FINAL

NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

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 *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 Madison County Bridge #149

other names/site number N/A

2. Location

street & number Fall Creek Parkway/Huntsville Pike over Fall Creek N/A ☐ not for publication

city or town Pendleton N/A ☐ vicinity

state Indiana code IN county Madison County code 095 zip code 46001

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 36 CFR Part 60. In my opinion, the property ☑ meets ☐ does not meet the National Register criteria. I recommend that this property be consider significant ☐ nationally ☐ statewide ☑ locally. (☐ See continuation sheet for additional comments.)

Signature of certifying official/Title — Date 11/10/2008

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:

	Signature of the Keeper	Date of Action
☐ 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:)		

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(s)
- ☐ 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

7. Description

Architectural Classification
(Enter categories from instructions)

Other: Pratt Thru Truss

Materials
(Enter categories from instructions)

foundation Metal: Steel
walls
roof
other Concrete

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

See Continuation Sheets

Bridge #149
Name of Property

Madison County, IN
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 the 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, 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 significant within the past 50 years.

Areas of significance
(Enter categories from instructions)

Transportation
Engineering

Period of Significance

Ca. 1920

Significant Dates

Ca. 1920

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Unknown

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

See Continuation Sheets.

9. Major Bibliographical 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 if 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 #149
Name of Property

Madison County, IN
County and State

10. Geographical Data

Acreage of Property Less than one acre

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

	Zone	Easting	Northing
1	16	607926	4429178
2			
3			
4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)
See Continuation Sheet

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)
See Continuation Sheet

11. Form Prepared By

name/title Rachel Christenson, Landscape Designer/Project Planner; Alexia Donahue-Wold; Dave Benefiel

organization Madison County Council of Governments date June 9, 2008

street & number 16 E. 9th Street telephone (765) 641-9482

city or town Anderson state IN zip code 46016

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 0r 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 Madison County Commissioners

street & number 16 E. 9th Street telephone

city or town Anderson state IN zip code 46016

Narrative Description

Madison County Bridge #149 spanning Fall Creek on Huntsville Road was built around 1920. Located in the southwest part of the county in the Town of Pendleton, the riveted Pratt through truss bridge is the only one left in existence in Madison County. Pendleton is well known for its historic identity and for Historic Falls Park, which attracted many visitors in the early twentieth century for recreational purposes. Bridge #149 is located in close proximity to this recreational jewel and historically provided a gateway to this location.

Bridge # 149 has a substructure that consists of concrete abutments and wingwalls, which can be seen in Photograph 11. The overall length of the Pratt through truss is 124 feet. Consistent with the design features of typical Pratt through trusses, Bridge #149 consists of two trusses, each with a top chord and end posts which handle the bridges' compressive forces. The top chords rise above the roadway and are attached to one another, giving the bridge 15 feet of vertical clearance.

Since Pratt though trusses were often used to cross longer spans, the top chord is usually heavier and there is a greater distance between the top and bottom chord to handle the compressive forces.[1] The bridge must be able to support its own weight and be braced against buckling. The designers of Bridge #149 used several techniques to address this issue. First, portals were attached from the head of one end post to one another, as shown in Photograph 3. Struts and counterbalanced tension members were also placed between the top chords, which is illustrated in Photograph 5.

The lower chord of the bridge, which handles the tension, is made from a pair of laced angles riveted together with battens (see Photograph 6).

To keep the upper and lower chords in their designed locations, verticals were used. In Bridge #149, rolled I beams provide all the verticals.[2] The use of counter balancing tension members was also employed on the truss webbing to prevent the buckling of members. Typical with later Pratt though truss designs, the counter is found at the most central panel of the seven that exist on each side of Bridge #149. The counters are crafted from a pair of I beams riveted together with battens. The counter can be seen in Photograph 1.

The floor beams of Bridge #149 are riveted to gussets and to the verticals above the lower chord.[3] This helps to stiffen the trusses. Rows of I beams are strung across the floor beams, and a concrete deck with a 20 feet wide roadway is found above these stringers. According to the HABS/HAER Inventory, the use of I beams for all the verticals and the placement of the floor beams are adjustments for a wide and heavy structure, and are a significant design feature of

[1] Cooper, "Iron Monuments" 42.
[2] Cooper, "HABS/HAER."
[3] Cooper, "HABS/HAER."

this bridge.

The undecorated bridge is all riveted. Some deterioration and damage has occurred to Bridge #149. Although a vertical clearance sign is posted, there has been some vehicular damage to the portal at the southeast corner, as shown in Photograph 10. There has also been some rust damage and some significant section loss on the lower chord of the northwest corner.[4] Since the bulk of the structure is still intact and in use, the deterioration has not lowered the bridge's historical integrity. Not only does the bridge's appearance reflect its significant historical period, but it retains the physical materials, design features, and aspects of construction that are typical of that time period.

Statement of Significance

Madison County Bridge #149 is eligible for inclusion in the National Register of Historic Places under Criterion A because the bridge is associated with events that have made a significant contribution to the broad patterns of our history. The bridge was part of an important transportation route that connected Pendleton, Huntsville, and New Columbus. Later, the bridge acted as a gateway to the now Historic Falls Park in Pendleton. The bridge is also eligible for inclusion under Criterion C for significance in engineering. The bridge, a Pratt through truss, is an excellent example of "the most seminal nineteenth-century design for metal truss bridges."[5] The bridge was constructed circa 1920 and uses the technology of rivets instead of pins, which became popular in the twentieth century and adds to the bridge's strength and rigidity.

Criterion A

Located in the east central part of Indiana, Madison County was first created from the New Delaware Purchase in 1823. During the beginning years of the county, systems of transportation began to develop. As part of a statewide "internal improvements" program, state road surveys began in the 1820's.[6] After this, a statewide canal system went under construction, but unfortunately, was never finished. To replace the canal system of transportation, railroads completed lines throughout the state and the county by the 1850's. It was also around this time that Indiana began to take more initiative in the development of roads and bridges. Roads were mainly kept up through local labor, but some were constructed by private companies which would then charge a toll. In 1852, Indiana passed two acts which set the pattern for highway bridge erection and repair for the nineteenth and early twentieth centuries. The acts promoted public involvement in the supervision of bridges, encouraged private investment and donations, and even allowed for tolls that would recapture some tax expenditures.[7]

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[4] "2004 Madison County Bridge."
[5] Cooper, "Iron Monuments" 55.
[6] "Madison County Interim Report," xv.
[7] Cooper, "Iron Monuments" 2.

Many new designs and engineering standards for bridges started with the railroad engineers. Railroad engineers invented several of the famous trusses including the Pratt truss, designed by Thomas Pratt. Railroads soon became the popular mode of transportation for goods, and demands to carry bigger and heavier loads at faster speeds continued to push bridge innovation. Railroad engineers started to use science to solve the many problems they were encountering, such as making bridges stronger and longer. Railroads moved quickly and decisively away from timber trusses to metal ones, but the peak of the covered-bridge building on Indiana highways did not occur until the 1880's.[8] The first metal bridge was probably built on a Hoosier highway shortly after the Civil War. The turning point from timber to iron or steel came sometime in the late 1880's, when metal became the preferred bridge building material in most counties.[9] However, progress in the building of bridges still progressed slowly at the end of the nineteenth century.[10]

During this time, Madison County was becoming very industrialized, which further contributed to the building of metal bridges by creating a demand for better and safer means of transporting goods. Most of Madison County's industry was agriculturally based, and its economy was supported by its natural resources. As the county experienced industrial expansion, the "gas boom" started around 1887 when natural gas wells were found in multiple areas around the county. For several years, Madison County was one of the largest oil and gas producing counties in the state.[11] The Industrial Revolution contributed to the growth and development of many cities, counties, and states, including Madison County. As the economies of these regions grew so did the railroads and other modes of transportation that were necessary to access regional markets. Throughout all of Madison County's industrialization, the development of bridges made the expansion of transportation networks possible.

Bridge #149 itself made available an important transportation route in Madison County. The bridge connected the towns of Pendleton, Huntsville, and New Columbus. New Columbus supplied traffic along this transportation route, as the village was once known as "a trading point and rallying center for a rich and populous agricultural district."[12] The town of Huntsville was originally platted in 1830 as the original county seat for Madison County, and started out as a prosperous village.[13] For many years, township elections were held in Huntsville, but were moved to Pendleton in 1838 after a petition was presented to the board of commissioners asking the voting place be changed.[14] Huntsville Road over Fall Creek made a vital link for the residents of Huntsville and New Columbus to access the Town of Pendleton.

[8] Cooper, "Iron Monuments" 5.
[9] Cooper, "Iron Monuments" 5-6.
[10] Cooper, "Iron Monuments" 9.
[11] "Madison County Interim Report," xvi.
[12] Forkner, "History of Madison County," 133.
[13] Woschitz, "Madison County Sesquicentennial" 28.
[14] Woschitz, "Madison County Sesquicentennial" 28.

This link also made access to the unique regional resource of the Falls of Fall Creek easier. These falls once provided a great resource for businesses that were involved in millwork. In 1830, the first grist-mill was erected in Huntsville by a man named Enos Adamson.[15] The mill was located on the north bank of Fall Creek in the southwest part of Huntsville, near the location of present-day Bridge #149. This property was destroyed by a fire in 1848, but a new mill was built shortly after.[16] The Town of Pendleton also utilized Fall Creek for millwork. On the south side of the creek, a large grist-mill and saw-mill attracted a great deal of business to Pendleton, and the saw-mill may have even supplied the lumber for the first court house built at Indianapolis.[17]

Soon after the turn of the century, businesses abandoned the area and it became a dumping ground, but around 1918 it was converted into Falls Park. In 1921, a dam was built near the falls which created areas for visitors to swim. Visitors from all over Central Indiana came to the park to enjoy the outdoor pool. Bridge #149 provided an eastern gateway into the park. The Falls of Fall Creek is now included in a National Register Nomination for the Town of Pendleton. Bridge #149 is still used today by the people of Pendleton and others traveling through the town or visiting the Falls at Fall Creek.

An exhaustive search through past Madison County Commissioner's logs was undertaken in order to try and find the date of approval, date(s) of construction and the builder of this bridge. County Commissioner's logs from 1914-1935 were researched, but no specific mention of this bridge nor the exact area where it is located was described. A fire had destroyed all County Commissioner's records prior to 1914, so it is possible that detailed information was provided in these records. Given the fact that the town Huntsville's peak industrial time was the mid 19th to the early 20th century, the likelihood of the bridge actually being approved and built prior to 1914 is relatively high.

Criterion C

Cooper's *Iron Monuments to Distant Posterity: Indiana's Metal Bridges, 1870-1930*, completed in 1987, records three bridges of the Pratt through truss design in Madison County. Today only one bridge remains as an example of the Pratt through truss design: Bridge #149 spanning Fall Creek. The other two Pratt through truss bridges have been replaced with concrete bridges.

The design of Bridge #149 is unique in that it is a riveted Pratt through truss, which is not very prevalent in Indiana. The bridge also uses I beams for all the verticals, which is an adjustment for a wide and heavy structure.[18] By using the document *Guidelines for Assessing the Cultural*

[15] Forkner, "Historical Sketches" 737.
[16] Forkner, "Historical Sketches" 737.
[17] Forkner, "Historical Sketches" 727.
[18] Cooper, "HABS/HAER."

Significance of Indiana's Extant Metal Bridges (1872-1942) provided by the INDNR-DHPA, other aspects of Bridge #149 can be identified which contribute to its significance such as the existence of all of the bridge's trusses, intact. Also, the bridge is considered scarce because it is one of only six Pratt through trusses left in its region. Metal bridges are vanishing constantly. In fact, more than 350 Pratt through spans existed in Indiana in 1987 and now only about 169 exist.

A truss bridge design can be identified as two trusses with a top chord and end posts which handle the compressive forces of the bridge.[19] Caleb and Thomas Pratt were the first to patent the Pratt truss design in 1844. The Pratt truss is similar to the Howe truss in that the design relies on substantial intermediate verticals and diagonals to carry stresses. There is one diagonal per panel, and these slope in opposite directions from each end of the bridge.[20] The Pratt truss is designed so that the diagonals are subjected mostly to tension, which reduces the risk of the longest web members buckling.[21] In *Iron Monuments to Distant Posterity: Indiana's Metal Bridges, 1870-1930,* Cooper described the Pratt truss design as "the most seminal nineteenth-century design for metal truss bridges."[22]

The development of the metal truss bridge is important to the history of engineering. Metal made bridges stronger and therefore safer. As steel production efficiency increased, manufacturing costs fell, driving down the cost of metal bridges. The different designs of metal trusses, such as the Pratt truss, are evidence of the progress of structural engineering and the use of science to design better bridges. Scientific bridge fabrication, therefore, generated bridges that were cheaper and sounder.[23] Concrete eventually became the main material in bridge construction; however, metal bridges mark a pivotal time in engineering and transportation history.

Different design adjustments were made to the Pratt truss during the years after its invention. Sometimes the size of the standard pair of laced channels of the intermediate verticals was adjusted to accommodate the anticipated stress on each. Also, the standard counters that were used to limit the reversal of stress on the verticals became smaller and limited to use on only the most central panels. Around the beginning of the twentieth century, Pratt trusses changed from using pins to being bolted and all-riveted.[24] This allowed for a more rigid bridge which in turn allowed the bridge components to share more of the truss' stresses. These advances in Pratt truss designs are exemplified in Bridge #149 as it is an all-riveted truss and only the central panel is countered. Bridge #149 remains today as an important passage into Falls Park and a fine example of the engineering expertise of the time.

[19] Cooper, "Iron Monuments" 42.
[20] Saldibar, 1.
[21] Cooper, "Iron Monuments" 55.
[22] Cooper, 55.
[23] Cooper, "Iron Monuments" 8.
[24] Cooper, "Iron Monuments" 56.

Bibliography

Cooper, James L. Iron Monuments to Distant Posterity: Indiana's Metal Bridges, 1870-1930. Indianapolis: Indiana Department of Natural Resources, 1987.

Cooper, James L. HABS/HAER Inventory: Madison County Bridge #149. Indiana: HAER-IN Inventory, National Parks Service, 1986.

Forkner, John L. History of Madison County, Indiana. Chicago: Lewis Publishing Company, 1914.

Forkner, John L. and Byron H. Dyson. Historical Sketches and Reminiscences of Madison County, Indiana. Anderson,1897.

Structure Inventory and Appraisal Report: Bridge No. 00149. Indiana, 2004.

Madison County Interim Report: Indiana Historic Sites & Structures Inventory. Indianapolis: Historic Landmarks Foundation of Indiana and Indiana Department of Natural Resources, 1984.

Saldibar, Joseph P. III. Historic Iron Bridges in Indiana: Bridge Truss/Construction Types. Indiana Historical Bureau, 1999. http://www.statelib.lib.in.us/www/ihb/publications/irontruss.html

Woschitz, Frank, ed. Madison County Sesquicentennial. Anderson: Anderson Chamber of Commerce, 1973.

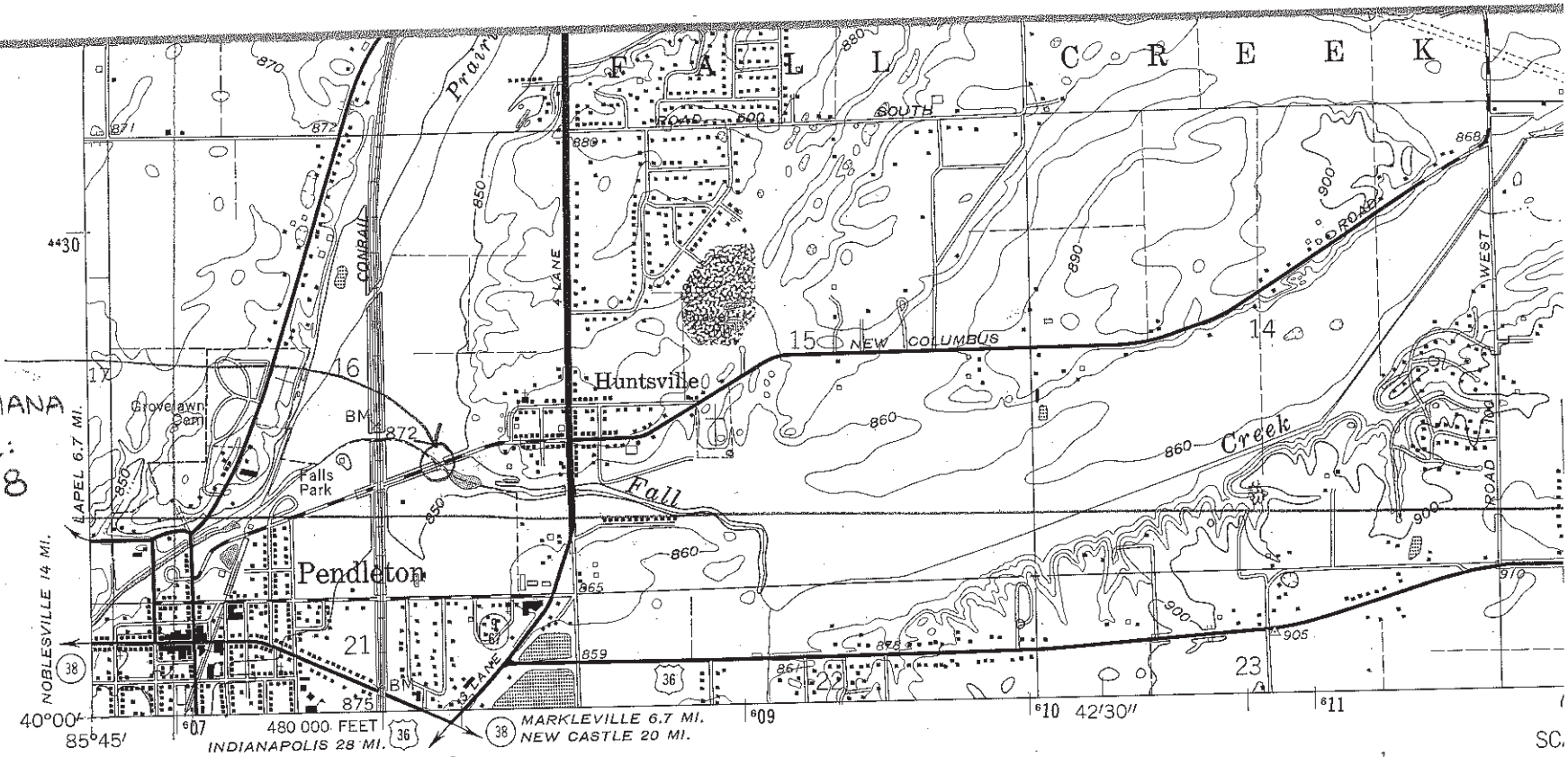
Verbal Boundary Description

From a start point 21 feet west and 10 feet south of the southwest end post of the bridge; proceed north across Huntsville Road to a point 10 feet north and 21 feet west of the northwest end post of the bridge; turn east and proceed across Fall Creek to a point 10 feet north and 21 feet east of the northeast end post of the bridge; turn south and proceed across Huntsville Road to a point 10 feet south and 21 feet east of the southeast end post of the bridge; turn west and proceed across Fall Creek to close on the start point.

Boundary Justification

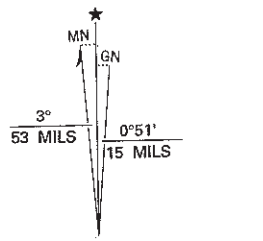
The boundary includes the abutments, pier, and spans of the bridge and its immediate environs.

MADISON COUNTY
BRIDGE # 149
MADISON CO., INDIANA
UTM REFERENCE:
16/607926/4429178

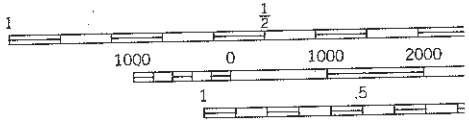


(INGALLS) 3863 IV NE

Produced by the U. S. Geological Survey
Control by USGS and NOS/NOAA
Planimetry by photogrammetric methods from aerial photographs taken 1950. Topography by planetable surveys 1952. Revised 1961
Projection and 10,000-foot grid ticks: Indiana coordinate system, east zone (transverse Mercator)
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Photoinspected from 1992 source; no major culture or drainage changes observed. Boundaries and names revised 1994



UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



CONTOUR
NATIONAL GEODET

THIS MAP COMPLIES WITH
FOR SALE BY U.S. GEOLOGICAL SURVEY, DE
AND INDIANA DEPARTMENT OF NATU
A FOLDER DESCRIBING TOPOGRAPHIC