25, 1937 – 1944, 148-149.

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constrained by the sheet piling formed a solid foundation for the footing. His plan called for leaving the sheet piling in place. Maddocks responded quickly and late March 1939, the corrective actions on the east pier were in motion. In May 1939, similar conditions were discovered at the site of the west pier and the corrective fix was basically the same. The only differing detail of this corrective action was the use of sheet piling, 40 feet in length, which required a diver to cut the piling at the elevation of the river bed after pouring the concrete pier.<sup>13</sup>

With the problem of the pier footings resolved, work on the superstructure began to take shape. By July 1939, Maddocks and his crew were erecting forms for the pier nosing, excavating the west abutment, and pouring the footer and walls for the same abutment, all to be finished by early August. Concurrently, Maddocks also reported the beginning of carpentry work on the forms "for the hollow ribs and boxes, and the floor deck." The comments in the *Commissioner's Records* clearly indicate that the situation with the east pier slowed construction; after completion of the east pier, Maddocks hired more men, brought more equipment to the site, initiated two eight-hour shifts, and proceeded with simultaneous operations on various tasks.<sup>14</sup>

As work continued on the bridge through the final months of 1939, the contractor spent considerable effort justifying and eventually receiving an extension to the completion time stated in the original contract. The delays brought about by the problems with unstable conditions at the pier locations, delays in receiving the sheet piling, high water in the river, and additional work including having a diver cut off the tops of the piling for the west pier, added nearly 63 days to the completion date. Faced with loss of his performance bond and possibly, other punitive measures, Maddocks enlisted the help of the Board of Commissioners in petitioning an extension from the WPA central office in Chicago. Maddocks provided the Board with a detailed listing of the time lost which it forwarded with Maddocks' request and a recommendation in support. In November, 1939, the WPA office in Chicago formally approved the 63-day extension and the completion date for the project became 14 December 1939 instead of 1 September 1939. The Board accepted the bridge and passed a resolution stating "the finalization of contractual obligations between all parties" on 14 December 1939.<sup>15</sup>

In summary, the Bridge Street Bridge is eligible for the National Register of Historic Places for its prominence in the evolution of Indiana's transportation history as the earliest known example of hollow beam construction in bridges in the state, as a

<sup>13</sup> *Commissioner's Records*, Record #25, 1937 - 1944, 180-188, 203-221 and 294.

<sup>14</sup> *Commissioner's Records*, Record #25, 1937 - 1944, 220-221.

<sup>15</sup> *Commissioner's Records*, Record #25, 1937 - 1944, 323.

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structure important in the cultural history of the city of Elkhart, and as an example of the work of a master of his engineering craft, William S. Moore.

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**Section 10 – Geographical Data**

**Boundary Description:**

From a start point 40 feet north and 20 feet east of the northeast end of the bridge; proceed south across Bridge Street to a point 20 feet east and 40 feet south of the southeast end of the bridge; turn west and proceed across the St. Joseph River to a point 20 feet west and 40 feet south of the southwest end of the bridge; turn north and proceed across Bridge Street to a point 20 feet west and 40 feet north of the northwest end of the bridge; turn east and proceed across the St. Joseph River to close on the start point.

**Boundary Justification:**

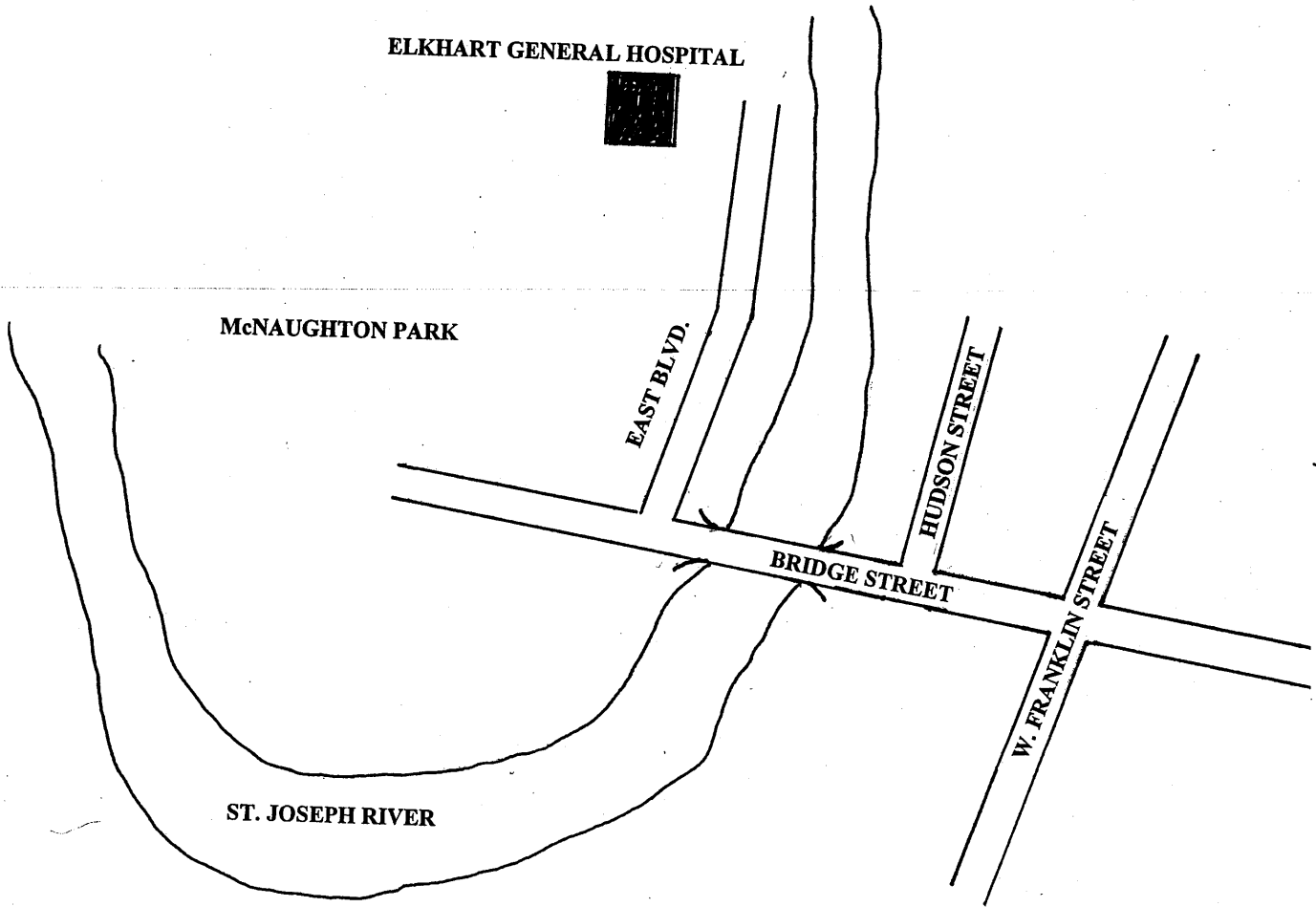
The boundary as described includes the abutments, pier, and spans of the bridge and its immediate environs.



# BRIDGE STREET BRIDGE ELKHART, INDIANA



NORTH



NOT TO SCALE