Hickory-Wythe Bridge
CR 6 over Kaskaskia River
(S.N. 021-4003/Sequence No. 19297)
Garrett Township
Douglas County
Illinois

HIER No. DO-2019-1

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic Illinois Engineering Record
State Historic Preservation Office
Springfield, Illinois

Prepared by the Illinois State Archaeological Survey
on behalf of the Illinois Department of Transportation

December 2023

HISTORIC ILLINOIS ENGINEERING RECORD
HIER No. DO-2019-1

County Road 6 Bridge
(REINFORCED CONCRETE, HAUNCHED SLAB)

Location: CR 6 over Kaskaskia River
Garrett Township, Douglas County, Illinois

USGS Quadrangle: USGS Tuscola, 7.5 minute, Illinois
Latitude 039° 51' 52" N Longitude 088° 21' 52" W

Universal Transverse Mercator Coordinates:
Zone 16 Easting 383287 Northing 4413423

Present Owner: Douglas County

Present Use: Vehicular Bridge (IDOT Structure No. 021-4003)

Significance: The Hickory-Wythe (County Road 6) Bridge over the Kaskaskia River employs a post-and-beam structural system. It is a three-span, cast-in-place, reinforced-concrete fabrication with a continuous, haunched slab deck. Such bridges typically have intermediate piers supporting the deck below the haunch. But the subject bridge has a row of five columns (or piles) that carry each of its two haunches. It was built in 1942 and is an example of an evolving effort to extend (through the use of the haunch) the length of slab spans in order to reduce the number of piers needed for, and thus the costs incurred by, such bridges.

PART 1. HISTORICAL INFORMATION

A. Physical History:

1. Date erected: 1942

2. Designer: Unknown

3. Original and subsequent owners: Douglas County

4. Builder or contractor: Unknown

5. Alterations and additions: There appear to be few modifications to the bridge. Deteriorating concrete is the most prominent problem and is especially apparent

in the structure's railings, the curbs from which the railings rise and the outer edge of the deck on its north and south sides.

B. Historical Context:[1]

Bridge Development in Illinois:

The first permanent bridges in Illinois include a few stone arches built in the 1830s when the National Road was extended west from Maryland. At least one other arch was built on the Chicago-Galena Road in the same period. Accounts of early travelers suggest that rudimentary ferries facilitated passage across some larger streams. Timber structures crossing small water courses also helped travel. Little is known of the pile trestles or problematical floating platforms used. All were subject to risks and washouts.[2]

As pioneers moving west established settlements, technicians were attracted to the frontier to erect bridges, many of them covered. Between 1820 and 1900, an estimated two to three hundred such structures were built in Illinois, only a handful of which are thought to remain today.[3]

Railroads helped drive the need to improve early timber fabrications. Trains hauled heavier loads as time passed, a fact requiring by the late 1850s stronger bridges. Consequently were structures of iron developed. They were followed in the 1870s by others of steel that used wide flange beams as components. The use of steel contributed to the expansion of railroads, settlement and industrialization in a growing America.[4]

Concrete Bridges and the Illinois State Highway Department:

Reinforced concrete emerged in the early twentieth century as a new material for bridge

[1] The "Bridge Development in Illinois" and "Concrete Bridges and the Illinois State Highway Department" sections were largely and initially prepared (including footnotes) in the late 1980s and early 1990s by John Nolan of the Illinois Department of Transportation (IDOT). Most of that material has subsequently been reviewed against the sources cited, edited and expanded or modified as appropriate.

[2] Keith A. Sculle and John A. Jakle, "From Terre Haute to Vandalia, Illinois," in *A Guide to the National Road*, ed. Karl Raitz (Baltimore, MD: The Johns Hopkins University Press, 1996): 277; Milo M. Quaife, *Chicago's Highways Old and New* (Chicago: D.F. Keller & Co., 1923): 187.

[3] Russell M. Garrard, "Early Bridges in Central Illinois," in *Heritage of Mid-Illinois Engineering* (Capital City Chapter of the Illinois Society of Professional Engineers, circa 1976): 15ff.

[4] Walter V. Voss, "How New Materials Increased Man's Building Ability," in *Centennial Transactions* (New York: American Society of Civil Engineers, 1953): 829-830.

construction. Concrete bridges were used in many locations with short crossings that would otherwise have needed steel structures (i.e., truss bridges). The versatility of concrete was enhanced when it was reinforced with steel rods or used to encase rolled steel beams, thus protecting them from the weather. The use of concrete for shorter span bridges also accommodated the growing twentieth century inclination toward aesthetics in design, which meant essentially giving bridges a more pleasing appearance.[5]

Illinois established a state authority in 1905 to design roadway bridges. It offered plans for new structures, concrete being the recommended building material for spans of less than 50 feet. A 43-foot test bridge was built in 1908 at the Southern Illinois Penitentiary in the City of Menard, Randolph County. That structure successfully carried over a multi-year testing period as many as 580 tons, or about 1,500 pounds per square foot. The growing appetite for concrete bridges was so great the Highway Commission reported "the demand for plans for short span steel bridges is almost nil."[6]

Three types of concrete bridges were built in Illinois by 1910-1912: slab, through girder and deck girder. In the case of slab bridges, they were very short spans in which the deck carried its own weight and that of the traffic on it (dead and live loads, respectively). With through girder bridges, the load-bearing girders were placed above the deck in such a fashion that they also served as the railings, though significantly oversized railings due to the loads they carried (these bridges were also known as edge-girder structures). The traffic deck essentially tied together the lower chords of the two girders, which meant that the bottom of the bridge was flat – it offered no obstacle to the flow of high water beneath. The loads of and on deck girder bridges were typically carried by two girders placed below the deck. The operational success of this bridge-type required clearance between high water and the girders, which then required additional elevation without which the below-deck girders might be problematical and impede high water flow. The growing popularity of concrete structures is apparent by the fact that in 1908 fifty-one were built around the state, a number that had increased to 109 in 1911 and 141 in 1912.[7]

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[5] Walter M. Smith, Sr., and Walter M. Smith, Jr., "Concrete Bridges: Some Important Features in Their Design," *Transactions of the American Society of Civil Engineers* 77 (December 1914): 695-696; Leslie R. Schureman, "Beauty in Short-Span Highway Bridges," *Civil Engineering*, 8 (May 1938): 319.

[6] *First Annual Report of the Illinois State Highway Commission for the Year 1906* (Springfield, IL: State of Illinois, 1907) 55, 57, 59; *Second Annual Report of the Illinois State Highway Commission for the Year 1907* (Springfield, IL: State of Illinois, 1908): 77-81; Illinois State Highway Commission, *Modern Bridges for Illinois Highways* (Springfield, IL: Illinois State Journal Company, State Printer, 1912): 3-4, 49-53; *Third Annual Report of the Illinois State Highway Commission for the Years 1908-1909* (Springfield, IL: State of Illinois, 1911): 113.

[7] A good introduction to concrete bridges is found in David Plowden's, *Bridges: The Spans of North America* (New York: Viking Press, 1974), 297-300; *Fourth Annual Report of the Illinois State Highway Commission for the Years 1910, 1911, 1912* (Springfield, IL: State of Illinois, 1913): 303-304, 324-325, 327-329; *Third Annual Report*, 115, 119.

Haunched Slab, Concrete Bridges:

Reinforced concrete slabs (where the slab is also the bridge deck) supported by abutments have commonly constituted short, single span bridges since the turn of the twentieth century. Longer crossings could be accommodated by structures with multiple slabs known as continuous span bridges. Spans thus arranged were supported by intermediate piers or columns set between the abutments. Slabs in these bridges are defined by a consistent thickness their entire length. But the longer the slab the thicker it had to be for structural reasons, a matter that increased both the dead load of a span and its cost.[8]

Figure 1: Example of the mushroom-column in the Marshall Building (207 E. Buffalo Street, Milwaukee, WI), a 1906 building for which Claude A.P. Turner was an architect/engineer (Photo viewed at https://www.marshallbuildingmke.com on 14 December 2023).

Concrete slabs were an important component of the nation's evolving roadway infrastructure as the twentieth century progressed, be they single or continuous span entities. Attempts continued to extend the length of slab bridges and the distance between piers and abutments. One effort was adapted from Claude A.P. Turner's 1905 development of

[8] The definition of a "short slab bridge" has evolved. They were originally considered to extend up to 20 feet, but that increased to 25 and then 30 feet over time. Robert M. Frame, "Reinforced-Concrete Highway Bridges in Minnesota," National Register of Historic Places Nomination Form, Form No. 10-900b (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1989): Section E, Page 7-8; "Chapter 18: Concrete Slab Structures," *WisDOT Bridge Manual*, Viewed on 25 June 2020 at https://wisconsindot.gov/dtsdManuals/strct/manuals/bridge/ch-vol2.pdf: 18-3; Parsons Brinkerhoff and Engineering & Industrial Heritage, *A Context for Common Historic Bridge Types* (Washington, D.C.: Transportation Research Board, 2005): 3-85.

the flat-slab, mushroom-column which was designed for the construction of buildings (see Figure 1, page 5). The objective was to take conventional, reinforced concrete columns situated between concrete floors and add a circular flare at the top of the column, the flare expanding that part of the slab floor above that the column supported. Five years later Turner adapted his system for the purpose of supporting bridge decks explaining that the mushroom system offered such bridges "remarkable stiffness" and "unusual rigidity," both considered structural assets.[9]

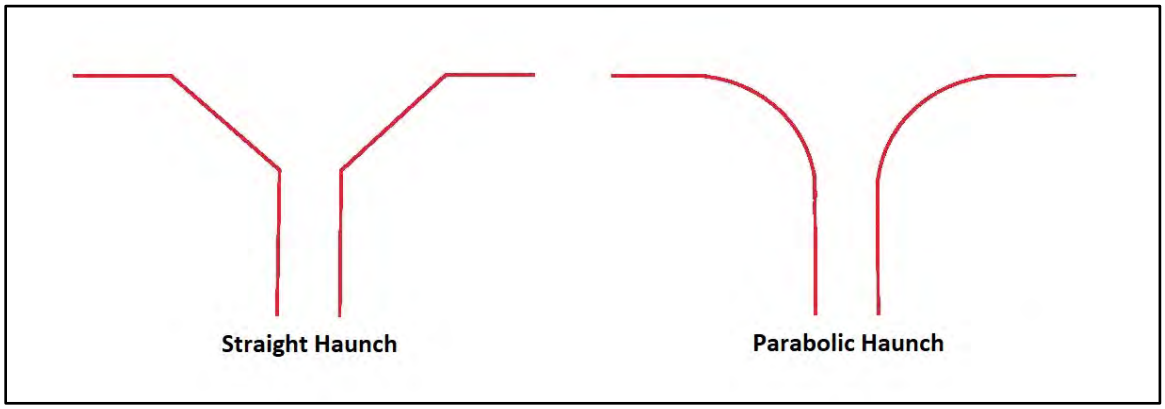

Figure 2: A Straight Haunch versus a Parabolic Haunch.

Another innovation addressing concrete slab support was the development and use of the "haunch," be it straight or parabolic though the former was preferred[10] (see Figure 2, above). This improvement followed the adaption of Turner's mushroom-column for roadway use. Haunches were a component of the concrete slab, the length of which extended the width of the slab (which is unlike the limited circular area supported by individual columns in Turner's mushroom system). They were, in other words, perpendicular to the bridge's length. The thickest part of the haunch straddled a structure's intermediate piers (or row of columns used in lieu of a pier) (see Figure 3, page 7). The objective of the haunch was to enhance a bridge's stiffness and strength over the piers which is where the most significant negative bending moments take place (a negative bending moment is where the bottom of a concave arc is in compression).[11]

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[9] Frame, "Reinforced-Concrete Bridges," E7-8; Parsons Brinkerhoff, *A Context*, 3-83; C.A.P. Turner, "The Mushroom System as Applied to Bridges," *Cement Age* 10 (January 1910): 8, 12.

[10] Chris Pope, P.E., "Reinforced Concrete Slab Bridges," Paper presented at the 2010 INDOT Structures Conference, Viewed on 25 June 2020 at https://www.in.gov/dot/div/contracts/training/2010/StructConf/1015aReinfConcrete.pdf. It should also be observed that the parabolic haunch in Figure 2 appears in the cross section shown to be very similar to Turners mushroom-column. But it must be remembered that the haunch extended the width of the deck while the mushroom tops on Turner's columns were limited to the column itself.

[11] Hardy Cross and Newlin Dolbey Morgan, *Continuous Frames of Reinforced Concrete* (New York: John Wiley & Sons, Inc., 1932): 126; Kevin Wood, Senior Bridge Engineer, GRAEF, Email to John N. Vogel, 18 June 2020, Copy on File at Heritage Research, LTD., Menomonee Falls, WI.

Figure 3: This bridge is located in Ozaukee County, Wisconsin. The haunched slab structure in the foreground replaced the covered bridge behind in 1962. The center span is 43'-10" long. The consistent depth of the slab's greater length is 14". That of the haunch over the piers is 24" and tapers to the 14" depth within 6' 6" of the piers' center.

Various fine points, details and intricacies notwithstanding, the Wisconsin DOT Bridge Manual summarizes well the primary advantage of slab and haunched slab bridges. "Due to simplicity of design and construction, the concrete slab structure is relatively economical. Its limitation lies in the practical range of span lengths and maximum skews for its application. For longer span applications, the dead load [of those spans] becomes too high for continued economy. Application of the haunched slab has increased the practical range of span lengths for concrete slab structures."[12] Therefore the haunched slab was swell suited for use on the new Hickory-Wythe structure.

Douglas County & Garrett Township:

Douglas County is in east central Illinois, generally between the city of Decatur and the Illinois/Indiana state line. Said to have been a "'howling wilderness'" prior to settlement, the territory that became Douglas County was included among predecessor counties in the early years of the nineteenth century, the last being Coles County established in 1830. Douglas County was in 1859 carved out of Coles County with the city of Tuscola designated as its formal seat of government. The new county was poised for growth and claimed 7,140 residents in 1860, a number that almost doubled to 13,484 by 1870. The Township of Garrett, in which the Hickory-Wythe bridge is located, claimed 1,216 residents in 1860 and 1,599 in 1870. The township's population then grew to 2,215 by 1900, after which it bell back to 1,587 in 1930.[13]

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[12] "Chapter 18," *WisDOT Bridge Manual*, 18-3.

[13] *County of Douglas, Illinois* (Chicago, IL: F.A. Battey & Co., 1884): Part III: 6-7; Henry C. Niles, *History of Douglas*

The county was comprised in 1875 of about 410 square miles, or 262,332 acres, the vast majority of which was dominated by agriculture. Soil was largely alluvium consisting of a mixture of clay, silt and sand deposited by flowing water or flooding. In terms of the latter, two significant rivers passed through the county. That in the central and south-eastern part was the Embarrass River while that in the west was the Kaskaskia. Both originated in Champaign County, immediately to the north, and flowed south. All seemed to augur well for agricultural growth, though slowly at first as the soil's natural moisture level was problematically high. That issue led to the development of a drainage system that soon "made Douglas County as good an agricultural region as is found in the State."[14]

Railroads played an important role in moving settlers to Douglas County, the first of which was the Illinois Central. General construction on that north/south conveyance started in 1852 while the segment in Douglas County, which led to the founding of the communities of Tuscola and Arcola, was built in 1855. Another rail line, one important to Garrett Township, was the Indiana & Illinois Central, an east/west entity which was chartered in 1854 though construction did not start for another sixteen years. Indeed, no real push for the construction of that line seemed to develop until 1867 when the settlements along the proposed route began to advocate for it. Voters authorized Douglas County to invest $20,000 in the venture, as did Hendriks County, Indiana, and the city of Decatur, Illinois, purchase interests. Bonds supporting the railroad were also sold to Douglas County townships, including Garrett which bought $13,000 worth. Construction began in 1870 and was completed through Douglas County in 1873.[15] The arrival of railroads in the county in general, and in or adjacent to Garrett Township in particular, was significant. They delivered new settlers and supplies to the growing region and hauled agricultural goods produced to market.

Observed in 1884 was that Douglas County "is a purely agricultural." It simply did not have the volumes of coal, timber or other commodities needed to support a vibrant industrial base. Indeed, aspiring agriculturalists arrived in the county in increasing numbers. Farming accounted by 1880 for 240,451 of the county's 266,240 acres, 222,501 acres of which were improved while 17,950 were not. There were then 1,831 farms, the average size being 131 acres, the vast majority of which were between twenty and 500

County, Illinois (Tuscola, IL: Converse & Parks, 1876): 7, 8, 11, 26; *Illinois State Gazetteer and Business Directory for the Years 1864-5* (Chicago, IL: J.C.W. Bailey, 1864): 63; United States Federal Census, Population (1860, 1870, 1900, 1930), viewed at www. ancestory.com on 09 November 2023.

[14] Niles, *Douglas County*, 26, 33; *County of Douglas*, 22.

[15] *County of Douglas*, 87-89; Niles, *Douglas County*, 15-18, 61.

acres though a few were smaller as were a few much larger. Horses, swine, cattle, sheep and milk cows were prominent among the animals in the county. Twenty years later, in 1900, Douglas County had 2,025 farms, their average size being 127.4 acres. The county hosted 1,456 farms on 246,387 acres in 1930 with an average size of 169.22 acres per farm. More specifically did Garrett Township then claim 200 farms on 32,023 acres which yielded an average farm size of 160.11 acres. Clearly, agriculture was an economic endeavour of consequence for both the county and township.[16]

Farmers needed support communities from which supplies could be acquired and to which crops grown could be hauled for export. Acquiring supplies meant having communities that offered general stores, blacksmiths, lumber and hardware dealers, grocers, harness makers and grain dealers as well as various specialty merchants. Delivering crops for export meant having the availability of railroads for hauling those crops to market. Garrett Township was surrounded by such communities, all of which were some number of miles away from the Hickory-Wythe bridge and its adjacent farmers. About one-half of the village of Atwood was in Garrett Township but situated on the Douglas/Piatt County line to the west. It claimed in 1888 a population of 800. Similarly was the county seat of Tuscola with its 2,500 residents located in the township just east of Garrett. Champaign County also had some shopping and shipping points convenient to the far northeast corner of Garrett Township. The community of Pesotum claimed in 1878 about 100 residents and was a bit to the northeast, as was the village of Ivesdale with its 500 residents in 1888 to the north northwest. All these towns were located on railroad lines and all were generally eight or nine miles from the Hickory-Wythe vicinity. Roads are what enabled farmers to reach the various shopping and shipping points.[17]

County Highway 6 & the Hickory-Wythe Bridge:

Douglas County claimed a relatively well developed network of roads by 1875, of which Garrett Township claimed about thirty miles of north/south routes and about forty miles of east/west routes – all generally located on Section or Quarter Section lines. One of those alignments ran along the baseline of Sections 1 through 5 and included a structure over the Kaskaskia River which flowed south from Section 1 into Section 12 (see Figure

[16] *County of Douglas*, 21; United States Census Office, *Report of the Production of Agriculture as Returned at the Tenth Census* (Washington, D.C.: Government Printing Office, 1883): Statistics of Agriculture – vol. 5 p. 44, vol. 7 p. 111, vol. 9 p. 149; William R. Merriam, Director, *Twelfth Census of the United States Taken in the Year 1900: Agriculture Part 1, Farm, Live Stock and Animal Products* (Washington, D.C.: United States Census Office, 1902): Table 10 p. 72; *Fifteenth Census of the United States: 1930-Agriculture Volume 1, Farm Acreage and Farm Values* (Washington, D.C.: Bureau of the Census Library, 1931): 148. All census data accessed on 13 May 2023 and located at https://agcensus.library.cornell.edu.

[17] *Illinois State Gazetteer and Business Directory, 1878*, Volume 1 (Detroit, MI: R.L. Polk & Co., 1878): 109, 688-689; *Illinois State Gazetteer and Business Directory, 1888*, Volume 6 (Chicago, IL: R.L. Polk & Co., 1888): 155-156, 897, 1339-1340.

4, below). It is unknown when, prior to 1875, the original bridge on that road and at that river crossing was built and of what it was built, but by some point in the last twenty years of the nineteenth century the passage was accommodated by a steel pony truss that was seventy-eight feet long and fourteen feet wide. And it likely carried consequential traffic. Not only did the structure accommodate farmers traveling to one of the surrounding support communities, there was a cemetery and a school immediately east of the crossing as well as a church about a mile-and-a-quarter west of the crossing and another school about three quarters of a mile beyond that – all of which generated traffic on the road which, in 1937, was soil surfaced and carried between twenty-five and forty-nine vehicles per day.[18]

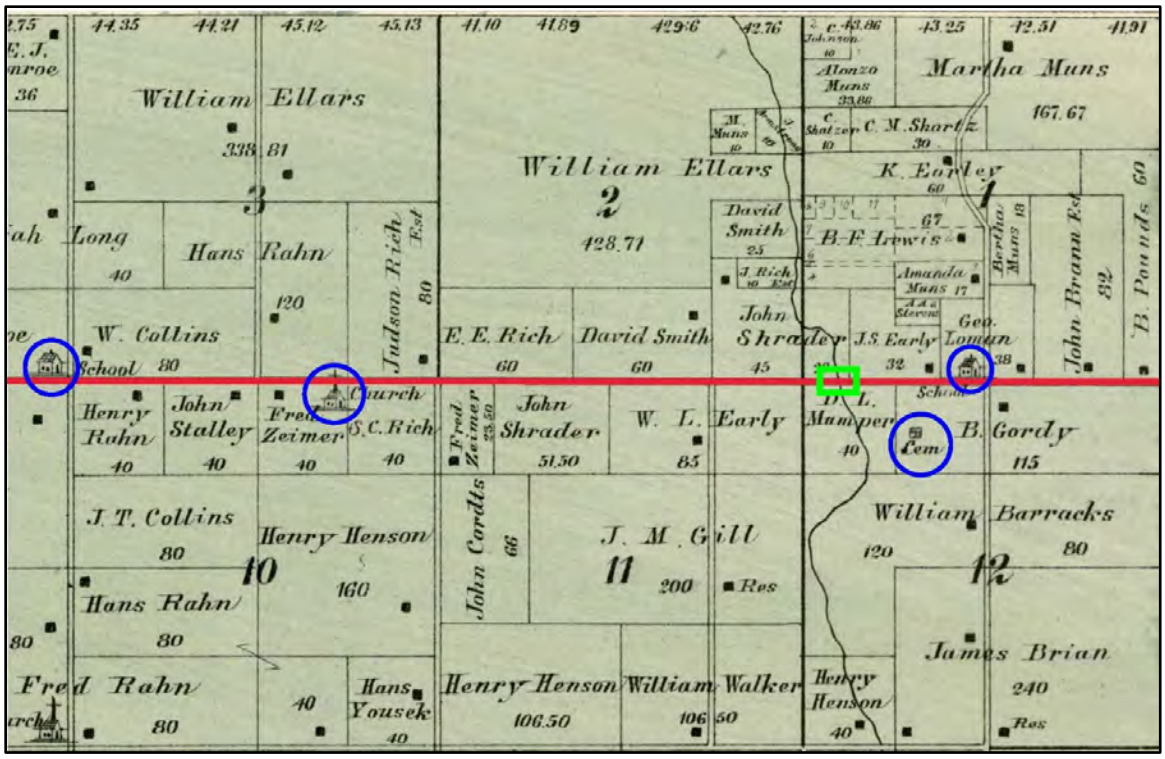

Figure 4: This 1893 map image illustrates the subject roadway (red line) as well as the location of the predecessor to the 1942 Hickory-Wythe bridge (green square) and the cemetery, church and schools to either side of it (blue circles) (Plat Book of Douglas Co., Illinois [Chicago, IL: Geo. A. Ogle & Co., 1893]: 34-35).

Five years later the county and township decided to reconstruct the two miles of roadway with Sections 1 and 2 to the north and Sections 11 and 12 to the south, including the

[18] *An Illustrated Historical Atlas Map* [of] *Douglas County, Ill* (Edwardsville, IL: W.R. Brink & Co., 1875): Map; "Douglas County Illinois [-] Plans for Proposed Highway to be Built Under Motor Fuel Tax Law," Prepared by Douglas County Division of Highways, 1941, Copy received from IDOT, Bureau of Location & Environment, Springfield, IL; *Plat Book of Douglas Co. Illinois* (Chicago, IL: Geo. A. Ogle & Co., 1893): 34-35; *Traffic Map Douglas County Illinois* (Springfield, IL: Department of Public Works & Buildings, Division of Highways, 1937): map.

bridge across the Kaskaskia River (see Figure 4, page 10). It is uncertain what deficiencies that old bridge may have had, but it likely had simply outlived its usefulness. Its narrow width may also have essentially prohibited two-way traffic. Additionally may its presumably declining structural capacity have limited the passage of farm machinery, a significant detriment in an area dependent on farming. As for the roadway itself, and as noted previously, it was in 1937 soil surfaced and susceptible to problems when wet. Regardless, the two miles of roadway and bridge were reconstructed in 1942. The old fourteen-foot wide bridge was replaced by one that was twenty-two feet wide. Additionally was the roadway widened, drainage structures installed and the two nine-foot lanes surfaced with crushed stone. Typical daily traffic on the new facility in 1947 was between fifty and seventy-four vehicles per day.[19] It was that work completed in 1942 that provided the basic infrastructure that continues to support the road in 2023.

PART II: ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character:

The Hickory-Wythe Bridge was constructed in 1942. It is a three span, 112'-00" long, 25'-6" wide, reinforced-concrete, haunched slab structure that carries CR 6 over the Kaskaskia River.

2. Condition of Fabric:

The historical integrity of the structure is fair. Deteriorating concrete is the problem most apparent and visible in the bridge's railings and the curbs from which the railings rise, as well as the outer edge of the deck on its north and south sides. The structure's sufficiency rating is 27.1.[20]

[19] Research for the subject bridge was also conducted at the Illinois Department of Transportation's Contracts and Local Roads and Streets Records at the Illinois State Archives (Record Group 242), which yielded no relevant information. "Right-of-Way Deeds Are Filed," *The Tuscola* (Illinois) *Review*, 18 June 1942: 5; "Plans for Proposed Highway," Douglas County, 1941; *Traffic Map Douglas County Illinois* (Springfield, IL: Department of Public Works & Buildings, Division of Highways, 1947): map; *General Highway Map Douglas County Illinois* (Springfield, IL: Department of Public Works & Buildings, Division of Highways, 1955): map.

[20] A composite index of a structure's deficiencies is represented by the Sufficiency Rating, which varies from 100 for a new, or fully adequate bridge, to 0 for a structure that is closed or collapsed.

B. Description:[21]

The Hickory-Wythe Bridge is a three-span, reinforced concrete, haunched slab fabrication that is 112'-0" long. Its overall width is 25'-6", while that of the traffic deck is 22'-0". The roadway is flanked by concrete railings. Traffic is carried by a load-bearing, concrete, haunched slab deck set on the abutments and supported by two intermediate piers each consisting of five squared, concrete piles.

The bridge is anchored, and the traffic deck carried, by its abutments and pier-like columns. The abutment walls (which parallel the river and are 23'-10" long), as well as the wingwalls (that project inland from each end of the abutment wall at an angle of 100° and are 14'-10" long), are of 3" thick concrete. Additionally is the abutment wall supported by five, 16" x 16" concrete piles placed on 5'-6" centers while the wingwalls are supported by three such piles set on 5'-3" centers. Crowning the abutment wall and its piles is the abutment cap, a massive concrete component that extends the length of the wall and is 3'-0" high and 2'-10" wide. It is from that cap that the concrete deck extends. The two sets of intermediate columns are comprised of five, 16" x 16" piles on 5'-6" centers. All piles are of precast concrete.

The bridge's haunched deck is comprised of three spans, the two outer (west and east spans) being 34'-3" long while the center is 43'-6" long. The typical depth of the reinforced concrete deck is 13½". The deck over the haunches, however, which are located at each abutment and over the two intermediate rows of columns, is 22¼" thick. The haunches tied to the two abutments extend for 6'-10" toward the center of the bridge as they taper to the 13½" thickness which then carries for 16'-2" of the bridge's length prior to the start of the column-related haunches which maintain their 22¼" depth for 6" to either side of the columns. Thereafter do the haunches extend from each side of the piers for 9'-7" and taper toward the center of the deck, meaning that the center of the center concrete span extends at a depth of 13½" for 21'-8".

On either side of the deck is a 22¼" wide curb, 8" deep on the traffic side and 7" deep on the outer side of the bridge. The 1" difference compensates for a minor increase in the thickness of the deck at its outer edge. Thus measured on the inside (traffic side) of the railing, atop the 8" curb, are uprights 3'-½" high that carry the horizontal rails, meaning that the top of each railing post is 3'-8½" above the traffic deck. The uprights centered on the abutments and the two rows of piers are 2'-6" long while all others are 1'-6" long. All are 12" wide. The distance between the uprights is 6'-6" for the two outer spans and 7'-0" for the 43'-6" long center span. The rails themselves are precast concrete 5"

[21] The measurements used to describe this bridge were taken from the original plans as well as the structure itself during field investigations. Activities were limited to components that could be reached without aid of ladders, boats or other equipment.

wide by 8" high and set 4" deep into the uprights. The top of the top chord is about 3½" below the crown of the uprights while that of the lower chord is about 20½" below.

A single chord railing is also atop the wingwalls. Each is 14'-2" long and rises 25" above the top of the wall. The three uprights are all 10" long and 12" deep and symmetrically placed with 4'-11" in between. The railing itself, with 10" of length extending beyond the upright on the outer side and 12" extending beyond on the abutment side, is 6" thick by 9" and flush with the upright on the roadway side of the railing.

The bridge is plain concrete and lacks ornamentation. It does, nevertheless, retain its bridge plate that identifies it as the "Hickory-Wythe Bridge" which was built in 1942.

PART III: SOURCES OF INFORMATION

A. Primary and Unpublished Sources:

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PART IV: METHODOLOGY OF RESEARCH

A. Research Strategy

Research objectives were to place the bridge in its geographic, historic and engineering contexts. A strategy was developed to accomplish those goals that investigated local, regional and statewide documentary sources, as well as general bridge-history works. On-site observation and investigation of the bridge were also parts of the research plan.

B. Research Process

1. Visited bridge to review conditions, photograph and measure it.

2. Searched sources for data relating to the development of Douglas County and the CR 6 bridge in the University of Illinois Library (Urbana, IL), Illinois State Library and Illinois State Archives. Digital sources consulted include the Hathi-Trust Digital Library and newspapers.com.

3. Completed research and prepared report draft.

4. Document draft internally reviewed.

5. Document draft reviewed by IDOT and SHPO.

6. Completed all revisions and submitted to IDOT.

C. Archives and Repositories Used/Consulted:

•Libraries

University of Illinois Library
1408 W. Gregory Drive
Urbana, Illinois 61801
(Illinois State Gazetteers)

Illinois State Archives
Norton Building
State Capitol Complex
Springfield, Illinois 62756
(IDOT Record Group 242, Local Government Records Index and Maps)

Illinois State Library
300 S. 2nd Street
Springfield, Illinois 62701-1796
(Plat Map & Illinois Transportation Map Collections)

•On-Line Sources:

HathiTrust Digital Library
(County & Local History Books, Engineering Journals and Other Resources)

Library of Congress
(Historic-period county plat maps)

historicmapworks.com
(Historic-period county plat maps)

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PART V: PROJECT INFORMATION

This HIER archival documentation is submitted in compliance with a stipulation of the Memorandum of Agreement (MOA) between the Federal Highway Administration, Illinois Division, and the Illinois State Preservation Officer, with final signature on 28 April 2020. The MOA was executed in compliance with CFR 36 800.6(b)(1)(iv) of the National Historic Preservation Act of 1966, as amended.

Bridge Plan Sheet 1:

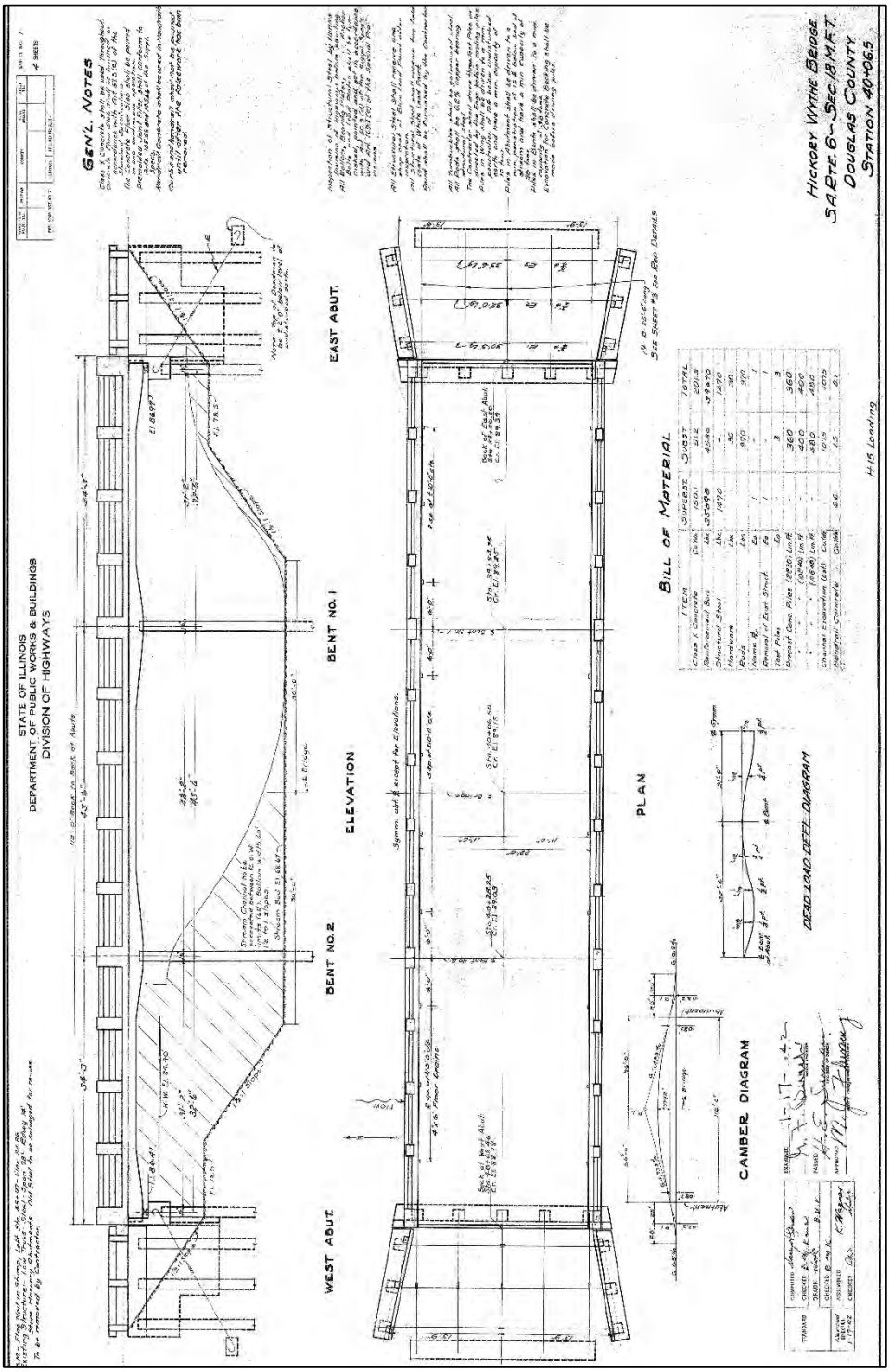

Figure 5: "Douglas County Illinois [-] Plans for Proposed Highway to be Built Under Motor Fuel Tax Law." Prepared by Douglas County Division of Highways, 1941. Copy received from IDOT, Bureau of Location & Environment, Springfield, IL.

Bridge Plan Sheet 2:

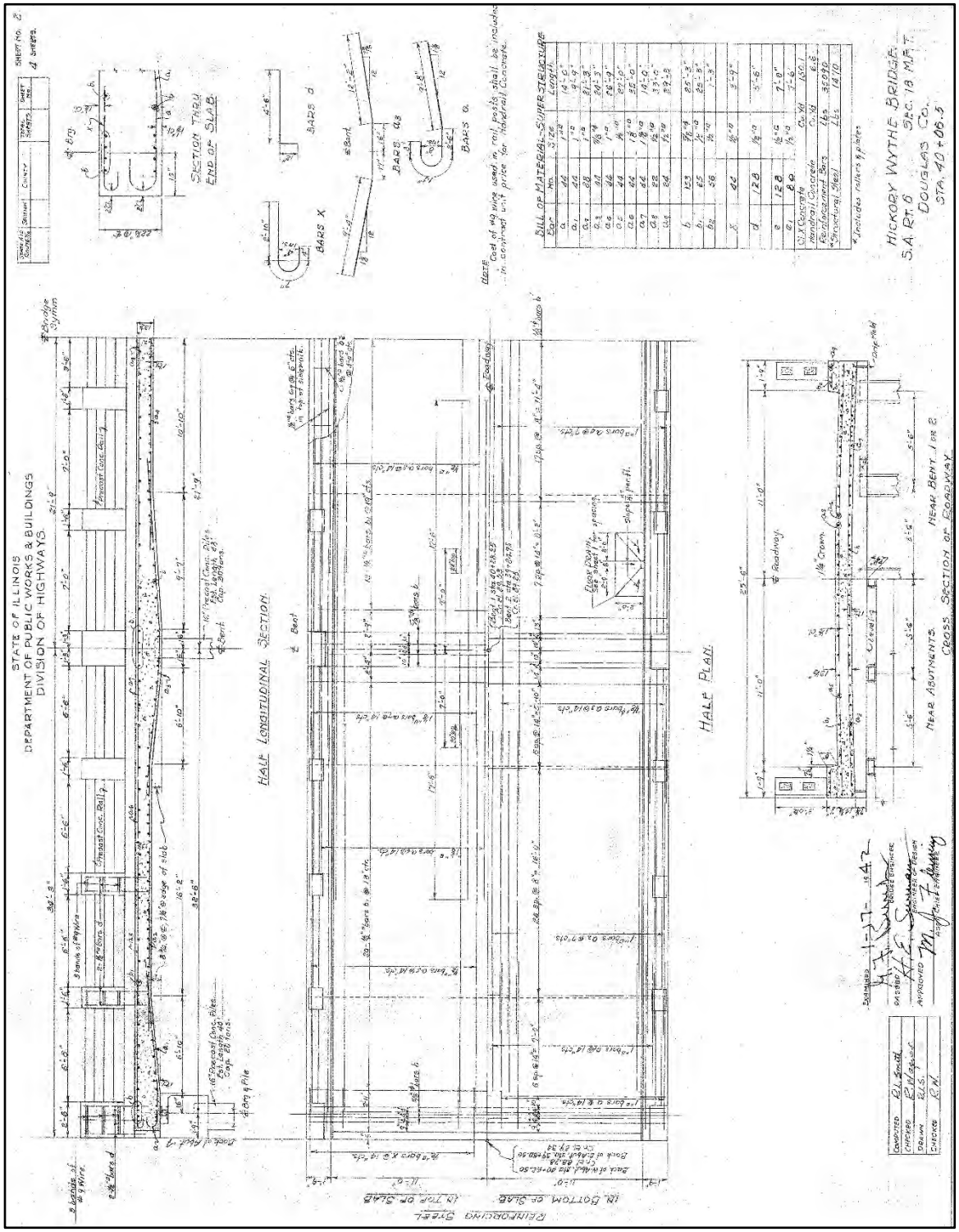

Figure 6: See citation on page 19.

Bridge Plan Sheet 3:

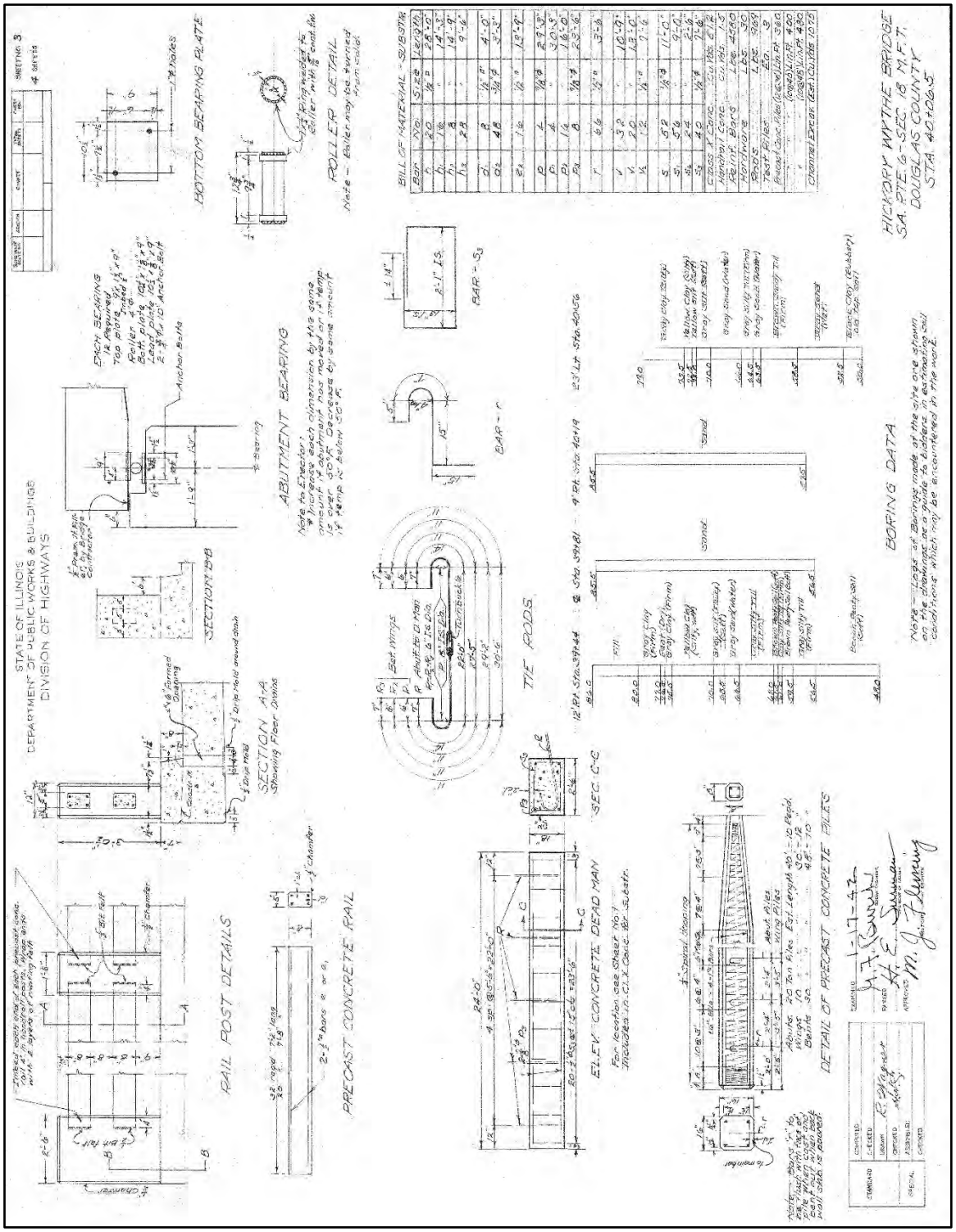

Figure 7: See citation on page 19.

Bridge Plan Sheet 4:

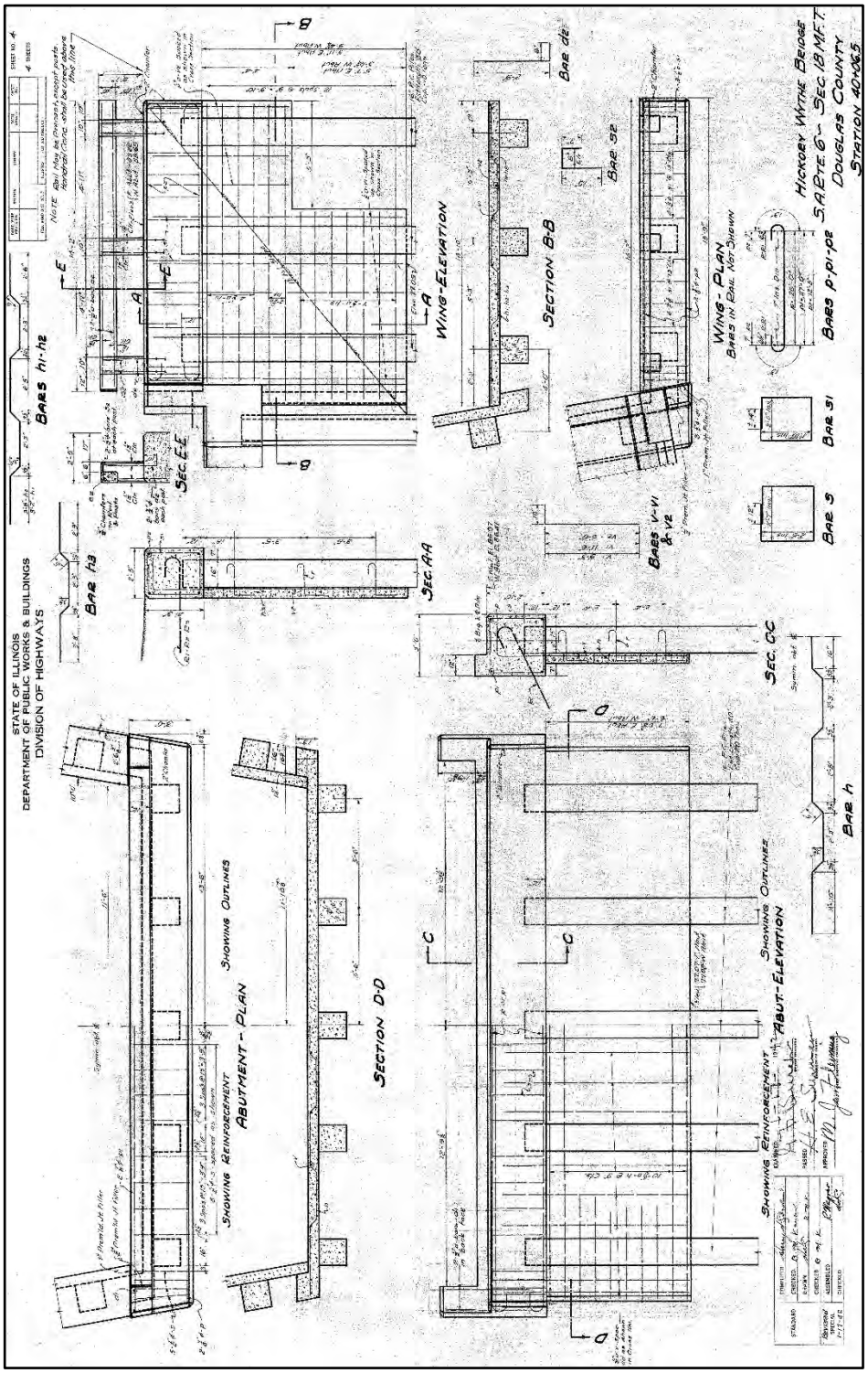

Figure 8: See citation on page 19.

1940 Aerial Photographic Image Identifying Bridge Location:

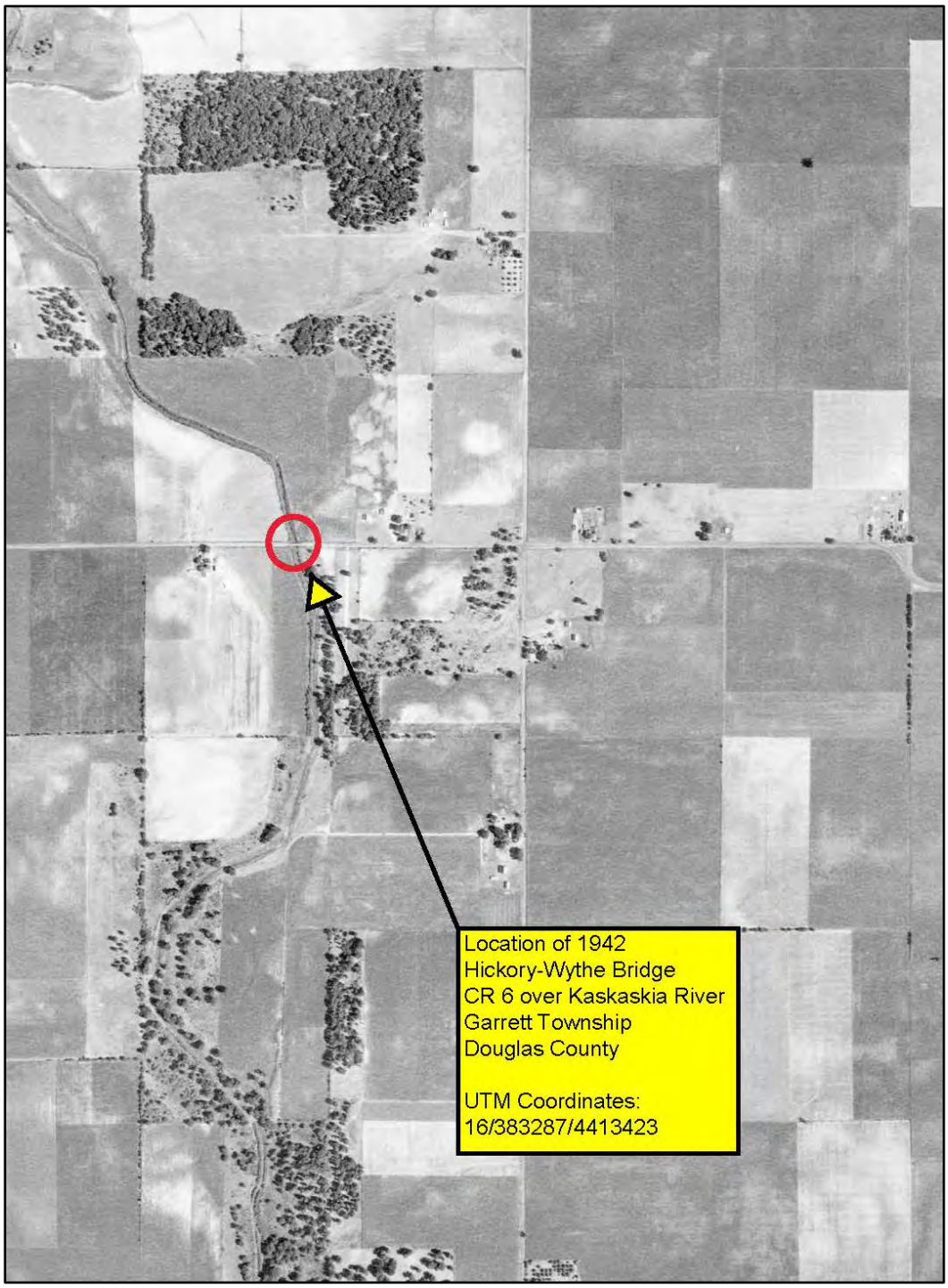

Figure 9: This 1940 photograph identifies the 2020 location of the CR 6 crossing of the Kaskaskia River. While clearly identifying a bridge, the one at the crossing in 1940 was a pony truss with a 14-foot wide deck and stone abutments. Illinois Historical Aerial Photography: 1937-1947, Image A0-4A-142, 7 August 1940, Viewed at http://maps.isgs.illinois.edu/ilhap/ on 29 June 2020.

USGS Map (1983) Identifying Bridge Location:

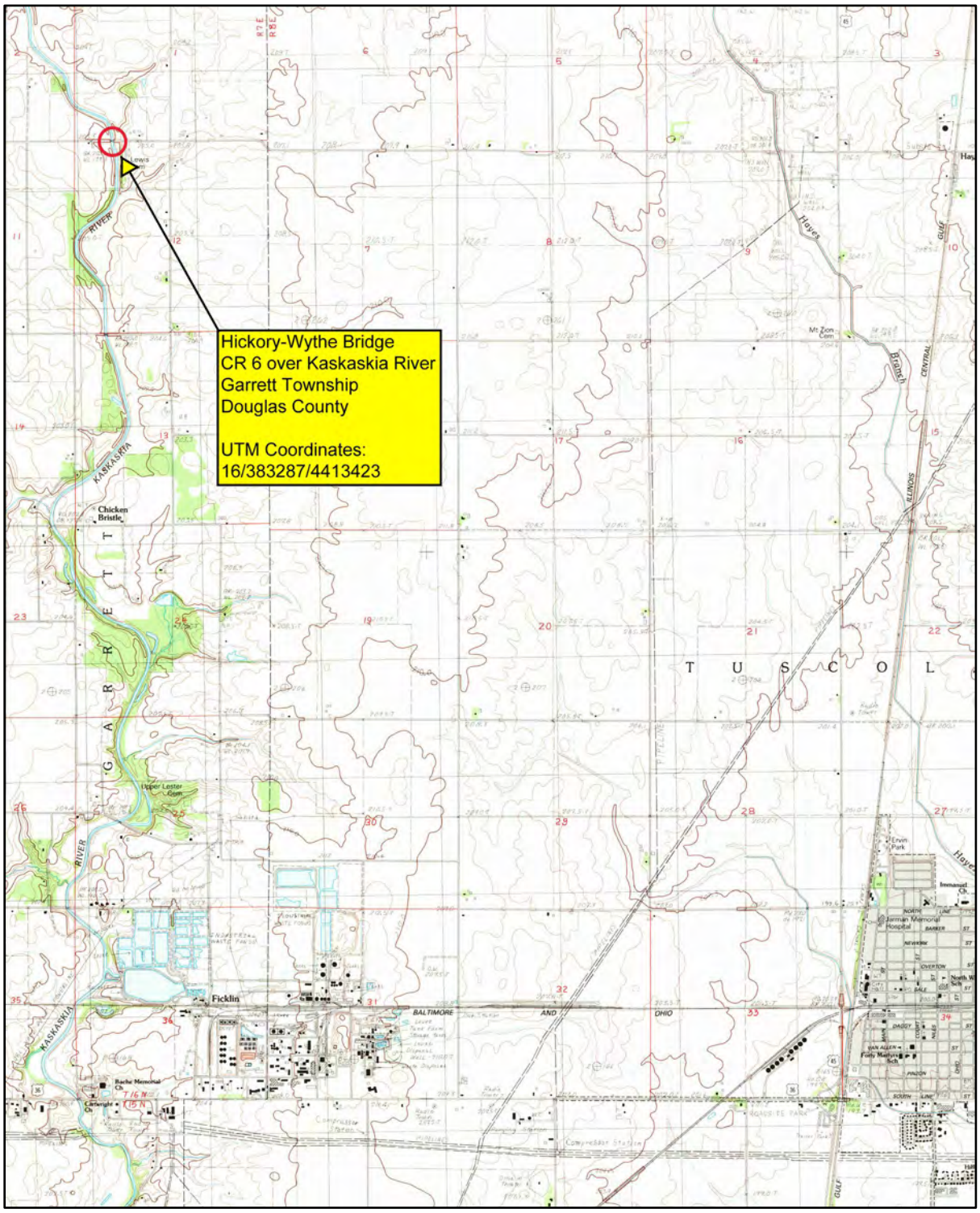

Figure 10: U.S. Geological Survey, *Tuscola Quadrangle* [map], 1983, 1:24000, 7.5 Minute Series (Reston, VA: United States Department of the Interior, USGS, 1983).

HISTORIC ILLINOIS ENGINEERING RECORD

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Hickory-Wythe Bridge HIER No. DO-2019-1
CR 6 over Kaskaskia River
(S.N. 021-4003/Sequence No. 19297)
Garrett Township
Douglas County
Illinois

Documentation: 29 Exterior Photographs (2020)
23 Data Pages
01 7.5 Minute USGS Map (1983)

John N. Vogel, Ph.D., Associate Degree - Professional Photography, Photographer

HIER No. DO-2019-1.1 VIEW TO WEST NORTHWEST. BRIDGE IN ITS GENERAL CONTEXT.

HIER No. DO-2019-1.2 VIEW TO WEST.

HIER No. DO-2019-1.3 VIEW TO WEST SOUTHWEST.

HIER No. DO-2019-1.4 VIEW TO SOUTH SOUTHWEST.

HIER No. DO-2019-1.5 VIEW TO SOUTH.

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HIER No. DO-2019-1.8 VIEW TO NORTHEAST.

HIER No. DO-2019-1.9 VIEW TO NORTH.

HIER No. DO-2019-1.10 VIEW TO NORTH NORTHWEST.

HIER No. DO-2019-1.11 VIEW TO NORTHWEST.

HIER No. DO-2019-1.12 VIEW TO WEST NORTHWEST.

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HIER No. DO-2019-1.25 VIEW TO SOUTH. WINGWALL DEFINING BRIDGE ABUTMENT.

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HIER No. DO-2019-1.28 VIEW TO SOUTHEAST. SOUTHSIDE RAILING. DETERIORATING RAILING BLOCKS AND MISSING RAILING CHORDS.

HIER No. DO-2019-1.29 VIEW NORTHWEST. DETERIORATING CONCRETE CURB WITH RUSTING RE-BAR APPARENT.

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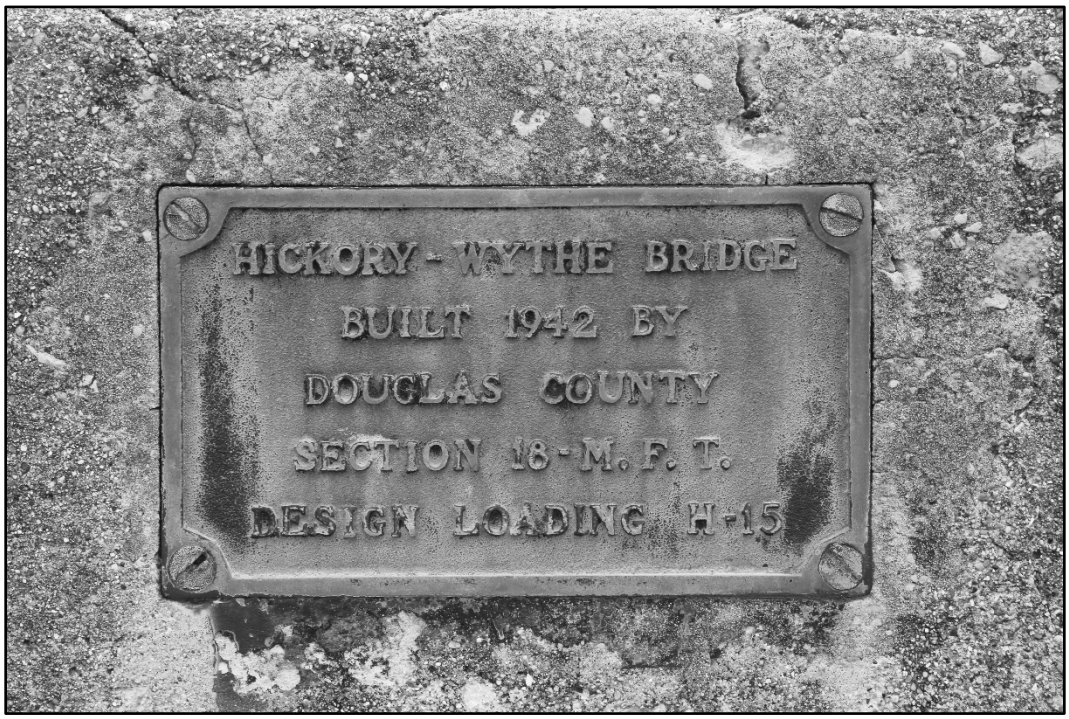

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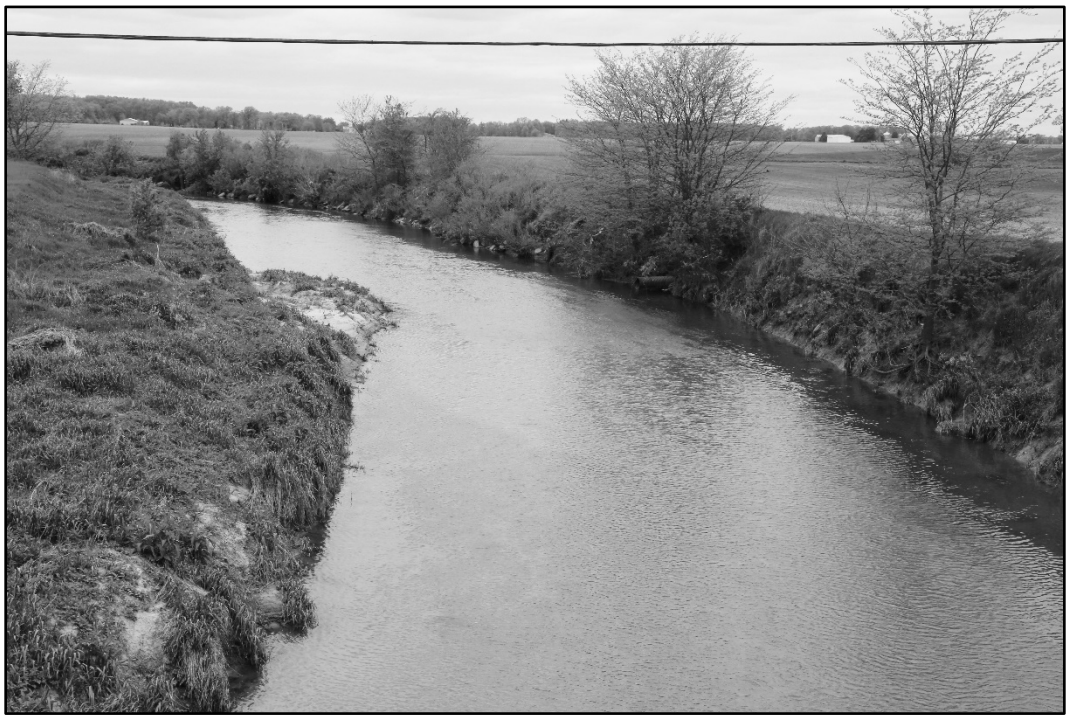

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