

**United States Department of the Interior
Heritage Conservation and Recreation Service**

**National Register of Historic Places
Inventory—Nomination Form**

For HCRS use only

received

date entered

OCT 20 1981
NOV 30 1981

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DESCRIPTION	7	3

Harrison Street Bridge

Harrison Street Bridge is located on East Harrison Street Road approximately two and one half miles east of the Charleston city limits. East Harrison Street has long served as a link between Charleston and the Village of Westfield, which is located across the county line in Clark County. This bridge is a steel and iron Camelback Parker truss with two pony truss approach spans. The bridge is supported by steel caissons at the truss ends and by masonry abutments. The bridge was built in 1898 at a cost of \$5240 by the firm of Oliver and Alexander. The through-truss has a top chord of five slopes and measures 185 feet. Each pony truss measures 25 feet. The bridge is 16 feet wide and has a treated three-inch plank floor.

Harrison Street Bridge was repaired in 1978 to allow for its continued use. However, the bridge is still only in fair condition, having considerable rust and missing part of its iron railings. In several places the iron railing has been replaced by contemporary materials.

Significance Harrison Street Bridge has long been an important river crossing in Coles County. It was used primarily by persons traveling to north Hutton Township and to Clark County, from which many settlers of Coles County came. Immediately south of the crossing was Rocks Park, started by a Mr. Brown in the early 1900s. The Rocks, so-named for its sandstone cliffs from which stone for the Coles County Courthouse (NR) was drilled, was a popular boating, swimming, and camping area until the 1930s. Construction of Harrison Street Bridge in 1898 made development of the park possible, as it provided a means for persons in the south and eastern part of the county to easily reach the park.

Harrison Street Bridge is the only Camelback Parker truss in Coles County. A newer Camelback was built on Route 130 across the Embarras River south of Charleston in 1927. This bridge was demolished in 1980. The Camelback Parker is characterized by a top chord having five slopes. The truss represents an improvement of the simple Pratt truss invented by Thomas and Caleb Pratt in 1844. The Camelback Parker truss allowed greater standardization of members and better stress distribution. As a most economical truss, the Camelback Parker was widely used in the late 1800s.

Blakeman Bridge

Blakeman Bridge is the southernmost Embarras River crossing in Coles County, located approximately 200 feet downstream from the Illinois Route 130 bridge, which is presently under construction. Blakeman Bridge crosses the river in a north-south direction and was built in 1907 by the Mercantile Bridge Company of Paris, Illinois. The bridge replaced an iron through-truss at the same location.

Blakeman Bridge is a triple arch, earth filled, steel reinforced concrete bridge. The total length of the bridge is 257 feet, with a roadway 18 feet 6 inches wide. The spandrels on either end measure 78 feet 6 inches in length, while the center spandrel measures 96 feet. The road surface was originally gravel.

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The bridge was repaired in 1980 for use as a detour while the Route 130 bridge built in 1927 was being replaced. The bridge was resurfaced with seven inches of precast concrete. Precast gutters were added along the new road surface. Five sections of hand railing on the west side of the bridge were repaired with precast concrete, with forms specially constructed to match the original sections. Ten steel reinforcing rods were added to strengthen the spandrel walls and to prevent further outward movement caused by shifting of the earth fill. The rods penetrate the walls across the width of the bridge. Star-shaped plates and nuts hold the rods in place on either end. Three rods were installed on each of the end arches; four were needed on the center arch due to the additional length of the arch and to two cracks in the spandrel walls on the west side of the bridge. With the repairs, the Blakeman Bridge has a recommended load limit of 27 tons, one of the highest in Coles County.

Significance Blakeman Bridge is located at one of the oldest river crossings in Coles County and at the site of the county's first settlement. Benjamin Parker from Crawford County started a mill at this location in the 1830s on the east side of the river. In the 1850s the mill was moved to the west side and purchased by Eben Blakeman. Blakeman ran a saw and grist mill here until the 1880s. The first bridge built at the site was a wooden bridge, later replaced by an iron bridge, which appears on the 1876 Coles County Plat map. Remnants of this bridge can still be seen under the Blakeman Bridge during periods of low water. The Blakeman crossing has historically been a gathering spot for persons in Hutton and Charleston townships. The crossing was the scene of many early social and religious activities, including icy baptisms.

Blakeman Bridge is one of only four earth filled, steel reinforced, concrete arch bridges in the 12 East Central Illinois counties which comprise Illinois Department of Transportation District 5. Two of the others are triple-arched bridges, both in Vermilion County. A small single arch concrete bridge is located in Lafayette Township, Coles County. A single arch, stone bridge is located in Clark County.

Blakeman Bridge is a product of the era of experimentation with metal reinforced concrete construction. The concrete arch bridge was first introduced in the United States in 1871. Most concrete bridges between 1871 and 1910 were massive structures faced with stone. Stone facing was used not only for aesthetic reasons but also because builders were unsure of the structural stability of concrete. Stone-faced concrete arches were built as late as 1902. Most reinforcement of arches before 1900 was accomplished with wire mesh; reinforcing with iron was relatively unfamiliar. In the mid-1890s, E. Lee Heidenreich introduced use of two-way bar reinforcing. Heidenreich's system was used after 1900 for concrete bridges along the Illinois Central Railroad line.

Most widely adopted was the Melan system invented by Viennese engineer Joseph Melan and patented in 1894. In this system, steel I beams were bent to the shape of the arch axis and laid parallel near the undersurface of the arch. Concrete served as a protective coating as much as a structural support. The first Melan bridge was built in Rock Rapids, Iowa, in 1894. Experimentation in reinforced concrete construction continued in the period 1900-1910, including work by David Molitor on a three-hinged arch of concrete for a bridge with a single span of 236 feet. However, most bridges during this period were plain concrete, built in very heavy, Roman forms. Use of reinforcing was rare and irregular in

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this period; advances were not made until after 1910. Blakeman Bridge well represents this experimental period in bridge construction. It is an unusual example of steel reinforcement in a conservative era when pure Roman concrete bridges were popular.

Airtight Bridge

Airtight Bridge is the newest of the bridges being nominated, built in 1914 by the Decatur Bridge Company and designed by Claude L. James. The bridge is located in a beautiful setting, with a large hill on the east side of the river and a forested area on the west. The bridge is located at what was once known as Willow Pond Ford and is the only crossing of the river in the northern half of the county.

Airtight Bridge is a Pratt through-truss, constructed with steel chords and a concrete floor. The bridge is constructed with eight panels, and is pinned and riveted. As is characteristic of the Pratt truss, vertical members and the top chord act in compression, and the lower chord and diagonals act in tension. The two center panels on either side have double diagonals.

Airtight Bridge is 188 feet long with a deck width of 15 feet 7 inches and a minimum clearance of 13 feet 7 inches. The span is comprised of the large through-truss, one pony truss on the west side of the river, and a steel beam on the east.

According to local folklore, there are two explanations as to why the bridge is referred to as Airtight. One explanation is that the crossing is located in a valley surrounded by hills. Air tends to settle and stagnate in this basin. Others say that in trying to climb the steep hill on the east side of the bridge, old automobiles would become "air-tight" because of the position of their gasoline tanks and would have to back up the hill to make the grade.

The bridge is in fair condition, with a load limit of eight tons.

Significance Airtight Bridge is significant as the only river crossing in Coles County between Quarry Bridge and the north county line, a distance of approximately 12 miles. Airtight has linked the east river area with the prairie to the north and west for 67 years.

Airtight Bridge is an example of a simple Pratt truss. It is representative of the improvement and sophistication of trusses in the years following their invention in the 1840s. The Pratt truss as developed in 1844 by Thomas and Caleb Pratt was a rather simple structure with vertical members in compression and diagonals in tension. As the Pratt was put to greater use, as loads increased, and as length requirements increased, engineers designed larger and more complex structures. Not fully understanding the science of bridge engineering, bridge builders thought that to be stronger a bridge needed additional members. Thus, bridges such as Quarry Bridge (double intersection Pratt) and Harrison Street (Camelback Parker) were common in the period 1865-1890. As knowledge increased and as steel replaced iron as the principal building material, engineers realized that additional members were redundant, at best just stabilizing factors. The improved steel version of the through-truss — of which the Airtight Bridge is a fine example — returned to the simple Pratt design as conceived by Thomas and Caleb. By the 1920s and 1930s,

BRIDGE INVENTORY FORM

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Bridge Name Blakeman Bridge Number 3133*Location SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25 Township 12 North Range 9 EastVerbal Location Immediately west of the intersection of roads 550N and 1770E, 200 feet downstream from the Route 130 bridge, spanning Embarras RiverTown Charleston Vicinity of X SE of CharlestonCounty Coles

Owner	<u>Charleston Township Board</u>	<u>Hutton Township Board</u>
	<u>% Supervisor Tom Morgan</u>	<u>% Supervisor Eugene Sims</u>
	<u>418 Sixth Street</u>	<u>R.R. #1</u>
	<u>Charleston, IL 61920</u>	<u>Charleston, IL 61920</u>

Acreage less than 1 acre

UTM Coordinates

Number of Spans 3

Toledo, IL Quad

Construction Date 1907

1:62500

Engineer Unknown

Zone 16

E 401 035

N 4367 090

Manufacturer Mercantile Bridge Company, Paris, ILMaterials concrete, earth fill, steel reinforcement triple arch, concrete, earth-filled
Type

Truss: Through _____ Pony _____ Deck _____ N/A

Truss Dimensions: N/AComments Total length 257' with 18' 6" roadway; 96' center section, 78' 6" section on either end; bridge was redecked, reinforced with steel rods in summer of 1980; bridge used as a detour while Route 130 bridge is replacedSignificance One of only four concrete arch bridges in IDOT District 5 (12 counties); located at first county mill and settlement; represents era of experimentation with reinforced concrete arch

Multiple Resource Area
Thematic Group

dnr-11

Name Coles County Highway Bridges Over The Embarras River Thematic Resources
State Illinois

Nomination	Type of Review	Decision
1. Airtight Bridge	Entered in the - National Register	<i>Delores Byers 11/30/81</i> <i>Accept - J. McCallister</i>
2. Blakeman Bridge	Substantive Review Entered in the - National Register	<i>Accept, Beth Groves 11/30/81</i>
3. Harrison Street Bridge	Entered in the - National Register	<i>Delores Byers 11/30/81</i>
4. Stone Quarry Bridge	Entered in the - National Register	<i>Delores Byers 11/30/81</i>
5.	-	
6.	-	
7.	-	
8.	-	
9.	-	
10.	-	
11.	-	
12.	-	
13.	-	
14.	-	
15.	-	
16.	-	
17.	-	
18.	-	
19.	-	
20.	-	
21.	-	
22.	-	
23.	-	
24.	-	

Name Blakeman Bridge (the Embarras River Thematic Resource) dnr-3 81000212
 State, County IL Calhoun County Fed Nom or Request—Agency
 Working Number 10.23.81.367 Federal Register Date 2.7.83

☒ Nomination
☐ Determination of Eligibility
☐ On Nomination Form

☐ Bldg(s)
☐ Site
☐ Object
☒ Structure
☐ District

Within:
☐ Multiple Resource Area
☒ Thematic Group

Maps
 Photos 5

Nomination prepared by:
☐ State Staff
☐ Local
☒ Other

Action:
☒ ACCEPT 11/30/81
☐ RETURN
☐ REJECT

Check if Appropriate:
☐ State Request for Review
☐ Keeper's Decision to Review
☐ 2nd Return

I. Evaluation of Resource (cont. on back if necessary)

Eligible A + G - Accept

McClelland, Arch. Hist.

11-30-81

Significance expanded in cover nomination form

Emmons, Hist. 11/30/81

II. Evaluation of Nomination

	Good	Adequate	Poor	Comments
1. Descriptive Statement Short Format <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/>			
2. Significance Statement Short Format <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/>			on inventory sheet + continuation sheets for #7 + 8 of the cover form
3. Concepts/Integrity	<input checked="" type="checkbox"/>			changes & repairs explained
4. Concepts/Criteria	<input checked="" type="checkbox"/>			very good.
5. Concepts/Boundaries	<input checked="" type="checkbox"/>			Bridge only - vbd points location "Comments on" Background form gives dimensions
6. Contextual Evaluation	<input checked="" type="checkbox"/>			Excellent in context of bridge construction played an role in early settlement of county.

General Comments (cont. on back if necessary):

Given nature of resource, vbd "comments" is acceptable for boundaries. Well organized & documented Thematic Nom -
 Reviewer/Date McClelland 11/30/81 See Attached

National Park Service

U.S. Department of the Interior



- 1) Blakeman Bridge
- 2) Charleston, IL
- 3) James P. Kerr
- 4) Feb. 1981
- 5) History Department, Eastern IL U.
- 6) Looking south along the west side.
- 7) 1 of 5

*Calder County Highway Bridge
over the Embarras River & Hamilton
River*

OCT 23 1981

NOV 30 1981



- 1) Blakeman Bridge
- 2) Charleston, IL
- 3) James P. Kerr
- 4) March 1981
- 5) History Department Eastern IL U.
- 6) Looking north along west side,
note steel reinforcing rods.
- 7) 2 of 5

*Calis County Highway Bridges over the
Embarras River & Santa Fe River*

NOV 30 1981

1907

BUILT BY THE

MERCANTILE BRIDGE CO. PARIS ILL.

A. J. MORTON, PRES'T.

MORATHON SEC. & TREAS. S. L. SHEETS GEN'L MGR.

- 1) Blakeman Bridge
- 2) Charleston, IL
- 3) James P. Kerr
- 4) March 1981
- 5) History Department Eastern Il U.
- 6) Date and Builder cast into
concrete on east side.
- 7) 3 of 5

*Calla County Highway Bridge over the
Embarras River & Route 100*

OCT 23 1981

NOV 30 1981

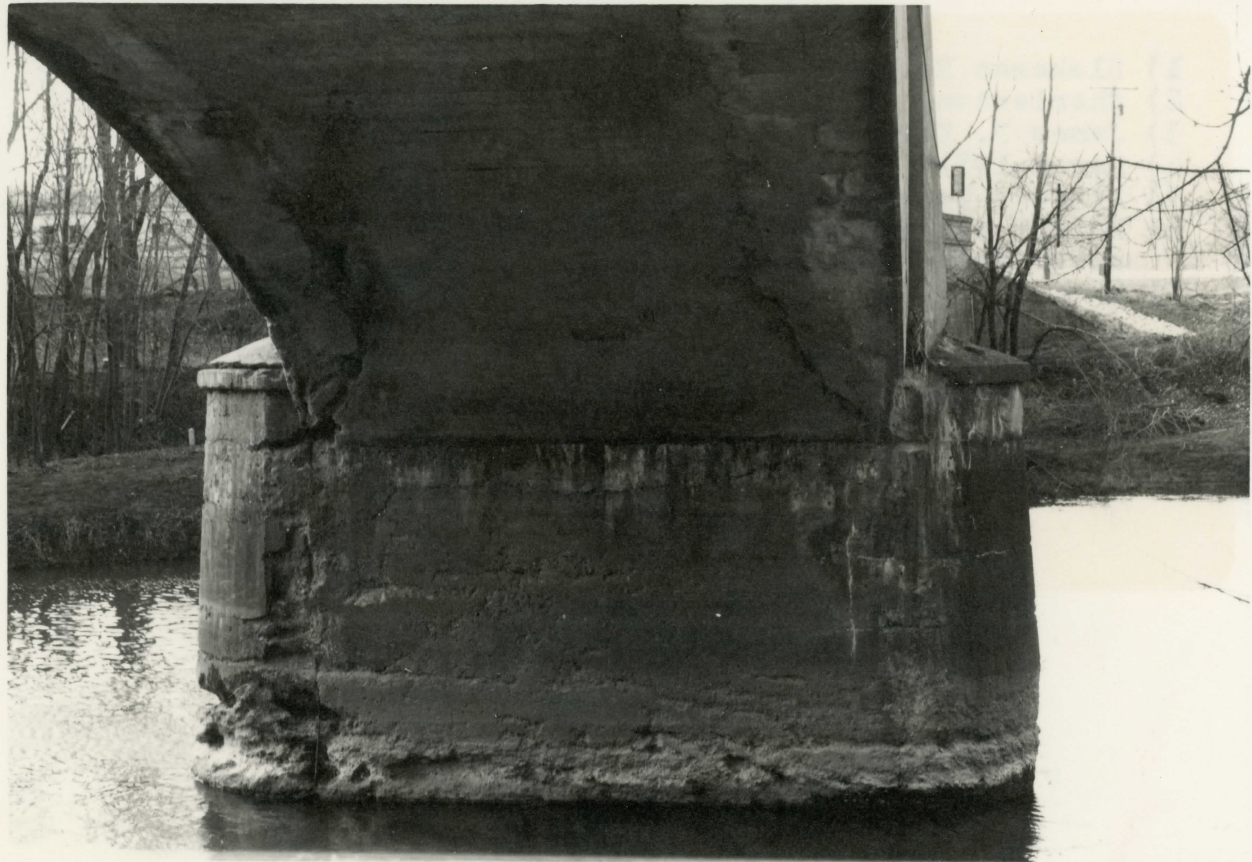


- 1) Blakeman Bridge
- 2) Charleston, IL
- 3) James P. Kerr
- 4) March 1981
- 5) History Department Eastern IL U.
- 6) Repaired section of hand railing
on west side.
- 7) 4 of 5

*Calhoun County Highway Bridge Over
the Embarras River & the
River*

OCT 23 1981

NOV 30 1981



- 1) Blakeman Bridge
- 2) Charleston, IL
- 3) James P. Kerr
- 4) March 1981
- 5) History Department Eastern IL U.
- 6) Detail of arch support, looking south from north bank of river.
- 7) 5 of 5

*Collis County Highway Bridges over
the Embarras River Thematic
Resource*

OCT 23 1981

NOV 30 1981

Please refer to the map in the
Coles County Highway Bridges
Over the Embarras River TR
Cover Sheet for this property

Multiple Property Cover Sheet Reference Number: 64000174