

MILLER'S BLUFF BRIDGE

HAER No. LA-41

(Bridge Recall No. 012548)

Carries Louisiana Highway 2 (LA 2) over Red River/Miller's Bluff between Plain Dealing (Bossier Parish)  
and Hosston (Caddo Parish)

Plain Dealing vicinity

Bossier Parish

Louisiana

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

U.S. Department of the Interior

1849 C Street, NW

Washington, DC 20240

**HISTORIC AMERICAN ENGINEERING RECORD**  
**MILLER'S BLUFF BRIDGE**  
**(Bridge Recall No. 012548)**

**HAER No. LA-41**

**Location:** Carries Louisiana Highway 2 (LA 2) over Red River/Miller's Bluff between Plain Dealing (Bossier Parish) and Hosston (Caddo Parish).

The Miller's Bluff Bridge is located at latitude 32.892701 north, longitude -93.820155 west.<sup>1</sup> The coordinate represents the center point of the bridge. It was obtained in 2016 by plotting its location in Google Earth. The location has no restriction on its release to the public.

**Present Owner:** State of Louisiana.

**Present Use:** Vehicular traffic.

**Significance:** This Warren through truss bridge has significance for its association with important trends or events that have made a significant contribution to the broad patterns of Louisiana history. Its significance is demonstrated in the area of transportation as a major river crossing that eliminated a former ferry crossing. The bridge was constructed by the Louisiana Department of Highways (LDH) from 1952 to 1955 to provide an uninterrupted east-west highway through the northern portion of Louisiana. Carrying LA 2, this bridge constitutes the only crossing of the Red River in Louisiana north of Shreveport and was the first bridge crossing of the Red River at this location.

This bridge also possesses significance as an example of a distinctive truss bridge subtype. Significance is demonstrated by the presence of distinctive features of the Warren through truss, consisting of five spans characterized by diagonal members to withstand both tensile and compressive forces. This example has added verticals for bracing and polygonal top chords. This bridge exhibits an added concrete guardrail, resulting in a minor loss of integrity, but continues to clearly convey design features that demonstrate its significance as a major river crossing and as a distinctive truss bridge subtype.

The Miller's Bluff Bridge was determined eligible for listing in the National Register of Historic Places (National Register) in 2013 under *Criterion A: Transportation* and *Criterion C: Design/Engineering* at the state level of significance.<sup>2</sup>

**Historian:** Dianna Litvak, Senior Cultural Resource Specialist; Mead & Hunt, Inc. (Mead & Hunt); 2017.

**Project Information:** This documentation was prepared as mitigation to fulfill Stipulation IX.5 of the *Programmatic Agreement Among the Federal Highway Administration, the Louisiana Department of*

---

<sup>1</sup> The bridge is also known as Structure No. 04080830300001.

<sup>2</sup> Mead & Hunt, Inc., *National Register Eligibility Determination Report: Pre-1971 Louisiana Highway Bridges* (prepared for the Louisiana Department of Transportation and Development, September 2013).

*Transportation and Development, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana*, dated August 18, 2015, and executed September 21, 2015. The Louisiana Department of Transportation and Development (LADOTD) retained Mead & Hunt to prepare this document. It was prepared by senior cultural resource specialist Dianna Litvak of Mead & Hunt. Dietrich Floeter completed the photography.

## Part I. Historical Information

### A. Physical History:

1. **Date(s) of construction:** 1952-1955.

2. **Engineer:** Louis Duclos, Louisiana Department of Highways.

3. **Builder/Contractor/Supplier:** Substructure: Massman Construction Company and Kansas City Bridge Company, both of Kansas City, Missouri (contractor).<sup>3</sup>

Superstructure: Allied Structural Steel Companies, Chicago, Illinois (contractor).<sup>4</sup>

4. **Original plans and construction:** Photocopies of the original plan sheets for the bank protection, substructure, and superstructure elements of the bridge are available in the General Files room at the Louisiana Department of Transportation and Development, Baton Rouge headquarters. The bridge's main truss spans were built according to the LDH's Standard Plan SHT-35-15 for 360' High Steel Fixed Truss Span With 24' Roadway, designed in 1946 and revised by LDH engineer Louis Duclos in 1950.<sup>5</sup> The LDH project engineers for the superstructure were W.M. Byles and C.C. Lee, and the project engineer for the substructure was Philip P. Angier. The superstructure plans and substructure plans were approved by John Carter, Bridge Design Engineer, and Norman Lant, Chief Engineer, on September 22, 1950.

Bank protection and stabilization of the soils for the bridge site occurred from 1950 to 1953. The substructure was completed in 1952. The superstructure was completed in 1955, and the bridge

---

<sup>3</sup> Louisiana Department of Highways, "Substructure, State Project No. 83-03-05, F.A. Project No. S-147(1), Red River Bridge at Miller's Bluff, Plain-Dealing Hosston Highway, State Route No. 109, Caddo & Bossier Parishes," September 1950, Final Estimate, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

<sup>4</sup> Louisiana Department of Highways, "Superstructure, Red River Bridge at Miller's Bluff, Caddo & Bossier Parishes, State Project No. 83-03-07, F.A.P. No. S-147(3)," September 1950, Final Estimate and As-Built Plans, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

<sup>5</sup> Louisiana Department of Highways, "Standard Plan SHT-35-15, 360'-0" High Steel Fixed Truss Span," May 1946, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

officially opened June 20, 1955. A concrete end panel atop the end bent has the date "1952" formed in the concrete surface.

**5. Alterations and additions:** In 1992 and 2013, the bridge was rehabilitated. In 1992, the concrete bridge deck was removed and replaced, and the welded metal guardrails removed and replaced with concrete barriers. Concrete flares at the approach railing ends, shown on the as-built plans, were removed. The bridge was also modified to increase the load requirements of the approach spans. A center beam was inserted between the I-beam stringers of each approach span, and center stringers were added to the floor system of the truss spans. The portals of each truss were also raised and the bottom members replaced to increase the height of the spans to adjust to a new standard height for truck clearances. The structural steel of the trusses was cleaned and painted. Bearing assemblies on the approach spans were retrofitted, replacing the original roller-nest bearings with neoprene pads. The project in 1992 was completed by L&A Contracting Company for \$7.5 million.<sup>6</sup> A 2013 project included rehabilitation of a bent portal member on one truss, minor repair of other steel truss and floor members, and patching of concrete spalls. The 2013 project did not result in notable alterations to the bridge.<sup>7</sup>

## B. Historical Context:

### *Historical background*

The Miller's Bluff Bridge spans the Red River, a tributary of the Atchafalaya River. The river is named for its reddish color, which originates from red-hued Permian sediments in Oklahoma and Texas. In this part of Louisiana, the Red River alluvial plain is a meandering channel with broad ridges and bluffs on either side that averages about 10 miles in width.<sup>8</sup> This alluvial plain includes a long, sandy expanse known locally as Miller's Bluff. Building a bridge across the river was not technically feasible until well into the twentieth century due to the challenges of poor, sandy conditions and the length and strength of the span that would be required.<sup>9</sup>

Permanent settlement in this area began when white settlers established plantations north of Shreveport in the 1840s. Navigation of the Red River was hampered by massive jams of timber, known as rafts, which accumulated on sand bars and could obstruct the channel for miles. The last major raft was effectively removed by dynamite in 1872-1873 and the river flow has been maintained since that time.<sup>10</sup> A north-south railroad line, the Shreveport and Arkansas Railroad, constructed a line through Plain

---

<sup>6</sup> Louisiana Department of Transportation and Development, "Project 083-03-0016," *trns.Port Systems Database*, June 1995, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

<sup>7</sup> Louisiana Department of Transportation and Development, "Bridge Inspection Report, Inspection Review, 1992\_12\_28," FCM\_INSP\_REVIEW\_2013, July 2013, available at the Louisiana Department of Transportation and Development, Baton Rouge, La.

<sup>8</sup> David C. Johnson and Elaine G. Yodis, *Geography of Louisiana* (New York: McGraw-Hill, 1998), 25-26.

<sup>9</sup> Mead & Hunt, Inc. *Historic Context for Louisiana Bridges*, 10.

<sup>10</sup> Johnson and Yodis, *Geography of Louisiana*, 108.

Dealing, Louisiana, east of the future Miller's Bluff Bridge over the Red River, in 1888, and helped to open up the region to settlement.<sup>11</sup> Shortly after the railroad arrived, Plain Dealing established a town charter in 1890.

At the turn of the twentieth century, Louisiana's roads were in poor shape. With the invention and success of the automobile, Louisiana's road network became an increasingly important component of its transportation system. Local residents, merchants, and parishes collectively built roads that were primarily used by farmers bringing their goods to and from market centers. The Good Roads movement began as a coordinated effort of bicyclists and advocates of a Rural Free Delivery mail service, soon joined by growing numbers of automobile owners. In 1910 Louisiana created the State Highway Department and Board of State Engineers to develop a coordinated network of state and parish roads and bridges. The early work concentrated on creating a road system to connect major trade centers and build bridges to span major floodplains and river channels. In the same period, the Good Roads boosters created a network of named auto routes that crisscrossed the country. The Dixie Overland Highway (D-O-H), roughly paralleled by today's U.S. Highway (US) 80, connected communities across the southern part of the U.S. from San Diego, California, to Savannah, Georgia. The D-O-H passed through Shreveport and Monroe in the northern part of Louisiana, bypassing the smaller communities to the north that lacked adequate bridges for river crossings.<sup>12</sup>

In 1921 the newly created Louisiana Highway Commission (LHC, replaced the State Highway Department) was tasked with improving Louisiana's roads but was hampered by inadequate funding until 1928, when increases in the state gas tax and bond issues during the administration of Governor Huey Long provided the revenue for more ambitious bridge projects. With increased funds, the LHC could concentrate on the complex engineering solutions required for major waterways in the state, including the Red River. The 1930-1932 biennial report stated:

The bridging of the Red, Ouachita, Black and Atchafalaya Rivers presents many difficult foundation problems. All of these streams are large rivers having relatively large variations between low water and high water, and in general the river beds consist of materials unsuitable for heavy bridge foundations, thereby necessitating the employment of various types of subaqueous pier design and various methods of construction.<sup>13</sup>

LHC engineers solved the issue of constructing bridge piers on unstable river banks and soils by designing longer depths for pile bents and piers, which could reach as deep as 200 feet in some cases. New Deal programs in the 1930s also bolstered road and bridge projects and put people to work during the Great Depression. These projects included new bridges over the Red River at Shreveport, and a concerted effort to eliminate all ferry crossings in the state. But despite these improvements, the smaller communities in northwestern Louisiana lagged behind the rest of the state in paved roads and improved river crossings. Residents of Plain Dealing in Bossier Parish had to drive 25 miles south to Shreveport or

---

<sup>11</sup> "Clifton D. Cardin, "A Brief History of the City of Bossier City," <http://www.bossiercity.org/Bossier-City-History/>, (accessed July 14, 2016).

<sup>12</sup> Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 11-14,

<sup>13</sup> Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 42-43.

39 miles north to Garland City, Arkansas, for a vehicular crossing of the Red River. The ferry boat at Miller's Bluff provided one of only two crossings of the waterway north of Shreveport, but it was small and unreliable.<sup>14</sup>

#### *Construction of the Miller's Bluff Bridge*

During World War II, road and bridge work focused only on projects essential to the war effort. After the war, the state reorganized the LHC into the LDH and focused on completing the backlog of projects. Louisiana benefitted from increased federal funding for highways and bridges, a growing population, and interest in tourism. Northern Louisiana was starting to attract more people to work in natural resource extraction industries such as logging and oil and gas development.<sup>15</sup> In 1948 residents of communities in northern Bossier and Caddo Parishes convinced their state senators and representatives to introduce a bill in the Louisiana legislature to build a new bridge over the Red River north of Shreveport.<sup>16</sup> After the successful passage of the bill in June of that year, the local residents, led by the Plain Dealing Lions Club, celebrated with a barbecue in Plain Dealing on Labor Day 1948, attended by thousands from all over northwest Louisiana and south Arkansas.<sup>17</sup>

The LDH surveyors determined the best location for the new bridge was south of the Miller's Bluff Ferry, and the agency planned to acquire right-of-way for the crossing. However, as the LDH negotiated with landowners between August 1949 and July 1950, the river banks shifted on both sides of the bridge by as much as 200 feet. Engineers developed plans to grade and contour the banks and add pile dikes for stabilization, a project that was completed in 1951 for approximately \$230,000. Further erosion problems in 1953 required more protection work, which cost an additional \$200,000 to correct.<sup>18</sup>

Between 1951 and 1952 the Massman Construction Company and Kansas City Bridge Company, both of Kansas City, Missouri, completed the substructure for \$1.5 million. All that remained was construction of the truss superstructure. The LDH awarded the contract for construction of the superstructure to the Allied Structural Steel Companies of Chicago for \$1,287,062.37 in June 1952.<sup>19</sup>

Limited supplies of steel were diverted to projects in New Orleans, which meant local residents anxiously had to wait for enough steel to be found to start the Miller's Bluff Bridge. With the construction stalled, the LDH submitted plans to the Bossier Parish Police Jury in June 1953 to move the alignment of the local

---

<sup>14</sup> Clifton D. Cardin, *Bossier Parish* (Arcadia Publishing, 1999), 93.

<sup>15</sup> Johnson and Yodis, *Geography of Louisiana*, 29.

<sup>16</sup> "Senator Boucher for North Bossier Traffic Bridge," *The Bossier Banner*, June 3, 1948, 1a.

<sup>17</sup> "Bridge Will Make Plain Dealing the Cross Roads of North Louisiana," *The Bossier Banner*, June 16, 1955, 4a.

<sup>18</sup> Louisiana Department of Highways, "Bank Protection for Red River Bridge at Miller's Bluff, Plain Dealing-Hosston Highway State Project No. 83-03-08, F.A.P. No. S-147(4), State Route No. 109, Caddo and Bossier parishes," June 1951, Final Estimate and As-Built Plans, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana; "Bridge Will Make Plain Dealing the Cross Roads of North Louisiana," *The Bossier Banner*, June 16, 1955, 4a.

<sup>19</sup> "Contract of Red River Bridge Let," *The New Orleans Time Picayune*, July 22, 1952, 10.

road that connected Plain Dealing and Hosston with the Miller's Bluff Ferry to the south to better connect with other Louisiana communities. Most importantly, the department announced the new bridge and the highway would open at the same time. The road was realigned between Hosston and Plain Dealing and re-numbered LA 2, indicating the importance of the Miller's Bluff Bridge and new highway in improving regional transportation and providing better connections for residents and visitors to these parishes.<sup>20</sup> The Hosston-Plain Dealing highway construction project, with a low bid of more than \$480,000, was awarded to Reynolds & Williams, a Shreveport company. The project built the new 20'-0" wide road between Hosston and Plain Dealing, graded and surfaced the road, installed drainage structures, and built two reinforced-concrete bridges.<sup>21</sup>

By November 1953 the necessary quantities of steel had been allocated and the Allied Structural Steel Company began to construct the superstructure.<sup>22</sup> Photographs in the local parish library document the progress and show a partially constructed superstructure in late August 1954, with workers on the bridge deck pouring the deck and rails into wooden forms.<sup>23</sup> In September 1954 the last steel of the bridge had been placed and workers were completing the concrete deck and guardrails of the final span.<sup>24</sup>

On June 20, 1955, the LDH and local communities celebrated the completion of the bridge with a dedication and planned a second celebration later in the fall for other nearby communities. Eugenia Sentell Kennon, wife of Governor Robert F. Kennon, cut the ribbon on the bridge, which a local journalist called the "end to a long-cherished dream made true."<sup>25</sup> The "Ark-La-Tex" region celebrated the new highway and bridge as an alternative transportation corridor to US 80 through Shreveport. The ceremonies included a free chicken barbecue at a local school for all of the visitors, presided over by George S. Covert, director of the LDH.<sup>26</sup> As one example of the benefits the bridge and new highway brought to the area, the *Bossier Banner-Progress* newspaper added four correspondents in the north Caddo communities of Ida, Belcher, Gilliam, and Hosston who would be able to submit more local stories to the paper due to the quicker travel times between the communities.<sup>27</sup> While many of the grander predications did not come true, such as one local politician who promised "thousands more residents in

---

<sup>20</sup> "Expect Bridge and Highway to be Completed Within the Next Year," *The Bossier Banner*, June 11, 1953," 1d; Hosston, LA USGS Quad Map, 1932; Vivian, LA USGS Quad Map, 1956.

<sup>21</sup> "Bridge Will Make Plain Dealing the Cross Roads of North Louisiana," op. cit.

<sup>22</sup> "Work has Started on the Final Phase of Miller's Bluff Bridge," *The Bossier Banner*, November 12, 1953, 1g.

<sup>23</sup> "Photographs of Superstructure Red River Bridge at Miller's Bluff, 8-26-54," Available at Bossier Parish Library Historical Center, Photo Records. <http://bossier.pastperfectonline.com/photo/3626BA07-32F2-4894-8C7B-338010678417>; and <http://bossier.pastperfectonline.com/photo/D405D25E-BEF1-4A4E-9E05-362852472252> (accessed October 4, 2016).

<sup>24</sup> "Last Steel on Miller's Bluff Span over Red River Has Been Installed," *The Bossier Banner*, September 2, 1954, 1a.

<sup>25</sup> "Governor's Wife, Mrs. Eugenia Sentell Kennon, Cuts Ribbon," *The Bossier Banner*, June 23, 1955, 1g.

<sup>26</sup> Ibid.

<sup>27</sup> No author, "History: Press that printed Bossier's first newspaper," *BPT Online*, February 4, 2015 <http://bossierpress.com/history-press-that-printed%E2%80%88bossiers-first-newspaper/> (accessed July 15, 2016).

Plain Dealing and Hosston,” the new bridge and highway did provide an important river crossing for local residents and visitors.

### *Engineering background*

The Miller’s Bluff Bridge is a distinctive example of a Warren-with-verticals through truss, with a polygonal top chord. Truss bridges became common in the U.S. in the mid-nineteenth century and were used in Louisiana as fixed-span bridges beginning in the twentieth century. In design, a truss bridge features parallel trusses that use built-up diagonal and vertical members to support deck loads. Steel bridge members are joined with plates and fasteners: pins, rivets, or bolts in early examples and welding in later examples. There are three basic arrangements of trusses—pony, through (or overhead), and deck—and a wide variety of types categorized according to the configuration of the truss members. The choice of truss arrangement (pony, deck, or through) depended on the span length and/or vertical clearance needed below or above the bridge.<sup>28</sup>

The Warren truss was one of the most popular truss designs nationally and in Louisiana. First developed in 1848, the Warren truss design eliminated the vertical members found in most other truss forms by using diagonal members to withstand both tensile and compressive forces. A variation of the design includes the use of vertical members, primarily serving as bracing units rather than load-bearing system, referred to as a “Warren with verticals.” The span of the Warren and Warren-with-verticals configuration generally ranged from 50'-0" to 400'-0".<sup>29</sup> Another variation in Warren design includes the use of polygonal top chords that reduce the amount of steel and makes the construction of this variation more economical.<sup>30</sup> The use of polygonal top chords also allowed for greater span lengths.<sup>31</sup> The Miller’s Bluff Bridge utilizes a Warren through truss design based on an LDH standard plan with both the verticals, as bracing members, and polygonal top chord variations.

The Warren truss became the most common truss form for bridges beginning in the 1920s, when it supplanted the Pratt truss as the standard American truss. The Warren had the advantage of being more economical in materials and was considered “more refined” than the Pratt truss. The bridge was popular among state highway departments in the 1920s and railroads in the 1930s. This was also true in Louisiana, where the LDH developed at least 16 standard Warren truss plans between 1920 and 1937.<sup>32</sup> The LDH developed Standard Plan SHT-35-15 for a steel Warren through fixed truss span in May 1946 and engineer Louis Duclos revised them for use on the Miller’s Bluff Bridge in 1950. The standard plan featured twelve 30'-0" wide by 360'-0" long twin rigid-connected panels, with a 24'-0" wide roadway, and

---

<sup>28</sup> Mead & Hunt, *Historic Context for Louisiana Bridges*, 66-67.

<sup>29</sup> Mead & Hunt, *Historic Context for Louisiana’s Bridges*, 69.

<sup>30</sup> Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 66-67, 69-70.

<sup>31</sup> National Register of Historic Places, Historic Road Infrastructure of Texas, 1866-1965, Multiple Property Submission, National Register #6451240, E-13.

<sup>32</sup> Mead & Hunt, *Historic Context for Louisiana’s Bridges*, 70.

two 1'-6" wide walkways. The trusses were designed for a 30'-0" vertical clearance at the portals, which increased to 50'-0" in the middle of the span.<sup>33</sup>

The Miller's Bluff Bridge was designed by LDH civil engineer Louis Duclos. Duclos was an influential LDH engineer in the mid-twentieth century that pioneered the department's use of new technologies. Duclos, a graduate of Tulane University with licenses in electrical, mechanical, and civil engineering, was particularly interested in the technology of movable bridges. Of note, Duclos pioneered the design for hydraulic operation of movable bridges. He also was an early user of high-strength fasteners and promoted the use of high-strength steel in bridge design. According to his Louisiana Highway Hall of Honors induction biography, Duclos was "an engineer's engineer" and was pivotal in improving the science of soil mechanics, thereby reducing costs of bridge foundations for the LDH. Duclos worked at the LDH from 1947 to 1964 before assuming a position with Barnard & Burk Engineers, Inc. He died in 1992.<sup>34</sup>

## Part II. Structural/Design Information

### A. General Statement:

**1. Character:** The Miller's Bluff Bridge is a steel through truss with five Warren through truss spans with vertical members and polygonal top chords. The approach spans are steel I-beam stringers/multi-beam girders. The bridge is a distinctive example of the truss subtype.

**2. Condition of fabric:** Good.

**B. Description:** The Miller's Bluff Bridge crosses the Red River in an east-west direction but is slightly angled to the northwest/southeast. The Red River flows in a north-south direction at the bridge's location. The bridge also spans an access road for the North Caddo Recreation Area, which consists of a small parking area on the southwest quadrant of the bridge for fishing access and a boat ramp.

The total length of the bridge, including five steel through trusses and 17 steel I-beam approach spans, is 3,100'-3". The five main spans are each 360'-0" long with a 5'-2-1/4" joint between each span. The steel-beam approach spans closest to the trusses are each 75'-11-1/4" long, with a 7-1/4" joint between each approach span and the main span next to it. The 15 remaining steel-beam approach spans are each 75'-0" long, with a 1'-0-1/2" joint between the end approach spans and the slabs on either end of the bridge. The bridge is designed on a vertical curve to achieve a 50'-0" clearance between the extreme high water elevation of the Red River and the lowest steel member on the center main span. Because of the height

---

<sup>33</sup> Louisiana Department of Highways, "Standard Plan SHT-35-15, 360'-0" High Steel Fixed Truss Span," May 1946, available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

<sup>34</sup> Mead & Hunt, Inc. *Historic Context for Louisiana Bridges: Louisiana Statewide Historic Bridge Inventory*, prepared for the Louisiana Department of Transportation and Development, December 2013, Section 3, page 101;

of the center spans, the approach spans and outside truss spans are built on a five-percent grade. While not significant in the structural design of the bridge, the vertical curve of the approach spans, particularly on the east end, presents a striking visual appearance as the roadway elevation rises above the surrounding flat terrain.

#### *Main spans*

The main spans are five, identical, 360'-0" long, riveted, Warren through trusses with verticals and polygonal top chords. The design is based on a standard plan for Warren through trusses. Each top chord is comprised of back-to-back channels with cover plates on top and bottom. The bottom plates are perforated with oval openings at 3'-6" intervals. Each bottom chord is a built-up box member with full-length plates on each side and batten plates on top and bottom, all riveted together with angles. The truss diagonals and alternate verticals are made up of facing channels with oval-perforated plates, front and back. The other alternate verticals are comprised of paired back-to-back angles riveted with a single plate to form an I-section. The portals are comprised of both built-up and rolled I-section members. Upper diagonal and sway bracing is comprised of angles and batten plates with new lateral struts at the bottom of the sway bracing. All connections are joined with riveted gusset plates. The floor system is comprised of rolled transverse floor beams, four original lines of rolled stringers, and a fifth line of rolled stringers added on the centerline of each span. Fascia channels are located on the outside of the floor system. Diagonal bracing consists of back-to-back angles. The concrete deck is poured on top of the stringers. Original roller-nest expansion bearings have been replaced by neoprene pads.

#### *Approach spans*

The bridge has seventeen 75'-0" long steel-beam approach spans, six on the west end and 11 on the east end. Each span has four original 36"-deep rolled beams and a fifth beam added on the span center line. Steel diaphragms are located between all beams. The cast-in-place concrete deck extends in a short cantilever beyond the fascia beams and carries the jersey-style concrete barrier railings. The roadway width between the barriers is 26'-2", while the deck width (edge to edge) is 28'-11", accommodating one lane in each direction and no shoulders or sidewalks.<sup>35</sup> At each end of the bridge a 20'-0" long concrete approach slab transitions from the end span to the adjacent roadway.

#### *Substructure*

The substructure for the truss main spans consists of six rectangular-section concrete piers, each constructed on a concrete-filled steel caisson of equal size and depth. Atop each caisson is a 60'-0" high pier shaft with three vertical voids. Atop the shaft is a concrete collar with a single round void. Above the collar is a second pier shaft, which has a rectangular void. The second shaft extends to the necessary height to support span bearings on a pier cap. The elevation of span ends and bearings depends on their point in the vertical curve of the main spans. Pier 3 (numbered from east to west) includes a platform for a gauge station, with an internal access to the pier cap.

---

<sup>35</sup> "Uglybridges.com National Bridge Inventory Data, LA0002 over Red River-Miller's Bluff", [www.uglybridges.com/1224263](http://www.uglybridges.com/1224263) (accessed October 24, 2016); information taken from Federal Highway Administration, National Bridge Inventory ASCII Files, 2015 Data, Louisiana [www.fhwa.dot.gov/bridge/nbi/2015/LA15.txt](http://www.fhwa.dot.gov/bridge/nbi/2015/LA15.txt) (accessed October 24, 2016).

The substructure for the approach spans consists of steel pile bents of varying heights, with concrete caps. Because the original bearings have been replaced, the caps now have raised concrete pedestals to support the shorter neoprene bearings beneath each beam. The caps on the two end bents are extended outward perpendicular to the bents to support short concrete end walls; the southwest wall has the date "1952" formed in the surface.

The bridge underwent rehabilitation/repair projects in 1992 and 2013. In 1992 the historic fabric removed included the original concrete deck, metal guardrails, and bearing assemblies on all spans that were replaced with updated bearings with neoprene pads. The remaining fabric, including the steel trusses, concrete caissons, shafts, steel pile bents, is original. The approach spans and floor system of the trusses were altered in 1992 with the addition of line beams on the centerline of the bridge. The 2013 project included rehabilitation of a bent portal member on one truss, minor repair of other steel truss and floor members, and patching of concrete spalls. The 2013 project did not result in notable alterations to the bridge.<sup>36</sup>

**C. Site Information:** The Miller's Bluff Bridge is located in the Red River's alluvial plain in the far northwestern corner of the state, approximately 9 miles south of the Arkansas boundary line and 13 miles east of Texas. At this location, the Red River forms the boundary between Caddo Parish on the west and Bossier Parish on the east. The Miller's Bluff Bridge is 3 miles east of the small village of Hosston in Caddo Parish and approximately 20 miles west of Plain Dealing in Bossier Parish. Shreveport and Bossier City are approximately 22 miles to the south of the bridge, accessible from Interstate Highway 49 or LA 3. The North Caddo Recreation Area at the site consists of a small parking area is located on the southwest quadrant of the bridge for fishing access. The bridge is located in a rural, undeveloped area. It carries two lanes of vehicular traffic, one in each direction.

### Part III. Sources of Information

#### A. Primary Sources:

*Bridge Inspection Report*. Recall No. 012548. July 2013. Available in Bridge Maintenance and Inspection Division, Louisiana Department of Transportation and Development, Baton Rouge, La.

"Bridge Will Make Plain Dealing the Cross Roads of North Louisiana." *The Bossier Banner*, June 16, 1955.

"Contract of Red River Bridge Let." *The New Orleans Time Picayune*, July 22, 1952

---

<sup>36</sup> *Bridge Inspection Report*, Recall No. 012548, July 2013, available at the Louisiana Department of Transportation and Development, Baton Rouge, La.

"Expect Bridge and Highway to be Completed Within the Next Year." *The Bossier Banner*, June 11, 1953.

"Governor's Wife, Mrs. Eugenia Sentell Kennon, Cuts Ribbon." *The Bossier Banner*, June 23, 1955.

"History: Press that Printed Bossier's First Newspaper." *BPT Online*, February 4, 2015.  
<http://bossierpress.com/history-press-that-printed%E2%80%88bossiers-first-newspaper/>  
(accessed July 15, 2016).

"Last Steel on Miller's Bluff Span over Red River Has Been Installed." *The Bossier Banner*, September 2, 1954.

Louisiana Department of Highways. "Bank Protection for Red River Bridge at Miller's Bluff, Plain Dealing-Hosston Highway, State Route 109, State Project No. 83-03-08, F.A.P. No. S-147(4), Caddo-Bossier Parishes." 1951. Final estimate and as-built plans. Available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

Louisiana Department of Highways. "Standard Plan SHT-35-15, 360'-0" High Steel Fixed Truss Span." 1946. Available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

Louisiana Department of Highways. "Substructure, State Project No. 83-03-05, F.A. Project No. S-147(1), Red River Bridge at Miller's Bluff, Plain-Dealing Hosston Highway, State Route No. 109, Caddo & Bossier Parishes." 1950. Final estimate. Available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

Louisiana Department of Highways. "Superstructure, State Project No. 83-03-07, F.A.P. No. S-147(3), Red River Bridge at Miller's Bluff, Caddo & Bossier Parishes." 1950. Final estimate and as-built plans. Available at the Louisiana Department of Transportation and Development, Baton Rouge, Louisiana.

Louisiana Department of Transportation and Development. "Project 083-03-0016." *trns.Port Systems Database*. June 1995.

"Senator Boucher for North Bossier Traffic Bridge." *The Bossier Banner*, June 3, 1948.

"Work has Started on the Final Phase of Miller's Bluff Bridge." *The Bossier Banner*, November 12, 1953.

## **B. Secondary Sources:**

Cardin, Clifton D. *Bossier Parish*. N.p.: Arcadia Publishing, 1999.

Johnson, David C. and Elaine G. Yodis. *Geography of Louisiana*. New York: McGraw-Hill, 1998.

Mead & Hunt, Inc. *Crossing the Bayou: Louisiana's Historic Bridges*. Prepared for the Louisiana Department of Transportation and Development, 2015.

Mead & Hunt, Inc. *Historic Context for Louisiana Bridges*. Prepared for the Louisiana Department of Transportation and Development, December 2013.

Mead & Hunt, Inc. *National Register Eligibility Determination Report: Pre-1971 Louisiana Highway Bridges*. Prepared for the Louisiana Department of Transportation and Development, September 2013.

National Register of Historic Places. Historic Road Infrastructure of Texas, 1866-1965, Multiple Property Submission. National Register #6451240.

# HISTORIC AMERICAN ENGINEERING RECORD

## INDEX TO PHOTOGRAPHS

### **MILLER'S BLUFF BRIDGE**

**HAER No. LA-41**

(Bridge Recall No. 012548)

Carries Louisiana Highway 2 (LA 2) over Red River/Miller's Bluff between Plain Dealing (Bossier Parish) and Hosston (Caddo Parish)

Plain Dealing vicinity

Bossier Parish

Louisiana

## INDEX TO BLACK AND WHITE PHOTOGRAPHS

Dietrich G. Floeter, photographer, February and March 2016

Scale Device 8 Feet Long

- |          |  |
|----------|--|
| LA-41-1  | East elevation, from southeast                       |
| LA-41-2  | South elevation, from south                          |
| LA-41-3  | West approach, from west                             |
| LA-41-4  | East approach, from east                             |
| LA-41-5  | South elevation with 8-foot scale device, from south |
| LA-41-6  | Elevation view of western three spans, from south    |
| LA-41-7  | Elevation view of all spans, from south              |
| LA-41-8  | Setting view of bridge from east                     |
| LA-41-9  | Detail view of west approach, from southwest         |
| LA-41-10 | Detail of view to south from bridge, from northwest  |
| LA-41-11 | Detail of view to north from bridge, from southwest  |
| LA-41-12 | Detail view of west abutment, from southeast         |
| LA-41-13 | Detail view of east abutment, from southwest         |
| LA-41-14 | Detail view approach piers, from southwest           |

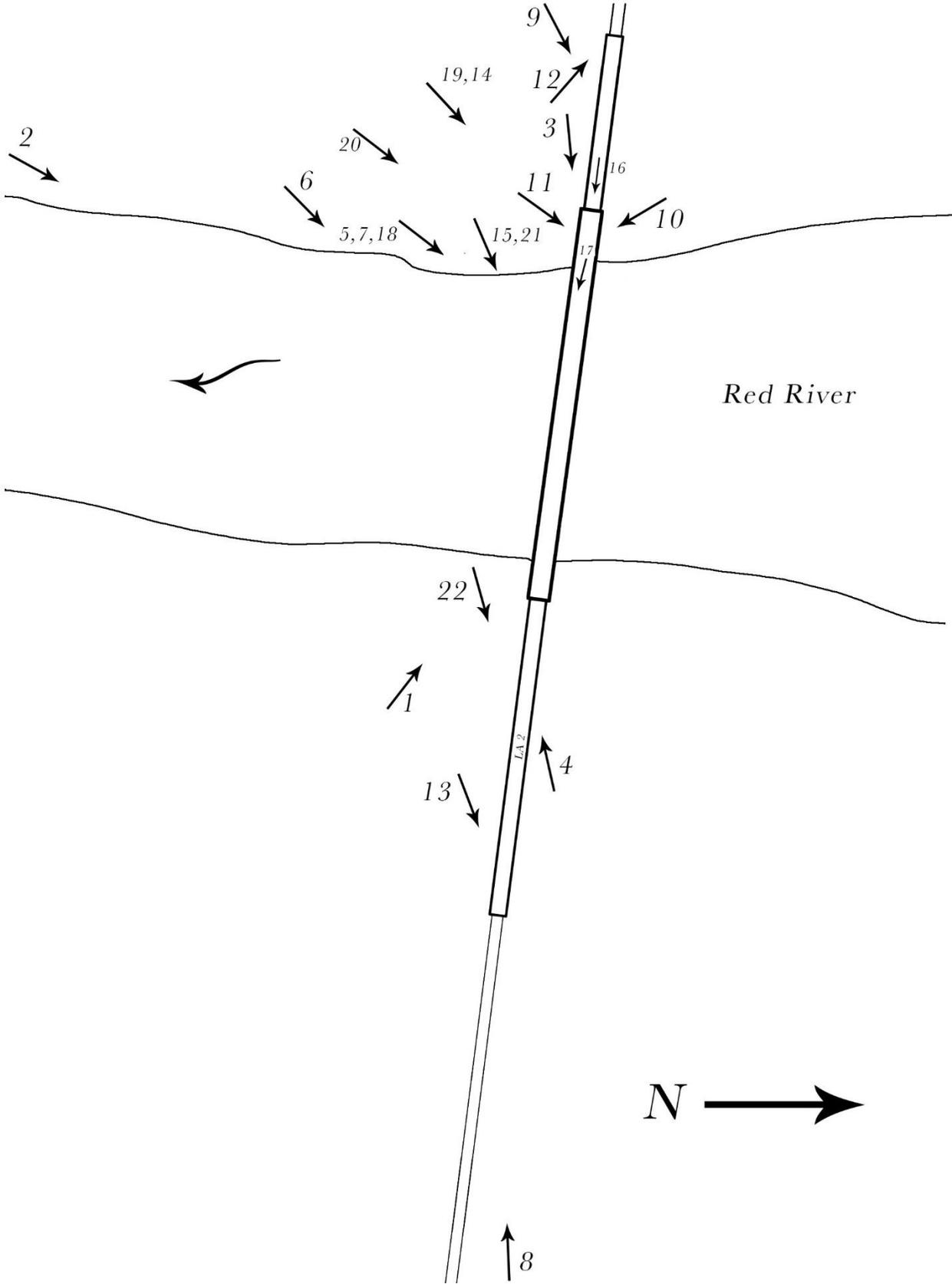
MILLER'S BLUFF BRIDGE  
HAER No. LA-41  
INDEX TO PHOTOGRAPHS

- LA-41-15      Detail view of truss underside and piers, from southwest
- LA-41-16      Detail view of west end of truss, from west
- LA-41-17      Detail view of bridge deck and concrete barrier railing, from west
- LA-41-18      Detail view of truss members and underside, from south
- LA-41-19      Detail view of end post, lower chord and pier connections, from southwest
- LA-41-20      General view of all spans, from south
- LA-41-21      Detail view of piers, from southwest
- LA-41-22      Detail view of eastern approach piers, from southwest

MILLER'S BLUFF BRIDGE

HAER No. LA-41

INDEX TO PHOTOGRAPHS



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-1



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-2



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-3



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-4



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-5



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-6



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-7



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-8



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-9



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-10



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-11



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-12



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-13



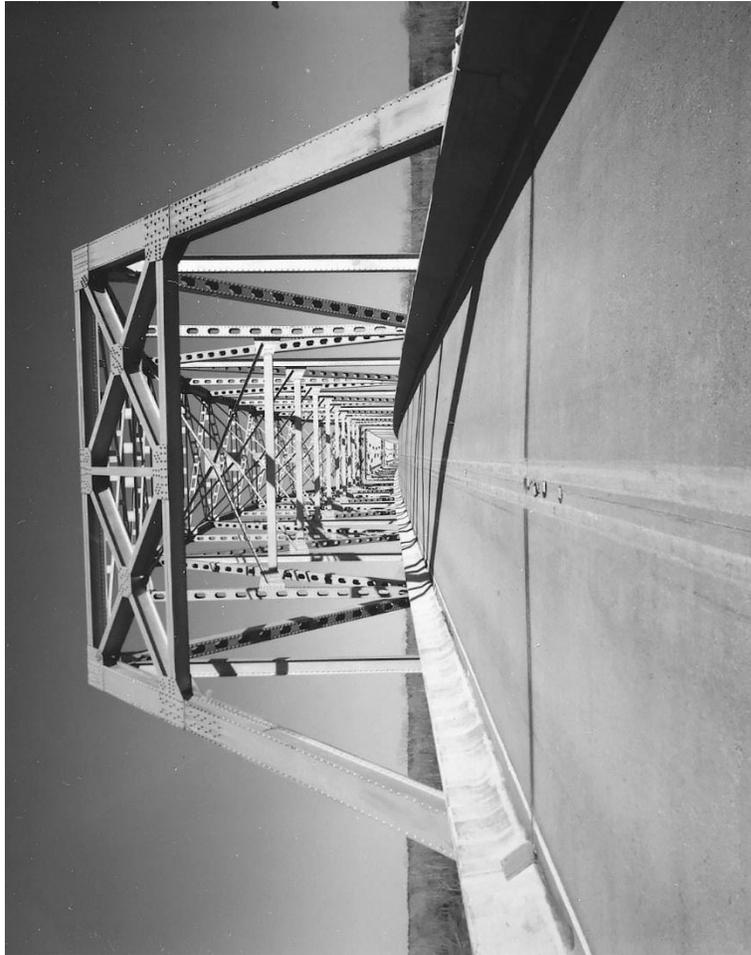
HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-14



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-15



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-16



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-17



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-18



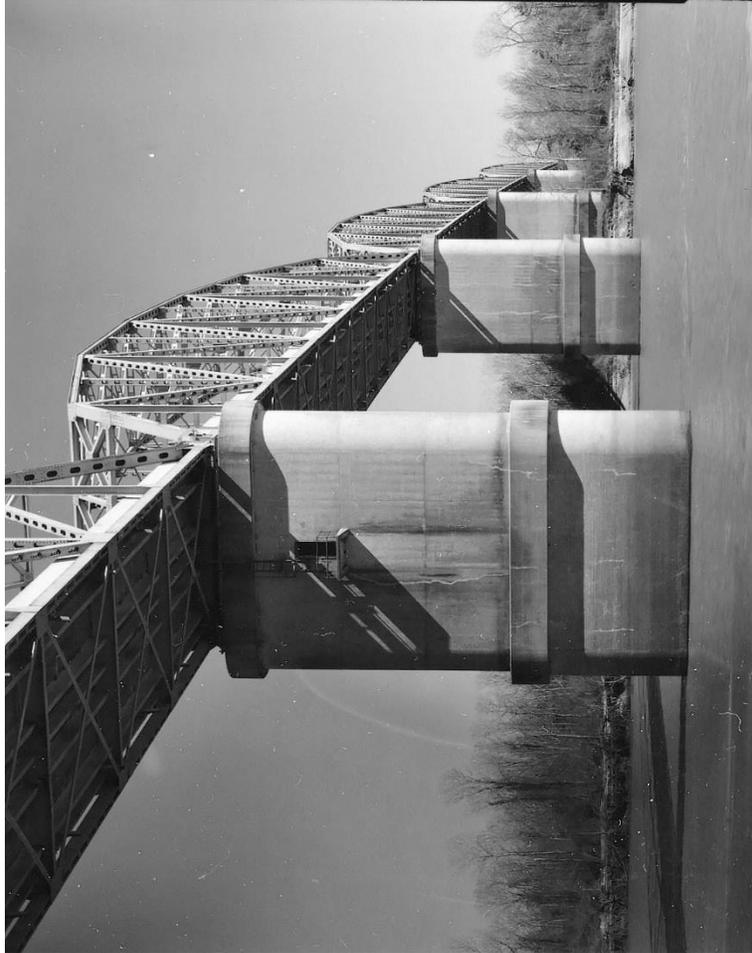
HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-19



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-20



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-21



HISTORIC AMERICAN ENGINEERING RECORD  
See Index to Photographs for Caption  
HAER NO. LA-41-22



STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS  
PLANS OF PROPOSED  
STATE HIGHWAY

RED RIVER BRIDGE  
AT  
MILLER'S BLUFF  
PLAIN DEALING-HOUSTON HIGHWAY  
STATE ROUTE NO 103  
CADDO & BOSSIER PARISHES  
STATE PROJECT NO 83-03-05  
S-147(1)  
SUBSTRUCTURE

3	STATE PROJECT	PARISH	SHEET NO.
147(1)	83-03-05	Caddo & Bossier	1 of 35

AS BUILT PLAN

THE ENGINEER HAS BEEN ADVISED THAT THIS PLAN RELATES TO THE PROJECT TO WHICH THIS PLAN REFERS AND THE WIDTH SHOWN IN EACH PLACE ON THIS PLAN SO THAT THE SAID WIDTH SHALL BE IN ALL PLACES AS SHOWN ON THIS PLAN.  
Baton Rouge, La., Sept. 8, 1960.  
W. M. ...  
Chief Engineer

I hereby fix the width of the Right of Way of the Highway to which this plan relates within the project to which this plan refers as the width shown in each place on this plan so that the said width shall be in all places as shown on this plan.  
Baton Rouge, La., Sept. 8, 1960.  
W. M. ...  
Chief Engineer

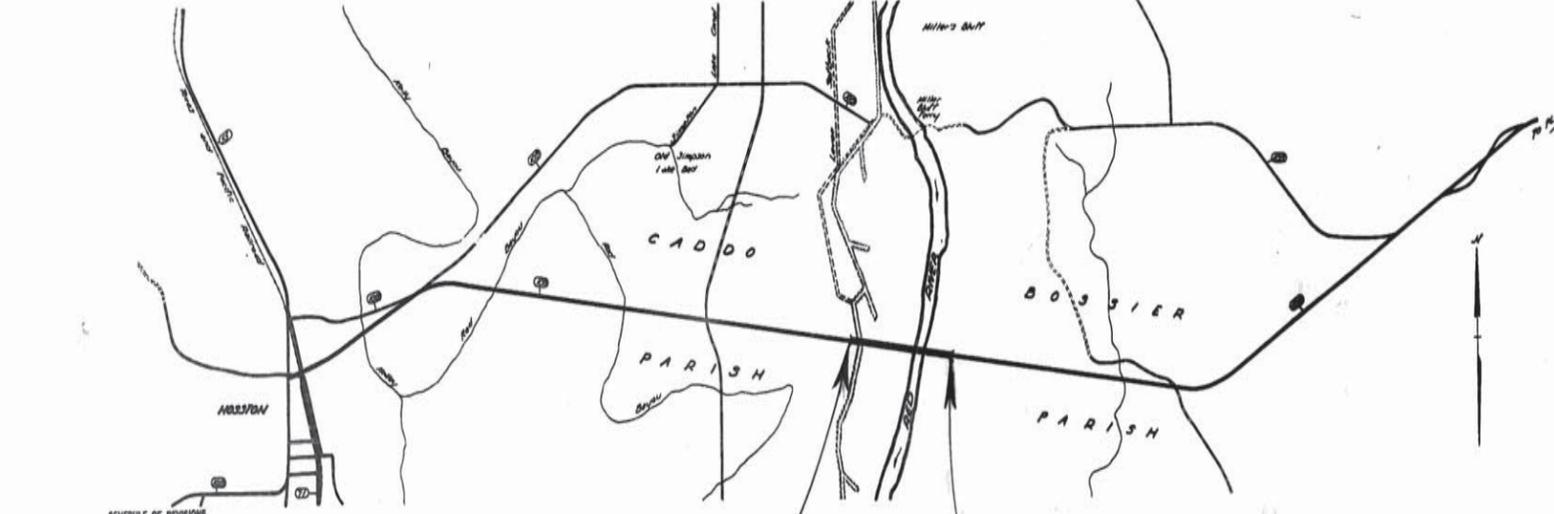
INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS OF ROADWAY
3	PLAN AND PROFILE
4	GENERAL PLAN
5	BRIDGE BEARINGS
6	DETAILS BEAMS 1 AND 10
7	DETAILS BEAM 2 AND 11
8-9	CORROD - AREA 1 AND 2 INCLUSIVE
10	SHAFTS - AREA 1 AND 2
11	SHAFTS - AREA 2 AND 3
12	SHAFTS - AREA 3 AND 4
13	MISCELLANEOUS DETAILS
14-19	CROSS SECTIONS (6 SHEETS)
20	PROJECT ENGINEER'S OFFICE
21	SUMMARY SHEET
22	ALPHABET
23	YEAR PLATE
24	PROJECT SHEET

See "Index of General Information" Sheet No. 2 for Index to Sheets.

LAYOUT MAP ONLY

DATE	BY	FOR
11/1/59	J. M. ...	...



SCHEDULE OF REVISIONS

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED
11/1/59	...	11/1/59	...	11/1/59	...

BEG. STATE PROJ. 83-03-05  
BEG. P.A.R. S-147(1)  
BEG. BRIDGE  
STA 236 + 13.66

END STATE PROJ. 83-03-05  
END P.A.R. S-147(1)  
END BRIDGE  
STA 327 + 20.13

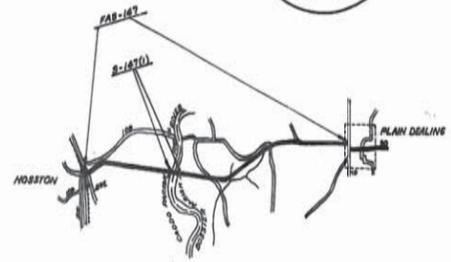
DATUM USED:  
MAG. VAR.:  
BEARINGS ARE:  
TRANSIT BOOKS:  
LEVEL BOOKS:  
PLAN:  
SCALES:  
PROFILE: HOR.  
VERT.

LENGTH OF PROJECT

DESCRIPTION	ALGEBRAIC SUM OF ALL EQUATIONS	GROSS LENGTH	EXCEPTION	BRIDGE LENGTH		ROADWAY LENGTH	
				FEET	MILES	FEET	MILES
236 + 13.66 - 327 + 20.13				3100.25	0.581		
TOTAL LENGTH OF BRIDGES				3100.25	0.581		
TOTAL LENGTH OF ROADWAY							
TOTAL MILES					0.581		

TYPE OF CONSTRUCTION:  
BRIDGE BEAMS AND PIERS

DELIVERY POINTS:  
PLAIN DEALING - ST. LOUIS & S.W. RR.  
HOUSTON - T. C. R. RR.  
ALSO BY BARGE



LAYOUT MAP  
SCALE: 1 INCH = 1780 FEET

RECOMMENDED FOR APPROVAL  
TRAFFIC & PLANNING ENGINEER

RECOMMENDED FOR APPROVAL  
ROAD DESIGN ENGINEER

RECOMMENDED FOR APPROVAL  
J. M. ... 9/24/60  
BRIDGE DESIGN ENGINEER

APPROVED  
W. M. ... 9/24/60  
CHIEF ENGINEER

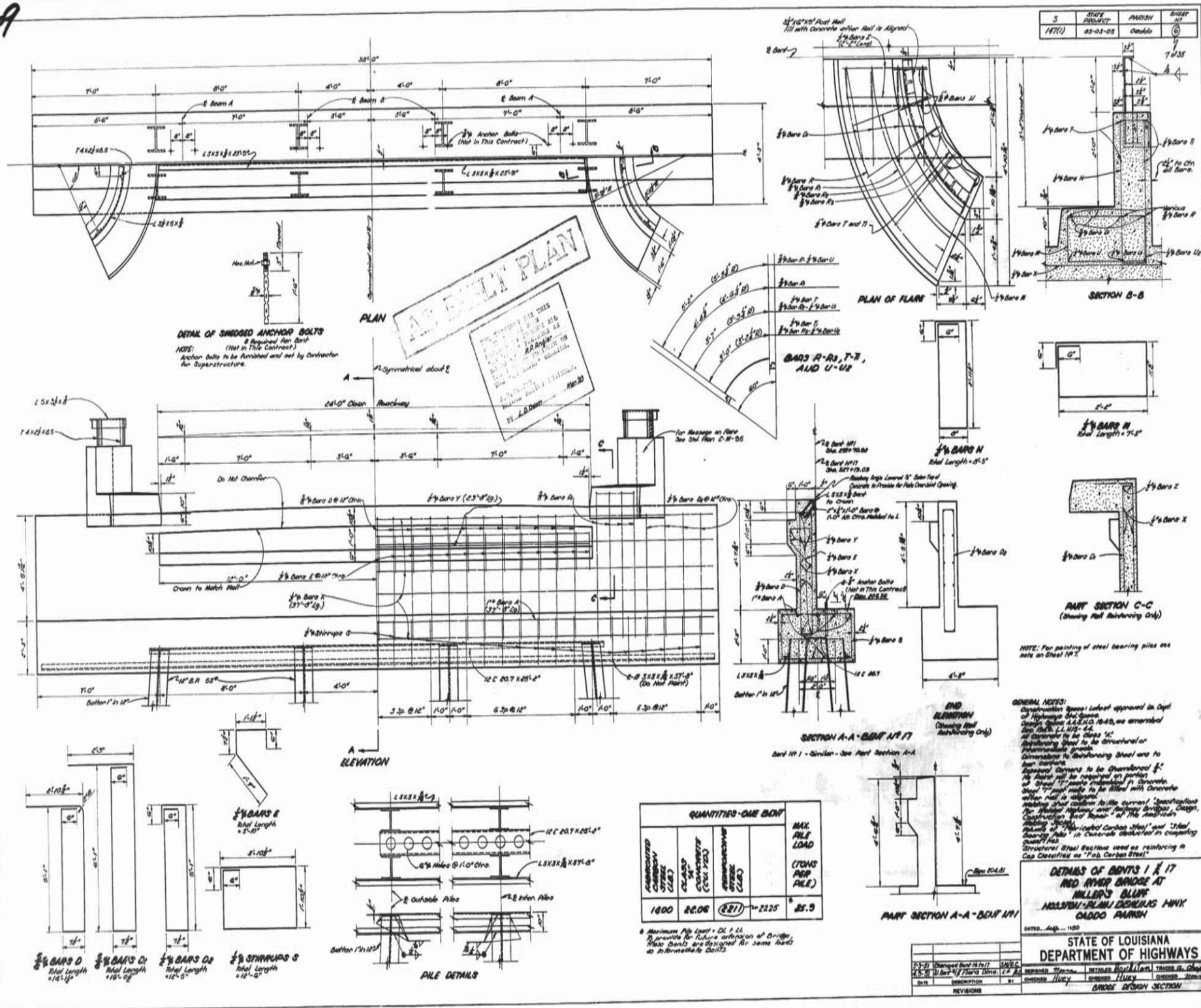
RECOMMENDED FOR APPROVAL  
DATE

RECOMMENDED FOR APPROVAL  
DATE



AS BUILT PLANS

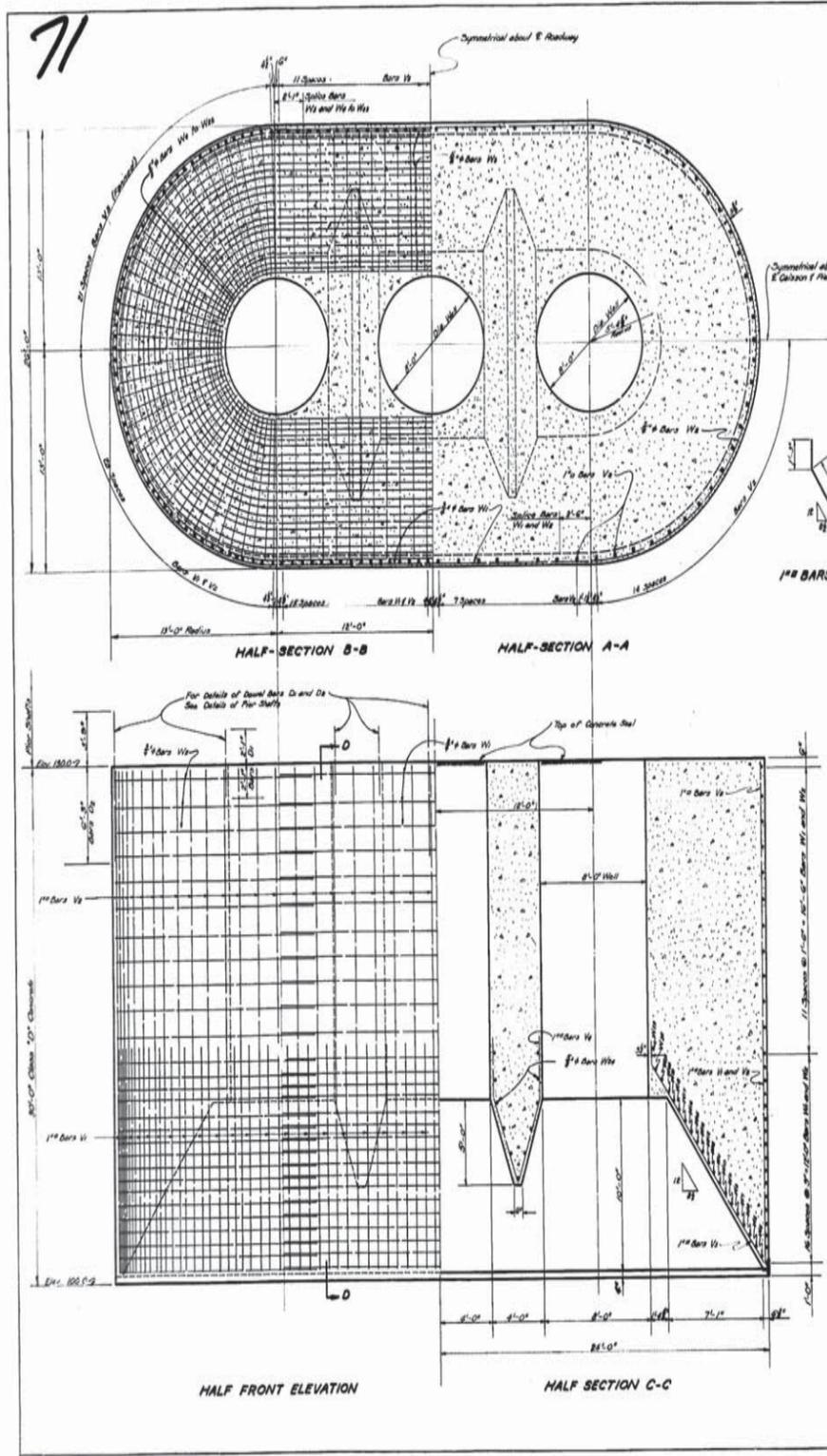
69



AS BUILT PLANS

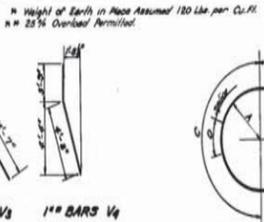






**UNIT PRESSURE ON SOIL AT ELEV. 100.0  
CUTTING EDGE AT ELEV. 100.0 WATER AT ELEV. 100.0**

ITEM	TYPE OF LOAD	MAX. PRESSURE - TONS PER SQ. FT.					
		PIER NO. 1	PIER NO. 2	PIER NO. 3	PIER NO. 4	PIER NO. 5	PIER NO. 6
1	Superstructure Dead Load	0.42	0.78	0.72	0.72	0.72	0.48
2	Pier Dead Load	4.38	4.80	4.72	4.77	4.60	4.38
3	Water in Well	0.18	0.18	0.18	0.18	0.18	0.18
4	Earth above Elev. 100.0	1.40	1.88	0.51	1.28	1.70	1.87
5	Live Load	0.11	0.17	0.17	0.17	0.17	0.11
6	Pressure Earth and Water Load at Elev. 100.0	0.00	0.16	0.10	0.48	0.78	0.48
7	Total Dead Load - Items 1, 2, 3, 4	7.38	7.62	6.28	6.88	7.18	6.60
8	Total Dead Load - plus live loads - Items 1-7	7.49	7.79	6.45	7.05	7.35	6.71
9	Net Excess Load - Items 8-6	1.44	2.41	1.18	3.47	3.54	2.08
10	80 lbs. per sq. ft. Longitudinal Wind	0.03	0.78	0.82	-	0.87	0.88
11	80 lbs. per sq. ft. Transverse Wind	-	-	-	3.47	-	-
12	Total D.L. 180 lbs. per sq. ft. Longitudinal Wind Items 7, 10	10.36	11.8	10.60	-	11.02	9.85
13	Total D.L. 180 lbs. per sq. ft. Transverse Wind Items 7, 11	-	-	-	10.32	-	-
14	Net Excess Load - Items 12-6	0.36	0.07	0.40	-	0.84	0.16
15	Net Excess Load - Items 13-6	-	-	-	0.83	-	-



**REINFORCEMENT - BARS BY PIE TO PIER**

Bar	A	B	C	D
W1	2'-0"	2'-0"	2'-0"	2'-0"
W2	2'-0"	2'-0"	2'-0"	2'-0"
W3	2'-0"	2'-0"	2'-0"	2'-0"
W4	2'-0"	2'-0"	2'-0"	2'-0"
W5	2'-0"	2'-0"	2'-0"	2'-0"
W6	2'-0"	2'-0"	2'-0"	2'-0"
W7	2'-0"	2'-0"	2'-0"	2'-0"
W8	2'-0"	2'-0"	2'-0"	2'-0"
W9	2'-0"	2'-0"	2'-0"	2'-0"
W10	2'-0"	2'-0"	2'-0"	2'-0"
W11	2'-0"	2'-0"	2'-0"	2'-0"
W12	2'-0"	2'-0"	2'-0"	2'-0"
W13	2'-0"	2'-0"	2'-0"	2'-0"
W14	2'-0"	2'-0"	2'-0"	2'-0"
W15	2'-0"	2'-0"	2'-0"	2'-0"
W16	2'-0"	2'-0"	2'-0"	2'-0"
W17	2'-0"	2'-0"	2'-0"	2'-0"
W18	2'-0"	2'-0"	2'-0"	2'-0"
W19	2'-0"	2'-0"	2'-0"	2'-0"
W20	2'-0"	2'-0"	2'-0"	2'-0"
W21	2'-0"	2'-0"	2'-0"	2'-0"
W22	2'-0"	2'-0"	2'-0"	2'-0"
W23	2'-0"	2'-0"	2'-0"	2'-0"
W24	2'-0"	2'-0"	2'-0"	2'-0"
W25	2'-0"	2'-0"	2'-0"	2'-0"
W26	2'-0"	2'-0"	2'-0"	2'-0"
W27	2'-0"	2'-0"	2'-0"	2'-0"
W28	2'-0"	2'-0"	2'-0"	2'-0"

3	STATE PROJECT	PARISH	SHEET NO.
171(1)	83-08-05	Cadeville and Bayou	8

**BILL OF MATERIAL - ONE CAISSON**

BAR NO.	SIZE	UNIT LENGTH	TOTAL LENGTH	LOCATION
W1	40	24'-0"	240'-0"	Lower Inside of Wall
W2	2	48'-7"	97'-4"	" " " "
W3	2	44'-8"	89'-6"	" " " "
W4	2	41'-8"	83'-6"	" " " "
W5	2	41'-8"	83'-6"	" " " "
W6	2	40'-0"	80'-0"	" " " "
W7	2	38'-8"	77'-4"	" " " "
W8	2	37'-8"	75'-4"	" " " "
W9	2	36'-11"	73'-10"	" " " "
W10	2	34'-0"	68'-0"	" " " "
W11	2	33'-2"	66'-4"	" " " "
W12	2	31'-0"	62'-0"	" " " "
W13	2	30'-8"	61'-6"	" " " "
W14	2	28'-11"	57'-8"	" " " "
W15	2	27'-8"	55'-4"	" " " "
W16	2	26'-5"	52'-10"	" " " "
W17	2	25'-11"	51'-8"	" " " "
W18	2	23'-8"	47'-4"	" " " "
W19	2	22'-3"	44'-6"	" " " "
W20	2	20'-11"	41'-8"	" " " "
W21	2	18'-11"	37'-8"	" " " "
W22	28	28'-6"	58'-0"	Struts
<b>TOTAL 3/4" BARS = 222'-6" = 2266 Pounds</b>				
W1	25	24'-0"	600'-0"	Outside of Wall
W1	25	47'-8"	1195'-0"	" " " "
<b>TOTAL 1/2" BARS = 400'-0" = 400 Pounds</b>				
V1	28	14'-11"	418'-8"	Lower Outside of Wall
V2	28	29'-8"	834'-0"	Outside of Wall
V3	28	15'-10"	426'-0"	Lower Inside of Wall
V4	36	8'-0"	288'-0"	Struts
<b>TOTAL 1" BARS = 622'-8" = 6176 Pounds</b>				
<b>TOTAL REINFORCING STEEL = 30121 Pounds</b>				
<b>FABRICATED CARBON STEEL = 6260 Pounds</b>				
<b>CLASS "D" CONCRETE = 128285 Cu. Yds.</b>				
OPEN DREDGING	Pier No. 1	88' Penetration	2760 Cu. Yds.	
	Pier No. 2	85'	2267 "	
	Pier No. 3	10'	427 "	
	Pier No. 4	56'	1118 "	
	Pier No. 5	59'	1458 "	
PNEUMATIC DREDGING	Pier No. 1	45'	1222 "	
	Pier No. 2	38'	1037 "	
	Pier No. 3	38'	1012 "	
	Pier No. 4	40'	1111 "	
	Pier No. 5	38'	1022 "	

**GENERAL NOTES:**  
 Construction Specifications: Latest Approved La. Dept. of Highways Spec.  
 Design Specifications: A.A.S.H.O. Std. Specs. for Highway Bridges, as Amended Dec. 1958.  
 L.L. 1102-49  
 Dimensions Relating to Reinforcing Steel are to Bar Ctr.  
 Reinforcing Steel to be either Structural or Intermediate Grade.

**SEE AS BUILT PLAN**

**SHEET 1 OF 2 SHEETS**

**CAISSONS - PIERS NO. 1 THRU 5 INCLUSIVE  
RED RIVER BRIDGE  
AT MILLER'S BLUFF, LA.**

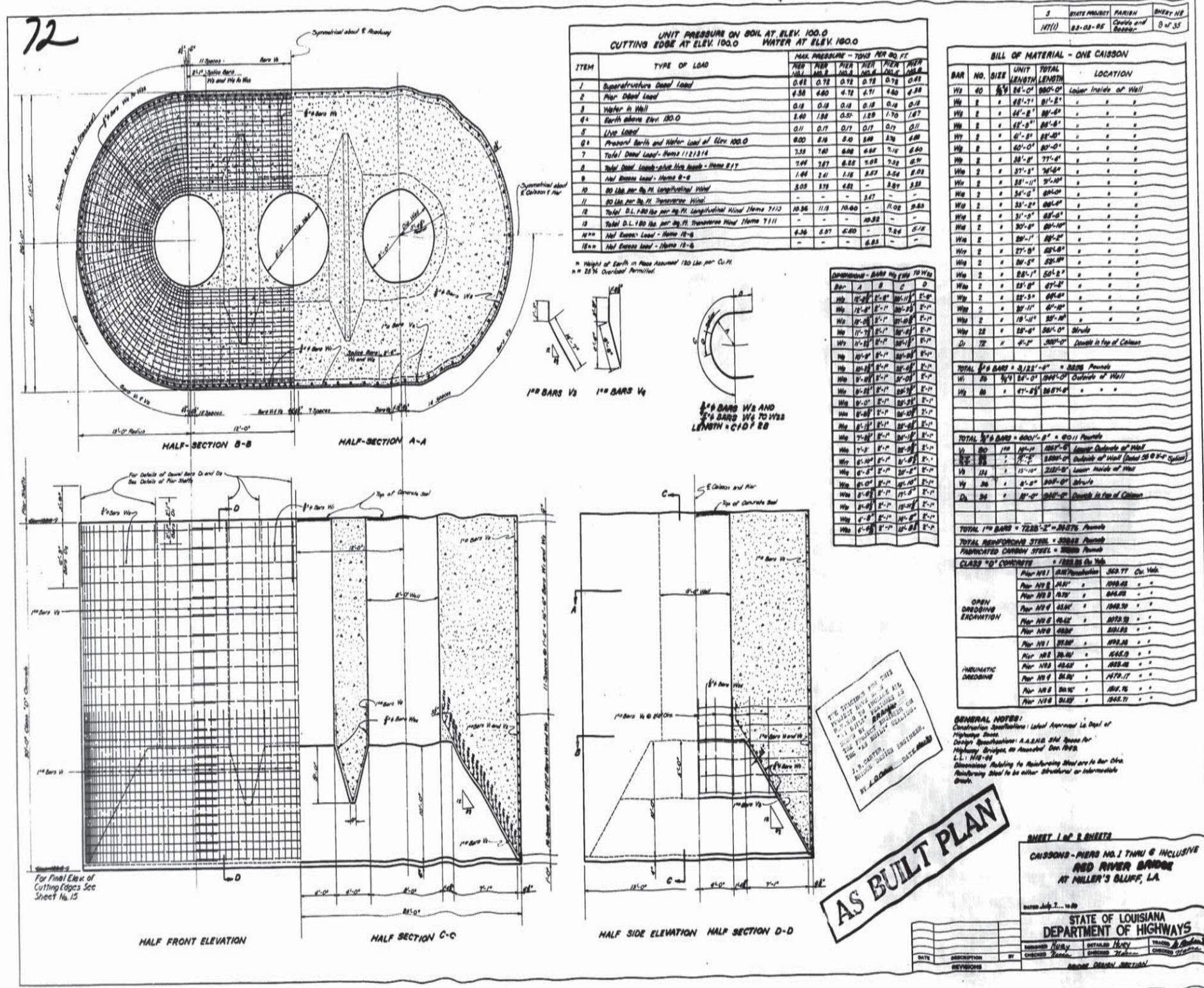
DATED July 7, 1960

**STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS**

DESIGNED	H. J. H. H.	DETAILED	H. J. H. H.
CHECKED	J. H. H.	CHECKED	J. H. H.

BRIDGE DESIGN SECTION





**UNIT PRESSURE ON SOIL AT ELEV. 100.0  
CUTTING EDGE AT ELEV. 100.0 WATER AT ELEV. 100.0**

ITEM	TYPE OF LOAD	MAX. PRESSURE - TONS PER SQ. FT.				
		TOP	PIER	PIER	PIER	PIER
1	Superstructure Dead Load	0.42	0.72	0.72	0.72	0.42
2	Pier Dead Load	0.58	0.80	0.72	0.71	0.58
3	Water in Well	0.18	0.18	0.18	0.18	0.18
4	Earth above Elev. 100.0	2.40	1.98	0.52	1.89	1.70
5	Live Load	0.11	0.17	0.17	0.17	0.11
6	Proposed Berth and Water Load at Elev. 100.0	0.00	0.16	0.10	0.09	0.08
7	Total Dead Load - Items 1, 2, 3, 4	3.58	3.60	2.30	2.59	2.88
8	Total Dead Load - Items 1, 2, 3, 4, 5, 6	3.69	3.77	2.47	2.76	2.96
9	Net Buoyancy Load - Items 7-9	1.04	2.41	1.18	0.83	0.03
10	80 lbs. per sq. ft. Longitudinal Wind	0.03	0.19	0.01	0.01	0.03
11	80 lbs. per sq. ft. Transverse Wind	-	-	-	0.47	-
12	Total D.L. 180 lbs. per sq. ft. Longitudinal Wind - Items 7, 10	10.96	11.8	10.60	-	10.92
13	Total D.L. 180 lbs. per sq. ft. Transverse Wind - Items 7, 11	-	-	-	10.92	-
14	Net Buoyancy Load - Items 7-9	0.36	0.57	0.00	-	0.10
15	Net Buoyancy Load - Items 7-9	-	-	-	0.83	-

*n* = Weight of Earth in Place Assumed 120 lbs. per Cu. Ft.  
*n* = 25% Overload Permitted.

**BILL OF MATERIAL - ONE CAISSON**

BAR NO.	SIZE	UNIT LENGTH	TOTAL LENGTH	LOCATION
W1	40	8 1/2"	800'-0"	Lower Inside of Wall
W2	2	28'-0"	28'-0"	" " " "
W3	2	28'-0"	28'-0"	" " " "
W4	2	28'-0"	28'-0"	" " " "
W5	2	28'-0"	28'-0"	" " " "
W6	2	28'-0"	28'-0"	" " " "
W7	2	28'-0"	28'-0"	" " " "
W8	2	28'-0"	28'-0"	" " " "
W9	2	28'-0"	28'-0"	" " " "
W10	2	28'-0"	28'-0"	" " " "
W11	2	28'-0"	28'-0"	" " " "
W12	2	28'-0"	28'-0"	" " " "
W13	2	28'-0"	28'-0"	" " " "
W14	2	28'-0"	28'-0"	" " " "
W15	2	28'-0"	28'-0"	" " " "
W16	2	28'-0"	28'-0"	" " " "
W17	2	28'-0"	28'-0"	" " " "
W18	2	28'-0"	28'-0"	" " " "
W19	2	28'-0"	28'-0"	" " " "
W20	2	28'-0"	28'-0"	" " " "
W21	2	28'-0"	28'-0"	" " " "
W22	2	28'-0"	28'-0"	" " " "
W23	2	28'-0"	28'-0"	" " " "
W24	2	28'-0"	28'-0"	" " " "
W25	2	28'-0"	28'-0"	" " " "
W26	2	28'-0"	28'-0"	" " " "
W27	2	28'-0"	28'-0"	" " " "
W28	2	28'-0"	28'-0"	" " " "
W29	2	28'-0"	28'-0"	" " " "
W30	2	28'-0"	28'-0"	" " " "
W31	2	28'-0"	28'-0"	" " " "
W32	2	28'-0"	28'-0"	" " " "
W33	2	28'-0"	28'-0"	" " " "
W34	2	28'-0"	28'-0"	" " " "
W35	2	28'-0"	28'-0"	" " " "
W36	2	28'-0"	28'-0"	" " " "
W37	2	28'-0"	28'-0"	" " " "
W38	2	28'-0"	28'-0"	" " " "
W39	2	28'-0"	28'-0"	" " " "
W40	2	28'-0"	28'-0"	" " " "
W41	2	28'-0"	28'-0"	" " " "
W42	2	28'-0"	28'-0"	" " " "
W43	2	28'-0"	28'-0"	" " " "
W44	2	28'-0"	28'-0"	" " " "
W45	2	28'-0"	28'-0"	" " " "
W46	2	28'-0"	28'-0"	" " " "
W47	2	28'-0"	28'-0"	" " " "
W48	2	28'-0"	28'-0"	" " " "
W49	2	28'-0"	28'-0"	" " " "
W50	2	28'-0"	28'-0"	" " " "
W51	2	28'-0"	28'-0"	" " " "
W52	2	28'-0"	28'-0"	" " " "
W53	2	28'-0"	28'-0"	" " " "
W54	2	28'-0"	28'-0"	" " " "
W55	2	28'-0"	28'-0"	" " " "
W56	2	28'-0"	28'-0"	" " " "
W57	2	28'-0"	28'-0"	" " " "
W58	2	28'-0"	28'-0"	" " " "
W59	2	28'-0"	28'-0"	" " " "
W60	2	28'-0"	28'-0"	" " " "
W61	2	28'-0"	28'-0"	" " " "
W62	2	28'-0"	28'-0"	" " " "
W63	2	28'-0"	28'-0"	" " " "
W64	2	28'-0"	28'-0"	" " " "
W65	2	28'-0"	28'-0"	" " " "
W66	2	28'-0"	28'-0"	" " " "
W67	2	28'-0"	28'-0"	" " " "
W68	2	28'-0"	28'-0"	" " " "
W69	2	28'-0"	28'-0"	" " " "
W70	2	28'-0"	28'-0"	" " " "
W71	2	28'-0"	28'-0"	" " " "
W72	2	28'-0"	28'-0"	" " " "
W73	2	28'-0"	28'-0"	" " " "
W74	2	28'-0"	28'-0"	" " " "
W75	2	28'-0"	28'-0"	" " " "
W76	2	28'-0"	28'-0"	" " " "
W77	2	28'-0"	28'-0"	" " " "
W78	2	28'-0"	28'-0"	" " " "
W79	2	28'-0"	28'-0"	" " " "
W80	2	28'-0"	28'-0"	" " " "
W81	2	28'-0"	28'-0"	" " " "
W82	2	28'-0"	28'-0"	" " " "
W83	2	28'-0"	28'-0"	" " " "
W84	2	28'-0"	28'-0"	" " " "
W85	2	28'-0"	28'-0"	" " " "
W86	2	28'-0"	28'-0"	" " " "
W87	2	28'-0"	28'-0"	" " " "
W88	2	28'-0"	28'-0"	" " " "
W89	2	28'-0"	28'-0"	" " " "
W90	2	28'-0"	28'-0"	" " " "
W91	2	28'-0"	28'-0"	" " " "
W92	2	28'-0"	28'-0"	" " " "
W93	2	28'-0"	28'-0"	" " " "
W94	2	28'-0"	28'-0"	" " " "
W95	2	28'-0"	28'-0"	" " " "
W96	2	28'-0"	28'-0"	" " " "
W97	2	28'-0"	28'-0"	" " " "
W98	2	28'-0"	28'-0"	" " " "
W99	2	28'-0"	28'-0"	" " " "
W100	2	28'-0"	28'-0"	" " " "

THE DRAWING FOR THIS  
 PROJECT HAS BEEN  
 PREPARED BY THE  
 CIVIL ENGINEERING  
 DIVISION OF THE  
 STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS  
 DATE: 7/1/48

AS BUILT PLAN

**GENERAL NOTES:**  
 Construction Specifications: Latest Approved La. Dept. of  
 Highways Book.  
 Design Specifications: A.A.S.H.O. 2nd. Edition for  
 Highway Bridges as Amended Dec. 1939.  
 L.L. 1 1/2-48  
 Dimensions Relating to Reinforcing Steel are to the City.  
 Reinforcing Steel to be either Structural or Intermediate  
 Grade.

SHEET 1 OF 8 SHEETS  
 CAISSONS - PIERS NO. 1 THRU 6 INCLUSIVE  
 AND RIVER BRIDGE  
 AT MILLER'S BLUFF, LA.

STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS

AS BUILT PLANS

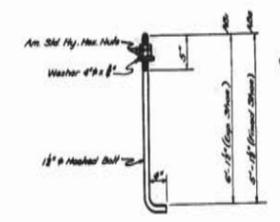
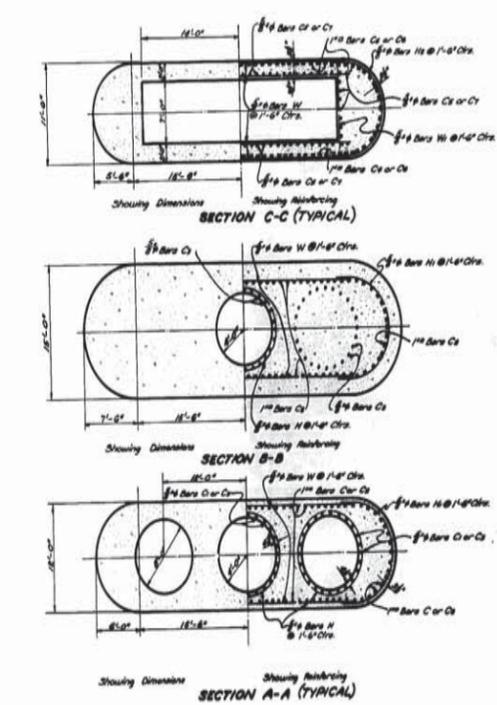
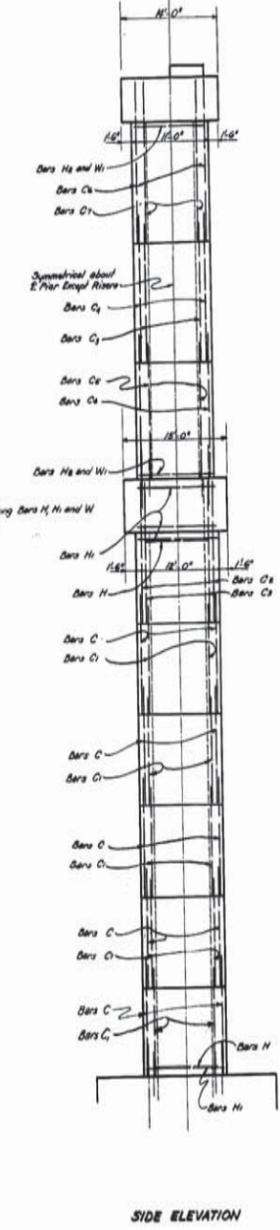
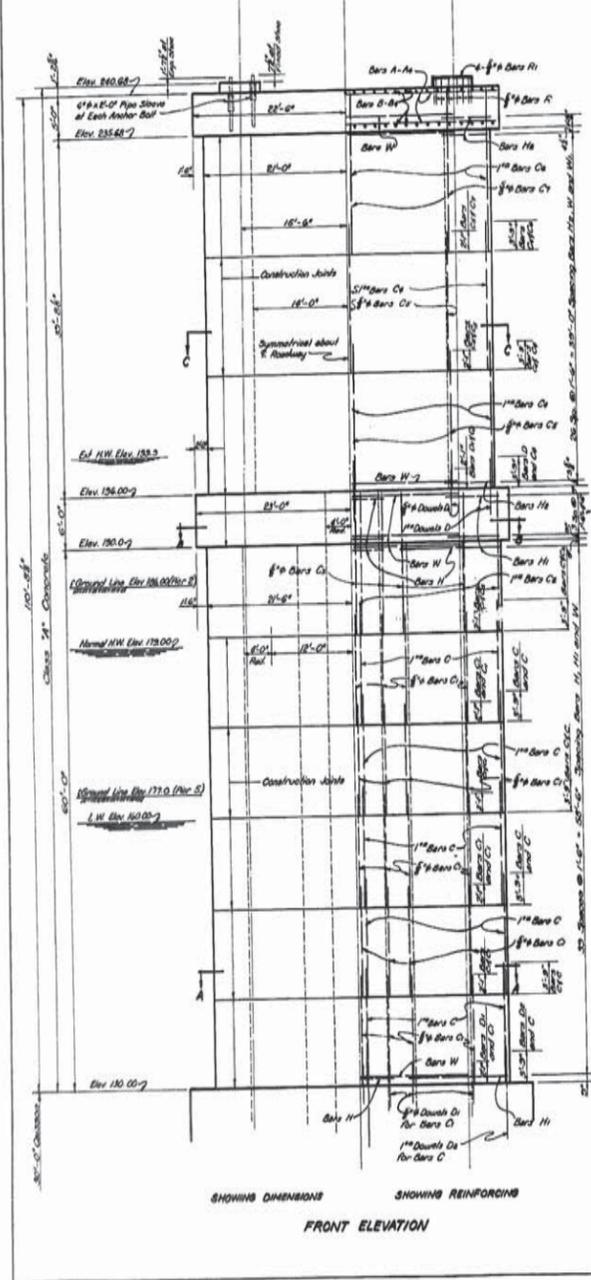
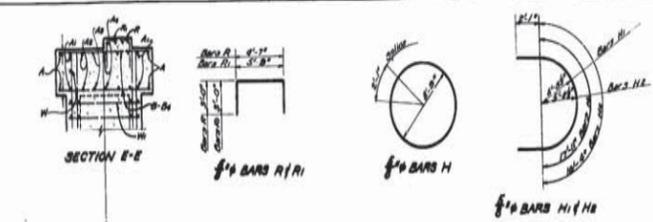
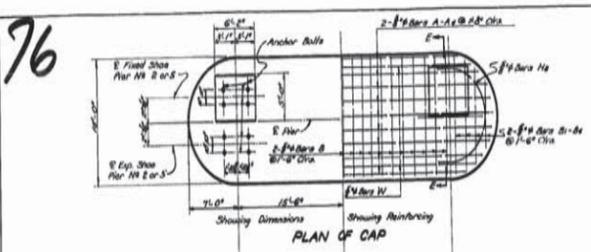








76



3	STATE PROJECT	FINISH	SHEET NO.
14711	BS-03-05	Circle 1/2	11

BILL OF MATERIAL - ONE PIER SHAFT			
BAR NO.	SIZE	UNIT LENGTH	TOTAL LENGTH
A	#4	35'-2"	132'-8"
Al	#4	80'-0"	180'-0"
A2	#4	42'-8"	171'-8"
A3	#4	64'-0"	176'-0"
A4	#4	64'-0"	88'-0"
B	#2	18'-6"	587'-0"
B1	#4	18'-6"	85'-0"
B2	#4	12'-6"	80'-0"
B3	#4	10'-6"	48'-0"
B4	#4	7'-6"	30'-0"
C	#60	12'-1"	4387'-0"
C1	#72	12'-0"	112'-0"
C2	#78	18'-0"	2301'-0"
C3	#78	18'-0"	1401'-0"
D	#80	6'-2"	2257'-0"
H	#88	22'-2"	2262'-0"
H1	#88	18'-0"	1824'-0"
H2	#88	22'-0"	1164'-0"
R	#12	22'-2"	1274'-0"
R1	#8	37'-0"	24'-0"
W	#200	24'-0"	2200'-0"
W1	#84	12'-0"	227'-0"
Total #4 Bars = 24124'-0" = 26206 Pounds			
Total #60 Bars = 1274'-0" = 6218 Pounds			
Total Reinforcing Steel = 76684 Pounds			
Class 1 Concrete in Piers (Item 4-5-1A) = 13888 Cu. Yds.			
Fed. Carbon Steel = 1010 Pounds			

**SEE AS BUILT PLAN**

**GENERAL NOTES:**  
 Construction Specifications: Latest Approved Ed. Dept. of Highway Standard Specifications.  
 Design Specifications: A.S.H.T.C. Standard Specifications for Highway Bridges, 1963 as Amended Dec. 1964, Vol. 1, Part 11-11.1.  
 Dimensions relating to Reinforcing Steel are to Bar Centers.  
 All Square Dimensions to be Chamfered 1/4".  
 Reinforcing Steel to be either Structural or Intermediate Grade.  
 Class 1 Concrete in Piers to be Field Air Under 5-8-14.

**SHAFTS - PIERS NO. 2 AND 5  
 RED RIVER BRIDGE  
 AT MILLER'S BLUFF, LA.**

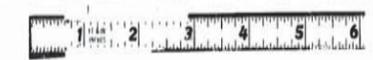
DATE: AUG. 17, 1960

**STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS**

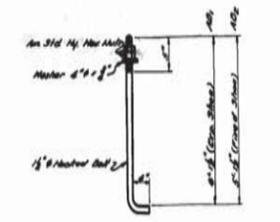
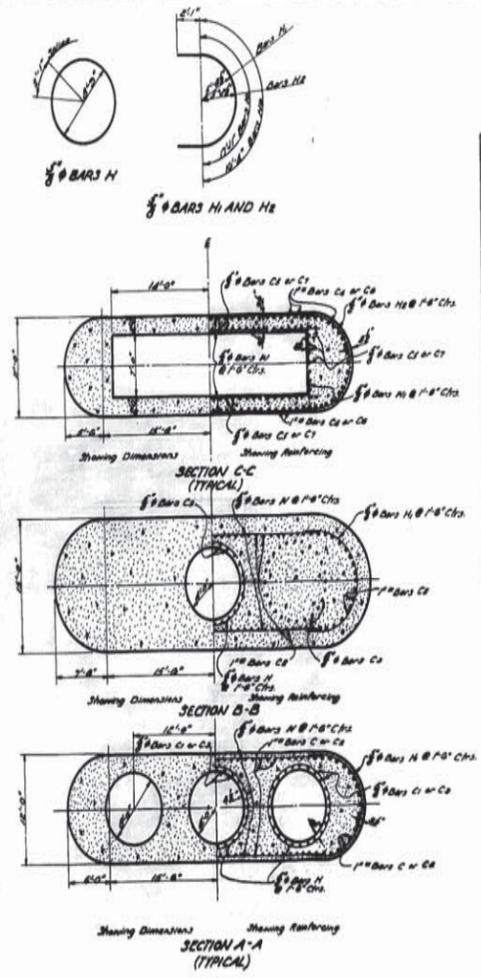
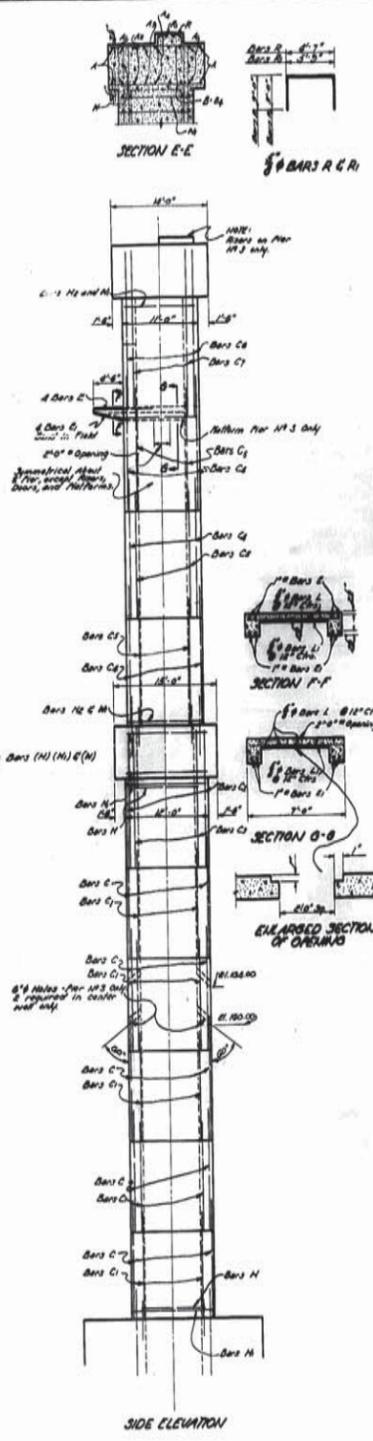
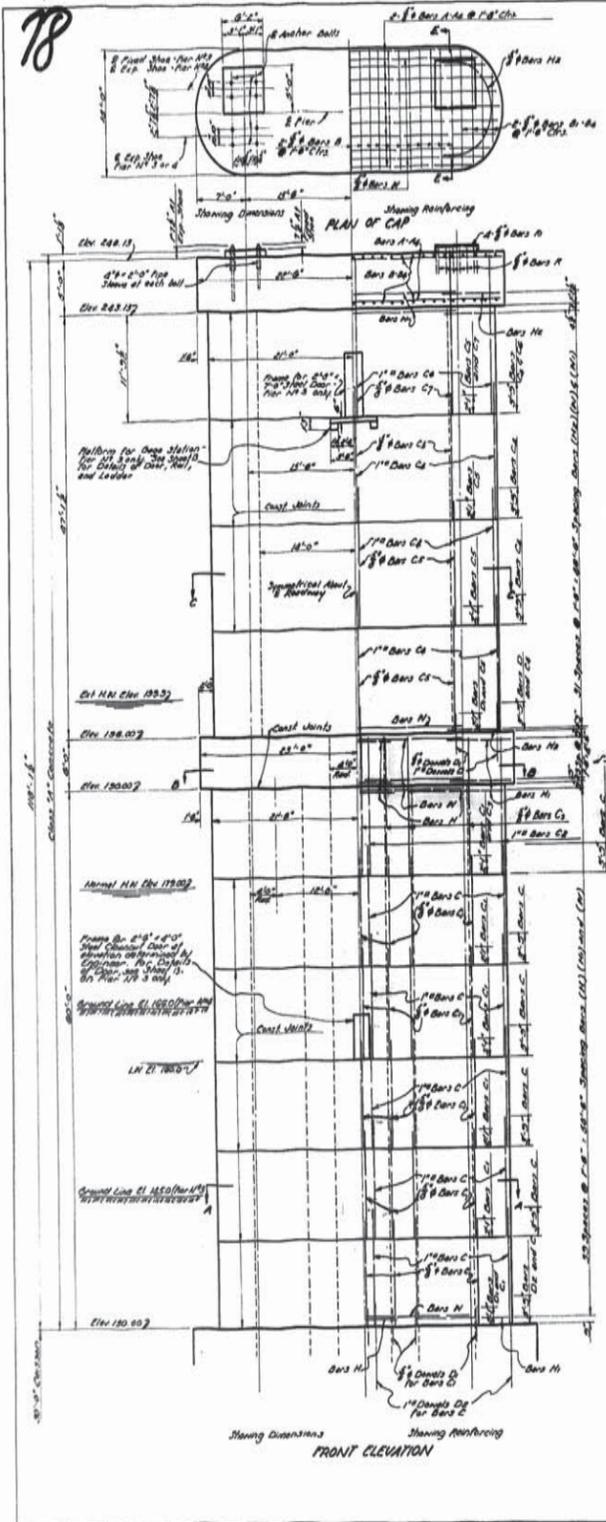
DESIGNED	HECKY	REVIEWED	HECKY	TRACED	HECKY
CHECKED	HECKY	DESIGNED	HECKY	CHECKED	HECKY

BRIDGE DESIGN SECTION

AS BUILT PLANS







DETAIL OF ANCHOR BOLT  
 For No. 5 - 1/2" dia. Required  
 For No. 4 - 3/4" dia. Required  
 NOTE: Anchor bolts and 4" x 4" x 1/2" plates to be furnished and set by Contractor. For quantities, quantities shown are for fabricated carbon steel.

**SEE AS BUILT PLAN**

1471(1)	STATE PROJECT	PARISH	SHEET NO.
	83-0115	ASSUMED	12

**BILL OF MATERIAL - ONE PIER SHAFT**

BAR	NO.	SIZE	UNIT LENGTH	TOTAL LENGTH	LOCATION
A	4	3/4"	38'-0"	152'-0"	Top Cap Piers No. 3 and 4
A1	4	3/4"	40'-0"	160'-0"	Top Cap Piers No. 3 and 4
A2	4	3/4"	42'-0"	168'-0"	Top Cap Piers No. 3 and 4
A3	4	3/4"	44'-0"	176'-0"	Top Cap Piers No. 3 and 4
A4	4	3/4"	46'-0"	184'-0"	Top Cap Piers No. 3 and 4
D	4	3/4"	13'-0"	52'-0"	Top Cap Piers No. 3 and 4
D1	4	3/4"	13'-0"	52'-0"	Top Cap Piers No. 3 and 4
D2	4	3/4"	12'-0"	48'-0"	Top Cap Piers No. 3 and 4
D3	4	3/4"	10'-0"	40'-0"	Top Cap Piers No. 3 and 4
D4	4	3/4"	7'-0"	28'-0"	Top Cap Piers No. 3 and 4
C1	300	3/8"	12'-0"	3600'-0"	Lower Columns Piers No. 3 and 4
C2	72	3/8"	12'-0"	864'-0"	Lower Columns Piers No. 3 and 4
C3	234	3/8"	12'-0"	2808'-0"	Top Columns Piers No. 3 and 4
C4	72	3/8"	12'-0"	864'-0"	Top Columns Piers No. 3 and 4
C5	180	3/8"	8'-0"	1440'-0"	Column Diaphragm Piers No. 3 and 4
H	188	3/8"	23'-7"	4365'-6"	Columns Piers No. 3 and 4
H1	88	3/8"	23'-7"	2085'-6"	Lower Columns Piers No. 3 and 4
H2	80	3/8"	20'-0"	1600'-0"	Top Columns Piers No. 3 and 4
R	12	3/8"	12'-0"	144'-0"	Rebar Piers No. 3 Only
R1	8	3/8"	11'-0"	88'-0"	Rebar Piers No. 3 Only
H	218	3/8"	37'-0"	8064'-0"	Columns Piers No. 3 and 4
H	88	3/8"	10'-0"	880'-0"	Top Columns Piers No. 3 Only
L	4	3/4"	15'-0"	60'-0"	Cap Platform Pier No. 3 Only
L1	12	3/4"	8'-0"	96'-0"	Cap Platform Pier No. 3 Only

**TABLE #1 - BARS PER PIER NO. 3 AND 4**

C	470	3/8"	12'-0"	5640'-0"	Lower Columns Piers No. 3 and 4
C2	24	3/8"	12'-0"	288'-0"	Lower Columns Piers No. 3 and 4
C4	282	3/8"	12'-0"	3384'-0"	Top Columns Piers No. 3 and 4
C5	24	3/8"	12'-0"	288'-0"	Top Columns Piers No. 3 and 4
D	24	3/8"	7'-0"	168'-0"	Top Columns Diaphragm Piers No. 3 and 4
D2	24	3/8"	10'-0"	240'-0"	Lower Columns Diaphragm Piers No. 3 and 4
E	4	3/4"	8'-0"	32'-0"	Cap Platform Pier No. 3 Only
G	4	3/4"	14'-0"	56'-0"	Cap Platform Pier No. 3 Only

TABLE #2 - BARS PER PIER NO. 3 AND 4  
 TOTAL REINFORCING STEEL - PIER NO. 3 = 81226 LBS.  
 TOTAL REINFORCING STEEL - PIER NO. 4 = 180507 LBS.  
 CLASS "A" CONCRETE (ITEM 4-11) - PIER NO. 3 = 10455 CU YD.  
 FABRICATED CARBON STEEL - PIER NO. 3 = 1725 LBS.  
 FABRICATED CARBON STEEL - PIER NO. 4 = 1010 LBS.  
 \* Includes Anchor Bolts, Shims, Ladders and Top Handrail.

**GENERAL NOTES:**  
 Construction Specifications: Latest approved to Dept. of Highways Standard Specifications  
 Change Specifications: 1-1-1948 Standard Specifications for Highways, Revisions 1948 as amended Dec. 1945  
 Live Load: HS-20  
 Dimensions: All dimensions to be furnished by contractor. All dimensions shall be furnished to the contractor by the engineer. All dimensions shall be furnished to the contractor by the engineer. All dimensions shall be furnished to the contractor by the engineer.  
 Class "A" Concrete: to be used for under 12in. x 4'-0" dia.

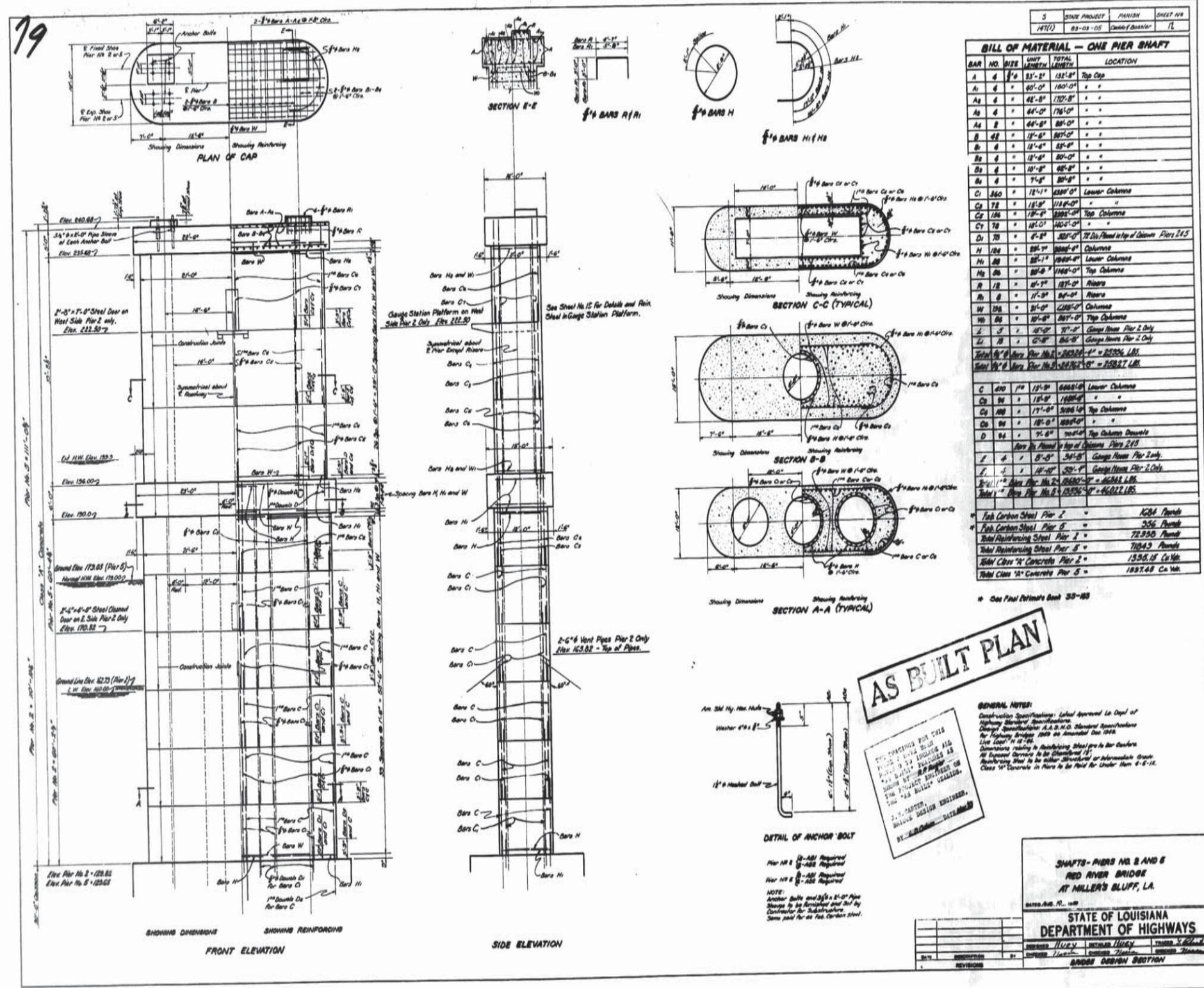
**STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS**

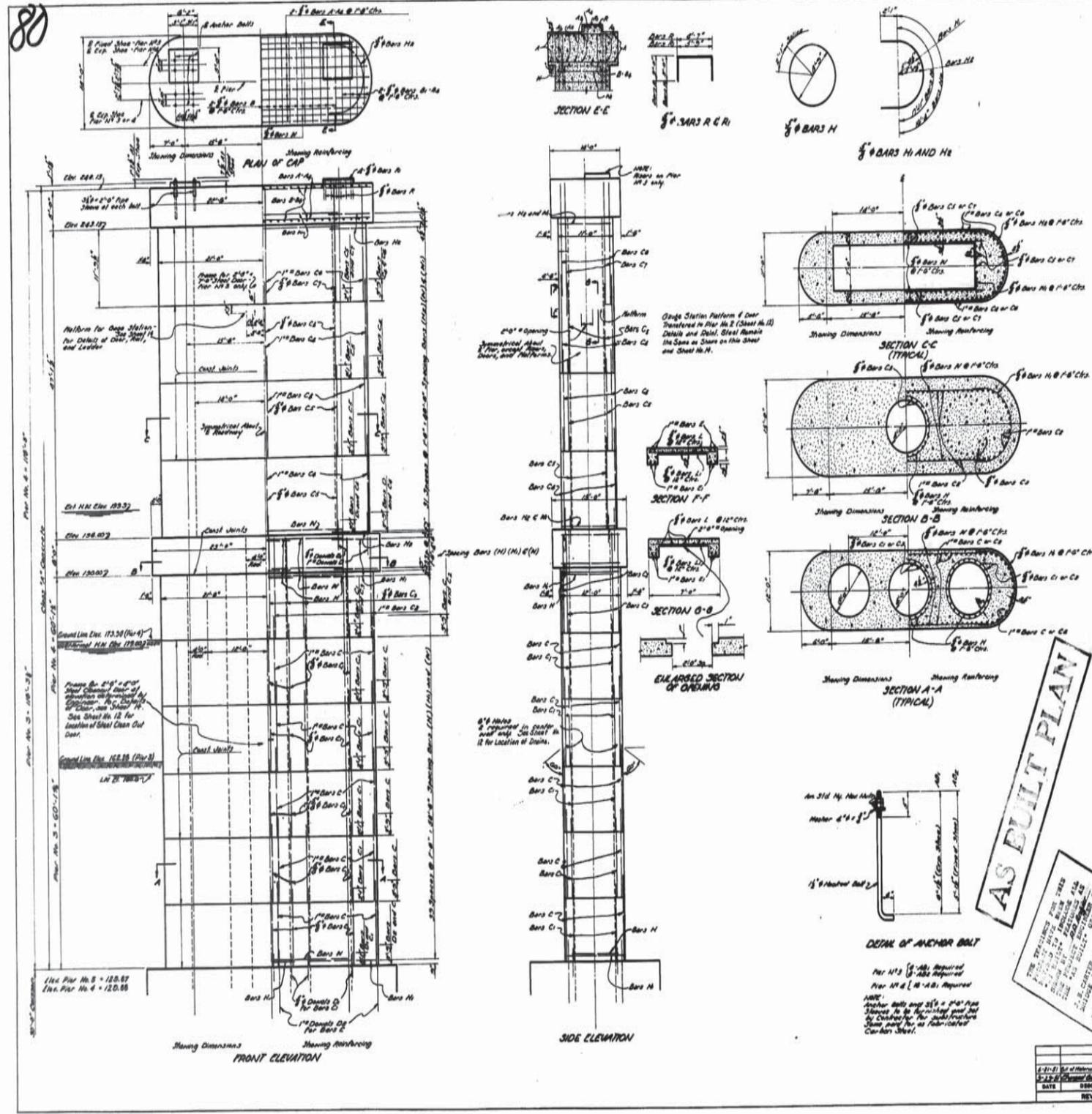
BRIDGE DESIGN SECTION

DATE: 10/1/50

DESIGNED: H.V.V. CHECKED: H.V.V. TRACED: H.V.V.  
 DRAWN: H.V.V. CHECKED: H.V.V. CHECKED: H.V.V.







**BILL OF MATERIAL - ONE PIER SHAFT**

BAR	NO	SIZE	UNIT LENGTH	TOTAL LENGTH	LOCATION
A	4	3/4"	150'-0"	600'-0"	Top Cap Piers N1, 3 or 4
A1	4	3/4"	100'-0"	400'-0"	Top Cap Piers N1, 3 or 4
A2	4	3/4"	170'-0"	680'-0"	Top Cap Piers N1, 3 or 4
A3	4	3/4"	170'-0"	680'-0"	Top Cap Piers N1, 3 or 4
A4	2	3/4"	80'-0"	160'-0"	Top Cap Piers N1, 3 or 4
O	62	3/4"	15'-0"	930'-0"	Top Cap Piers N1, 3 or 4
B	4	3/4"	15'-0"	60'-0"	Top Cap Piers N1, 3 or 4
B1	4	3/4"	15'-0"	60'-0"	Top Cap Piers N1, 3 or 4
B2	4	3/4"	15'-0"	60'-0"	Top Cap Piers N1, 3 or 4
B3	4	3/4"	15'-0"	60'-0"	Top Cap Piers N1, 3 or 4
B4	4	3/4"	15'-0"	60'-0"	Top Cap Piers N1, 3 or 4
C	200	3/4"	12'-0"	2400'-0"	Lower Columns Piers N1, 3 or 4
C1	72	3/4"	15'-0"	1080'-0"	Lower Columns Piers N1, 3 or 4
C2	224	3/4"	12'-0"	2688'-0"	Lower Columns Piers N1, 3 or 4
C3	72	3/4"	12'-0"	864'-0"	Lower Columns Piers N1, 3 or 4
D	72	3/4"	8'-0"	576'-0"	Lower Columns Piers N1, 3 or 4
H	184	3/4"	25'-0"	4600'-0"	Columns Piers N1, 3 or 4
H1	64	3/4"	25'-0"	1600'-0"	Columns Piers N1, 3 or 4
H2	64	3/4"	25'-0"	1600'-0"	Columns Piers N1, 3 or 4
H3	56	3/4"	18'-0"	1008'-0"	Columns Piers N1, 3 or 4
H4	64	3/4"	11'-0"	704'-0"	Columns Piers N1, 3 or 4
H5	216	3/4"	3'-0"	648'-0"	Columns Piers N1, 3 or 4
H6	64	3/4"	10'-0"	640'-0"	Columns Piers N1, 3 or 4
Total # of Bars for N1, 3 or 4 = 27584 LBS. Total # of Bars for N2 = 27584 LBS.					
C	470	3/4"	15'-0"	7050'-0"	Lower Columns Piers N2 or 4
C1	36	3/4"	15'-0"	540'-0"	Lower Columns Piers N2 or 4
C2	282	3/4"	15'-0"	4230'-0"	Lower Columns Piers N2 or 4
C3	36	3/4"	15'-0"	540'-0"	Lower Columns Piers N2 or 4
D	36	3/4"	7'-0"	252'-0"	Lower Columns Piers N2 or 4
Total # of Bars for N2 = 14070 LBS. Total # of Bars for N2 or 4 = 14070 LBS.					
TOTAL REINFORCING STEEL - PIER N1, 3 OR 4 = 77220 LBS. TOTAL REINFORCING STEEL - PIER N2 = 7000 LBS. CLASS "A" CONCRETE (FROM 4-11) - PIER N1, 3 OR 4 = 14070 CU YD. CLASS "A" CONCRETE (FROM 4-11) - PIER N2 = 14070 CU YD. FABRICATED CARBON STEEL - PIER N1, 3 OR 4 = 100 LBS. FABRICATED CARBON STEEL - PIER N2 = 100 LBS.					

**GENERAL NOTES:**

Construction Specifications: Latest approved Ed. Dept. of Highways Standard Specifications.

Design Specifications: A.S.H.T.E. Standard Specifications for Highway Bridges, 1939 as amended Dec. 1945 (see cover).

Dimensions relating to Reinforcing Steel are to bar centers.

All spacing openings to be fabricated 1/8" thick.

Reinforcing Steel to be either structural or intermediate grade.

Class "A" Concrete in Piers to be paid for under Item 4-1.12.

**AS BUILT PLAN**

**DETAIL OF ANCHOR BOLT**

For N1, 3 or 4: Required 1/2" dia. Required 1/2" dia.

For N2: Required 1/2" dia. Required 1/2" dia.

Anchor bolts and 3/4" x 1/2" dia. plates to be fabricated and set by contractor. The contractor shall verify the dimensions of the anchor bolts and plates as fabricated.

**SHAFTS - PIERS N1, 3 AND 4**  
**RED RIVER BRIDGE**  
**AT MILLER'S BLUFF, LA**

DATE: July 20, 1940

**STATE OF LOUISIANA**  
**DEPARTMENT OF HIGHWAYS**

DESIGNED BY: H. W. HULL  
 CHECKED BY: H. W. HULL  
 DATE: 7/20/40

REVISIONS:

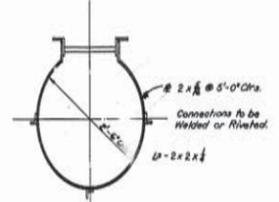
BRIDGE DESIGN SECTION



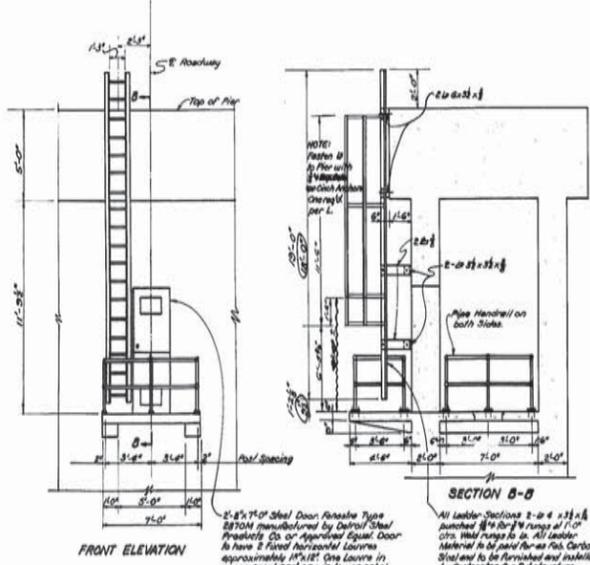
81

5	STATE PROJECT	PARISH	SHEET NO.
14710	88-03-02	BARRETT & CADDO	13

14 of 35



DETAIL OF LADDER GUARD



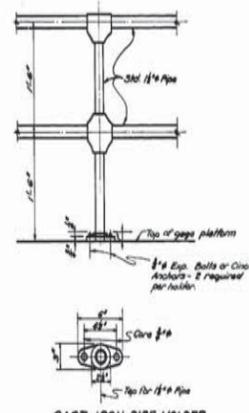
FRONT ELEVATION

SECTION B-B

NOTE: Plates in floor with 2x4x1/2 inch channels (spacing 12" on center) per L.

2x5x7/8" Steel Door Hinges Type B370M manufactured by Detroit Steel Products Co. or Approved Equal. Door to have 2 fixed horizontal Louvers approximately 18" high. One Louver in upper panel and one in lower panel of door. Door and frame to be finished with aluminum. Metal frames to be set before pouring concrete at door location. Door to be furnished and installed by Contractor for Substructure. Cost to be included in Price Bid for other items.

All ladder sections 2x2 x 1/2 inch joined by 1/4 inch x 1/4 inch x 1/4 inch rungs at 7'-0 inch o.c. Weld rungs to all ladder material to be made for as per Carbon Steel to be furnished and installed by Contractor for Substructure.

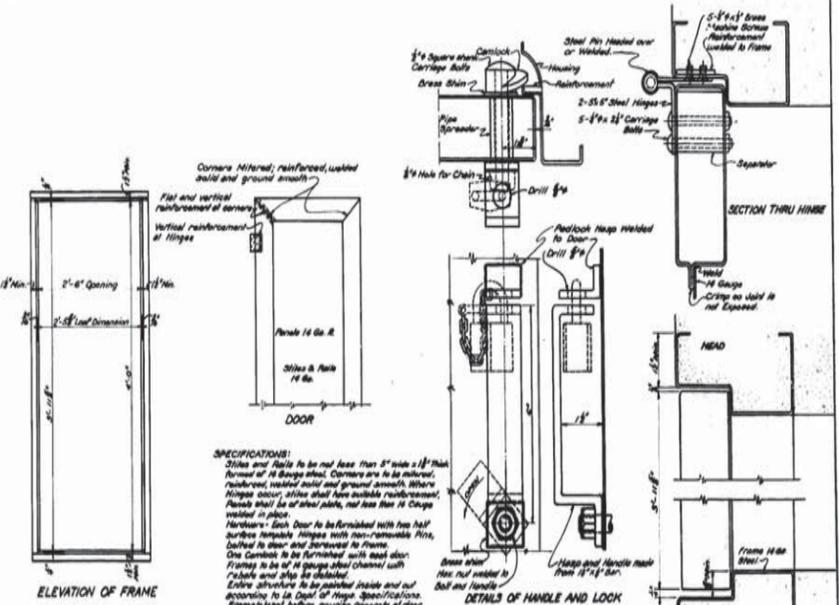


CAST IRON PIPE HOLDER

PIPE HANDRAIL DETAIL

Railing to be 1 1/2 inch Black Pipe painted in accordance with Specifications for P.S. Carbon Steel. Joints for pipe to be threaded. Connections of rails to posts to be pinned "Bolt" type fittings to be used. Handrail material to be made for as per Carbon Steel and to be furnished and installed by Contractor for Substructure.

DETAILS OF BASE PLATFORM LADDER, DOOR & RAILING  
PIER NO. 3 ONLY



ELEVATION OF FRAME

SECTION THRU HINGE

SPECIFICATIONS: Sills and Stiles to be not less than 2" thick turned 1/4 gauge steel. Corners are to be mitered, reinforced, milled and ground smooth. Where hinges occur, stile shall have suitable reinforcement. Panels shall be of steel plate, not less than 1/4 gauge milled in place.

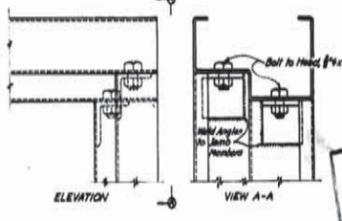
Hardware: Each door to be furnished with two half turn hinges with non-removable pins, milled in door and mortised in frame.

One Camlock to be furnished with steel door. Frame to be of 1/4 gauge steel channel with "cable and slip" to be detailed.

Entire structure to be painted inside and out according to the Dept. of Highways Specifications. Frames shall be painted before pouring concrete of door location. Door to be furnished and installed by Contractor for Substructure. Cost to be included in price bid for other items.

DETAILS OF HANDLE AND LOCK

DETAIL OF CAMLOCK



DETAILS OF TOP AND BOTTOM CORNER OF FRAME

DETAILS OF CLEAN OUT DOOR  
PIER NO. 3 ONLY

AS BUILT PLAN

MISCELLANEOUS DETAILS  
RED RIVER BRIDGE  
AT MILLER'S BLUFF, LA.

DATE: AUG. 11, 1950

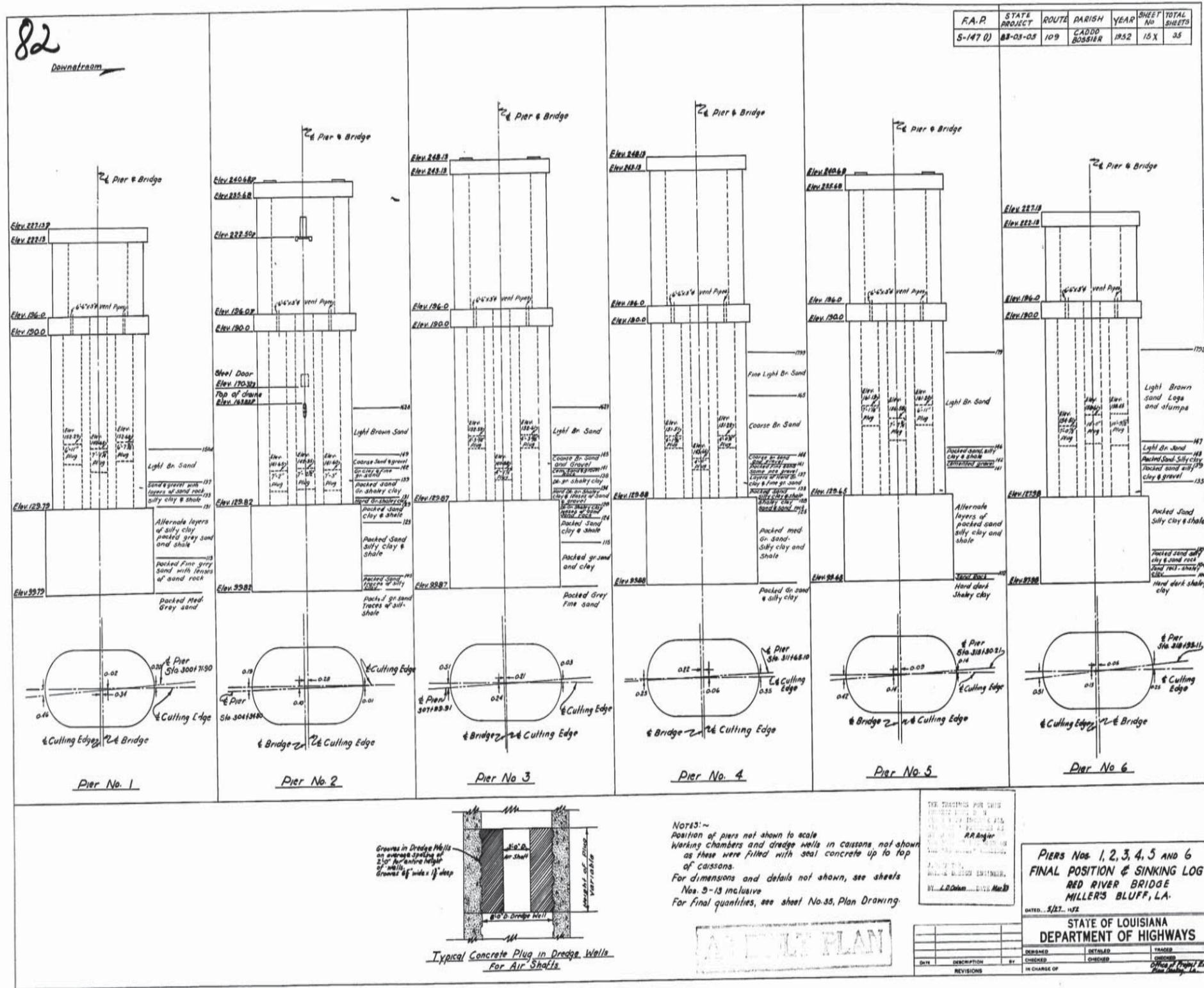
STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS

DESIGNED	HUCY	CHECKED	HUCY
TRACED	HUCY	CHECKED	HUCY

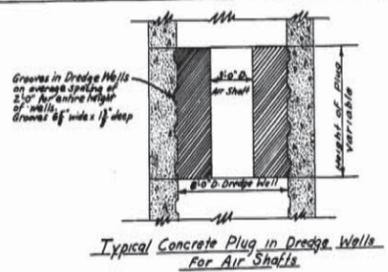
BRIDGE DESIGN SECTION

AS BUILT PLANS





F.A.P.	STATE PROJECT	ROUTE	PARISH	YEAR	SHEET No	TOTAL SHEETS
5-147 (1)	BR-03-03	109	CADD OUSIER	1952	15 X	35



NOTES:-  
 Position of piers not shown to scale  
 Working chambers and dredge wells in caissons not shown as these were filled with seal concrete up to top of caissons.  
 For dimensions and details not shown, see sheets Nos. 5-13 inclusive  
 For final quantities, see sheet No. 35, Plan Drawing.

THE ENGINEER FOR THIS PROJECT IS:  
 L. D. Odom  
 CIVIL ENGINEER  
 BY: L. D. Odom  
 DATE: Mar 23

PIERS Nos. 1, 2, 3, 4, 5 AND 6  
 FINAL POSITION & SINKING LOG  
 RED RIVER BRIDGE  
 MILLER'S BLUFF, LA.  
 DATED: 5/27, 1952

STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY	CHECKED	IN CHARGE OF
	REVISIONS			

AS BUILT PLANS



134

INDEX TO SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	PLAN AND ADDRESS
3	GENERAL PLAN
4	BRIDGE
5	DETAILS 15'x10' SPANS
6	CONNECTION DETAILS FIRST I-G INCL
7	TRUSS CHAMBER DRAWING
8	JUNCTION SHEET
9-12	300'x10' ARCH STEEL FIXED JOINT (4 SHEETS)
13	PROJECT SIGN

JTD PLAN R. 3-20 1011 AUG. 1947

STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS  
PLANS OF PROPOSED  
STATE HIGHWAY

RED RIVER BRIDGE  
AT  
MILLER'S BLUFF  
PLAIN DEALING-HOUSTON HIGHWAY  
STATE ROUTE NO 109  
CADDO & BOSSIER PARISHES  
STATE PROJECT NO 83-03-07  
S-147(3)  
SUPERSTRUCTURE

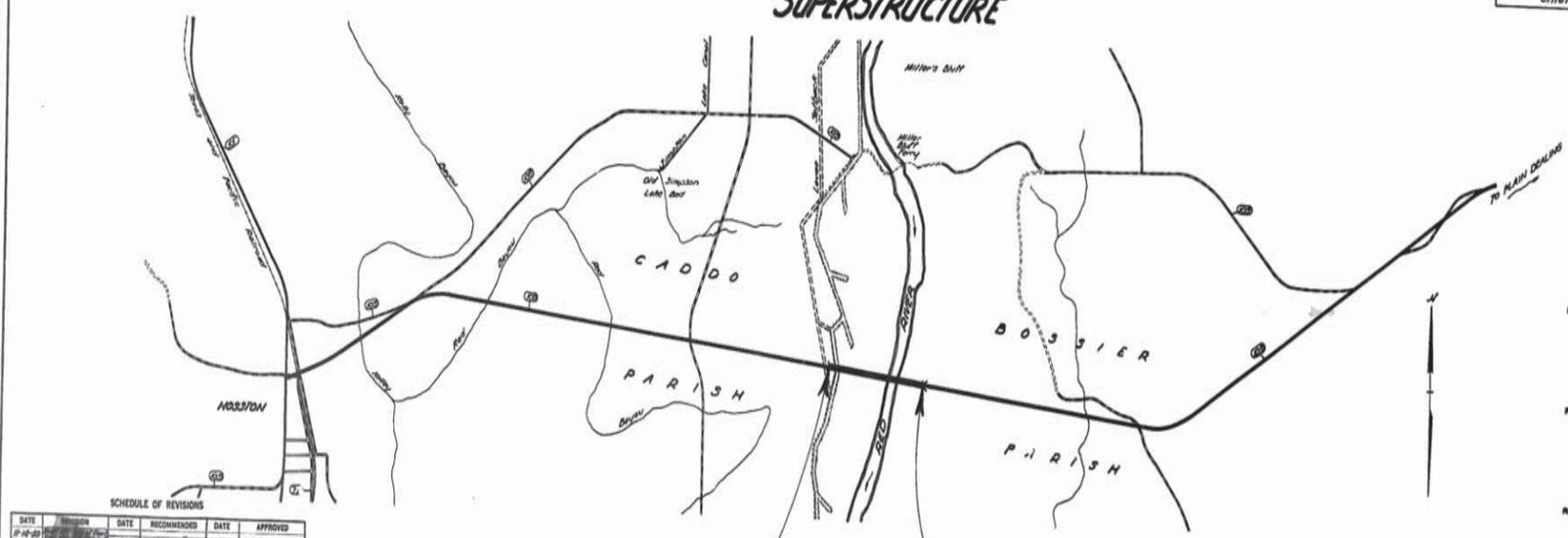
STATE PROJECT	PARISH	SHEET NO.
83-03-07	Caddo & Bossier	1

I hereby fix the width of the Right of Way of the Highway to which this plan relates within the project to which this plan refers at the width shown in each place on this plan so that the said width shall be in all places as shown on this plan.  
Baton Rouge, La., Sept. 5, 1950.

*[Signature]*  
Chief Engineer.

LAYOUT MAP ONLY

APPROVED BY	DATE
<i>[Signature]</i>	9/22/50



SCHEDULE OF REVISIONS

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED
8-19-50	REVISED	8-19-50	<i>[Signature]</i>	8-19-50	<i>[Signature]</i>
8-22-50	REVISED	8-22-50	<i>[Signature]</i>	8-22-50	<i>[Signature]</i>

BEG STATE PROJ. 83-03-07  
BEG PAR S-147(3)  
BEG BRIDGE  
STA 296 + 13.00

END STATE PROJ. 83-03-07  
END PAR S-147(3)  
END BRIDGE  
STA 327 + 20.13

DATUM USED:  
MAG. VAR.:  
BEARINGS ARE:  
TRANSIT BOOKS:  
LEVEL BOOKS:  
PLAN:  
SCALES: PROFILE: HOR. VERT.

LAYOUT MAP  
SCALE 1 INCH = 1700 FEET

LENGTH OF PROJECT

DESCRIPTION	ALGEBRAIC SUM OF ALL EQUATIONS	GROSS LENGTH		BRIDGE LENGTH		ROADWAY LENGTH	
		FEET	FEET	FEET	MILES	FEET	MILES
STA. 1+00.00-327+20.13				3100.45	0.587		
TOTAL LENGTH OF BRIDGES				3100.45	0.587		
TOTAL LENGTH OF ROADWAY							
TOTAL MILES					0.587		

TYPE OF CONSTRUCTION:  
STEEL TRUSSES & I-BEAM SPANS

DELIVERY POINTS:  
PLAIN DEALING - ST LOUIS & N.W. RR  
HOUSTON - T. & P. RR  
ALSO BY BARGE

RECOMMENDED FOR APPROVAL  
TRAFFIC & PLANNING ENGINEER

RECOMMENDED FOR APPROVAL  
ROAD DESIGN ENGINEER

RECOMMENDED FOR APPROVAL  
*[Signature]* 9/14/50  
TRAFFIC ENGINEER

APPROVED  
*[Signature]* 9/22/50  
CHIEF ENGINEER

RECOMMENDED FOR APPROVAL DATE

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED DATE

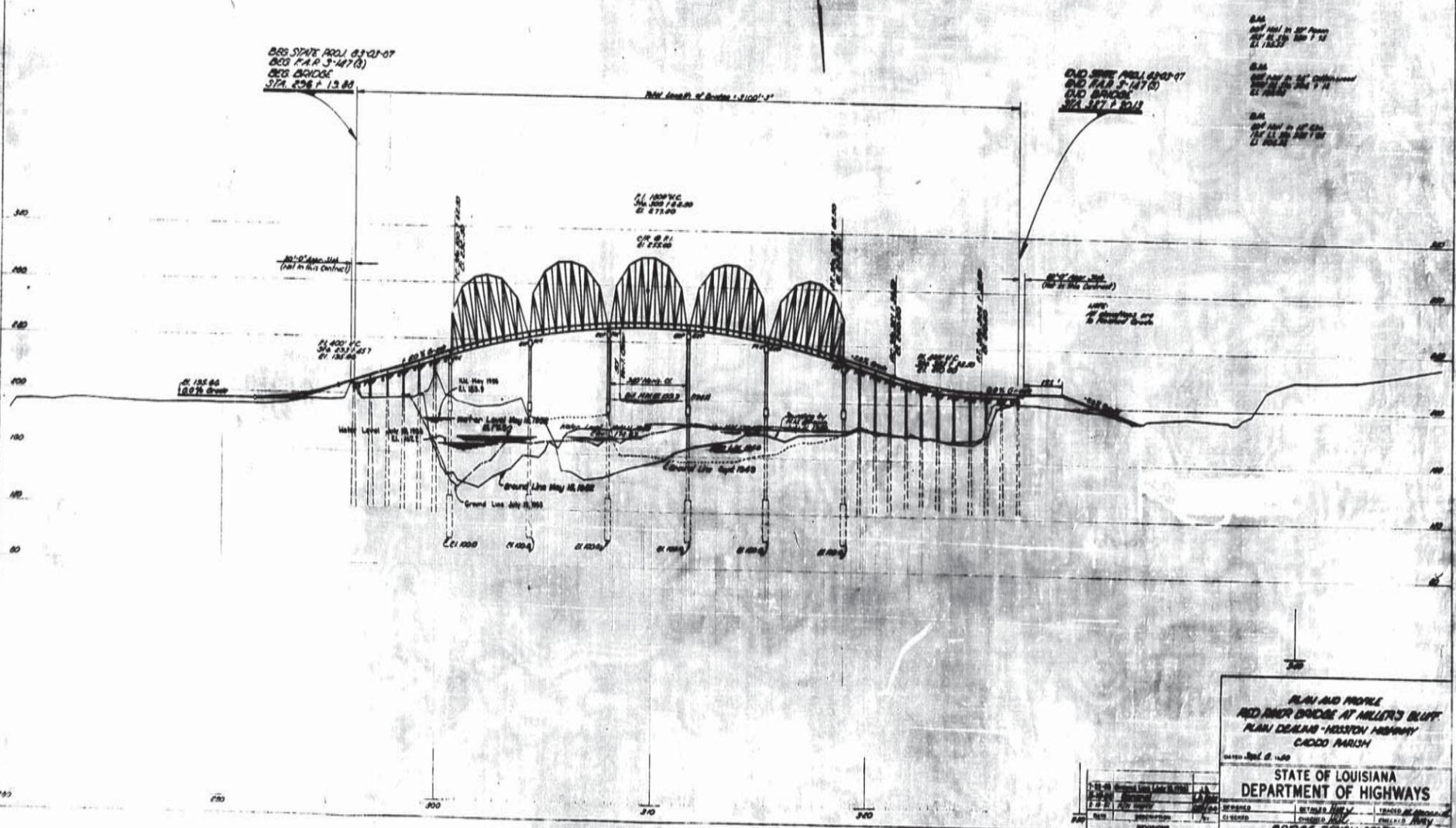
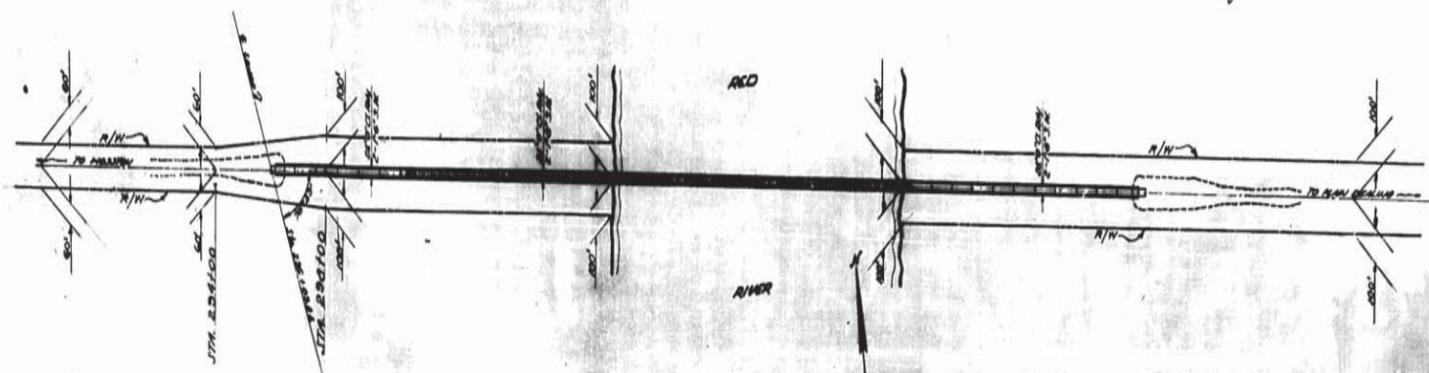
DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS



FINAL TRACINGS

135

S	STATE PROJECT	PARISH	SHEET NO.
14733	LA-101-07	Cadebo	2



BEG STATE PROJ. LA-101-07  
 BEG. P.A.P. 3-147(B)  
 BEG. BRIDGE  
 STA. 296+13.83

END STATE PROJ. LA-101-07  
 END P.A.P. 3-147(B)  
 END BRIDGE  
 STA. 327+30.11

B.A.  
 BEG. BRIDGE AT 27' FROM  
 END OF BRIDGE  
 STA. 327+30.11

B.A.  
 BEG. BRIDGE AT 27' FROM  
 END OF BRIDGE  
 STA. 327+30.11

PLAN AND PROFILE  
 RED RIVER BRIDGE AT MILLER'S BLUFF  
 PLANS DEBARK - HENRY HIGHWAY  
 CADEDO PARISH

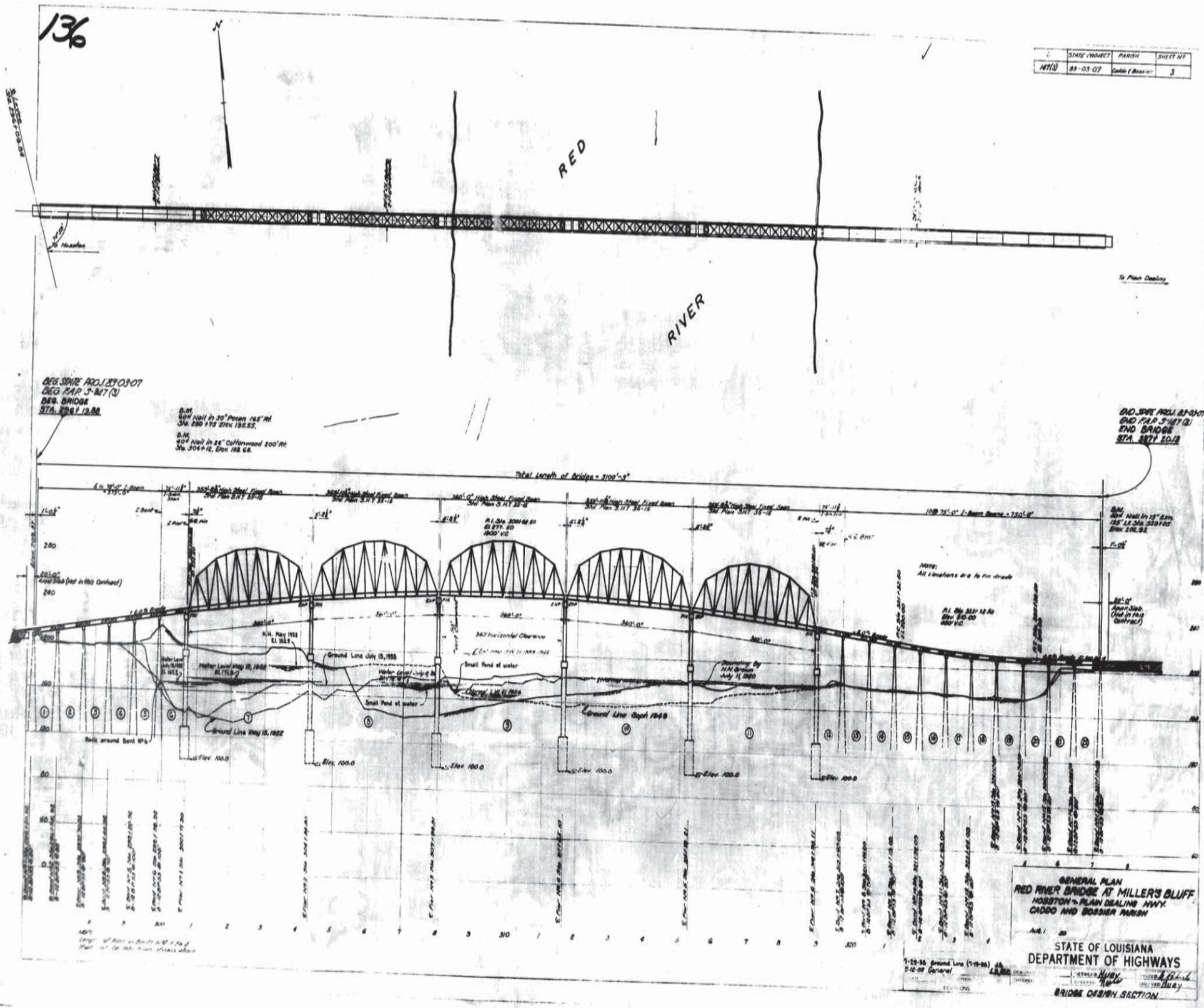
DATE: April 2, 1960

STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS

BRIDGE DESIGN SECTION

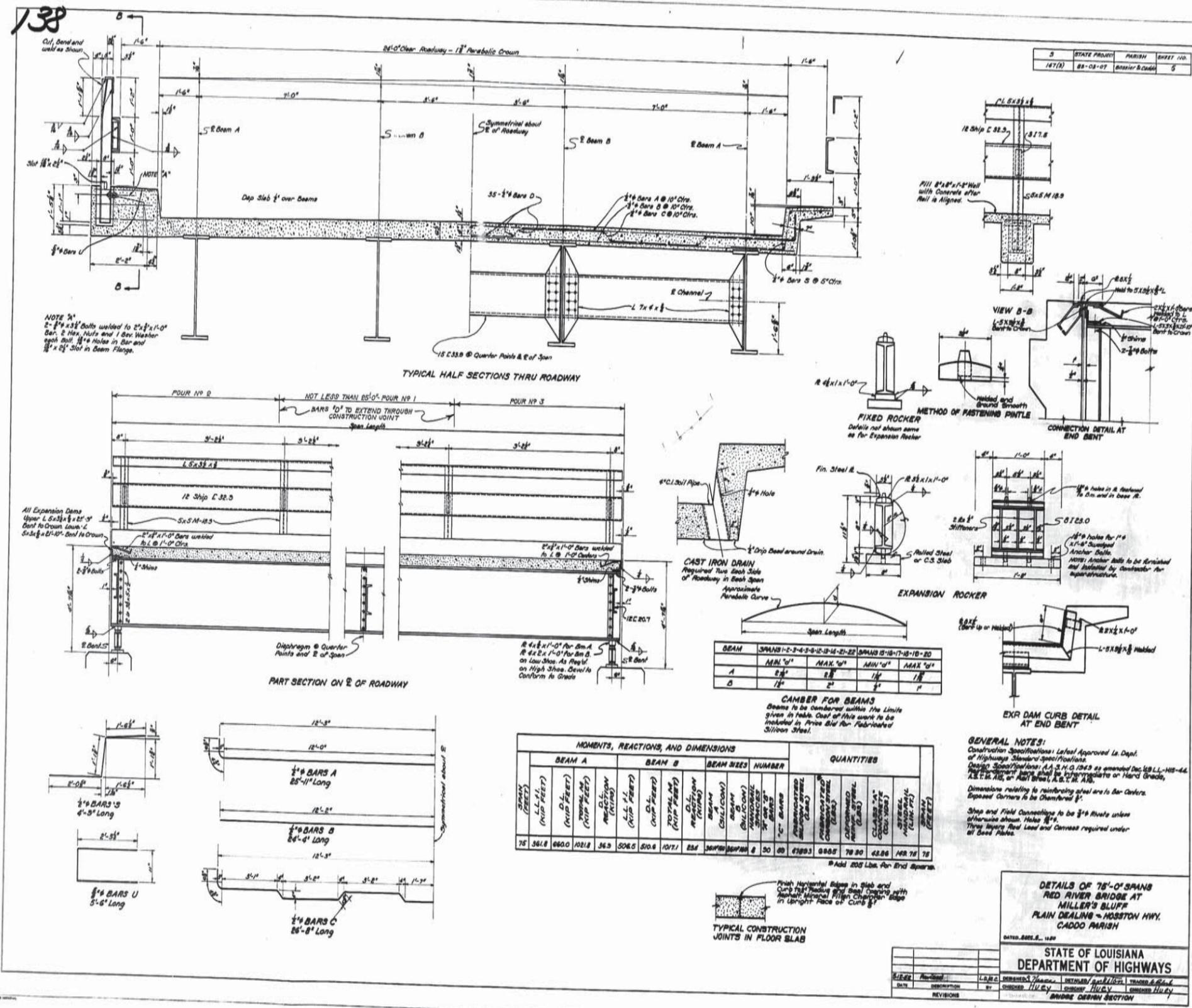
FINAL TRACINGS





FINAL TRACINGS

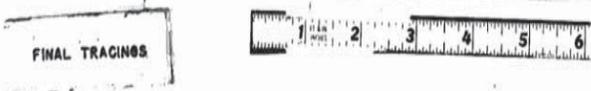
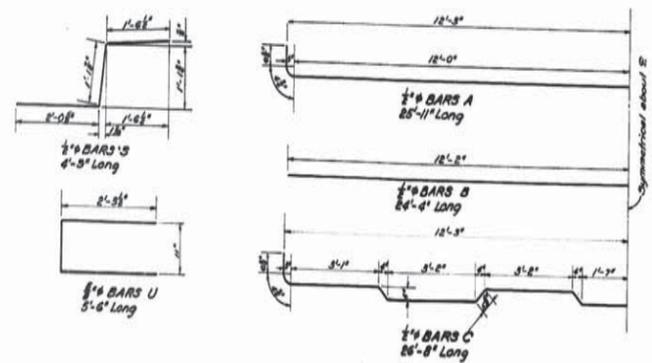




3	STATE PROJECT	PARISH	SHEET NO.
147(2)	88-08-07	BRASSIE & CUMBER	5

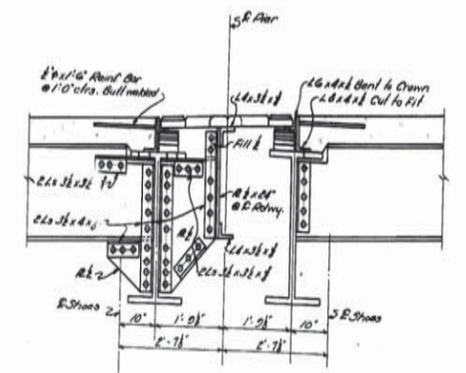
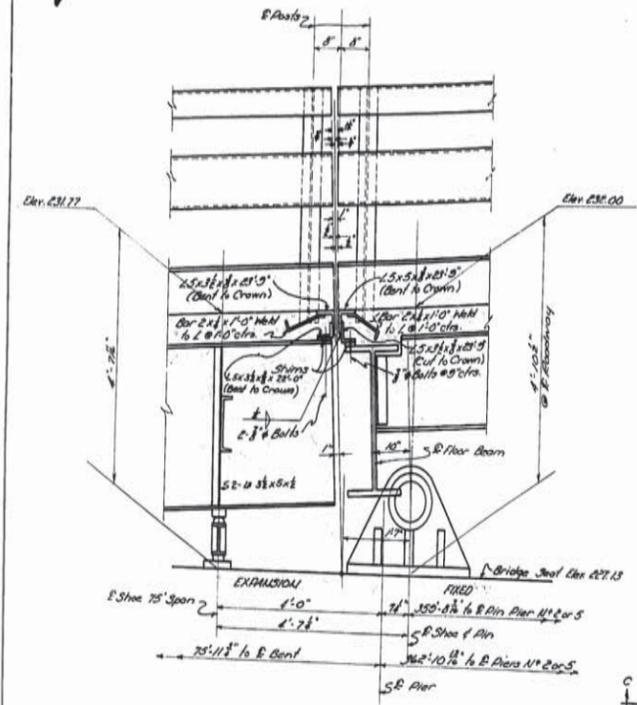
BEAM	SPAN	MIN. W"		MAX. W"	
		A	B	A	B
A	25'	8"	8"	14"	14"
B	18'	12"	2"	4"	4"

MOMENTS, REACTIONS, AND DIMENSIONS									
BEAM A					BEAM B				
SPAN (FEET)	D.L. (KIP FEET)	TOTAL M. (KIP FEET)	REACTION (KIPS)	REACT. (KIPS)	SPAN (FEET)	D.L. (KIP FEET)	TOTAL M. (KIP FEET)	REACTION (KIPS)	REACT. (KIPS)
75'	361.8	680.0	1021.8	36.3	506.5	510.6	1071.1	254	361.8
18'	361.8	680.0	1021.8	36.3	506.5	510.6	1071.1	254	361.8

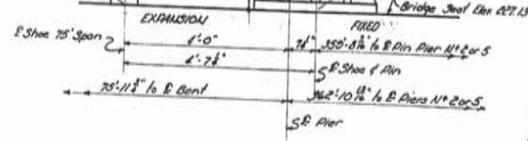
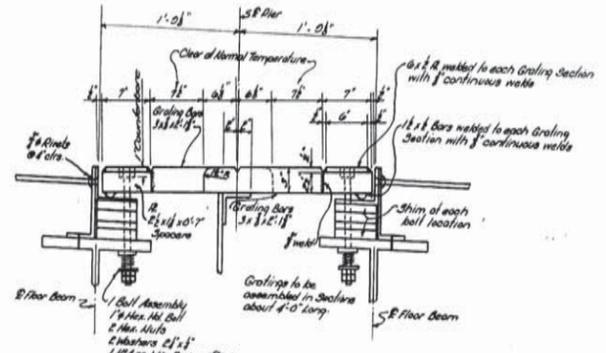


139

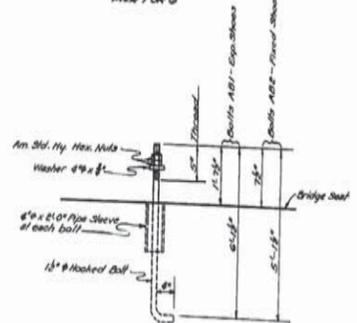
STATE PROJECT	AGENCY	SHEET
23-03-07	Clubb & Baxner	G



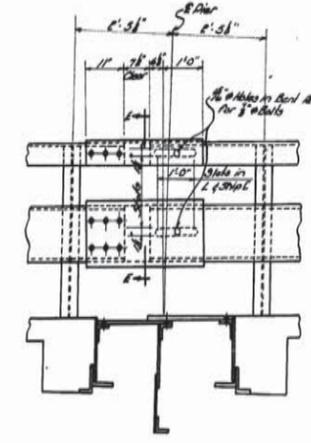
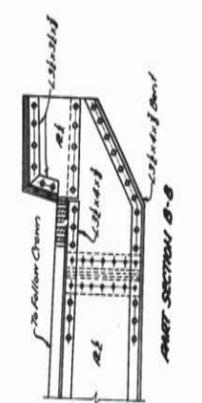
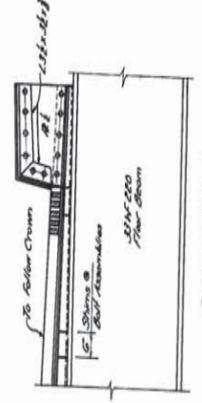
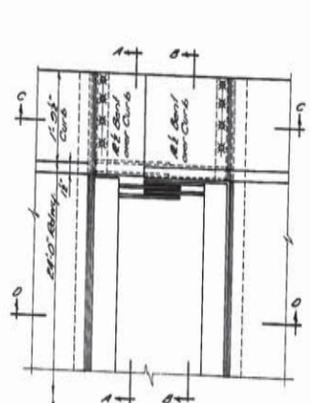
NOTE:  
At Pier No. 4 provide  
R<sub>s</sub> 3/8" x 4" x 4" under  
Elev. Shores on upgrade  
side of Piers.



CONNECTION DETAILS  
PIER 1 OR 6

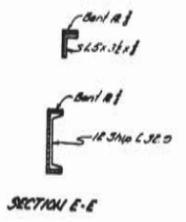


DETAIL OF ANCHOR BOLTS-360' TRUSS SPANS  
ANCHOR BOLTS AND 4" x 2 1/2" PIPE SLEEVES  
TO BE FURNISHED AND SET BY CONTRACTOR  
FOR SUBSTRUCTURE.



ADDITIONAL QUANTITIES AT JOINTS- ONE JOINT

LOCATION	FAB. CARBON STEEL
PIERS 1 OR 6	710 LBS.
PIERS 2, 3, 4 OR 5	11100 LBS.



CONNECTION DETAILS  
AT PIERS 1-6 INCLUSIVE  
RED RIVER BRIDGE AT MILLERS BLUFF  
CHADCO & BARNER ARCHITECTS  
DATED: Sep. 11, 1950

STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS

DESIGNED	BY	CHECKED	DATE
11-26-50	W.C. B.	J.M.	11-26-50
DESCRIPTION	BY	CHECKED	DATE
CONNECTION DETAILS	W.C. B.	J.M.	11-26-50

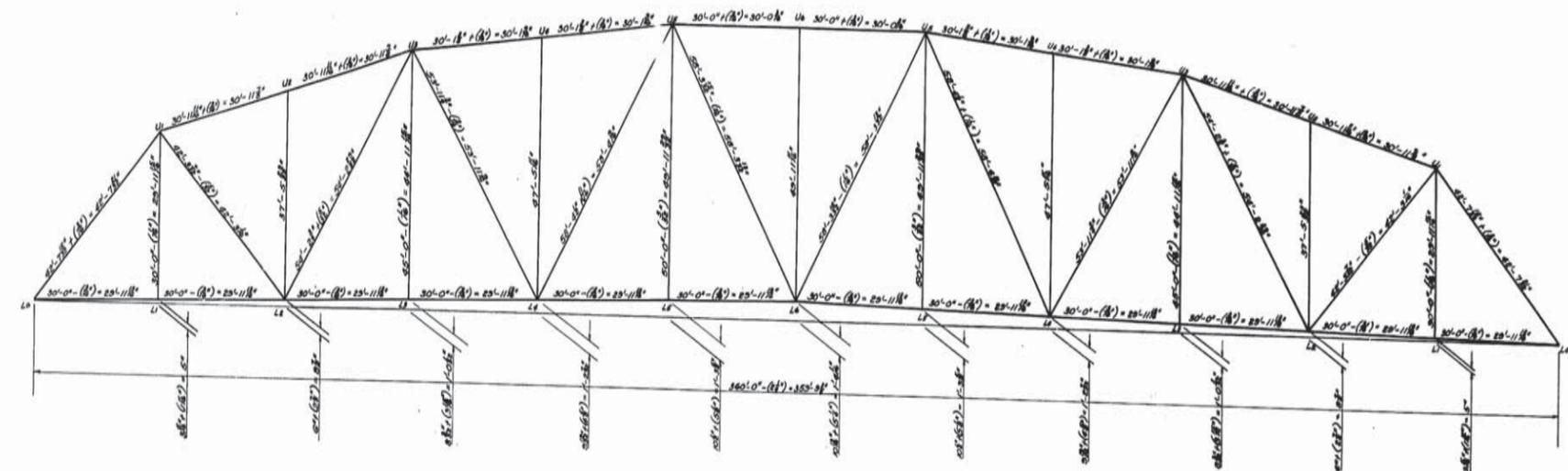
FINAL TRACINGS



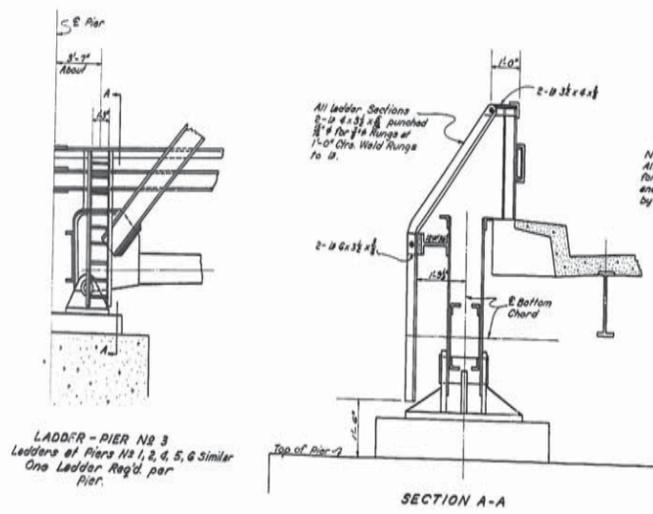
140

3	STATE PROJECT	PARISH	SHEET NO
147(5)	83-08-07	CADDO & BOSSIER	7

NOTE:  
 First dimension is geometric length or ordinate.  
 Second dimension is dead load camber increment or ordinate.  
 Third dimension is cambered length or ordinate.



CAMBER DIAGRAM - 360' TRUSS STD. SHT. 35-15  
 All Spans are Identical.



LADDER - PIER No 3  
 Ladders of Piers No 1, 2, 4, 5, 6 Similar  
 One Ladder Req'd. per Pier.

PIER ACCESS LADDERS

NOTE - ACCESS LADDERS:  
 All ladder material to be paid for as fabricated Carbon Steel and to be furnished and installed by Contractor for Superstructure.

TRUSS CAMBER DIAGRAM & ACCESS LADDERS  
**RED RIVER BRIDGE**  
 AT MILLER'S BLUFF, LA.  
 CADDO & BOSSIER PARISH

STATE OF LOUISIANA			
DEPARTMENT OF HIGHWAYS			
DATE	DESCRIPTION	BY	CHECKED
BRIDGE DESIGN SECTION			

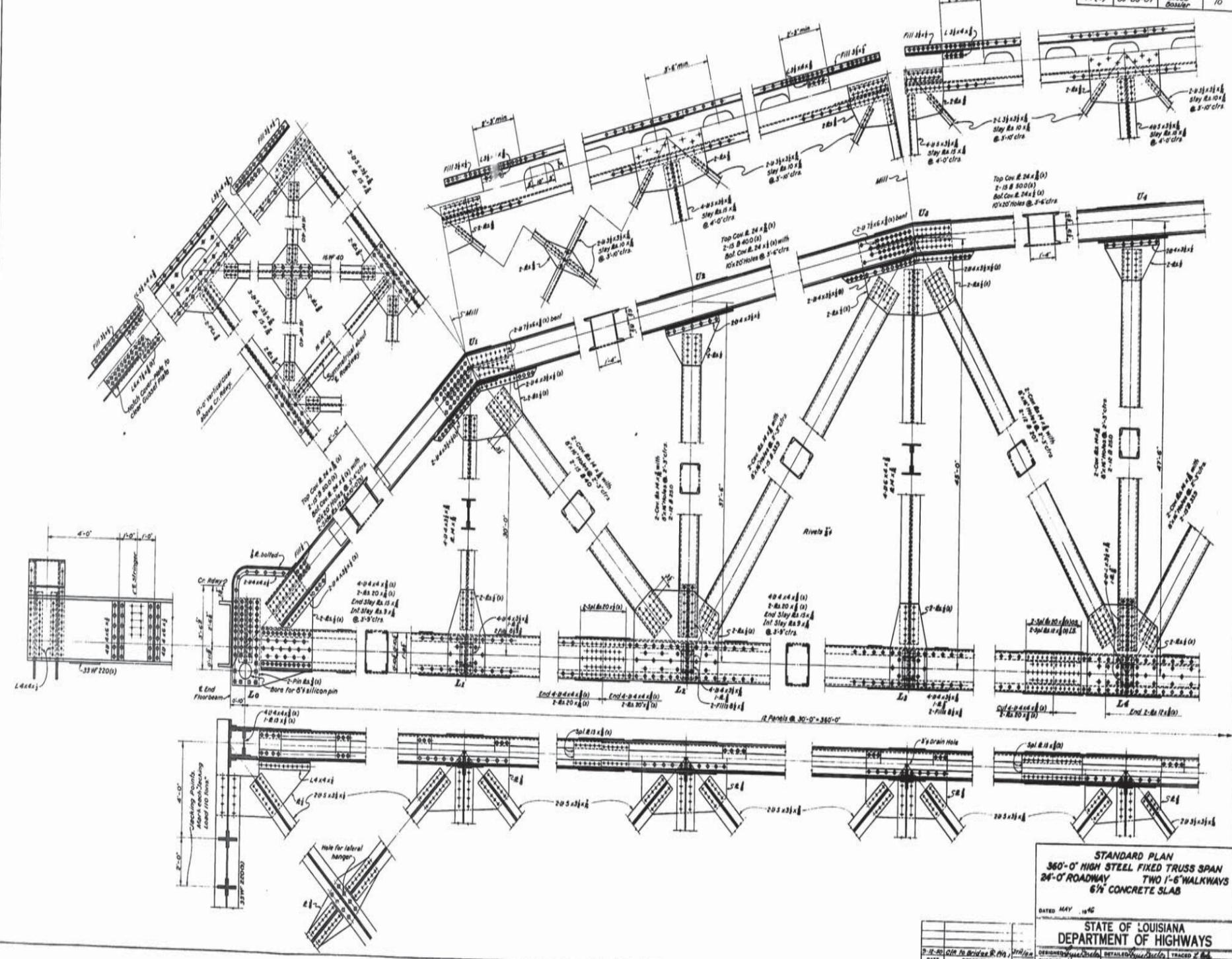
FINAL TRACINGS





143

3	STATE PROJECT	PARISH	SHEET NO.
197(3)	63-03-07	CADDO BOULDER	10



STANDARD PLAN  
 360'-0" HIGH STEEL FIXED TRUSS SPAN  
 24'-0" ROADWAY TWO 1'-6" WALKWAYS  
 6 1/2" CONCRETE SLAB

DATED MAY 1946

STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY	CHECKED	TRACED

BRIDGE DESIGN SECTION

SHEET 2 OF 4

SHT-35-15

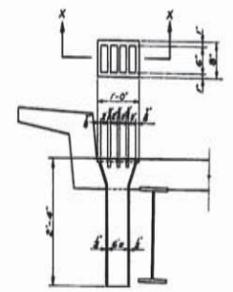
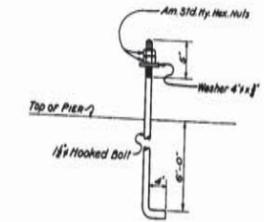
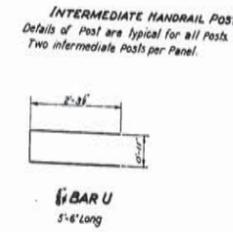
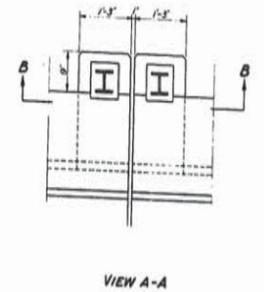
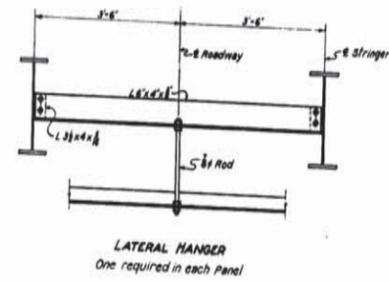
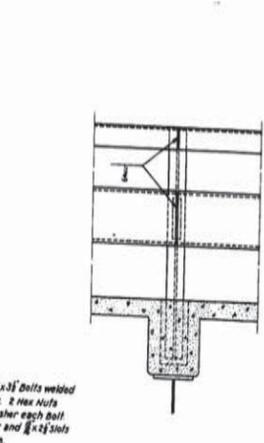
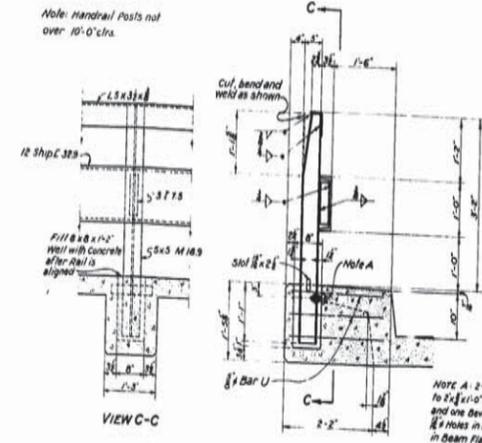
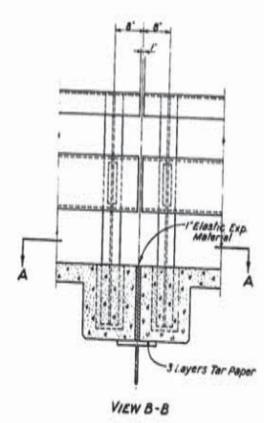
FINAL TRACINGS



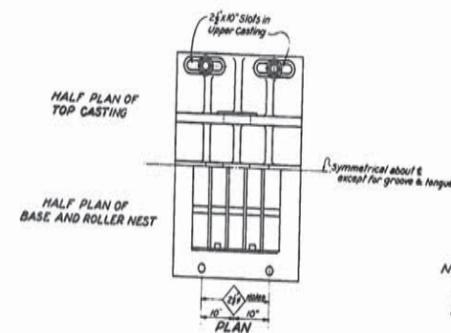


745

S	STATE PROJECT	PARISH	SHEET NO.
187(C)	83-03-07	Calcasieu	12

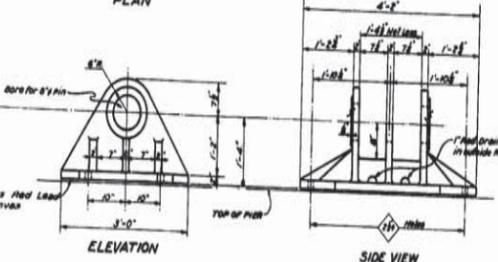
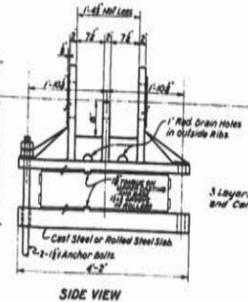
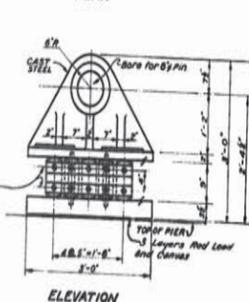
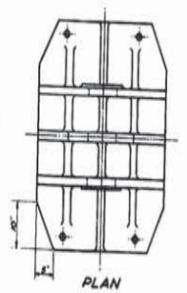


HANDRAIL DETAILS AT FLOOR EXPANSION JOINTS AT L2 AND L3



MATERIAL FOR ROLLER NEST  
5 Rollers 9x4 1/2 x 3'-0" FORGED STEEL  
copper Bearing (minimum content of copper shall be 0.2%) r.a.o.  
4 Side Bars 3' x 1/2"  
4 Tooth Bars 1/2" x 1/2"  
Cast Steel shall be annealed.

NOTE:  
All Surfaces in Expansion Shoes to Receive a Coat of Red Lead Paint Before Erection.



DETAILS OF EXPANSION SHOES  
2 REQUIRED

DETAILS OF FIXED SHOE  
2 REQUIRED  
Annealed Cast Steel

GENERAL NOTES:  
Construction Specifications: Latest approved La. Dept. of Highways Special Design Specifications: A.A.S.H.O. Standard Specifications for Highway Bridges, 1944 as amended Dec. 10, 1944. Live Load: H16-44.  
Rivets 3/4" and open holes 1/2" unless noted.  
Welding shall conform to Specifications for Welded Highway and Railway Bridges of the American Welding Society.

General reaming and Shop assembly of Trusses will be required.  
Ends of Floor Beams to be milled after connection angles are riveted in place.  
Stringer Lengths to be detailed so that Floor Beams will be straight with full dead load on Span and Stringers not to be riveted to Floor Beams until span has been swung.  
Trusses to be cambered for Dead Load.  
If Trusses are to be used on a vertical curve, geometric Lengths of Members to be computed so that the Bottom Chord and Tops of Floor Beams will conform to Vertical Curve, then Truss cambered for Dead Load.  
All reinforcing steel to be Intermediate or Hard Grade, A.S.T.M. A15, or Rail Steel, A.S.T.M. A16

STANDARD PLAN  
360'-0" HIGH STEEL FIXED TRUSS SPAN  
24'-0" ROADWAY TWO 1'-6" WALKWAYS  
6" CONCRETE SLAB

DATED MAY 1946

STATE OF LOUISIANA  
DEPARTMENT OF HIGHWAYS

DESIGNED BY: [Signature] CHECKED BY: [Signature]  
DRAWN BY: [Signature] CHECKED BY: [Signature]  
DATE: [Date] REVISIONS: [List]

