NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

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 of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Waddell "A" Truss Bridge
other names/site number: Linn Branch Creek Bridge

2. Location

street & number: English Landing Park — n/a ☐ not for publication
city, town: Parkville — n/a ☐ vicinity
state: Missouri code: MO county: Platte code: 165 zip code: 64152

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property		
		Contributing	Noncontributing	
☐ private	☐ building(s)	0	0	buildings
☒ public-local	☐ district	0	0	sites
☐ public-State	☐ site	1	0	structures
☐ public-Federal	☒ structure	0	0	objects
	☐ object	1	0	Total

Name of related multiple property listing:
N/A

Number of contributing resources previously listed in the National Register: 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, 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. ☐ See continuation sheet.

G. Tracy Mehan III — 12/6/90

Signature of certifying official: G. Tracy Mehan III, Director — Date

Department of Natural Resources and State Historic Preservation Officer

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this 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 of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
TRANSPORTATION/rail-related	TRANSPORTATION/pedestrian-related

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
Other: Waddell "A" truss	foundation Concrete walls n/a roof n/a other steel wood

Describe present and historic physical appearance.

Summary: The Waddell "A" Truss Bridge is currently located in English Landing Park, Parkville, Platte County, Missouri. Originally built as a railroad bridge across Linn Branch Creek, in the vicinity of Trimble, Clinton County, Missouri, it now crosses Rush Creek carrying a pedestrian path between a day-use recreational area and two isolated ball fields. It is a triangular shaped, steel, through-truss, bridge approximately 100 feet long and 40 feet high. It rests on two concrete abutments and is composed of pin-connected riveted units. In 1980, the bridge was disassembled and stored for seven years by the U. S. Army Corps of Engineers, while awaiting a suitable location and a responsible owner. Despite its relocation, the Waddell "A" Truss Bridge retains its integrity of design as drawn by its creator, John Alexander Low Waddell; materials, with the exception of the abutments and a small percentage of the original rivets; workmanship, the bridge was reassembled using the same high standards as originally specified by the designer; feeling, as the bridge's current setting is similar to that of its original setting; and association with late 19th century railroad bridge engineering and the work of John Waddell.

Physical Description. The bridge is a single-span, four-panel, pin-connected, steel truss bridge. The triangular trusses, known as "A" trusses because of their shape, resemble king-post roof trusses, except that the king "post" is in tension. The span is 100 feet (30m), and the trusses, 17 feet (5.2m) apart, are nearly 40 feet (12m) high. Near the apex, well above the height of a railroad locomotive, X-bracing between the two trusses provides lateral stability. This top bracing and the designed reduction in the quantity of steel needed to construct the bridge, are the principal reasons for the bridge's shape. The compression members of the trusses are shop-riveted built-up sections, made of channels, angles, and plates, while most tension members are made of pairs of eye-bars. The bottom chord is in four sections, 25 feet by 17 feet, sway-braced by angle braces and supporting a pair of girder stringers which are, in turn, angle braced. The floor system consists of cross-braced, built-up wooden floor beams and stringers. (See exhibits 1, 2, and 3.)

Construction History. The Waddell "A" Truss Bridge was originally built in 1898 as a single-track railway bridge over the Linn Branch Creek near Trimble, Clinton County, Missouri (Photo #1). It was constructed by the A & P Roberts Company, and the Pencoyd Ironworks from a patented design by John Alexander

[x] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☐ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☒ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
ENGINEERING	1898	1898

Cultural Affiliation: n/a

Significant Person: n/a

Architect/Builder: Waddell, John Alexander Low/A & P Roberts Company and Pencoyd Iron Works

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

Summary: The Waddell "A" Truss Bridge, currently located in English Landing Park, Parkville, Platte County, is significant under Criterion C in the area of ENGINEERING. Constructed in 1898 as the Linn Branch Creek Bridge for the Quincy, Omaha and Kansas City Railway, the bridge represents the work of a master, John Alexander Low Waddell, who enjoyed an international reputation as a teacher of engineering and a practicing professional engineer. Waddell's "A" truss was developed to meet the need for a reliable, easily erected, inexpensive, short-span railroad bridge and is regarded as a transitional phase in bridge design. The two, high main trusses, which were connected by top bracing and gave the bridge its characteristic "A" shape, answered the stress and vibration problems inherent in the more widely used pony truss form. Although rapid technological advances quickly made the "A" truss obsolete, Waddell's design was extensively used as a railroad bridge in both Japan, where he developed the type, and in the United States, where he perfected and patented his design. Despite a 1987 relocation, the Waddell "A" Truss Bridge at Parkville remains significant for its engineering design value; its essential physical characteristics are intact, and it is one of only two examples of the bridge type known to exist in the United States. Its period of significance is confined to the year of construction--1898--, while its level of significance is statewide, since it is the only bridge of its type identified in the state; the other surviving example of the type remains on its original location on the Kansas City Southern Railway at Shreveport, Louisiana.

The Engineer: John Alexander Low Waddell (1854-1938) was a native of Canada, although later an adopted son of the United States and Missouri. He began his academic preparation at Trinity College School in Port Hope, Ontario, Canada, and briefly attended a business college in Toronto. He received a degree as Civil Engineer in 1875 from Rensselaer Polytechnic Institute. In the same year he worked as a draftsman for the Marine Department at Ottawa, Canada, and, in 1876 and 1877, served as an engineer with the Canadian Pacific Railroad. In 1878, Waddell returned to Rensselaer and spent two years on its faculty. Between 1880 and 1882, he worked as Chief Engineer for Raymond and

☒ See continuation sheet

9. Major Bibliographical References

J.A.L. Waddell, De Pontibus: A Pocket Book for Bridge Engineers (New York: John Wiley & Sons, 1898), pp. 5-6.

J.A.L. Waddell, Bridge Engineering, 2 vols., (New York: John Wiley & Sons, 1916), p. 477.

[X] See continuation sheet

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

Specify repository: _____

10. Geographical Data

Acreage of property appr. 0.05

UTM References

	Zone	Easting	Northing
A	15	544401±	388301±
B			
C			
D			

[ ] See continuation sheet

Verbal Boundary Description

Beginning at the Northeast corner of Section 35, Range 34 West, Township 51 North; thence southerly along the East line of said Section 35, 3950 feet, more or less; thence westerly 950 feet, more or less, to a point on the easterly abutment of a 100 foot by 17 foot bridge, more or less, and the point of termination.

[ ] See continuation sheet

Boundary Justification

[ ] See continuation sheet

11. Form Prepared By

name/title George F. W. Hauck, Professor of Civil Engineering
organization University of Missouri date 13 September 1989
street & number 600 W. Mechanic telephone 816-276-1286
city or town Independence state MO zip code 64050-1799

Low Waddell. Following the abandonment of the bridge by the railroads in 1939, the Missouri Highway and Transportation Department utilized the bridge on State Route 4 (later County Road D) starting in 1953. In 1980, when Smithville Reservoir was impounded, the bridge became a potential hazard to navigation and had to be removed from its site.[1] The bridge was Determined Eligible for listing in the National Register of Historic Places on October 28, 1978 as site number SL 446 of the Smithville Lake Multiple Resource Area.[2] As a historically significant structure, it was delineated by the Historic American Engineering Record (HAER), disassembled, marked, and stored by the Kansas City District Corps of Engineers.

Three proposals were considered for the assembly of the bridge at a new site. An initial proposal from the Missouri State Park Board had to be abandoned.[3] A second proposal from the City of Hannibal was also abandoned when Hannibal was unable to raise sufficient funds.[4] A third proposal by the City of Parkville was successful. The City of Parkville's Park Board required a pedestrian bridge to connect baseball fields in its English Landing Park With a parking area and to carry a proposed exercise trail across Rush Creek. Not having sufficient funds to hire a consultant, they requested the assistance of a Civil Engineering Professor, George F.W. Hauck, University of Missouri at Kansas City.

Hauck assigned eight of his students the task of designing a bridge for the park. While the students were researching federal regulations at the Kansas City Corp of Engineers office, they learned of availability of a Waddell "A" truss bridge. Jack Friedman, Project Director, and the rest of the Parkville Park Board jumped at the chance to acquire a "free" bridge. Hauck's students immediately began designing the abutments for the reerection of the bridge. Also learning of the project, Ernest Howard, an engineer with Howard, Neddles, Tammen, & Bergendorf who had worked with Waddell, assigned Tom Skinner of this staff to assist the students. Skinner, with his contacts, was able to obtain the help of a steel fabricator, who furnished the heavy equipment. Several of the Iron Workers of Kansas City donated their time; a railroad company donated ties; and a quarry provided the riprap.

Skinner enhanced the students' design for the reerection so as to deviate from Waddell's specifications on only two points: the construction of the foundation abutments and the use of bolts rather than rivets in some connections. With these donations of time, expertise, supplies, and equipment, Parkville reerected their bridge at the cost of $1,500.00. This reerection has received the Outstanding Civil Engineering Award of Merit by the American Society of Civil Engineers in 1989.[5] Since November 21, 1987 the

Waddell "A" Truss Bridge has spanned Rush Creek near its debouchment into the Missouri River (Photos #2, #3, and #4), on a site in English Landing Park, Parkville, Missouri. It presently serves pedestrians.

Statement of Integrity. With the exception of the concrete abutments and a small percentage of its original rivets, the Waddell "A" Truss Bridge retains all of its historic fabric. Photo #1 shows that the original foundations were pairs of cylindrical iron-clad piers, for which single rectangular concrete abutments were substituted (Photos #2 and #5) at the new location of the bridge. The latter, in turn, are supported by pairs of closed-end, concrete-filled, steel tube piles. (The new foundation is suited to the present rather than the original purpose: to support pedestrians instead of locomotives). The dismantling and reerection of the bridge also necessitated the removal of some rivets in the vicinity of main joints (Photo #5), and the substitution of high-strength bolts, since field riveting is no longer practiced. (It will be noted that Waddell's mistrust of field-riveting was his reason for the pinned design). The highway pavement was removed when the bridge was dismantled. Railroad ties are again in place, although they now carry wood planking rather than steel rails. The earth approach ramps, needed to raise the low steel above flood level, are rather steeper than permissible railroad grades. Two bronze plaques identifying the contractors were lost after the dismantlement and have been replaced by faithful replicas. As in the original location, the bridge spans a deep-channel, navigable creek in a rural setting. The new site is in a county adjoining the old, with similar natural characteristics.

ENDNOTES

[1]Donald C. Jackson, "Waddell 'A' Truss Bridge," Historic American Engineering Record # MO-8 (1980), p. 1.

[2]Smithville Reservoir File, Section 106 Files, Historic Preservation Program; Division of Parks, Recreation and Historic Preservation; Department of Natural Resources, Jefferson City, Missouri.

[3]Ibid.

[4]Jim Salter, "Historic Bridge to Span Hannibal Crossing," Hannibal, Missouri, Courier-Post, January 18, 1984.

[5]"Award for an A-Frame," Civil Engineering, July 1989.

Campbell Bridge Builders of Council Bluffs, Iowa, and received a Masters in Engineering from McGill University of Montreal, Canada. In 1908, this same institution awarded him a Doctorate in Engineering. Waddell later received honorary degrees from the Universities of Missouri, Nebraska, Puerto Rico and the Imperial University of Japan.[1]

In 1882, Waddell accepted a position as professor of civil engineering at the Imperial University of Tokyo. For his service, the Japanese Emperor awarded him the Knight's Cross of the Order of the Rising Sun in 1885. In 1886, he returned to the United States. The following year he established a practice in Kansas City, Missouri, as a bridge designer and consultant and, for the next half century, was "one of the best known bridge engineers in the United States."[2] From 1887 until 1899, Waddell worked alone. In 1899, he formed a partnership with Ira G. Hedrick which lasted until 1906. From 1906 to 1915, he practiced with John Lyle Harrington and, from 1915 to 1920, worked in a partnership with his son. In 1920, he moved to New York City where, in 1927, he formed a partnership with Shortridge Hardesty which lasted until his death in 1937.[3]

According to the Dictionary of American Biography, "In his bridge work Waddell was noted for his boldness in innovation combined with a careful attention to detail."[4] In addition to bridges in the United States and Japan, Waddell also designed bridges in Canada, Mexico, Russia, China, and New Zealand. In the United States, his best known bridges included:

Atlantic and Pacific Railway Bridge (1890), across the Colorado River near Needles, California. This cantilevered railroad bridge, which was 990 feet long, incorporated a record main span of 660 feet. It was destroyed in 1948.[5]

Missouri River Railroad Bridge (1893), East Omaha, Nebraska. This double track railroad bridge included two 520 feet swing spans. (destroyed)

South Halstead Street Bridge over the Chicago River (1893). The first long span, vertical lift bridge constructed in the United States, it utilized a 130 feet span with 155 feet clearance. According to the Dictionary of American Biography, the South Halstead Street Bridge was Waddell's most important contribution as a bridge engineer.[6] In 1893, Waddell was also the consulting engineer on the construction of the Chicago Elevated Railroad System.

Mississippi River Highway Bridge (1929) at Cairo, Illinois. The 3720

feet long bridge is extant.

Anthony Wayne High Level Bridge (1931) across the Maumee River at Toledo, Ohio. A suspension span, the bridge is extant and was cited as eligible for listing in the National Register of Historic Places by the Ohio Bridge Survey.

Marine Parkway Bridge (1936-1937), a 540 feet lift span across Rockaway Inlet, New York.[7]

In Missouri, Waddell's most important works were the A.S.B. Bridge in Kansas City (extant; DOE 1980) and the 12th Street Viaduct (extant), which has two highway levels and utilizes both girders and an open-spandrel concrete arch in its design. He also designed numerous decorative bridges in Kansas City's park and boulevard system (some extant). In addition to designing bridges, Waddell developed materials for use in large span bridges, pioneering in the use of nickel steel in girders subject to heavy stresses.

Waddell also was a prolific writer. His first book, The Designing of Ordinary Iron Highway Bridges (1884) was highly critical of the practice of low-bid, unstandardized bridge construction in the United States. His second book, A System of Iron Railroad Bridges for Japan (1885) helped lead to the design of the Waddell "A" Truss Bridge. The handbook, De Pontibus (1898), foreshadowed his great work on bridge engineering as did Engineering, Specifications and Contracts (1908) which was written for both engineers and governmental purchasers. In 1916, he wrote the two-volume Bridge Engineering which became the standard work on the subject. In 1921, it was supplemented by the Economics of Bridgework. Two collections of lectures and papers, The Principal Professional Papers of Dr. J.A.L. Waddell (1905) and Memoirs and Addresses of Two Decades (1928), were also published.[8]

The "A" Truss Design: From 1882 to 1886, while serving as professor of Civil Engineering at the Imperial University of Tokyo, Waddell debated the design of short span railroad bridges with British engineers, who were serving as advisers for the Japanese railroad currently being developed.[9] According to his own account in De Pontibus, Waddell

> was dissatisfied with all railroad bridges for spans between the superior limit of the plate-girder and a length of about one hundred and fifty feet, ordinary pin-connected, through, Pratt trusses being too light and vibratory, and the riveted bridges as then built being clumsy, unscientific, and uneconomical.[10]

The British engineers, who were then dominant in the engineering profession, advised the Japanese to build pony truss bridges for short-spans of 120 feet or less. Waddell objected to the use of the pony truss because it had no top chord lateral bracing, so that it was less rigid and, consequently, more susceptible to stress and vibration. He also objected to the use of rivets to connect bridge components. Assemblage in the field required hand riveted connections, which were not as strong as shop riveting and were subject to vibration and susceptible to failure. For these reasons, Waddell recommended against the use of pony trusses in A System of Iron Railroad Bridges for Japan (1885).

In 1893, Waddell was retained as an engineer by the Kansas City, Pittsburg, and Gulf Railroad. In De Pontibus, Waddell recalled that "after a little persuasion the General Manager was induced to agree to build a 100-ft. 'A' truss span as an experiment; but when he saw the completed plans he ordered at once four bridges to be built therefrom . . ."[11] The structure designed by Waddell was "a four-panel truss-bridge having eye-bars in bottom chords and centre verticals, and rigid members for all the other portions of the trusses and for the entire lateral system."[12] The resulting "A" shape was described by Waddell as "odd but not displeasing."[13] In contrast to the pony truss railroad bridge, the two main trusses of Waddell's "A" truss design were high enough to be connected by lateral sway bracing. The "A" truss was also pin-connected, which eliminated Waddell's objection to the hand riveted connections of the British. In his own assessment of the design, Waddell noted

> The advantages of this type of bridge are great rigidity in all directions, ease and cheapness of erection, and economy of metal when it is compared with structures of other types having equal strength and rigidity.[14]

Although Waddell praised his design as "the most rigid short-span, pin-connected bridge ever built,"[15] the Waddell "A" truss bridge design was never a common bridge type. However, for its designed use it was, for a brief time, widely used in the United States, Japan, and Canada. The Japanese Nippon Railways adopted the configuration as the standard bridge for spans between 65 to 116 feet, and the Kansas City, Pittsburg and Gulf Railroad adopted the design as the standard one hundred foot span for the line. The bridge was also used on the St. Louis Southwestern Railway and the Kansas City Southern. With the perfection of portable pneumatic riveting machines, the modern Pratt truss bridge supplanted Waddell's "A" truss design. By 1916, Waddell pronounced the design "antiquated,"[16] although "nearly all [the "A" truss bridges built] are still in use, notwithstanding the fact that some are

frequently overloaded as much as sixty (60) per cent."[17]

Linn Branch Creek Bridge: Since 1881, a railroad had connected Quincy, Illinois, and Trenton, Missouri. In 1896-1897, the line was extended to Pattonsburg, Missouri. The Quincy, Omaha and Kansas City, or "OK" Line, was formed in the latter year to operate the system, which was extended in 1898 to the outskirts of Kansas City. In 1898, the A & P Roberts Company, in association with the Pencoyd Bridge Company of Pencoyd, Pennsylvania, fabricated the Linn Branch Creek Bridge--an "A" truss design--for the "OK" Line as part of its route between Kansas City and Pattonsburg. The "OK" Line was never a major transportation corridor, primarily serving to deliver agricultural products to regional markets. In 1902, the "OK" Line was acquired by the Chicago, Burlington and Quincy Railroad system and, in 1939, the line connecting Kansas City and Pattonsburg was abandoned.[10] The Waddell "A" Truss Bridge over Linn Branch Creek remained unused for over a decade, until 1953, when the Missouri Highway Department placed a new deck on the structure and it became a component of State Route 4. It served as a highway bridge for over twenty-five years until construction of the Smithville Dam by the U.S. Army Corps of Engineers required its removal. In the summer of 1980, the Historic American Engineering Record identified the Linn Branch Creek Bridge and a Kansas City Southern Railway bridge near Shreveport, Louisiana, as the only known examples of Waddell's "A" truss design.[18] In 1987, the Linn Branch Creek Bridge was reassembled and erected over Rush Creek in English Landing Park, Parkville, Platte County, to serve as a pedestrian bridge.

ENDNOTES

[1]Robert Livingston Schuyler, ed., Dictionary of American Biography, Vol. XI, (New York: Charles Scribner's Sons, 1944), pp. 685-686 [hereafter cited as DAB]; and Centennial History of Missouri Deluxe Supplement, (Chicago, IL: S. J. Clarke Publishing Company, 1921), pp. 280-285.

[2]DAB, p. 686.

[3]DAB, pp. 685-686.

[4]Ibid., p. 686.

[5]Carl W. Condit, American Building Art: The Nineteenth Century (New York: Oxford University Press, 1960), p. 313.

[6]DAB, p. 686; and Joseph Gies, Bridges and Men (New York: Doubleday and Company, 1963), p. 232.

[7]Centennial History of Missouri, pp. 283-284; and DAB, p. 686.

[8]DAB, pp. 685-686.

[9]Donald C. Jackson, "Waddell 'A' Truss Bridge," Historic American Engineering Record # MO-8 (1980), p. 2.

[10]J.A.L. Waddell, De Pontibus (New York: John Wiley and Sons, 1898), p. 5.

[11]Ibid., p. 6.

[12]Ibid., p. 5.

[13]Waddell, Bridge Engineering, 2 vols. (New York: John Wiley and Sons, 1916), 1:477.

[14]Waddell, De Pontibus, p. 6.

[15]Waddell, Bridge Engineering, 1:477.

[16]Waddell, Bridge Engineering, p. 476.

[17]Ibid., p. 477.

[18]Jackson, pp. 1 and 5-6; and Richard C. Overton, Burlington Route: A History of the Burlington Lines (New York: Alfred A. Knopf, 1965), p. 268.

BIBLIOGRAPHY

"Award for an A-Frame," Civil Engineering. July 1989.

Centennial History of Missouri Deluxe Supplement. Chicago: The S.J. Clarke Publishing Company, 1921.

Condit, Carl W. American Building Art: The Nineteenth Century. New York: Oxford University Press, 1960.

Gies, Joseph. Bridges and Men. New York: Doubleday and Company, 1963.

Harrington, John Lyle, ed. The Principal Professional Papers of Dr. J.A.L. Waddell. New York: Virgel H. Hewes, 1905.

Jackson, Donald C. "Waddell 'A' Truss Bridge," Historic American Engineering Record # MO-8.

----------, Great American Bridges and Dams. Washington: The Preservation Press, 1988.

Overton, Richard C. Burlington Route: A History of the Burlington Lines. New York: Alfred A. Knopf, 1965.

Salter, Jim. "Historic Bridge to Span Hannibal Crossing," Hannibal, Missouri, Courier-Post. January 18, 1984.

Schuyler, Robert Livingston, ed. Dictionary of American Biography, Vol. XI. New York: Charles Scribner's Sons, 1944.

Waddell, J.A.L. De Pontibus: A Pocket Book for Bridge Engineers. New York: John Wiley and Sons, 1989.

----------. Bridge Engineering. New York: John Wiley and Sons, 1916.

VERBAL BOUNDARY DESCRIPTION

Beginning at the northeast corner of Section 35, Range 34 West, Township 51 North; thence southerly along the East line of said Section 35, 3950 feet, more or less; thence westerly 950 feet, more or less, to the most southern point on the Parkville "A" Truss bridge easterly abutment, then proceed in a north by northwesterly direction paralleling said abutment to the northernmost point of said abutment; then proceed in a west by southwesterly direction paralleling the northern truss of said bridge to the northernmost point of the western abutment; then proceed in a south by southeasterly direction to the southernmost point of said abutment; then proceed in an east by northeasterly direction paralleling the southern truss of said bridge to the point of origin. Thus, describing an imaginary rectangle 106 feet by 25 feet, more or less, surrounding the 100' by 17' bridge and its abutments.

BOUNDARY JUSTIFICATION

The boundary encompasses the entire bridge and its abutments and contains all that is historically significant.

2. Gerald Lee Gilleard
Survey Coordinator
Department of Natural Resources
Historic Preservation Program
P. O. Box 176
Jefferson City, Missouri 65102
Date: November 1, 1989
Telephone: 314/751-5367

Original draft of items 7 and 8.

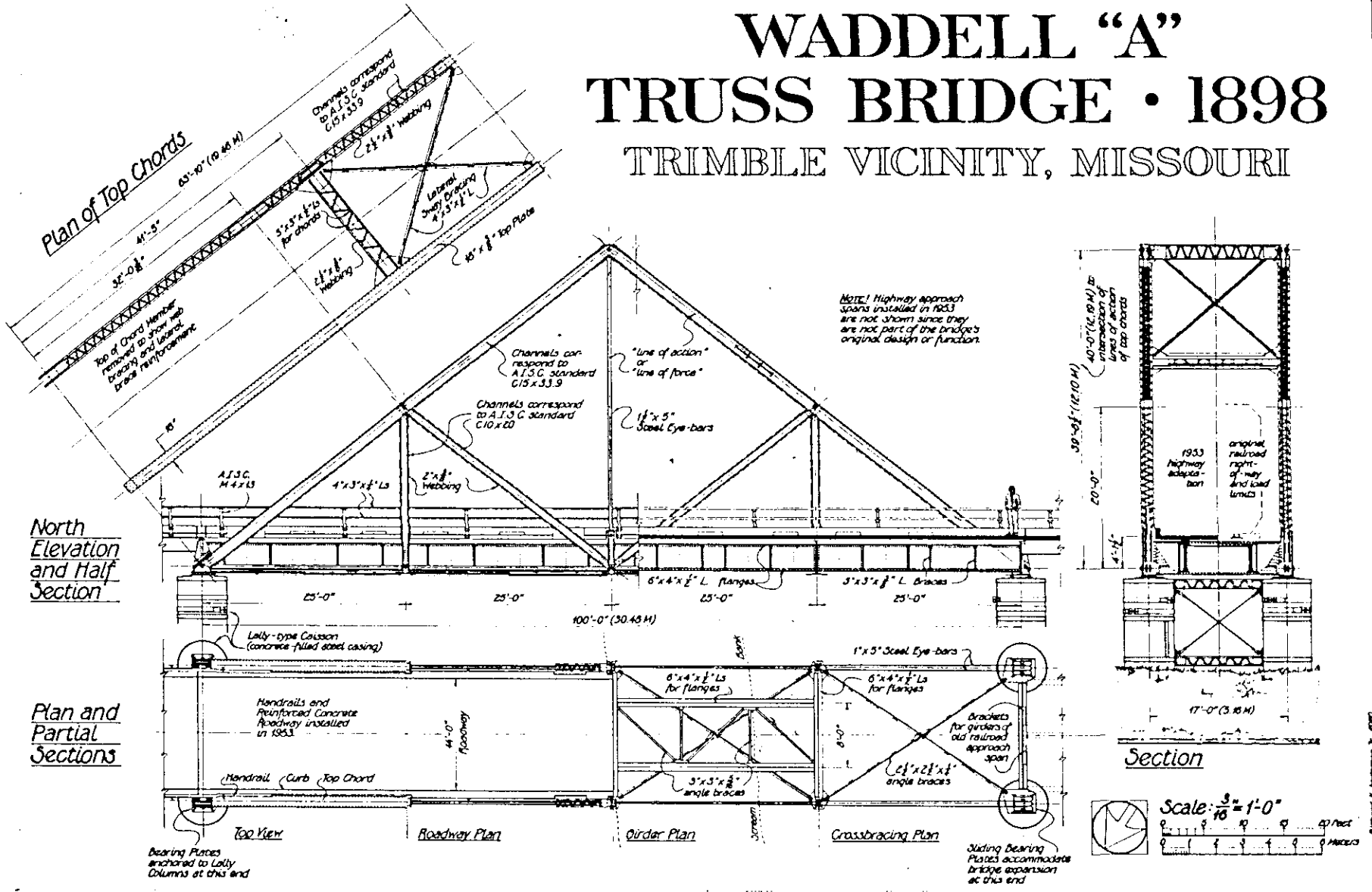
3. Steve Mitchell
National Register Historian
Department of Natural Resources
Historic Preservation Program
P. O. Box 176
Jefferson City, Missouri 65102
Date: August 23, 1990
Telephone: 314/751-5368

Editor of Item 7 and Revision of Item 8.

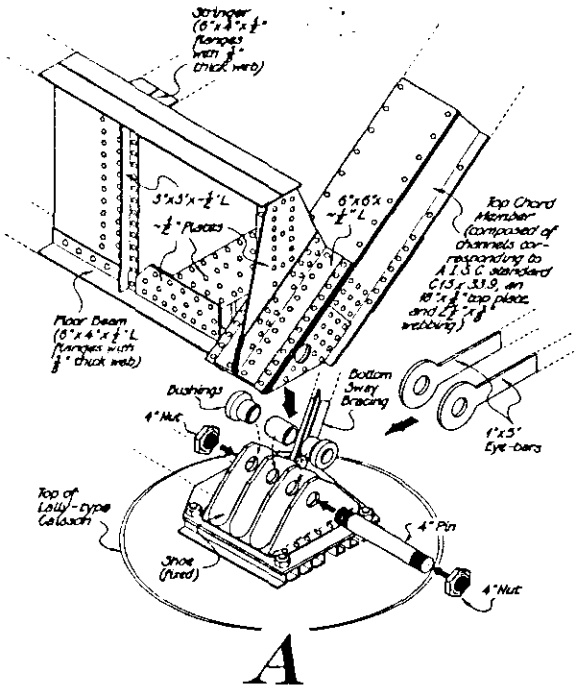
4. Beverly Fleming
Chief, Preservation Planning Section and
State Contact Person
Department of Natural Resources
Historic Preservation Program
P. O. Box 176
Jefferson City, Missouri 65102
Date: August 23, 1990
Telephone: 314/751-7960

WADDELL "A" TRUSS BRIDGE • 1898

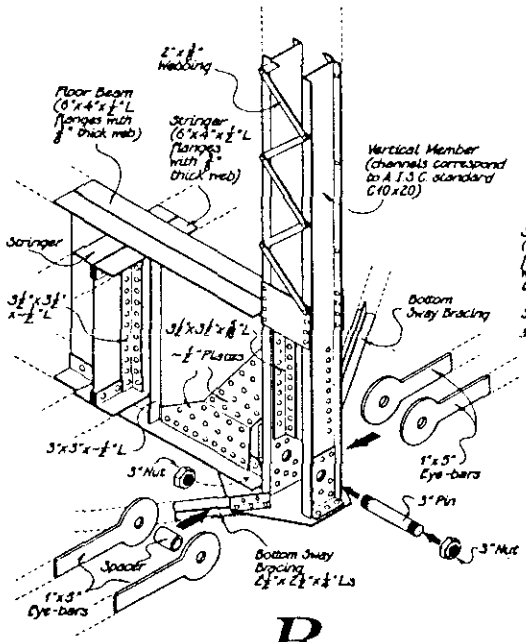
TRIMBLE VICINITY, MISSOURI



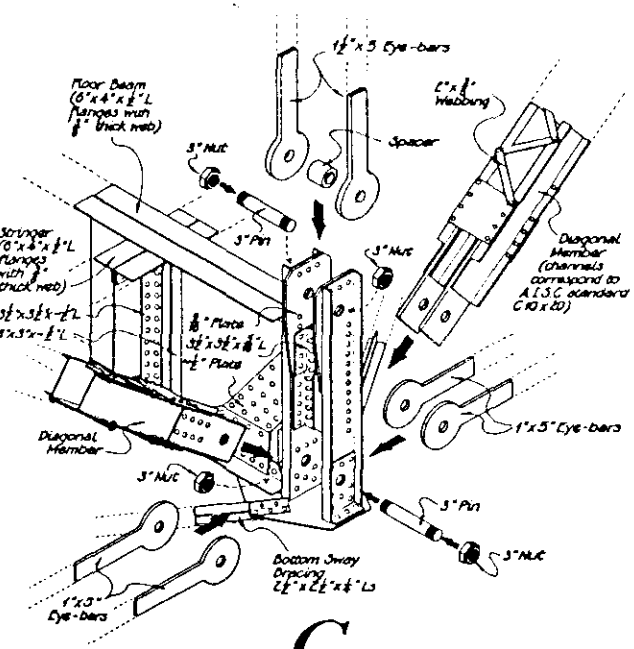
WADDELL "A" TRUSS BRIDGE (LINN BRANCH BRIDGE) · 1898
1.1 MILES EAST ON COUNTY ROAD 9 FROM STATE ROUTE 160
CLINTON COUNTY
MISSOURI
TRIMBLE VICINITY
SHEET 1 of 3
HISTORIC AMERICAN ENGINEERING RECORD HAER-2
WADDELL "A" TRUSS BRIDGE RECORDING PROJECT
Richard A. Anderson, 1990



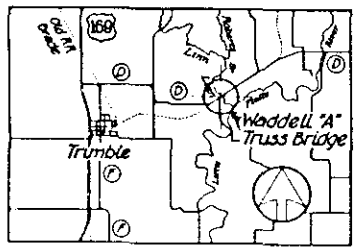
A



B



C



Truss Type: Waddell "A" truss, patented by J.A.L. Waddell Nov. 13, 1894; No. 529,220.

Constructed: 1898

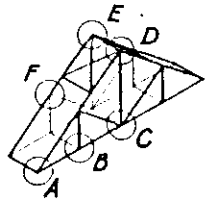
Fabricator: A. & P. Roberts Co., Pencoyd Bridge Works, Pencoyd, PA.

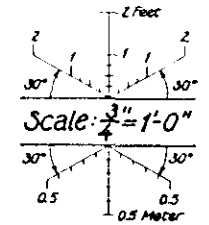
Owner/ Builder: The Quincy, Omaha and Kansas City Railway Co. (later a part of the Chicago, Burlington and Quincy Railroad)

Significant Dates: 1939 - removed from rail service when line was abandoned
1953 - converted to highway use; approach spans replaced with steel I-beams and new reinforced concrete traffic deck built
1980 - dismantled and removed from flood pool of Smithville Reservoir.

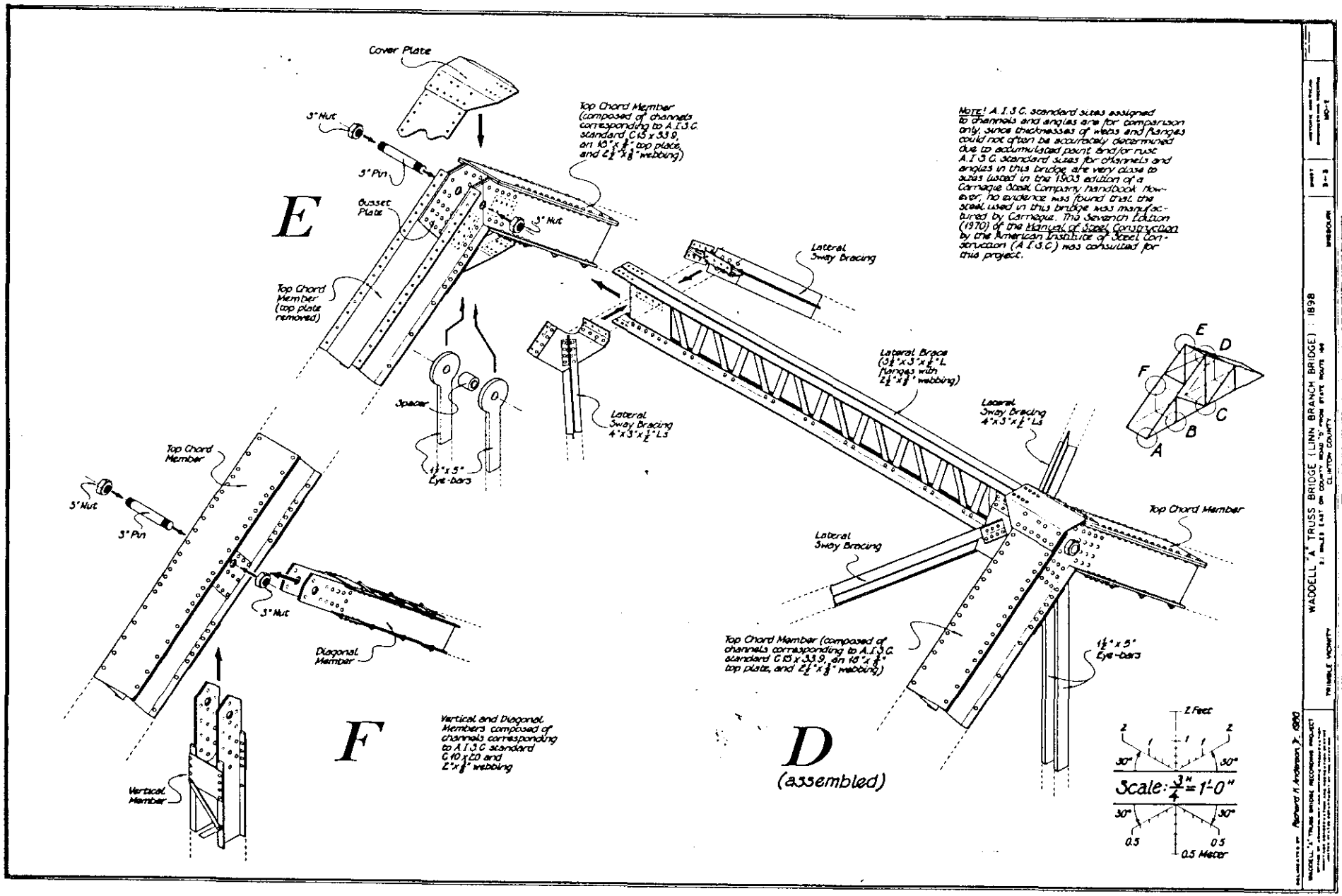
The Waddell "A" truss bridge on County Road "D" near Trimble, Missouri, was documented by the Historic American Engineering Record as part of the Army Corps of Engineers' Smithville Reservoir Project. It is the only surviving example of this truss type identified by HAER at this time (1979). J.A.L. Waddell was one of America's most important bridge engineers of the late 19th and early 20th centuries and received wide acclaim for his books Designing Ordinary Iron Highway Bridges (1934), De Pontibus (1898), and Bridge Engineering (1916). The "A" truss was conceived by Waddell as an economical short-span, pin-connected structure capable of carrying heavy traffic without excessive vibration. In his patent application he acknowledged that many roof trusses had been built using a triangular form similar to his "A" truss and consequently confined his patent to triangular bridges that employed lateral bracing between the upper chords. Waddell also indicated that his "A" truss was "...designed especially for railroads." During the late 19th and early 20th centuries it was widely used in the Midwest and in Japan.

The HAER recording team for this project included: Donald C. Jackson, Engineer/Historian; Richard K. Anderson, Jr., Architectural Supervisor; and Thomas M. Hocker, Jr., Architectural Delineator.





WADDELL "A" TRUSS BRIDGE (LINN BRANCH BRIDGE) 1898
8½ MILES EAST ON COUNTY ROAD "D" FROM STATE ROUTE 168
CLINTON COUNTY
TRIMBLE VICINITY
WADDELL "A" TRUSS BRIDGE (LINN BRANCH BRIDGE) HAER MO-2
SHEET 1 of 3
Richard K. Anderson Jr. 1980



NOTE! A.I.S.C. standard sizes assigned to channels and angles are for comparison only, since thicknesses of webs and flanges could not often be accurately determined due to accumulated paint and/or rust. A.I.S.C. standard sizes for channels and angles in this bridge are very close to sizes listed in the 1903 edition of a Carnegie Steel Company handbook. However, no evidence was found that the steel used in this bridge was manufactured by Carnegie. The Seventh Edition (1970) of the Manual of Steel Construction by the American Institute of Steel Construction (A.I.S.C.) was consulted for this project.

WADDELL "A" TRUSS BRIDGE (LINN BRANCH BRIDGE) - 1898
2.1 MILES EAST ON COUNTY ROAD "D" FROM STATE ROUTE 160
CLINTON COUNTY
MISSOURI
TRIMBLE VICINITY

WADDELL "A" TRUSS BRIDGE RECORDING PROJECT

Richard H. Anderson, Jr. - 1980

NPS Form 10-900-a
(8-86)

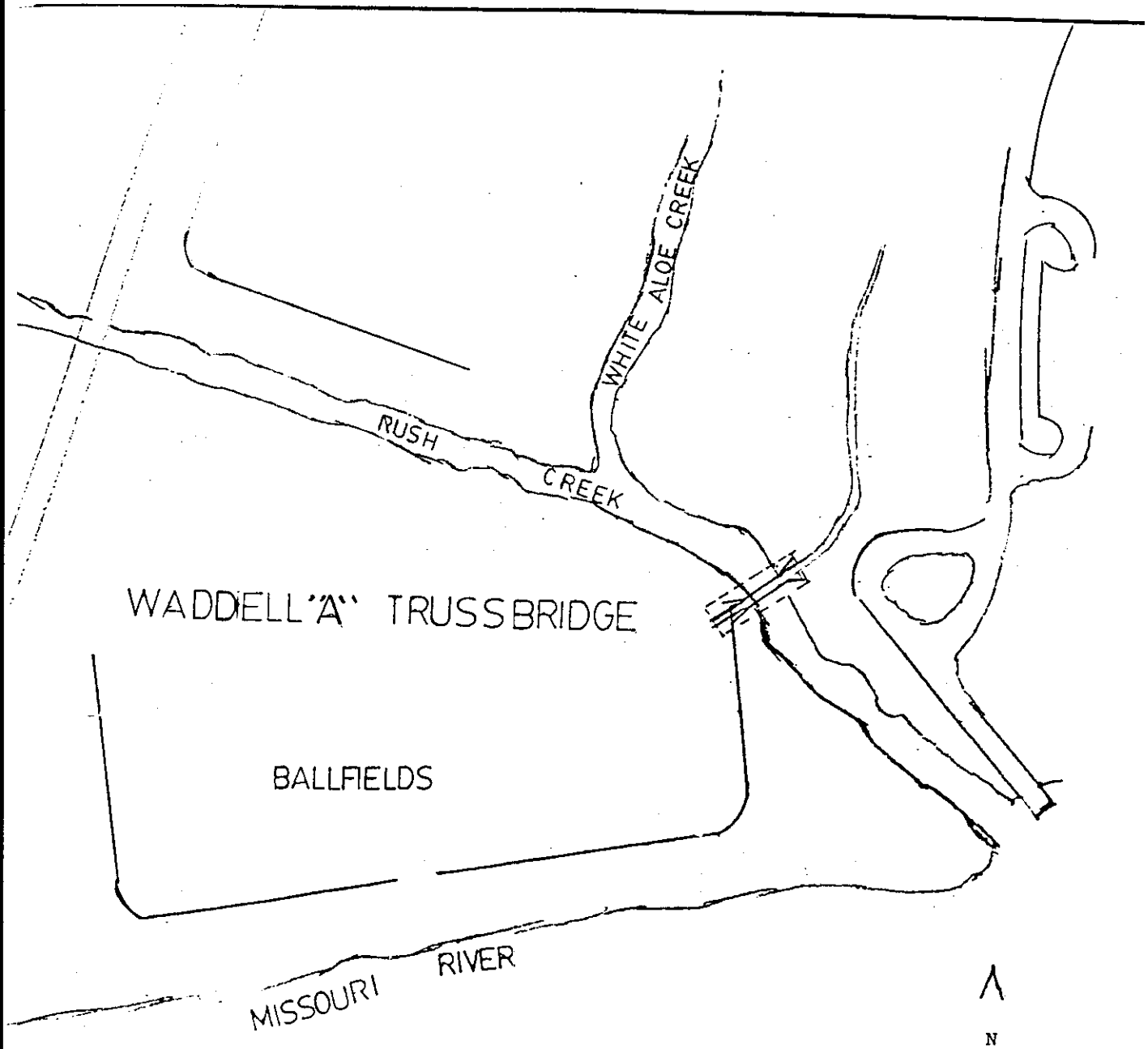
OMB Approval No. 1024-0018

United States Department of the Interior
National Park Service

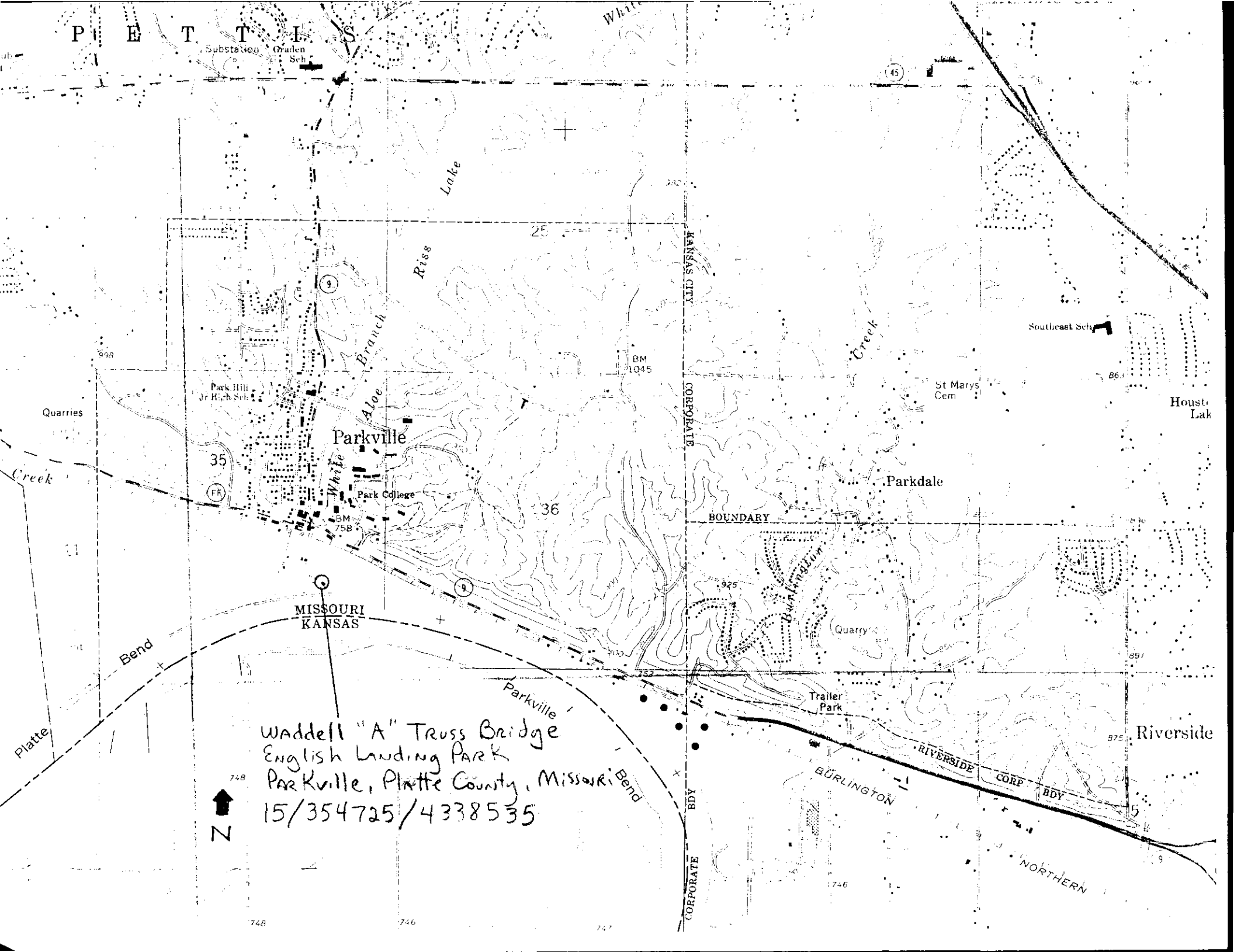
National Register of Historic Places Continuation Sheet

Site Plan

Section number _____ Page _____



ENGLISH LANDING PARK, PARKVILLE, MO


Waddell "A" Truss Bridge
English Landing Park
Parkville, Platte County, Missouri Bend
15/354725/4338535
N
Parkville
Parkdale
Riverside
MISSOURI
KANSAS
Missouri Bend
Platte
Quarries
Park College
Park Hill Jr High Sch
Graden Sch
Substation
Southeast Sch
St Marys Cem
Trailer Park
Quarry
BOUNDARY
CORPORATE BDY
KANSAS CITY
RIVERSIDE CORP BDY
BURLINGTON
NORTHERN
Lake
Creek
Branch
Aloe
Burlington
BM 1045
BM 758
35
36
25

Waddell "A" Truss Bridge
8.1 miles east on County "D" from State 169
Trimble Vicinity, Clinton County, MO
Mike Weichman
October 1978
Missouri Cultural Resource Inventory
View from Southeast, showing the bridge in its orginal location
#1 of 7

WADDELL "A" TRUSS #2 of 7
Parkville, Platte County, Missouri

Photographer: Gerald Lee Gilleard
Date: November 25, 1987
Neg. Loc. Dept. of Natural Resources
Historic Preservation Program
P. O. Box 176
Jefferson City, Mo. 65102

View looking southwest.

Waddell "A" Truss Bridge
English Landing Park
Parkville, Platte County, MO
Gerald Lee Gilleard
September 1989
Missouri Cultural Resource Inventory
View from the north
#3 of 7

Waddell "A" Truss Bridge
English Landing Park
Parkville, Platte County, MO
Gerald Lee Gilleard
September, 1989
Missouri Cultural Resource Inventory
View from the northeast
#4 of 7

Waddell "A" Truss Bridge
English Landing Park
Parkville Platte County MO
Gerald Lee Gilleard
November 1987
Missouri Cultural Resource Inventory
View from the southeast taken after reassembly of bridge
#5 of 7

Waddell "A" Truss Bridge
English Landing Park
Parkville, Platte County, MO
Jack Friedman
November, 1987
Missouri Cultural Resource Inventory
View from the southeast, assembly of the bridge.
#6 of 7

Waddell "A" Truss Bridge
English Landing Park
Parkville, Platte County, MO

Jack Friedman
November, 1987
Missouri Cultural Resource Inventory
Historic view from the North of the recrection

7 of 7


ASSMAN
K.C.

EXTRA PHOTOS