PASS MANCHAC BRIDGE HAER No. LA-38
(Bridge Recall No. 062080)
Carries U.S. Route 51 (US 51) over Pass Manchac between Akers (Tangipahoa Parish) and Galva (St. John the Baptist Parish)
Akers
Tangipahoa 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
PASS MANCHAC BRIDGE
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Location: Carries U.S. Route 51 (US 51) over Pass Manchac between Akers (Tangipahoa Parish) and Galva (St. John the Baptist Parish).

The Pass Manchac Bridge (Bridge Recall No. 062080) is located at latitude 30.285641 north, longitude -90.401150 west.[1] The coordinate represents the center 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: The Pass Manchac Bridge is significant for its very early use of prestressed-concrete cylindrical piles. Constructed from 1955 to 1957, the bridge is one of the first bridges in Louisiana that utilized prestressed-concrete structural elements, which began to be used nationally in the 1950s. A *Louisiana Civil Engineer* article about prestressed concrete research at Tulane University stated that the bridge carrying US 51 over Pass Manchac was notable for its use of this type of pile in the 1950s. Additionally, the bridge has a notable overall length of 3,012'-1" and features a cantilever-with-suspended-span unit, an uncommon superstructure type. This bridge was determined eligible for the National Register of Historic Places (National Register) in 2013 under *Criterion C: Design/Engineering* at the state level of significance.[2]

Historian: Rick Mitchell, Senior Cultural Resource Specialist, Mead & Hunt, Inc., 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 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, Inc. (Mead & Hunt) to prepare this document. It was prepared by senior cultural resource specialist Rick Mitchell of Mead & Hunt. Dietrich Floeter completed the photography.

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[1] The bridge is also known as Structure No. 62534529000003.

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

Part I. Historical Information

A. Physical History:

1. Date(s) of construction: 1957.

2. Engineer: Louisiana Department of Highways (LDH). Several LDH engineers were involved in the design of the bridge's primary structural elements.

3. Builder/Contractor/Supplier: W.R. Aldrich Co. of Baton Rouge, Louisiana, served as the contractor for the bridge's construction. Steel superstructure members and handrails were fabricated by the New Orleans plant of Orleans Materials & Equipment Co., Inc.[3]

4. Original plans and construction: Photocopies of the original plan sheets are available in the General Files room at the LADOTD's Baton Rouge headquarters. The plan set for test piles for the bridge's substructure were approved on February 8, 1954. Plan sheets for the bridge's superstructure, substructure, and foundation elements were prepared in October and November 1954. The sheets showing the general plan are dated February 16, 1955, and were approved on February 23, 1955. The plan set was approved by LDH Bridge Design Engineer J.B. Carter and by LDH Chief Engineer E.J. James, on February 23, 1955. Use of LDH standard plans was limited to the precast reinforced-concrete bents used on shorter approach spans and smaller details.[4]

Shop drawings for the bridge's steel elements, prepared by fabricator Orleans Materials & Equipment Company, are dated June 23 and June 24, 1955, while steel handrail shop drawings were prepared on August 20, 1955.[5] The bridge's test piles were constructed and tested in 1954 and bridge construction took place from 1955 to 1957. The Pass Manchac Bridge was opened to light traffic by mid-August 1957 and to full traffic by the end of August 1957.[6]

5. Alterations and additions: Alterations to the Pass Manchac Bridge have been limited to in-kind replacement due to damage and deterioration. The bridge's north fender was repaired in

[3] Orleans Materials & Equipment Co., Inc., "Shop Drawings, Tangipahoa and St. John the Baptist Parishes, State Project No. 17-02-22, Pass Manchac Bridge," 1955, Louisiana Department of Transportation, General Files.

[4] State of Louisiana, Department of Highways, "Plans of Proposed State Highway, Pass Manchac Bridge, Ponchatoula-Frenier Highway, Tangipahoa and St. John the Baptist Parishes, State Route No. 33, State Project 17-02-22, Contract No. 1.," February 23, 1955, Louisiana Department of Transportation, General Files.

[5] Orleans Materials & Equipment Co., Inc., "Shop Drawings, Tangipahoa and St. John the Baptist Parishes, State Project No. 17-02-22, Pass Manchac Bridge."

[6] "New Pass Manchac Bridge to Be Opened to Full Traffic Soon," *New Orleans Times-Picayune*, August 15, 1957, 1.

1958 after a tugboat collision.[7] A plan sheet dated December 10, 1962, details repair of a 4'-0"-long portion of a pile on bent 15 supporting two approach spans, with straightening of reinforcing steel and replacement of damaged concrete.[8] The northeast fender was replaced in a 1979-1983 project and substantial in-kind replacement of fenders took place in 2002.[9]

On September 13, 1976, two barges struck the Pass Manchac Bridge, resulting in the collapse of a 257'-0"-long segment of the bridge, including the center span and south anchor span of the main cantilever-with-suspended-span unit, a portion of a steel beam span, and two bents.[10] Emergency repairs resulted in the in-kind reconstruction of the missing superstructure and substructure elements in just two months.[11]

B. Historical Context:

Historical background

The Pass Manchac Bridge crosses Pass Manchac just east of Lake Maurepas. Pass Manchac is a 7-mile-long waterway connecting Lake Maurepas and Lake Pontchartrain. The waterway was traditionally used as an alternate route from New Orleans to interior Louisiana, avoiding the strong currents of the Mississippi River. The tidally influenced Manchac Swamp surrounds Pass Manchac between the two lakes. Although waterlogged and floodprone, a land route through the Manchac Swamp and nearby Maurepas Swamp represented a potential shortcut for travel rather than routes along the banks of the Mississippi River or around the east side of Lake Pontchartrain.

The New Orleans, Jackson and Great Northern Railroad (later merged into the Illinois Central Railroad) built its line through the area in the 1850s, with a bridge at the west edge of Pass Manchac near Lake Maurepas, just east of the current Pass Manchac Bridge.[12] In the mid-1920s a gravel roadway was cut through the Manchac Swamp from Pontchatoula in Tangipahoa Parish to Frenier in St. John the Baptist Parish. Across Pass Manchac, the LDH constructed a timber trestle bridge with a steel moveable main span near the north end of the bridge to allow for marine traffic.[13] The new road was co-designated as

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[7] "Work Orders On Area Road Projects Given," *Baton Rouge State Times*, August 26, 1958, sec. B.

[8] Louisiana Department of Highways, "Sheet No. A1, Repairs to Bent No. 15," December 10, 1962.

[9] Louisiana Department of Transportation and Development, "Project No. 017-02-0030," *trns.Port Systems Database*, n.d.

[10] Bill Mongelluzzo and Pierre DeGruy, "Manchac Span Rammed; 3 Vehicles Plunge," *New Orleans Times-Picayune*, September 14, 1976, sec. 1, 1.

[11] Joseph A. Lucia, "Pass Manchac Bridge to Be Reopened Dec. 15," *New Orleans Times-Picayune*, December 9, 1976, sec. 1, 16.

[12] Louis C. Hennick and E. Harper Charlton, *The Streetcars of New Orleans*, 2nd ed. (Gretna, Louisiana: Louis C. Hennick, 1975), Appendix III, F1, friedman.cs.illinois.edu/app3/Page__f1.htm.

[13] Louisiana Highway Commission, *Fourth Biennial Report of the Louisiana Highway Commission* (Baton Rouge, La.: Louisiana Highway Commission, 1928), 102–103, inside back cover.

US 51 and Louisiana State Route (LA) 33. In 1943-1944 a new bridge was constructed on the same location over Pass Manchac. Little is known of the mid-1940s project, but it appears to have been essentially a reconstruction project, with timber spans across most of the channel and a steel swing main span.[14] When the current Pass Manchac Bridge was completed in 1957, the 1944 bridge was removed from service. The timber trestle spans remained in place until fires in 1968 and 1969 destroyed the structure. The old bridge's destruction did not result in damage to the 1957 Pass Manchac Bridge.[15]

In the mid-1950s plans were made to upgrade US 51 between Hammond in Tangipahoa Parish and La Place in St. John the Baptist Parish. The US 51 route was envisioned as an eventual part of the Interstate Highway System.[16] Construction of a new fixed-span bridge at Pass Manchac was part of the overall US 51 improvement, but was broken out as a separate project from the roadway work.

Prior to the bridge's design, Dr. Maxwell Upson, chairman of the Raymond Concrete Pile Company (Raymond Pile), and Henry LeMieux, Raymond Pile's New Orleans District Manager, contacted the LDH to request consideration of new prestressed pile technology for the bridge's substructure in place of typical reinforced-concrete piles. Upson was a pioneer in adapting prestressed concrete technology for applications in structural foundations, including development of patented designs for prestressed piles. The LDH agreed to test the new material. Plans for the test piles were developed in a separate contract from the overall bridge design, and were approved in February 1954. The piles were fabricated at the Equitable Equipment Company's Tchefuncte River yard in Madisonville, Louisiana, using Upton's prestressed pile design. The test piles were hollow cylinders 54" in diameter with a 4"-thick concrete wall with longitudinal prestressed steel strands.[17]

The test piles were driven in June 1954. LDH engineers were satisfied with the performance and began preparation of the bridge plans in late 1954. Roy A. Wasson designed the prestressed-concrete piles used for the main span substructure, as well as the concrete slab approach spans and the approach span substructure.[18] Months after the completion of plans for the Pass Manchac Bridge in late 1954 and early 1955, Wasson and W.O. Pankey left the LDH to found WASKEY, Inc., a Baton Rouge-based engineering

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[14] Louisiana Department of Highways, *Thirteenth Biennial Report of the Department of Highways* (Baton Rouge, La.: Louisiana Department of Highways, 1946), 64–65.

[15] "Pass Manchac Bridge Burns," *New Orleans Times-Picayune*, October 12, 1969, sec. 1, 36.

[16] "New Pass Manchac Bridge to Be Opened to Full Traffic Soon," 1.

[17] Miles Bingham, "The Lake Pontchartrain Causeway Bridge - 1956-2012," *The Louisiana Civil Engineer* 21, no. 3 (May 2013): 8–9.

[18] State of Louisiana, Department of Highways, "Plans of Proposed State Highway, Pass Manchac Bridge, Ponchatoula-Frenier Highway, Tangipahoa and St. John the Baptist Parishes, State Route No. 33, State Project 17-02-22, Contract No. 1."

firm that pioneered the design and construction of prestressed concrete deck slabs for use as bridge decks and as oil and gas platforms on the Gulf Coast.[19]

The full plan set for the Pass Manchac Bridge was completed in February 1955 and the construction contract commenced on June 1, 1955, with W.R. Aldrich Co. as the contractor. While the piers for the largest bents used the emerging prestressed cylindrical concrete pile technology, most bents were designed with conventional reinforced-concrete square piers. The fabricator of the cylindrical prestressed piles used in the main span's substructure is not definitively known.[20] While the piles were likely fabricated in the same Madisonville facility as the test piles driven in June 1954, available documentation does not specify the piles' fabricator.

The bridge's superstructure was relatively routine in terms of design, with the main span consisting of a steel cantilever-with-suspended-span unit flanked by numerous steel-beam spans between 40'-0" and 85'-0" in length.[21] Exact construction start and end dates are not known, but based on annual construction cost figures, the vast majority of work took place between July 1, 1955, and June 30, 1957.[22] An August 15, 1957, newspaper article noted that the new Pass Manchac Bridge itself was completed but open only to "light traffic due to incomplete approach work" with full traffic expected to be authorized within ten days.[23] Just a month earlier, a 64.7-mile stretch of US 51 from New Orleans to McComb, including across Pass Manchac, had been formally designated to become part of the Interstate Highway System. The highway was later numbered Interstate Highway (I-) 55. The new bridge was intended to eventually serve as part of a one-way pair, handling one direction of highway traffic while the Pass Manchac Bridge handled the other.[24]

In the late afternoon of September 13, 1976, disaster struck the Pass Manchac Bridge when two loaded barges pushed by the tugboat *Leander Jr.* went off-course from the main channel and struck one of the bridge's primary bents. Three spans of the bridge collapsed, including the suspended span and south anchor span of the main cantilever-with-suspended-span unit and a portion of an 80'-0"-long steel beam

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[19] WASKEY, Inc., "The Waskey Story: Spanning the Gulf Coast, Since 1955," 2016, http://www.waskey.com/about-us/the-waskey-story.

[20] Bingham, "The Lake Pontchartrain Causeway Bridge - 1956-2012."

[21] State of Louisiana, Department of Highways, "Plans of Proposed State Highway, Pass Manchac Bridge, Ponchatoula-Frenier Highway, Tangipahoa and St. John the Baptist Parishes, State Route No. 33, State Project 17-02-22, Contract No. 1."

[22] Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1956* (Baton Rouge, La.: Louisiana Department of Highways, 1956), 47; Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1957* (Baton Rouge, La.: Louisiana Department of Highways, 1957), 52; Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1958* (Baton Rouge, La.: Louisiana Department of Highways, 1958), 51.

[23] "New Pass Manchac Bridge to Be Opened to Full Traffic Soon," 1.

[24] Vincent Randazzo, "Highway Program Could Save Lives," *New Orleans Times-Picayune*, July 16, 1957, 3.

span. The collapse resulted in one death and at least two injuries to drivers.[25] Emergency repairs were soon underway, with Coastal Contractors, Inc. of Baton Rouge under contract in early October 1976 to complete repairs for $312,136.[26] By November 11, 1976, replacement piles and caps were in place and the superstructure was under construction.[27] The bridge was reopened to traffic on December 17, 1976. The federal government paid the entire repair cost and related expenses under an emergency disaster program.[28] The Federal Highway Administration approved an additional $300,000 in emergency funds to pay for an extension of the bridge's fender system to further reduce the risk of collision and damage from passing marine vessels.[29]

Planning for construction of I-55 through the Manchac Swamp began around 1970, with a fixed-span bridge planned for the Pass Manchac crossing parallel to the Pass Manchac Bridge.[30] Local concern over the new highway configuration resulted in design changes, and by 1973 the I-55 design called for a new four-lane bridge to carry both directions of I-55, with the existing 1957 bridge retaining its US 51 designation as a frontage road between the Akers and Galva communities on either side of Pass Manchac.[31] The new I-55 bridge over Pass Manchac opened by early 1979 to carry main-lane traffic, and the 1957 Pass Manchac Bridge was relegated to use as a frontage road serving mainly local traffic. Since that time, most work on the bridge has centered on the maintenance and periodic replacement of its timber fenders.[32] The Pass Manchac Bridge continues to serve frontage road and local traffic of US 51.

Engineering background: prestressed pile foundations

While the Pass Manchac Bridge's main cantilever-with-suspended-span unit is noteworthy, the bridge's primary significance derives from its very early use of cylindrical prestressed-concrete piles for foundations. The marshy and floodprone soils of southern Louisiana posed major problems for the construction of bridge substructures, including foundations. Engineers were forced to develop innovative methods for constructing substructures to support increasingly larger and longer bridges. Some of the innovations developed in Louisiana substructure design have pioneered engineering strategies of national significance.

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[25] Mongelluzzo and DeGruy, "Manchac Span Rammed; 3 Vehicles Plunge," 1.

[26] "Bid Accepted by La. for Manchac Bridge," *New Orleans Times-Picayune*, October 7, 1976, sec. 1, 24.

[27] "Beams Will Be Placed on Manchac Bridge," *New Orleans Times-Picayune*, November 11, 1976, sec. 1, 32.

[28] Lucia, "Pass Manchac Bridge to Be Reopened Dec. 15," 16.

[29] "$300,000 for Fenders on Pass Manchac," *New Orleans Times-Picayune*, September 15, 1977, sec. 1, 14.

[30] "Rail, Highway Work Planned," *New Orleans Times-Picayune*, May 20, 1970, sec. 1, 10.

[31] "Public Notice - Informational Public Hearing," *New Orleans Times-Picayune*, August 23, 1973, sec. 5, 1.

[32] Louisiana Department of Transportation and Development, "Project No. 017-02-0030."

Bridge substructure design in Louisiana has been dominated by pile-supported foundations since the 1920s.[33] A pile is described as "an element of construction placed in the ground, either vertically or nearly so, to increase its power to sustain the weight of a structure, or to resist a lateral force." They distribute load to the earth through a considerable depth, either by friction alone or by friction in combination with bearing on the pile end.[34] A review of Louisiana Highway Commission (predecessor agency to the LDH) standard plan titles and descriptions indicates many pile bents, both wood and concrete, were being used as standard plans beginning as early as 1925, indicating common use. Later, the piles became reinforced concrete, with only an occasional use of a timber pile.[35]

The development of precast, prestressed-concrete piles in the mid-twentieth century represented a major innovation in foundation technology. Prestressed piles provided greater bearing capacity, improved durability, and reduced steel requirements compared to reinforced-concrete piles.[36] In "Reflections on the Beginnings of Prestressed Concrete in America," Charles Zollman, a pioneering engineer in prestressed concrete, states that "Few are aware that it was in Louisiana that revolutionary pile foundation concepts were developed, tested and used."[37] The prestressed-concrete pile developments in the late 1930s and 1940s involved several engineers with Louisiana connections, as well as Tulane University's civil engineering department and Raymond Pile. The engineer Maxwell Mayhew Upson, chairman of Raymond Pile, had traveled to Europe in 1937 to study the applications of prestressed concrete, then in its infancy. Following his own testing of the material, Upson was confident that it would be well-suited for use in marine applications where its relatively crack-free construction could drastically reduce steel corrosion and deterioration.[38] Upson received a patent on his initial prestressed pile design in 1944, which was refined in a 1950 patent application for prestressed tubular structures.[39]

Using Upson's designs, Raymond Pile started a major prestressed concrete research and development program, centered in New Orleans. Upson, together with Henry F. LeMieux, the New Orleans District Manager for Raymond Pile, and Walter E. Blessey, Professor of Civil Engineering at Tulane, formed a team to study and test precast, prestressed concrete in the laboratory of Tulane's Civil Engineering

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[33] Mead & Hunt, Inc., *Historic Context for Louisiana Bridges* (prepared for the Louisiana Department of Transportation and Development, December 2013), 55.

[34] Henry S. Jacoby and Roland P. Davis, *Foundations of Bridges and Buildings* (New York: McGraw-Hill Company, Inc., 1914), 2–5.

[35] Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 56.

[36] Ben C. Gerwick, Jr., *Construction of Prestressed Concrete Structures*, 2nd ed., Wiley Professional Paperback Series (New York: John Wiley & Sons, 1993), 307.

[37] Charles C. Zollman, "The End of the 'Beginnings, Part 9 of Reflections on the Beginnings of Prestressed Concrete in America, Continuing Series," *PCI Journal*, February 1980, 124–45.

[38] Robert N. Bruce, Jr., PE, "Tulane University: Pioneer in Prestressed Concrete," *The Louisiana Civil Engineer* 10, no. 4 (August 2002): 5; Bingham, "The Lake Pontchartrain Causeway Bridge - 1956-2012," 8–9.

[39] Maxwell M. Upson, "Prestressed Composite Pile" (Englewood, N.J., August 8, 1944); Maxwell M. Upson, "Prestressed Tubular Concrete Structures" (Englewood, N.J., April 19, 1955).

Department. The work at Tulane, developed and marketed by Raymond Pile, led to the development of prestressed-concrete cylindrical piles that were driven experimentally in New York in 1948 and soon adapted for use in the Gulf of Mexico offshore oil industry.[40]

Raymond Pile was also interested in using prestressed cylindrical piles on Gulf Coast highway bridges. LeMieux asked the LDH to consider use of the new pile technology on the Pass Manchac Bridge, using 54"-diameter piles. Test piles for the project, completed and driven in June 1954, were a success. Test piles for the Pass Manchac Bridge were fabricated using the Hume Process, a method for centrifugally casting hollow pipes by pumping concrete into a spinning cylindrical mold lined with reinforcing steel, creating a very dense and uniform concrete pipe. The Hume Process had been in widespread use for decades, having been invented in Australia in 1910 by Walter Hume.[41] Before the construction of the Louisiana bridges, Upson improved the process further by using the “Cenviro” method, which combined the centrifugal spinning with vibration and rolling to form a more durable pipe with greater concrete strength.[42]

Prestressed cylindrical piles are present on bents 16-39 (counting from north to south) of the Pass Manchac Bridge, generally supporting the bridge’s main and major approach spans. The bridge’s minor approach spans are supported on conventional reinforced-concrete, square pile bents. The prestressed piles were cast in 16'-0"-long segments, then laid horizontally end-to-end to the desired pile length and joined by feeding steel post-tensioning cables through longitudinal voids cast in the pile segments. Upson’s pile designs of the 1950s called for using post-tensioning cables made up of 12 strands of No. 6 (0.162") high-tension wire. The cables were then tensioned using hydraulic jacks to impart the prestressing force and the voids infilled with grout, forming a single post-tensioned pile. The prestressed piles fabricated for the Pass Manchac Bridge were 36" and 54" in outside diameter, depending on the specific bent for which they were to be used, and were hollow with a 4"-thick shell. In the case of the Pass Manchac Bridge, the prestressed piles extend upward from the riverbed to a pedestal base at the waterline, with a second set of column piers extending from the pedestal base upward to the bent cap to support the bridge’s superstructure.[43]

The nearby Lake Pontchartrain Causeway (HAER No. LA-21), which opened on August 30, 1956, was the first bridge in the United States to use prestressed cylindrical concrete pile foundations. The Pass Manchac Bridge was completed just one year later and represents a very early use of this technology. The use of this foundation for bridges achieved wider application beginning in the 1960s, particularly for piles in marine applications with a high potential for corrosion. Nonetheless, this innovative technique

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[40] Bingham, “The Lake Pontchartrain Causeway Bridge - 1956-2012,” 8–9.

[41] Australian Academy of Technological Sciences and Engineering, *Technology in Australia 1788-1988* (Melbourne: Australian Academy of Technological Sciences and Engineering, 1988), 844.

[42] Bingham, “The Lake Pontchartrain Causeway Bridge - 1956-2012,” 10–11.

[43] State of Louisiana, Department of Highways, “Plans of Proposed State Highway, Pass Manchac Bridge, Ponchatoula-Frenier Highway, Tangipahoa and St. John the Baptist Parishes, State Route No. 33, State Project 17-02-22, Contract No. 1.”

remains relatively uncommon as applied to bridges. A 2005 report estimated that “at least 75” bridges had been built with prestressed cylindrical pile foundations in the United States, along the Gulf and Atlantic coasts.[44]

Engineering background: cantilever design

The Pass Manchac Bridge features a cantilever-with-suspended-span unit, providing a clear span of 125'-0" that allows for an 85'-0"-wide navigable channel for marine traffic on Pass Manchac. Cantilever design refers to a span that projects beyond a supporting column or wall and is counterbalanced and/or supported at only one end. Cantilever designs were first introduced in the U.S. in the late nineteenth century and applied to truss construction. However, cantilever support methods were later applied to other bridge types, including steel I-beams. Cantilever bridges are often used in response to complex site conditions, such as spanning a navigable channel with requirements for a wide horizontal clearance. Cantilever designs are particularly advantageous because of their adaptability to intermediate and long spans and because they can be erected without falsework, which would obstruct the navigable channel. In the twentieth century a suspended span was often added between two cantilevers, which was helpful in increasing the distance between piers for navigable waterways.[45] Cantilever bridge designs have been used since at least 1936 in Louisiana to cross navigable rivers; however, the use of cantilever designs is uncommon in the state, representing less than one percent of the state’s pre-1971 bridges.[46]

Part II. Structural/Design Information

A. General Statement:

1. **Character:** The Pass Manchac Bridge is a steel-beam cantilever bridge with concrete substructure. The bridge is an early example of the use of prestressed cylindrical concrete columns in bents and piles in bridge construction.

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

B. Description: The Pass Manchac Bridge is a 51-span, steel-beam bridge with a three-span cantilever unit comprising its main spans. The bridge is aligned on a general north-south axis, carrying US 51 over Pass Manchac, a navigable waterway connecting Lake Maurepas to the west and Lake Pontchartrain to the east. The bridge has a total structure length of 3,012'-1". It has an overall width of 33'-6", with a 28'-

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[44] Kingsley Lau, “Corrosion Performance of Concrete Cylinder Piles” (University of South Florida, 2005), 7–13, http://scholarcommons.usf.edu/etd/735.

[45] Parsons Brinckerhoff and Engineering and Industrial Heritage, *A Context for Common Historic Bridge Types* (prepared for The National Cooperative Highway Research Program, Transportation Research Council, and National Research Council, October 2005), 3-142-144, http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf; Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 63.

[46] Mead & Hunt, Inc., *Historic Context for Louisiana Bridges*, 63; 95-96. Louisiana’s Statewide Historic Bridge Inventory Project, for which this report was prepared, inventoried bridges built in the state through 1970.

0" clear roadway width, 1'-6" sidewalks on each side of the roadway, and a 1'-1-½" railing anchor base outboard of each sidewalk. To provide sufficient height for marine navigation, the bridge has a pronounced vertical grade, with a maximum grade of 5.5 percent on both the north and south approach spans.

The bridge's superstructure is composed of 51 spans that are numbered 1 to 51 from north to south on the construction plans as follows: fifteen, 40'-0", simple steel I-beam spans; five, 80'-0", simple steel I-beam spans; one, three-span, 285'-0", steel I-beam cantilever unit consisting of two 107'-6" cantilever anchor spans and a 70'-0" suspended center span; two, 80'-0", simple steel I-beam spans; one, 85'-0", simple steel I-beam span, twelve, 80'-0", simple steel I-beam spans; and thirteen, 40'-0", simple steel I-beam spans. Based on the superstructure's relationship to the substructure bents, the length of spans in the main cantilever unit alternatively may be expressed as, from north to south: 80'-0" anchor span; 125'-0" cantilever/suspended span (27'-6" cantilever, 70'-0" suspended, 27'-6" cantilever); 80'-0" anchor span. The deck rests directly on the end bent cap and abutment for 1'-0-½" on each end of the bridge.

Pass Manchac serves as a navigable waterway between Lake Maurepas and Lake Pontchartrain. The bridge was designed with two channels for marine traffic. The cantilever unit, located north of the bridge's midpoint, provides a wider span length that accommodates a primary channel with 85'-0" horizontal clearance and 50'-0" vertical clearance. A secondary channel with 70'-0" horizontal clearance and 56'-0" vertical clearance is located under the bridge's center span at the point of greatest vertical clearance.

Main span superstructure

The main three-span cantilever unit (spans 21-23) has five lines of rolled steel I-beams, spaced at 6'-6" on center. Each I-beam has a web depth of 36". The steel beams are constructed of American Society for Testing and Materials (ASTM) A242, high-strength, low-alloy steel. The top flange of each beam is partially embedded in the concrete bridge deck. Cover plates are welded on the top and bottom beam flanges of the cantilever anchor spans. The suspended span is connected to the cantilever anchor spans by a bolted clamp connection. Diaphragms, spaced at 20'-0" intervals along the anchor spans and at 16'-9" intervals on the suspended span, serve as transverse stiffeners between beams. Each anchor span diaphragm is composed of horizontal and diagonal steel angles welded to vertical stiffener plates, which are welded to the flanges of the adjoining beams, forming a rectangular frame. Each suspended span diaphragm is composed of a single channel beam riveted to vertical stiffener plates, which are riveted to the flanges of the adjoining beams. Beams are supported on fixed steel pedestal bearings and expansion steel rocker bearings, which rest on the bent caps.

Approach spans

Spans 16-20 and 24-38 are the bridge's major approach spans. The spans, 80'-0" and 85'-0" in length as noted above, are made up of five lines of rolled steel I-beams spaced at 6'-6" on center. Each I-beam has a depth of 36". Beams are supported on fixed or expansion steel rocker bearings that rest on bents.

Spans 1-15 and 39-51 are the bridge's minor approach spans. Each span is 40'-0" in length and is made up of five lines of rolled steel I-beams spaced at 6'-6" on center. Each beam has a depth of 27". Beams are supported on steel base plates that rest on bents.

Diaphragms spaced at 20'-0" serve as transverse stiffeners between beams. Each diaphragm is composed of a single channel beam riveted to vertical stiffener plates, which are riveted to the flanges of the adjoining beams. The approach span beams are constructed of silicon steel to provide a high-strength steel compatible with riveted connections.

Substructure
The bridge's substructure consists of 52 bents that are numbered 1 through 52 from north to south on construction plans. The precast prestressed concrete columns used on Bents 16-39 represent the Pass Manchac Bridge's most significant design feature. These columns were constructed in 16'-0"-long segments using the spun-cast method, in which centrifugal force is applied to a spinning circular mold to force the concrete mix against the sides of the mold as water separates from the mix. The result is a hollow column with a uniform diameter. This method was used to fabricate columns for piers or bents and also for use as piles and, in that case, are identified as "column piles." For piles, the column segments were laid end-to-end to the desired pile length and joined with steel prestressing cables through longitudinal voids cast in the pile segments. The cables were then tensioned using hydraulic jacks to impart the prestressing force and form a single post-tensioned pile. A 5'-0" section at the top and bottom of each pile is infilled with conventional steel-reinforced concrete as a plug and to anchor steel bars that extend from the infill to connect with bent caps and footings.

Bents 22 and 23, which support the cantilever unit's center span, are each made up of two, cylindrical, 4'-6"-diameter, precast, prestressed-concrete columns with reinforced-concrete bent cap and rectangular reinforced-concrete strut at the column midpoint. Each column has a circular battered base of 9'-4", which tapers inward to the column at 6'-0" above the footing level. The columns rest on a rectangular reinforced-concrete pedestal base that measures 42'-6" by 14'-0" and is located at mean water level. Supporting the pedestal base are nine, cylindrical, 4'-6"-diameter, precast, prestressed-concrete column piles. The piles are arranged with four piles angled downward and outward from each of the two column piers, with one pile extending directly downward from the center of the base. These bents are situated on either side of a navigable channel, likely explaining the need for a waterline base surrounding the bent column piers and piles.

Bents 21 and 24 support the cantilever unit's anchor spans. Each bent has a reinforced-concrete bent cap supported on four, cylindrical, 4'-6"-diameter, precast, prestressed-concrete column piles. The two interior piles extend straight downward, while the two end piles are battered at a slight outward angle. These bents do not have a tie beam or waterline pedestal base.

Bents 26 and 27 support the 85'-0" steel-beam span at the midpoint of the bridge. Each bent is comprised of two, cylindrical, 4'-6"-diameter, precast, prestressed-concrete columns with reinforced-concrete bent cap and rectangular reinforced-concrete strut at the column midpoint. Each column has a battered base that begins to taper outward 6'-0" above the footing level, reaching a maximum diameter of 9'-4" at the base. The columns rest on a rectangular reinforced-concrete pedestal base that measures 41'-0" by 13'-0" and is located at mean water level. Below the pedestal base are nine, cylindrical, 3'-0"-diameter, precast, prestressed-concrete column piles. The piles are arranged with four piles angled downward and outward from each column pier, with one pile extending directly downward from the center of the base. These bents are situated on either side of a navigable channel, likely explaining the need for a waterline base surrounding the bent column piers and piles.

Bents 18, 31, 35, and 38 are made up of six, cylindrical, 3'-0", precast, prestressed-concrete piles that form both the substructure and the foundation, with the piles extending from the pile cap to the bottom of the Pass Manchac channel. The piers are topped by a rectangular reinforced-concrete bent cap. The piles are angled slightly outward from the bent cap. Bents 17, 19, 20, 25, 28-30, 32-34, 36, and 37 are composed of three, cylindrical, 4'-6"-diameter, precast, prestressed-concrete piles topped with a rectangular reinforced-concrete bent cap, with end piles angled slightly outward laterally from the bent cap. Bents 16 and 39 are composed of four, cylindrical, 3'-0"-diameter, precast, prestressed-concrete piles with a reinforced-concrete bent cap. These bents each support one 80'-0" major approach span and one 40'-0" minor approach span.

The remaining bents, supporting the bridge's approach spans, are composed of square, precast, reinforced-concrete piles, with varying pile inclination and size. The bents each have between four and six piles, and the piles are between 1'-4" and 2'-0" square. The piles of each bent are topped with a square or rectangular reinforced-concrete bent cap. Bent caps at bents 1 and 52—the bridge's end bents—extend outward perpendicular to the roadway to form short wingwalls.

Channel protection
Concrete and steel revetments are located at the north and south approaches to the bridge. The revetments serve as a low retaining wall to protect the earthen approach fill and end bent at each end of the bridge. Revetments extend from the northwest and southwest corners of the bridge, with a 4"-thick concrete cap over sheet steel piling that extends perpendicular from the bridge and then curves back along the approach fill. A similar concrete cap also extends perpendicular from the bridge for 45'-0" eastward from the bridge's northeast and southeast abutments. Unmortared broken rock riprap surrounds the revetment to the waterline.

Fenders and navigation lights
The two navigable channels have fender systems to protect bents from collision damage by marine traffic. The primary channel, located between bents 22 and 23, is delineated by a series of creosoted timber pile clusters, with individual timbers approximately 70' in length, bound by steel strands and placed at 8'-0" spacing from one another. Timber boards are aligned horizontally between the pile clusters, roughly forming U-shaped fenders around each bent. The secondary channel, located between bents 26 and 27, consists of two creosoted timber pile clusters for each bent. A pile cluster is located 25'-0" upstream and downstream of each bent, flush with the 70'-0" relief channel width.

Navigation lights guide marine traffic through the primary channel. Control equipment for the lighting is located on a steel mounting bracket, attached to the pedestal base of bent 22. The lamps are enclosed in a housing of colored Fresnel glass lens and bronze. Red lights are mounted on outside pier clusters of the fenders, while a green light is mounted on a metal conduit that attaches to the deck slab and extends 4'-3" below the deck.

Deck/sidewalk

The bridge has a concrete deck of 6" in depth with a curb-to-curb width of 28'-0". As constructed, the deck was cast over the top 1/2" of top flanges of the steel beam superstructure. The deck has a slight roadway crown to promote drainage, which is provided by periodically spaced rectangular openings in the deck at the curbline. On either side of the roadway deck is a concrete curb and raised sidewalk, and railing base, cast integrally with the deck and cantilevered outward past the outside steel beam. The curb height is 10", the sidewalk is 1'-6" wide, and the railing base is 1'-1-½" wide.

Railing

The bridge's railings are composed of rectangular concrete posts with a single rectangular concrete rail between posts. A cast steel bracket is bolted to the top of each railing post. The brackets curve upward and outward, and hold a 2-½"-diameter steel pipe rail. End posts, mounted on the end bent caps, terminate the concrete railing and flare outward at each corner of the bridge. The end posts have a recessed form panel with lettering "1957" on the northeast and southwest end posts and "PASS MANCHAC" on the northwest and southeast end posts. The southeast end post has broken off from the bent cap and is resting on the ground adjacent to the bridge.

Non-historic metal guardrail, mounted on wood posts, is located at the bridge approaches. The W-shaped approach guardrail transitions to a wider thrie-beam shape and extends approximately 20' onto the bridge itself at the four corners of the bridge. The thrie-beam rails are mounted on wood blocks that are bolted to the concrete railing, obscuring the original end posts and railing ends.

C. Site Information: The bridge spans Pass Manchac, at the boundary of Tangipahoa Parish to the north and St. John the Baptist Parish to the south. At this location, US 51 is a two-lane paved roadway that parallels I-55. Small, unincorporated communities are located on either end of the Pass Manchac Bridge, along US 51. Akers, also known as Manchac, is on the bridge's north end in Tangipahoa Parish, while the Galva community is just south of Pass Manchac in St. John the Baptist Parish. There are scattered commercial and residential buildings and parking areas to the northeast and southeast of the Pass Manchac Bridge, along US 51 and the nearby shoreline of Pass Manchac. West of the bridge is the I-55 bridge and Lake Maurepas. A rail bridge now owned and operated by the Canadian National Railway spans Pass Manchac to the east of the vehicular bridges. Beyond these small concentrations of development, the general area is rural and is characterized by flat, vegetated, marshlands and swamps prone to frequent flooding, including the Manchac Wildlife Management Area east and southeast of Galva.

Part III. Sources of Information

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HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

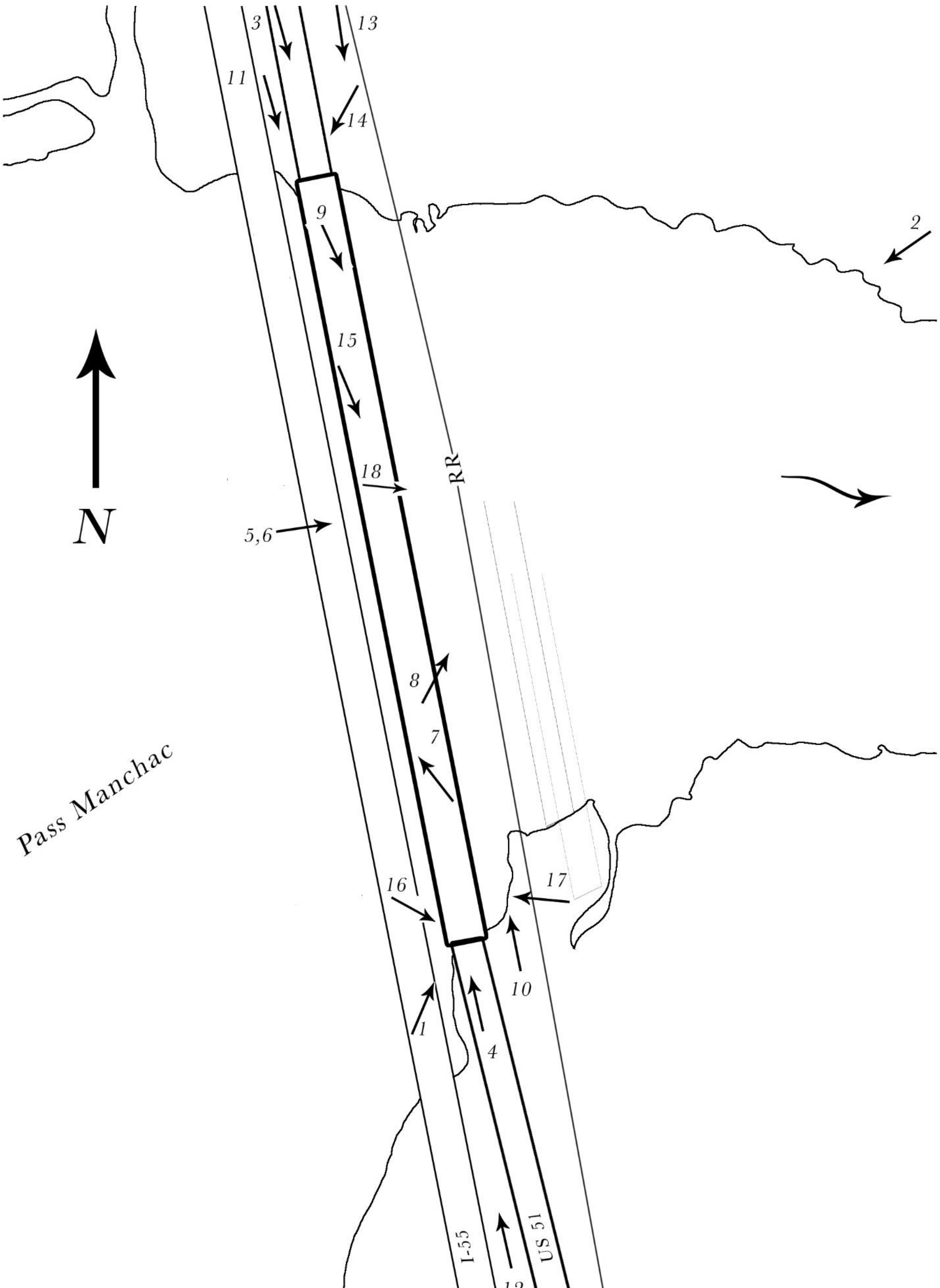
PASS MANCHAC BRIDGE **HAER No. LA-38**
(Bridge Recall No. 062080)
Carries U.S. Route 51 (US 51) over Pass Manchac between Akers (Tangipahoa Parish) and Galva (St. John the Baptist Parish)
Akers
Tangipahoa Parish
Louisiana

INDEX TO BLACK AND WHITE PHOTOGRAPHS

Dietrich G. Floeter, photographer, February and March 2016
Scale Device 8 Feet Long

LA-38-1	General view of Pass Manchac Bridge from deck of I-55 bridge, from southwest
LA-38-2	East elevation, from east
LA-38-3	General view of north end of Pass Manchac Bridge in center, railroad lift bridge at left, I-55 bridge at right. From north
LA-38-4	General view of south end of bridge in center, from south
LA-38-5	Detail of center span, from west
LA-38-6	Detail of center span with 8-foot scale device (by seventh vertical from left), from west
LA-38-7	View from bridge railing showing relationship to I-55 to west, from southeast
LA-38-8	View from bridge railing showing relationship to railroad bridge to east, from southwest
LA-38-9	View from bridge railing showing relationship to railroad bridge to southeast, from northwest
LA-38-10	Detail of 1944 bridge’s pilings, from south
LA-38-11	Area view showing US 51 in center, from north
LA-38-12	Area view showing US 51 in center, from south

LA-38-13	View from deck of railroad bridge to Pass Manchac Bridge, from northeast
LA-38-14	View over old pilings to bridge, from northeast
LA-38-15	Detail view of bridge deck, from northwest
LA-38-16	Detail view of south abutment, from northwest
LA-38-17	Detail view of pier and underside, from east
LA-38-18	Detail view of railing and expansion joint, from west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US 51
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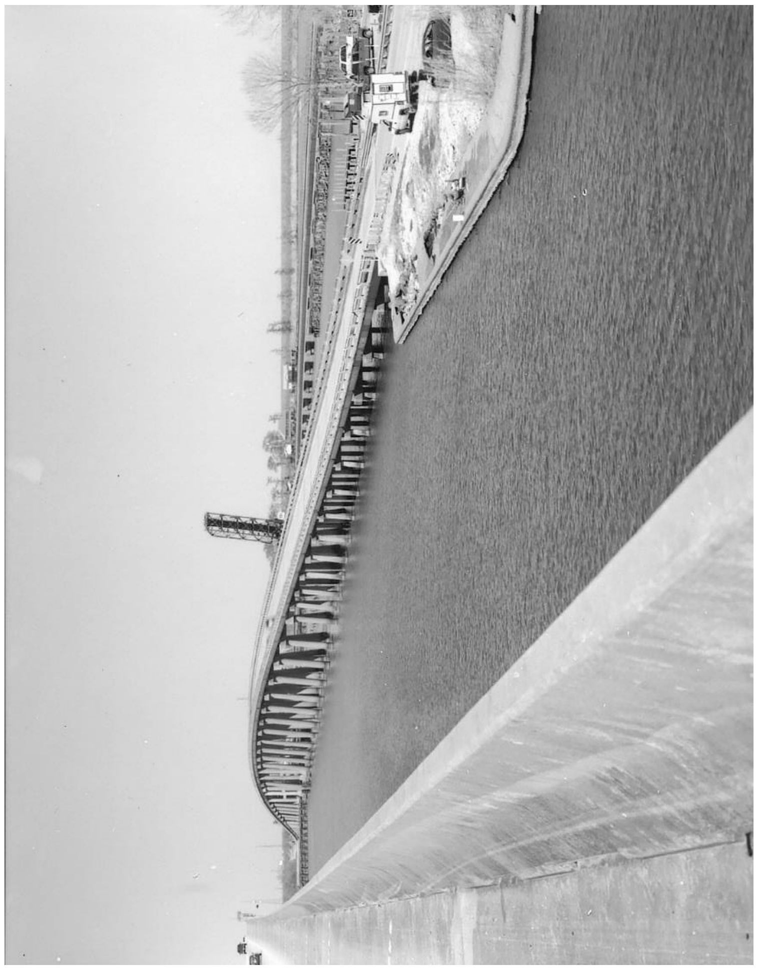
HAER NO. LA-38-1



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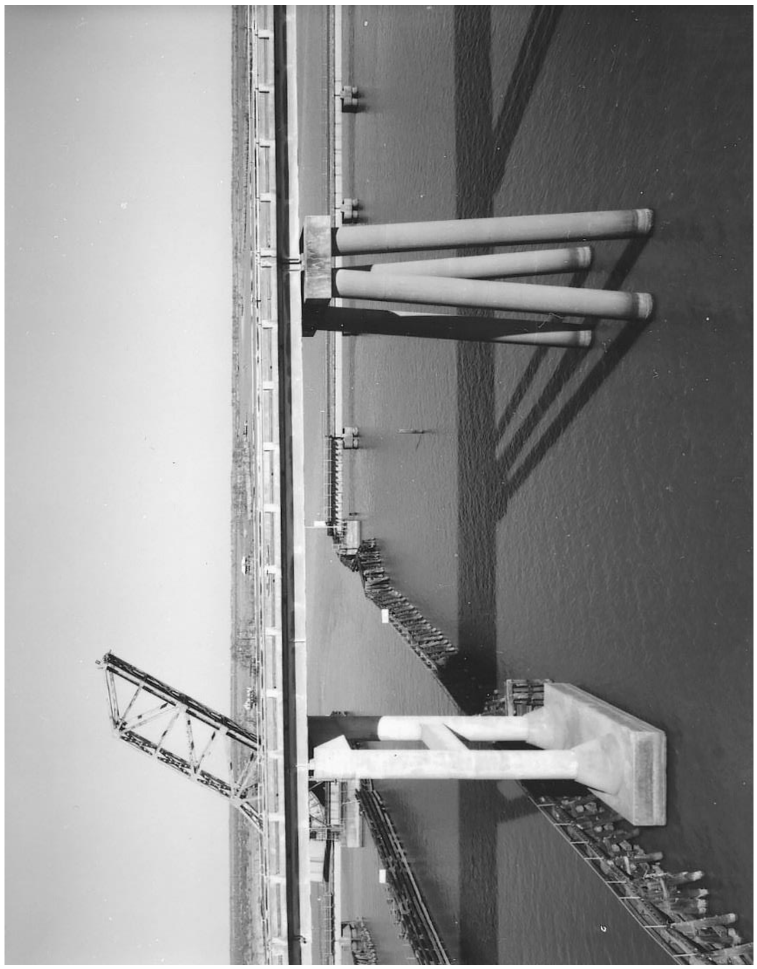

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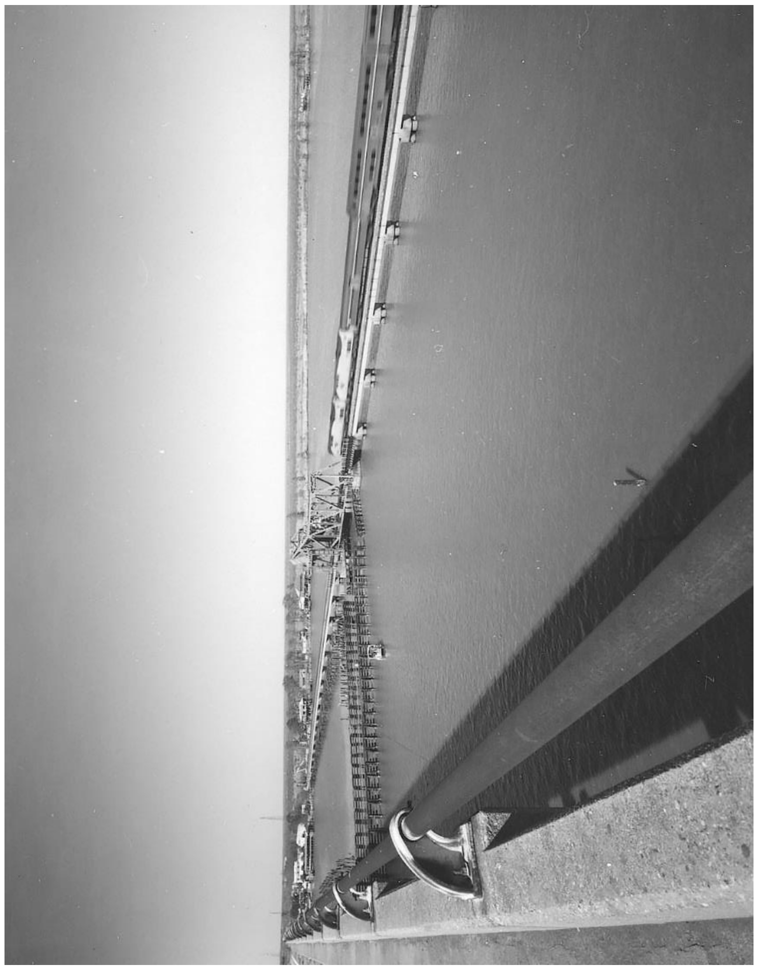

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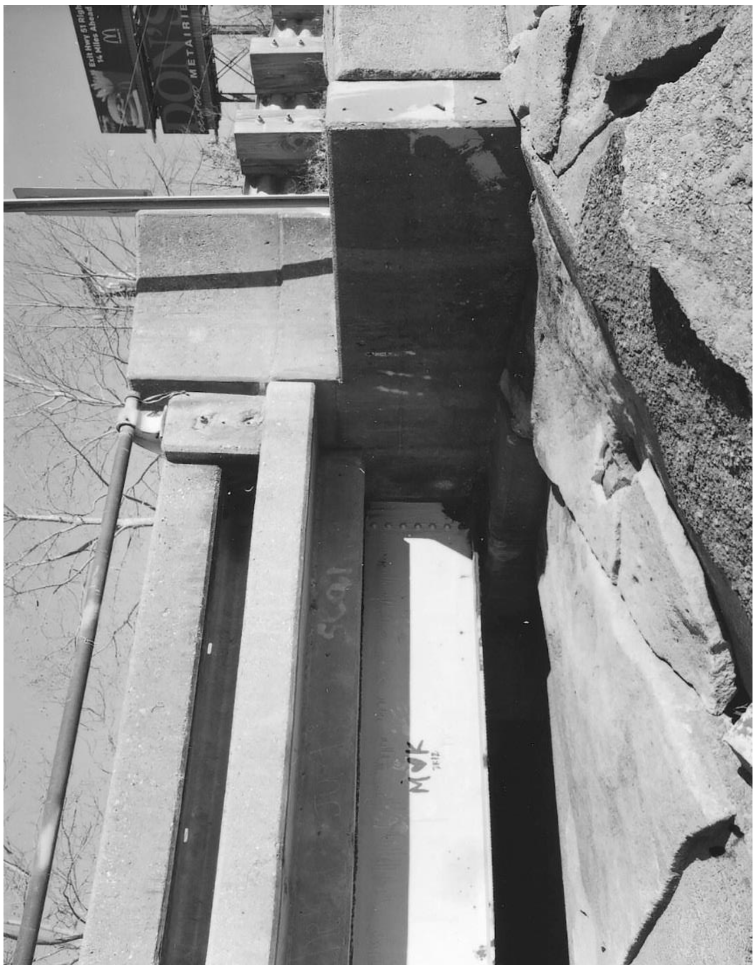

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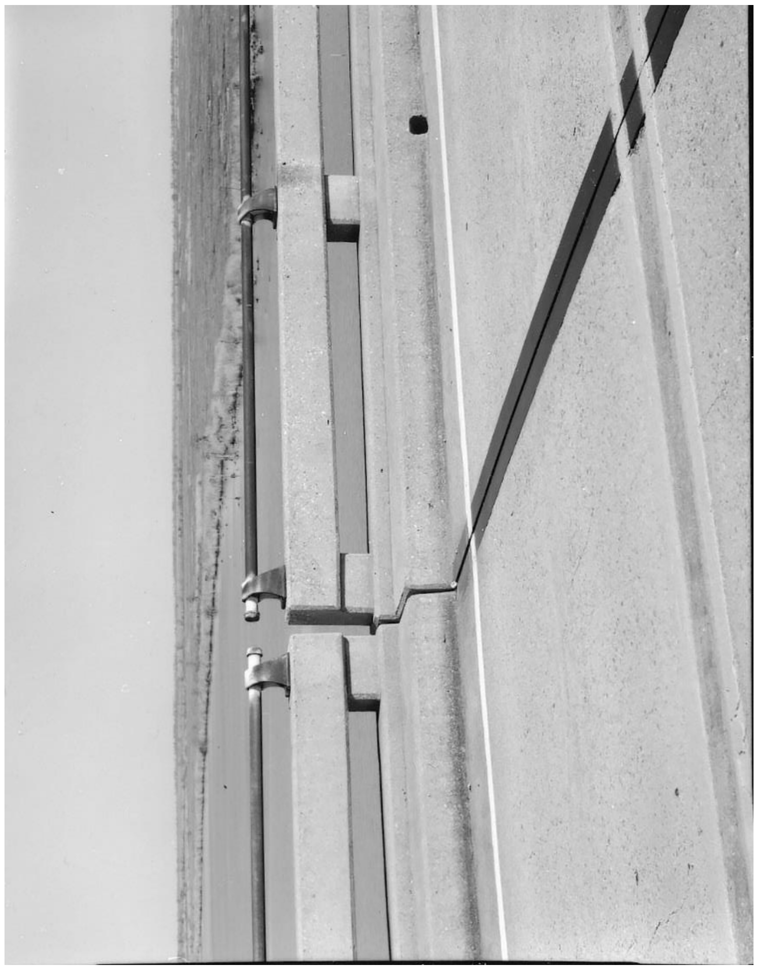

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SHEET No.	DESCRIPTION
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2	PILE DETAILS FOR 16"", 18"" AND 24"." PRECAST CONCRETE PILES.
3	PILE DETAILS FOR 36"# AND 54"# PRECAST, PRESTRESSED CONCRETE PILES.
4	PROJECT ENGINEER'S OFFICE.
5-6	FENDER SYSTEM.
7-8	LAYOUT OF REVETMENTS (NORTH AND SOUTH APPROACHES).
9-10	REVETMENT DETAILS.
11-12	NAVIGATION LIGHTS AND DETAILS.
13	TEMPORARY APPROACHES.
14	SPANS Nº 1 THRU 20 AND SPANS Nº 24 THRU 51.
15-16	SPANS Nº 21, 22 AND 23.
17	HANDRAIL DETAILS.
18	SUMMARY OF QUANTITIES.
19-23	CORE BORINGS AND TEST PILES.
24	BENTS Nº 1 AND 52.
25	BENTS Nº 2 AND 49.
26	BENTS Nº 3 THRU 7 AND Nº 50 THRU 51.
27	BENTS Nº 8, 14 AND 43.
28	BENTS Nº 9 THRU 11 AND Nº 44 THRU 48.
29	BENTS Nº 12, 13 & 15 AND Nº 40 THRU 42.

PRINCIPAL

30	BENTS Nº 16 AND 39.
31	BENTS Nº 17, 19, 20, 25, 28, 29, 30, 32, 33, 34, 36 AND 37.
32	BENTS Nº 18, 31, 35 AND 38.
33	BENTS Nº 21 AND 24.
34-35	BENTS Nº 22 AND 23.
36-37	BENTS Nº 26 AND 27.
38	GENERAL PLAN.
39	BORINGS - TEST AND PERMANENT PILE DATA.

ALTERNATE

30 A	BENTS Nº 16 AND 39.
31 A - 32 A	BENTS Nº 17, 18, 36, 37 AND 38.
33A - 34 A	BENTS Nº 19, 31, 32, 33, 34 AND 35.
35A - 36A	BENTS Nº 20, 21, 24, 25, 28, 29 AND 30.
37A - 38A	BENTS Nº 22 AND 23.
39A - 40A	BENT Nº 26
41A - 42A	BENT Nº 27
43 A	CONNECTION DETAILS BENTS Nº 17 THRU 21, 24, 25 AND Nº 28 THRU 38.
44 A	GENERAL PLAN.
45 A	BORINGS - TEST AND PERMANENT PILE DATA.

VOID

		STD. PLAN	REV. DATE
101	ALPHABET	C.M. 95	NOV. '54
102	YEAR PLATE	C.M. 97	JAN. '46
103	SLUMP TEST MOLD	R.M. 14	SEPT. '40
104	PROJECT SIGN	R.S. 23	JUNE '53

TOTAL NO. OF SHEETS = 59

201	TYPICAL SECTIONS
202 - 204	PLAN AND PROFILE
205 - 211	CROSS SECTIONS

LAYOUT MAP ONLY

	BY	DATE
SURVEYED BY		
PLOTTED		
TRACED	E. Mac Kelley	2-17-55
CHECKED	R.N.P. [illegible]	2-22-55

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

PLANS OF PROPOSED
STATE HIGHWAY

PASS MANCHAC BRIDGE
PONCHATOULA - FRENIER HIGHWAY
TANGIPAHOA AND ST. JOHN THE BAPTIST PHS.
STATE ROUTE Nº 33
STATE PROJECT Nº 17·02·22
CONTRACT Nº 1

INDEX TO SHEETS

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1	TITLE SHEET
2	LAY-OUT MAP
3	TYPICAL SECTION
4-6	PLAN & PROFILE
7	PILE DETAILS FOR 16"#, 18"# & 24"# PRECAST CONCRETE PILES
8	PILE DETAILS FOR 36"# & 54"# P/S/P. PILE
9	PROJECT ENGINEERS OFFICE
10-11	FENDER SYSTEM
12-13	LAYOUT OF REV (NORTH & SOUTH APP)
14-15	REVETMENT DETAILS
16-17	NAVIGATION LIGHTS & DETAILS
18	TEMPORARY APPROACHES
19	SPANS # 1 THRU 20 & 24 THRU 51
20-21	SPANS NO. 21, 22, & 23
22	HAND RAIL DETAILS
23	SUMMARY OF QUANITIES
24-28	CORE BORINGS & TEST PILES
29	BENTS NO. 1 & 52
30	BENTS NO. 2 & 49
31	BENTS NO. 3 THRU 7 & NO. 50-51
32	BENTS NO. 8, 14, & 43
33	BENTS NO. 9-11 & NO. 44-48
34	BENTS NO. 12-13, & 15 NO. 40-42
	PRINCIPAL
35	BENTS NO. 16 & 39
36	BENTS NO. 17, 19, 20, 25, 28, 29, 30, 32, 33, 34, 36, & 37
37	BENTS NO. 18, 31, 35, & 38
38	BENTS NO. 21 & 24
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43	GENERAL PLAN
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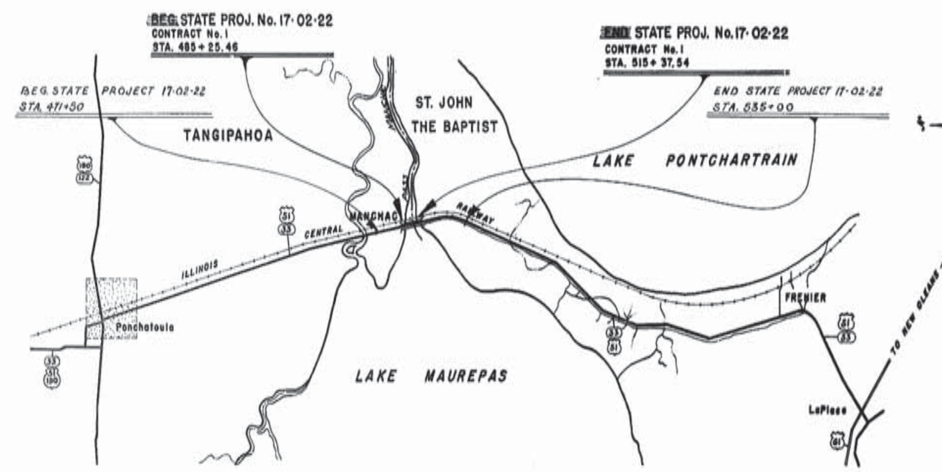
45	CROSS SECTION SHEETS

	STATE PROJECT	PARISH	SHEET NO.
	17·02·22	Tangipahoa St. John The Bapt.	#2

CONTRACT Nº 1

FIELD BOOKS

BOOK NO.	DESCRIPTION
36-956	DIARY
36-958	DIARY
36-975	MASONRY RECORD
37-070	REVETMENT CROSS-SECTIONS
38-746	ORIG. & FINAL MUCK X-SECT.
38-751	CONCRETE & STEEL RECORD
38-795	CONSTRUCTION NOTES
38-800	MISC. & FINAL X-SECTIONS
38-802	PILE RECORD
41-965	CONSTRUCTION NOTES
41-981	CONCRETE & STEEL RECORD (SPANS)
45-880	FINAL ESTIMATE



AS BUILT PLAN

THE TRACINGS FOR THIS PROJECT HAVE BEEN REVISED TO INCLUDE ALL "AS BUILT" FEATURES AS SHOWN BY Dan McCarty THE PROJECT ENGINEER ON THE "AS BUILT" OZALIDS.

J. B. CARTER,
BRIDGE DESIGN ENGINEER.

BY [signature] DATE 4/24/58

RECOMMENDED FOR APPROVAL
TRAFFIC & PLANNING ENGINEER

RECOMMENDED FOR APPROVAL
ROAD DESIGN ENGINEER

RECOMMENDED FOR APPROVAL
J.B. Carter 2-23-55
BRIDGE DESIGN ENGINEER

APPROVED
C. J. James 2-23-55
CHIEF ENGINEER

SCHEDULE OF REVISIONS

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED
3-6-55	[illegible]	3-7-55	[illegible]		

DATUM USED:
MAG. VAR.:
BEARINGS ARE
TRANSIT BOOKS:
LEVEL BOOKS: 37-070
SCALES PLAN:
PROFILE: HOR.
VERT.

LAYOUT MAP
SCALE: 1 INCH = 10,560 FEET
0 — 42,240 FEET

LENGTH OF PROJECT

DESCRIPTION	ALGEBRAIC SUM OF ALL EQUATIONS	GROSS LENGTH	EXCEPTION	BRIDGE LENGTH		ROADWAY LENGTH	
STA. TO STA.	FEET	FEET	FEET	FEET	MILES	FEET	MILES
~~485+25.46-515+37.54~~				~~3012.08~~	~~0.570~~		
471+50 - 485+25.46						1375.46	0.260
485+25.46 - 515+37.54				3012.08	0.570		
515+37.54 - 555+00						1962.46	0.372
TOTAL LENGTH OF BRIDGES				3012.08	0.570		
TOTAL LENGTH OF ROADWAY						3337.92	0.632
TOTAL MILES NET & GROSS				~~0.570~~ 1.202			

RECOMMENDED FOR APPROVAL DATE

[redacted]

DISTRICT ENGINEER
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED DATE

[redacted]

DIVISION ENGINEER
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

TYPE OF CONSTRUCTION:
HIGH LEVEL FIXED BRIDGE.

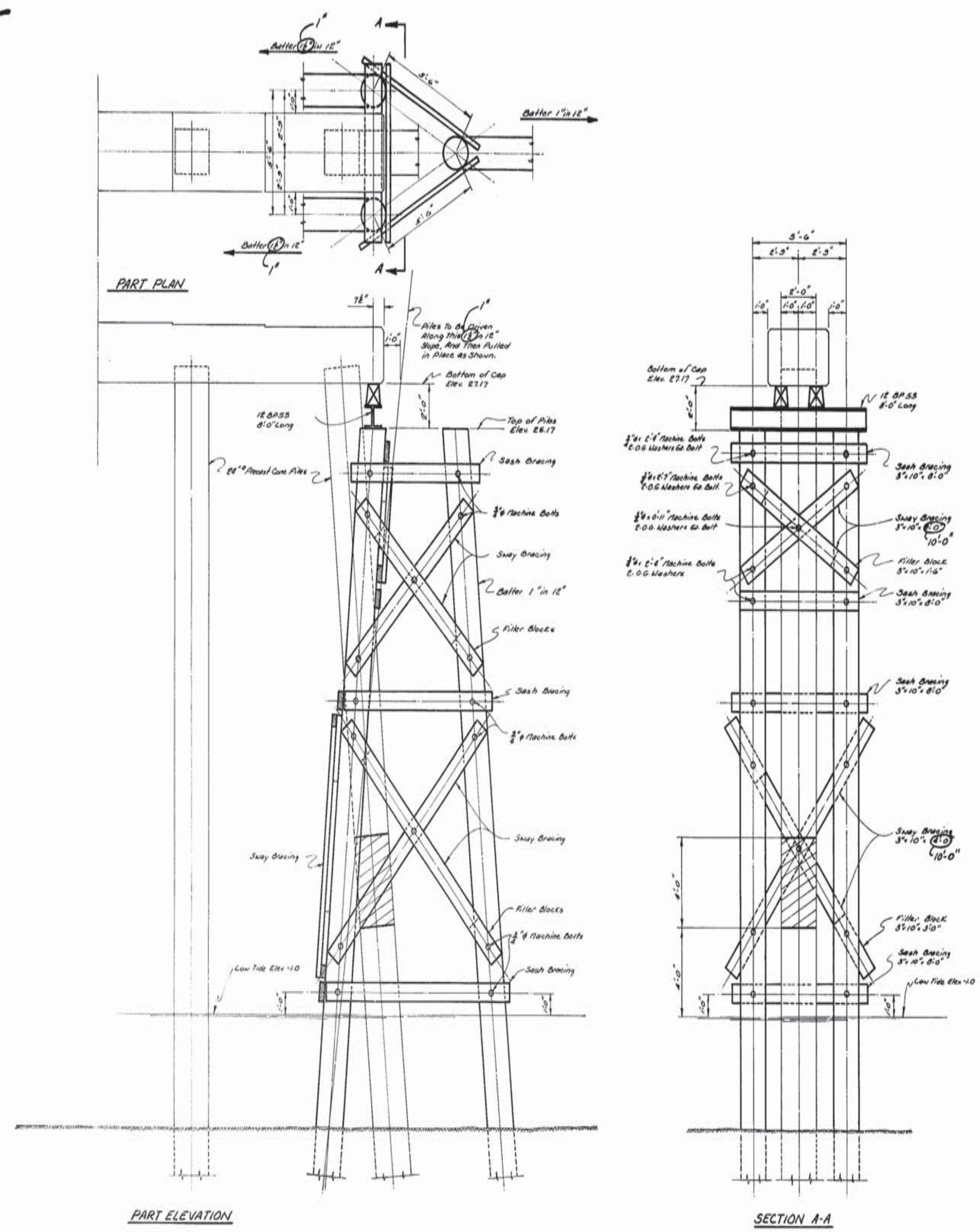
DELIVERY POINTS:
MANCHAC, LA. I.C.R.R.
OR BARGE AT BRIDGE SITE.

FINAL TRACINGS

AS BUILT PLANS

2

	STATE PROJECT	PARISH	SHEET NO.
	OLD PROJECT 17-02-22	TANGIPAHOA AND ST. JOHN THE BAPTIST	A1



GENERAL NOTES:
Construction Specifications: Latest Approved La. Dept. of Hwys. Std. Specs.
All Concrete to Be Class "A."
Total Load on Jacks to Remove D.L. Stresses is 68,000 Lbs.
Drive Timber Piles to a Minimum of 18 Tons per pile.
Where new concrete is to be bonded to Existing Concrete the Existing Concrete Surfaces Shall be Coated With an adhesive such as "THIOKOL LIQUID POLYMER/EPOXY" or Approved Equal, Which Shall be placed in accordance With manufacturer's instruction.
All Bolts to be ⅞"φ Machine Bolts with 2-O.G. Washers.

NOTE:
Shaded Area in Section A-A and Part Elevation indicates Existing Concrete To Be Removed, Existing Steel to be Straightened, and New Concrete Required. (See General Notes)

REPAIRS TO BENT № 15

DATE	DESCRIPTION	BY
REVISIONS		

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY
DATED Dec. 10 1962

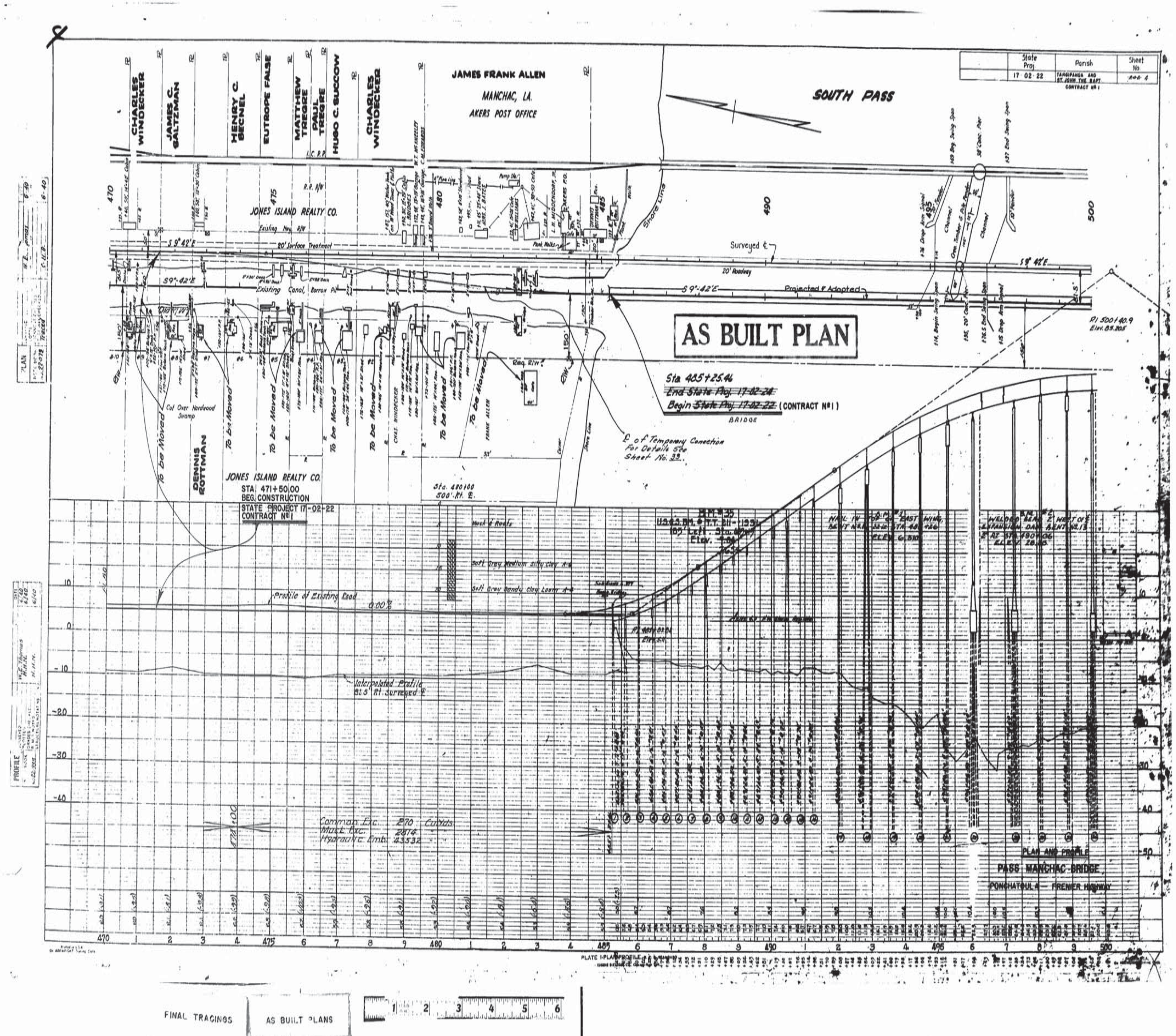
STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

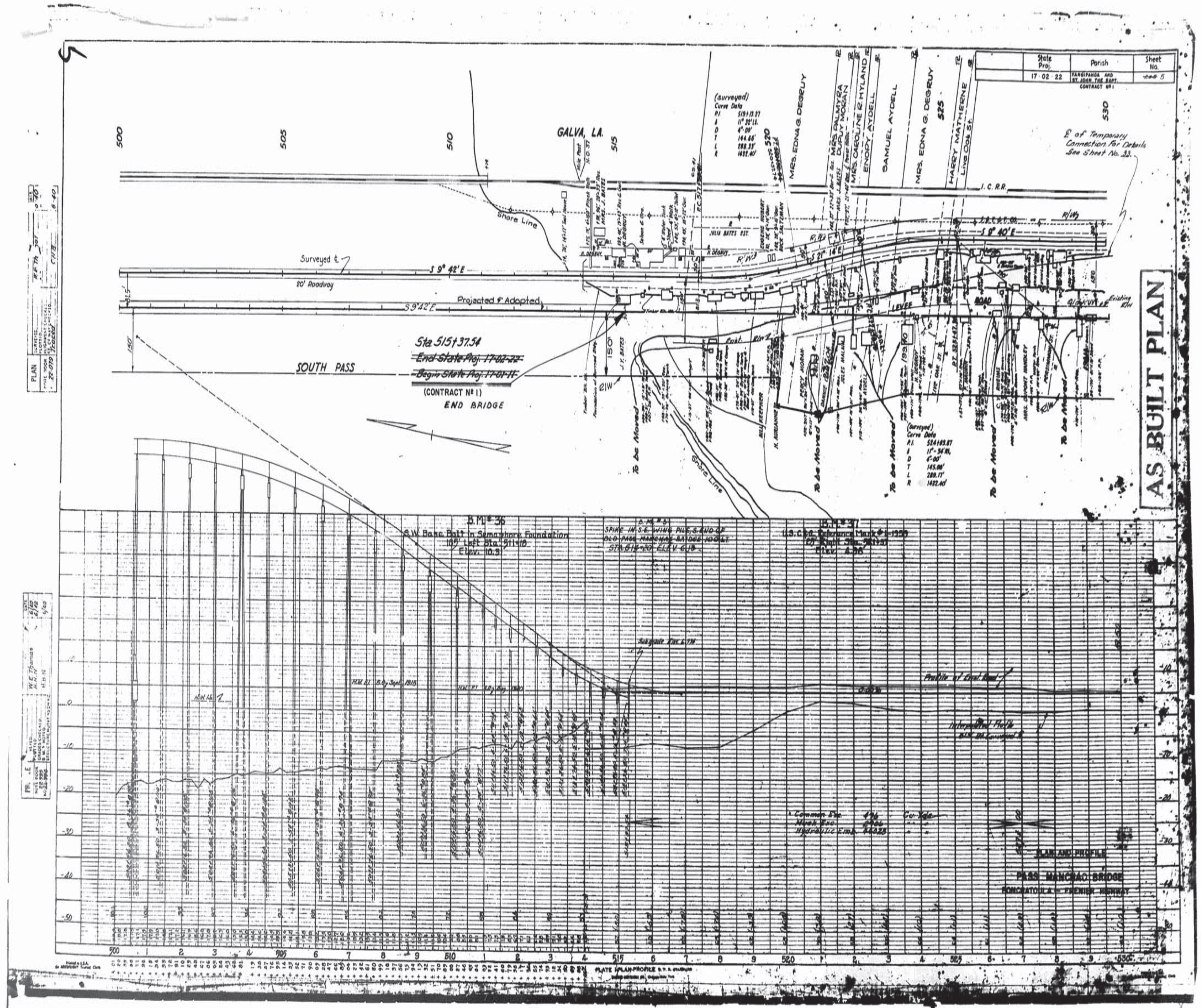
DESIGNED	DETAILED	TRACED
CHECKED	CHECKED	CHECKED

BRIDGE DESIGN SECTION

FINAL TRACINGS

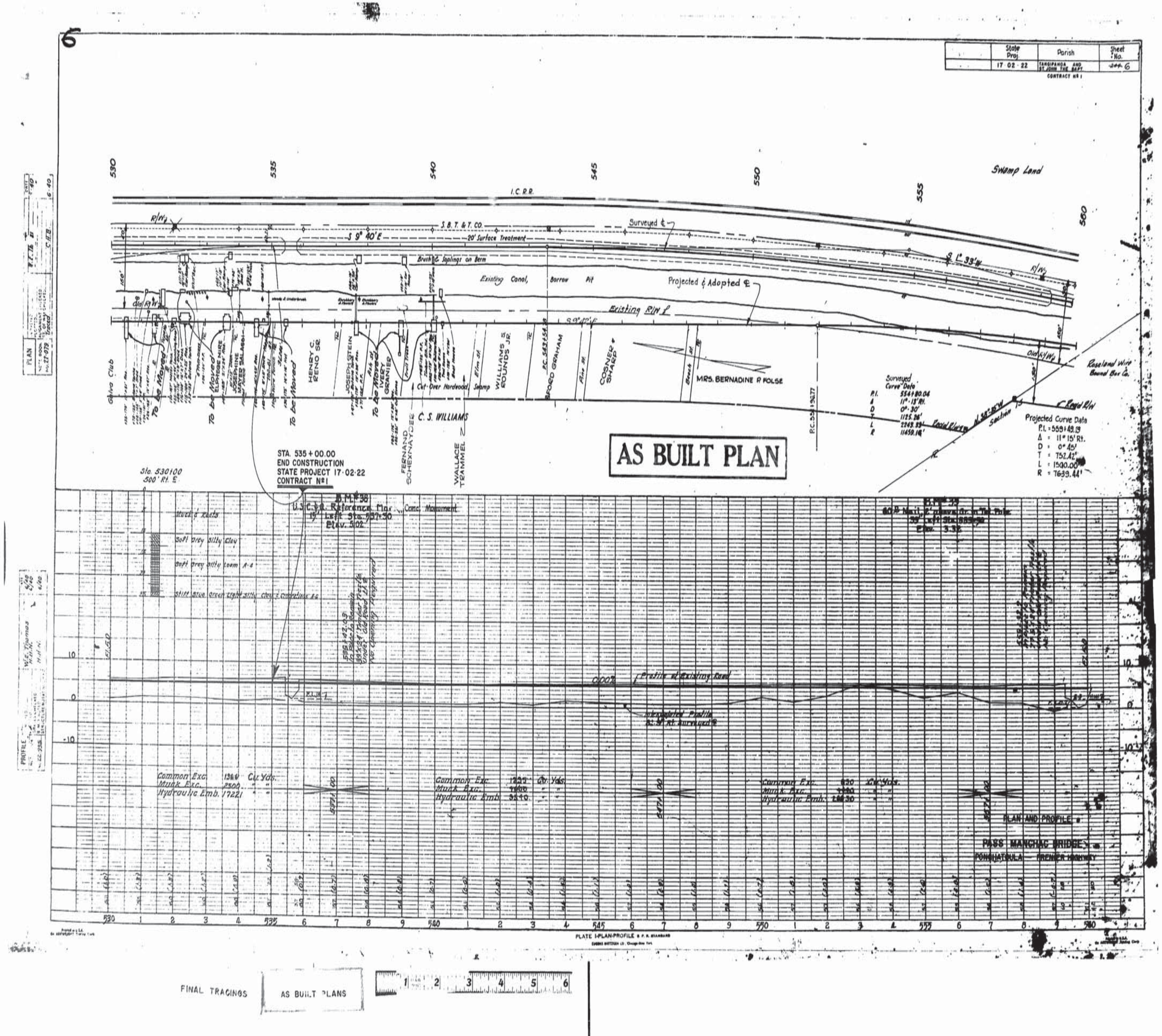
AS BUILT PLANS


JAMES FRANK ALLEN
MANCHAC, LA.
AKERS POST OFFICE
SOUTH PASS
CHARLES WINDECKER
JAMES C. SALTZMAN
HENRY C. BECNEL
EUTROPE FALSE
MATTHEW TREGRE
PAUL TREGRE
HUGO C. SUCCOW
CHARLES WINDECKER
JONES ISLAND REALTY CO.
AS BUILT PLAN
Sta. 485+25.46
End State Proj. 17-02-24
Begin State Proj. 17-02-22 (CONTRACT Nº1)
BRIDGE
Surveyed ℄
Projected ℄ Adopted
20' Roadway
S 9°-42'E
Existing Canal, Barrow Pit
Cut Over Hardwood Swamp
To be Moved
DENNIS ROTTMAN
JONES ISLAND REALTY CO.
STA 471+50.00
BEG. CONSTRUCTION
STATE PROJECT 17-02-22
CONTRACT Nº1
Shore Line
℄ of Temporary Connection For Details See Sheet No. 33.
PI 500+40.9
Elev. 65.305
Profile of Existing Road 0.00%
Interpolated Profile
Soft Grey Medium Silty Clay
Soft Grey Sandy Clay Loam
Common Exc. 270 Cu.Yds.
Muck Exc. 2074
Hydraulic Emb. 23532
PLAN AND PROFILE
PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY
State Proj. 17 02 22
Parish TANGIPAHOA AND ST. JOHN THE BAPT.
CONTRACT Nº1
470
475
480
485
490
495
500
FINAL TRACINGS
AS BUILT PLANS



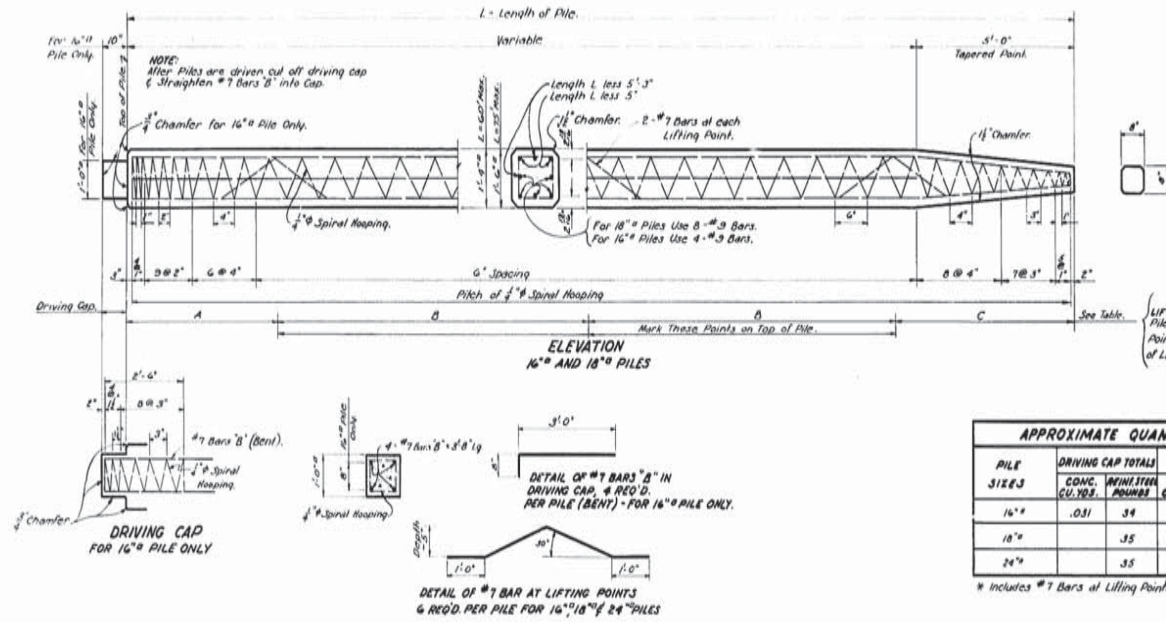
FINAL TRACINGS

AS BUILT PLANS


AS BUILT PLAN
STA. 535+00.00
END CONSTRUCTION
STATE PROJECT 17-02-22
CONTRACT Nº1
Swamp Land
I.C.R.R.
S.B.T. & T. CO.
20' Surface Treatment
Existing Canal
Borrow Pit
Projected & Adopted ℄
Surveyed ℄
Existing R/W ℄
MRS. BERNADINE P. FOLSE
C. S. WILLIAMS
HENRY C. RENO SR.
JOSEPH STEIN
FERNAND SCHEXNAYDER
WALLACE TEAMMEL
WILLIAMS & ROUNDS JR.
SIGRID GRAHAM
COSNER & SHARP
Projected Curve Data
Surveyed Curve Data
Profile of Existing Road
Common Exc.
Muck Exc.
Hydraulic Emb.
PLAN AND PROFILE
PASS MANCHAC BRIDGE
PONCHATOULA - FRENIER HIGHWAY
PLATE 1-PLAN-PROFILE
FINAL TRACINGS
AS BUILT PLANS

STATE PROJECT	PARISH	SHEET Nº
17 - 02 - 22	Tangipahoa and St. John the Bapt.	27

CONTRACT Nº 1



ELEVATION
16"□ AND 18"□ PILES

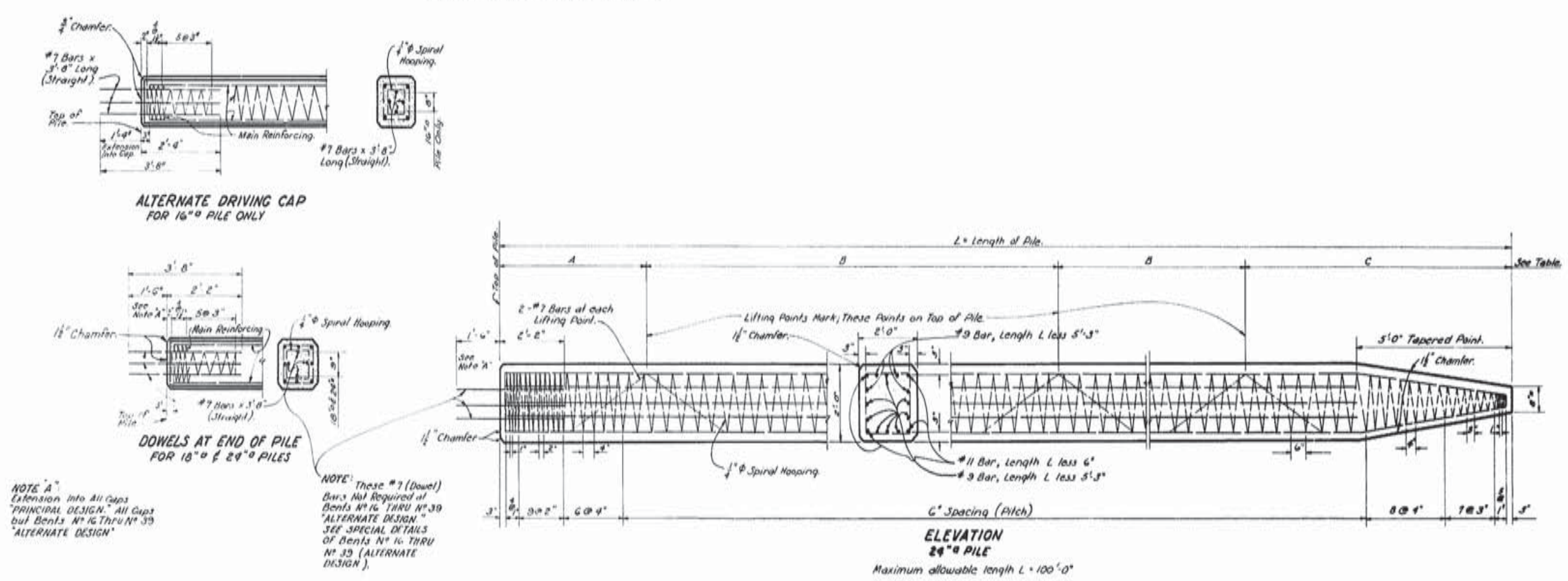
DRIVING CAP
FOR 16"□ PILE ONLY

LIFTING POINTS:
Piles to be Marked at these Points to indicate Location of Lifting Slings.

APPROXIMATE QUANTITIES FOR PILES						
PILE SIZES	DRIVING CAP TOTALS		VARIABLE PART PER LIN. FT.		TAPERED PT. TOTALS	
	CONC. CU. YDS.	REINF. STEEL POUNDS	CONC. CU. YDS.	REINF. STEEL POUNDS	CONC. CU. YDS.	REINF. STEEL POUNDS
16"□	.031	34	.065	15	.186	147 *
18"□		35	.082	30	.222	157 *
24"□		35	.147	64.25	.366	206 *

* Includes #7 Bars at Lifting Points.

LIFTING POINT DIMENSIONS			
PILE LENGTH	A	B	C
45'	7'-3 1/4"	14'-7"	8'-6 1/4"
46'	7'-5 3/8"	14'-10 3/8"	8'-8 3/8"
47'	7'-7 3/8"	15'-2 1/4"	8'-11 3/8"
48'	7'-9 9/16"	15'-6 5/8"	9'-1 7/16"
49'	7'-11 3/4"	15'-10 1/4"	9'-3 3/4"
50'	8'-1 7/8"	16'-2 3/8"	9'-6"
51'	8'-3 3/8"	16'-6 7/16"	9'-8 1/4"
52'	8'-5 5/16"	16'-10 5/16"	9'-10 7/16"
53'	8'-7"	17'-2 1/16"	10'-0 3/8"
54'	8'-9"	17'-6"	10'-3"
55'	8'-11"	17'-9 15/16"	10'-5 3/8"
56'	9'-0 7/8"	18'-1 7/8"	10'-7 3/4"
57'	9'-2 11/16"	18'-5 5/8"	10'-9 15/16"
58'	9'-4 5/8"	18'-9 1/2"	11'-0 1/8"
59'	9'-6 3/8"	19'-1 3/8"	11'-2 1/4"
60'	9'-8 3/8"	19'-5 1/4"	11'-4 3/8"
61'	9'-10 3/16"	19'-9 1/16"	11'-7 1/16"
62'	10'-0 1/8"	20'-1 1/16"	11'-9 3/8"
63'	10'-2 1/8"	20'-4 15/16"	11'-11 5/8"
64'	10'-4 1/16"	20'-8 13/16"	12'-1 13/16"
65'	10'-6 3/8"	21'-0 3/8"	12'-4 1/8"
66'	10'-8 1/4"	21'-4 3/8"	12'-6 1/4"
67'	10'-10 1/8"	21'-8 1/4"	12'-8 3/8"
68'	11'-0 1/16"	22'-0 1/8"	12'-11 1/16"
69'	11'-2 1/8"	22'-4 1/4"	13'-1 1/8"
70'	9'-6"	24'-2"	12'-2"
71'	9'-8"	24'-6 1/8"	12'-3 1/8"
72'	9'-10"	24'-10 1/4"	12'-6 1/4"
73'	10'-0"	25'-2 3/8"	12'-7 1/4"
74'	10'-2"	25'-6 1/16"	12'-9 1/8"
75'	10'-4"	25'-10 3/16"	12'-10 7/8"
76'	10'-5 5/8"	26'-2 11/16"	13'-0 1/2"
77'	10'-7 1/16"	26'-7 1/16"	13'-2 1/16"
78'	10'-9"	26'-11 5/16"	13'-3 5/8"
79'	10'-10 11/16"	27'-4 1/16"	13'-5 1/16"
80'	11'-0 3/8"	27'-8 3/8"	13'-6 3/8"
81'	11'-2 1/16"	28'-0 3/8"	13'-8 5/16"
82'	11'-3 13/16"	28'-4 13/16"	13'-10 13/16"
83'	11'-5 9/16"	28'-8"	14'-0 7/16"
84'	11'-7 1/4"	29'-1 1/16"	14'-2 3/8"
85'	11'-9"	29'-5 3/8"	14'-4 1/4"
86'	11'-10 3/16"	29'-9 3/8"	14'-5 15/16"
87'	12'-0 3/8"	30'-2 1/16"	14'-7 1/2"
88'	12'-2 1/16"	30'-6 3/8"	14'-9 1/16"
89'	12'-3 3/4"	30'-10 5/16"	14'-10 3/4"
90'	12'-5 3/8"	31'-3"	15'-0 5/8"
91'	12'-7"	31'-7 3/8"	15'-2 3/8"
92'	12'-8 5/8"	31'-11 1/8"	15'-4 1/4"
93'	12'-10 3/8"	32'-3 1/2"	15'-6 3/8"
94'	13'-0"	32'-7 3/8"	15'-8 1/4"
95'	13'-1 5/8"	32'-11 3/8"	15'-10 5/8"
96'	13'-3 3/8"	33'-4"	16'-0 5/8"
97'	13'-5"	33'-8 1/4"	16'-2 3/8"
98'	13'-6 5/8"	34'-0 1/8"	16'-4 3/8"
99'	13'-8 1/4"	34'-4 1/4"	16'-6 3/8"
100'	13'-10"	34'-8 5/8"	16'-8 3/8"



ALTERNATE DRIVING CAP
FOR 16"□ PILE ONLY

DOWELS AT END OF PILE
FOR 18"□ & 24"□ PILES

ELEVATION
24"□ PILE

Maximum allowable length L = 100'-0"

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwys. Std. Specs.
Dimensions to Reinforcing Steel are to Bar Centers.
Reinforcement bars shall be Intermediate or Hard Grade, A.S.T.M. A15, or Rail Steel, A.S.T.M. A16.
All Concrete to be Class "A".
Chamfer all Corners as Noted.

PILE DETAILS FOR
16"□, 18"□ & 24"□ PRECAST
CONCRETE PILES

AS BUILT PLAN

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED NOV. 19 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED Meyer | DETAILED Meyer | TRACED C. Hinkley
CHECKED W.T.W. Tomby | CHECKED | CHECKED

BRIDGE DESIGN SECTION

DATE | DESCRIPTION | BY
REVISIONS

FINAL TRACINGS

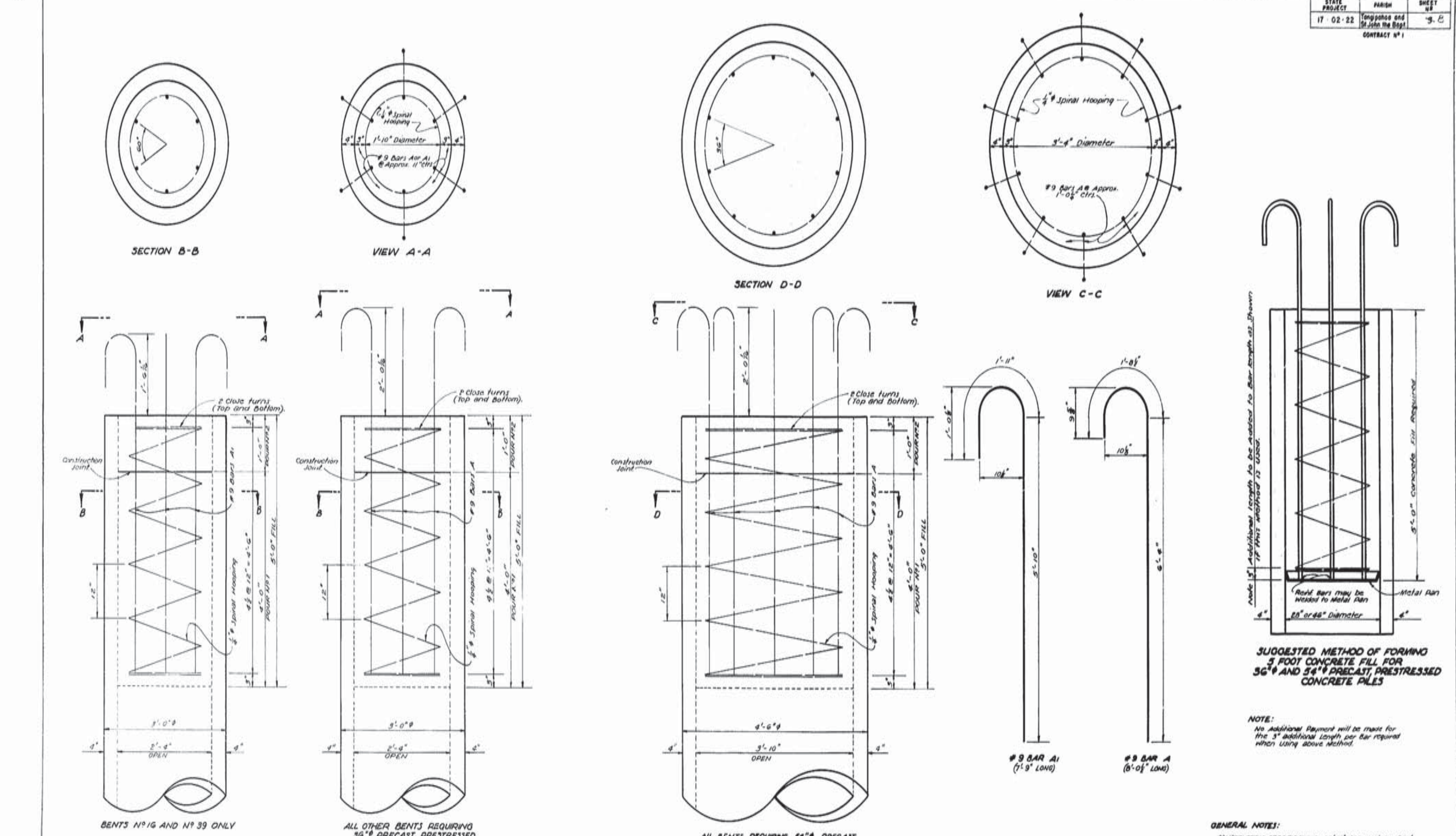
AS BUILT PLANS

1 2 3 4 5 6

8

STATE PROJECT	PARISH	SHEET NO.
17 - 02 - 22	Tangipahoa and St. John the Bapt.	3-E

CONTRACT Nº 1



SUGGESTED METHOD OF FORMING 5 FOOT CONCRETE FILL FOR 36"φ AND 54"φ PRECAST, PRESTRESSED CONCRETE PILES

NOTE:
No Additional Payment will be made for the 3" additional Length per Bar required when using above Method.

DETAILS OF 36"φ PRECAST, PRESTRESSED CONCRETE PILES SHOWING CONCRETE FILL AND REINFORCING STEEL

DETAILS OF 54"φ PRECAST, PRESTRESSED CONCRETE PILES SHOWING CONCRETE FILL AND REINFORCNG STEEL

NOTE:
POUR Nº2 (SHADED AREA) TO BE POURED MONOLITHIC WITH CAP OR FOOTING.

NOTE:
CLASS "A" CONCRETE IN 5' FILLS TO BE PAID FOR AS "CLASS 'A' CONCRETE (BENTS)".

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest Approved La. Dept. of Hwys. Std. Specs.
Reinforcement Bars shall be intermediate or Hard Grade A.S.T.M. A15 or Rail Steel A.S.T.M. A16.
Dimensions to Reinforcing Steel are to Bar centers.
All concrete to be Class "A".

ESTIMATED QUANTITIES FOR ONE PILE					
BENTS Nº 16 OR 39			ALL OTHER BENTS REQUIRING 36"φ PRECAST, PRESTRESSED CONCRETE PILES		
⊕ CLASS "A" CONCRETE	0.79	CU. YDS.	⊕ CLASS "A" CONCRETE	0.79	CU. YDS.
DEFORMED REINFORCING STEEL	166	LBS.	DEFORMED REINFORCING STEEL	172	LBS.

ESTIMATED QUANTITIES FOR ONE PILE		
ALL BENTS REQUIRING 54"φ PRECAST, PRESTRESSED CONCRETE PILES		
⊕ CLASS "A" CONCRETE	2.14	CU. YDS.
DEFORMED REINFORCING STEEL	288	LBS.

⊕ QUANTITIES SHOWN ARE FOR 5'-0" FILL (POUR Nº1 PLUS POUR Nº2).

PILE DETAILS FOR 36"φ AND 54"φ PRECAST, PRESTRESSED CONC. PILES

AS BUILT PLAN

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED Oct. 195[illegible]

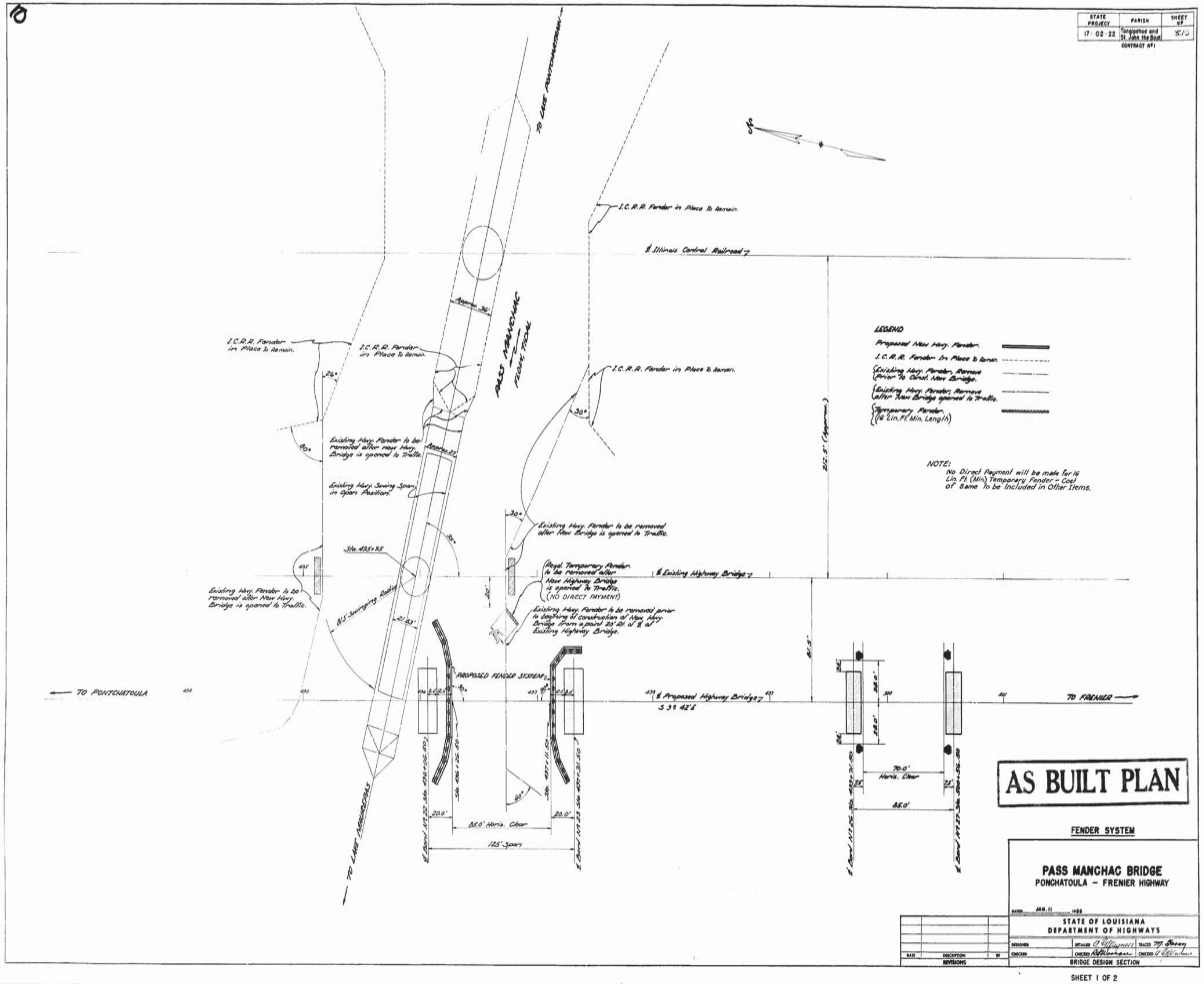
STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY
REVISIONS		

DESIGNED [signature] DETAILED [signature] TRACED E. C. [signature]
CHECKED [signature] CHECKED [signature] CHECKED [signature]
BRIDGE DESIGN SECTION

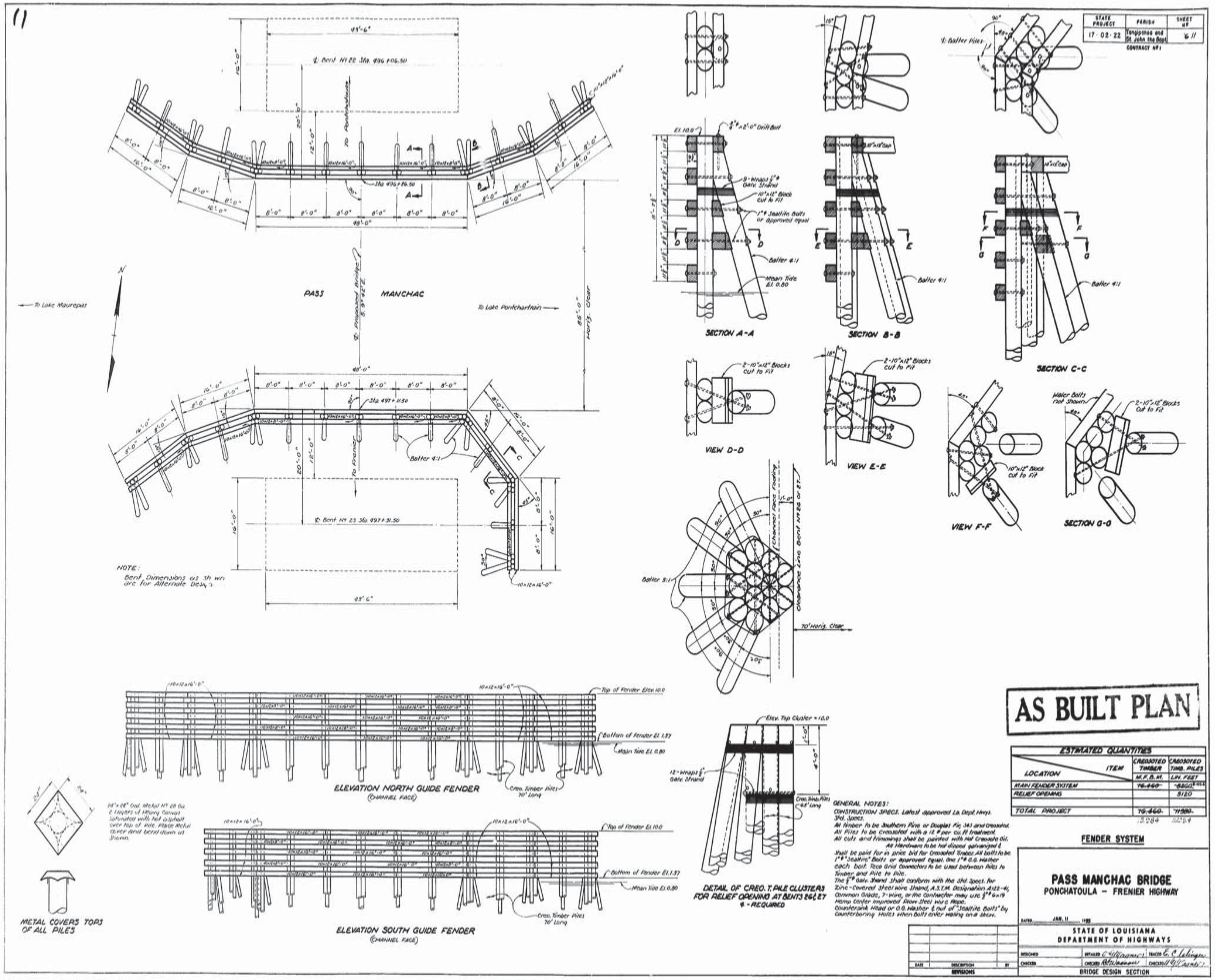
FINAL TRACINGS AS BUILT PLANS

1 2 3 4 5 6



FINAL TRACINGS

AS BUILT PLANS

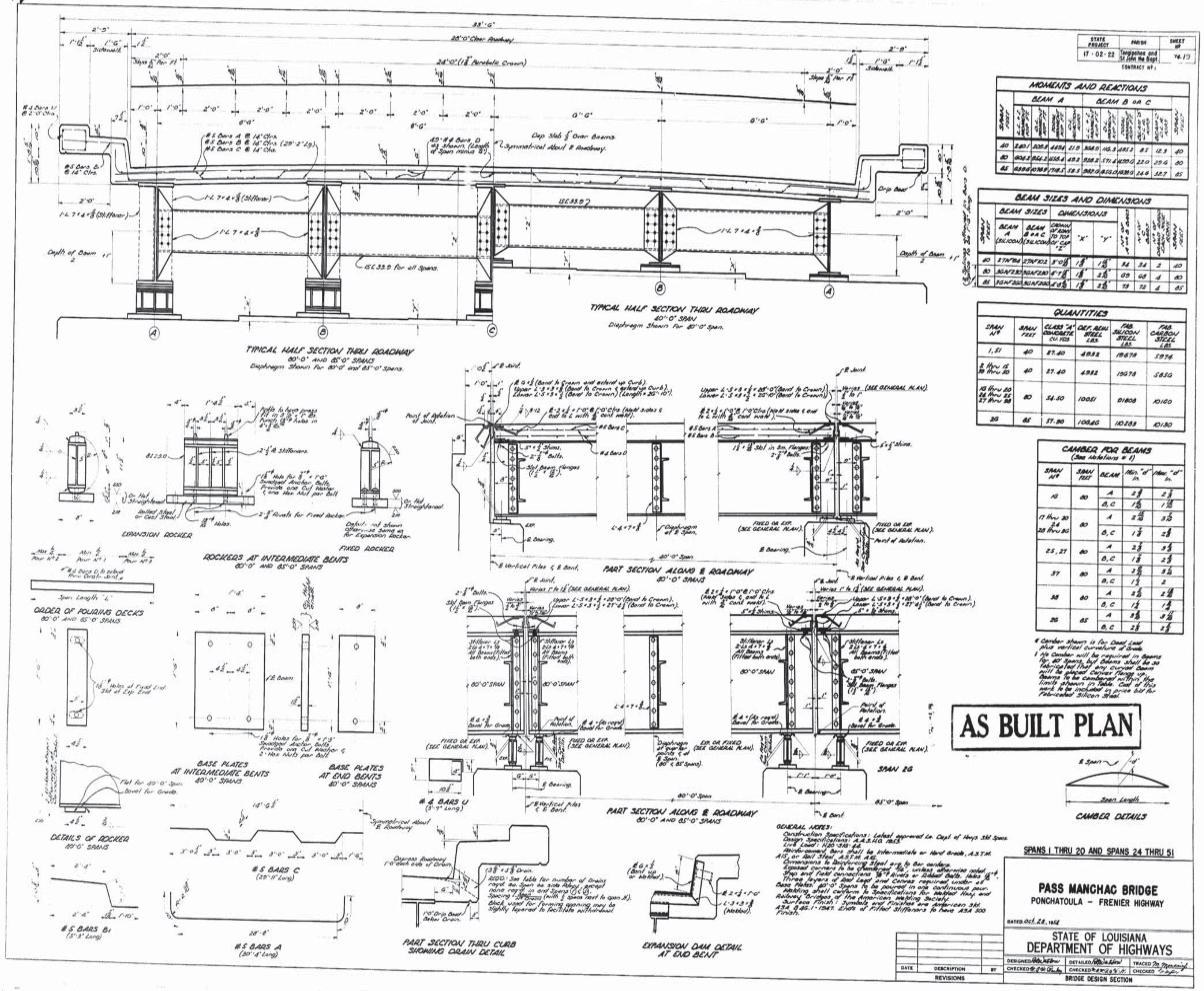


SHEET 2 OF 2

FINAL TRACINGS

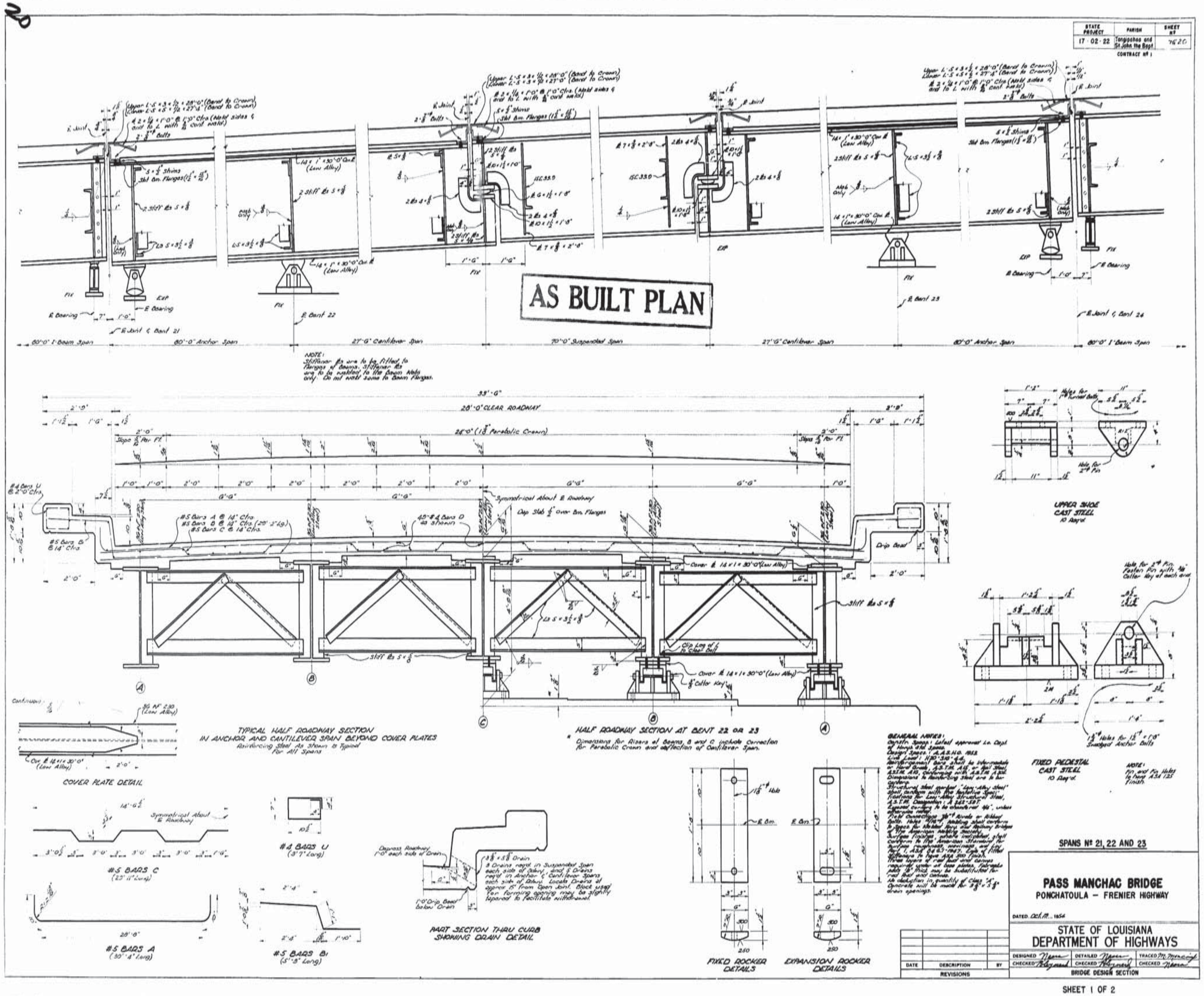
AS BUILT PLANS

19



FINAL TRACINGS

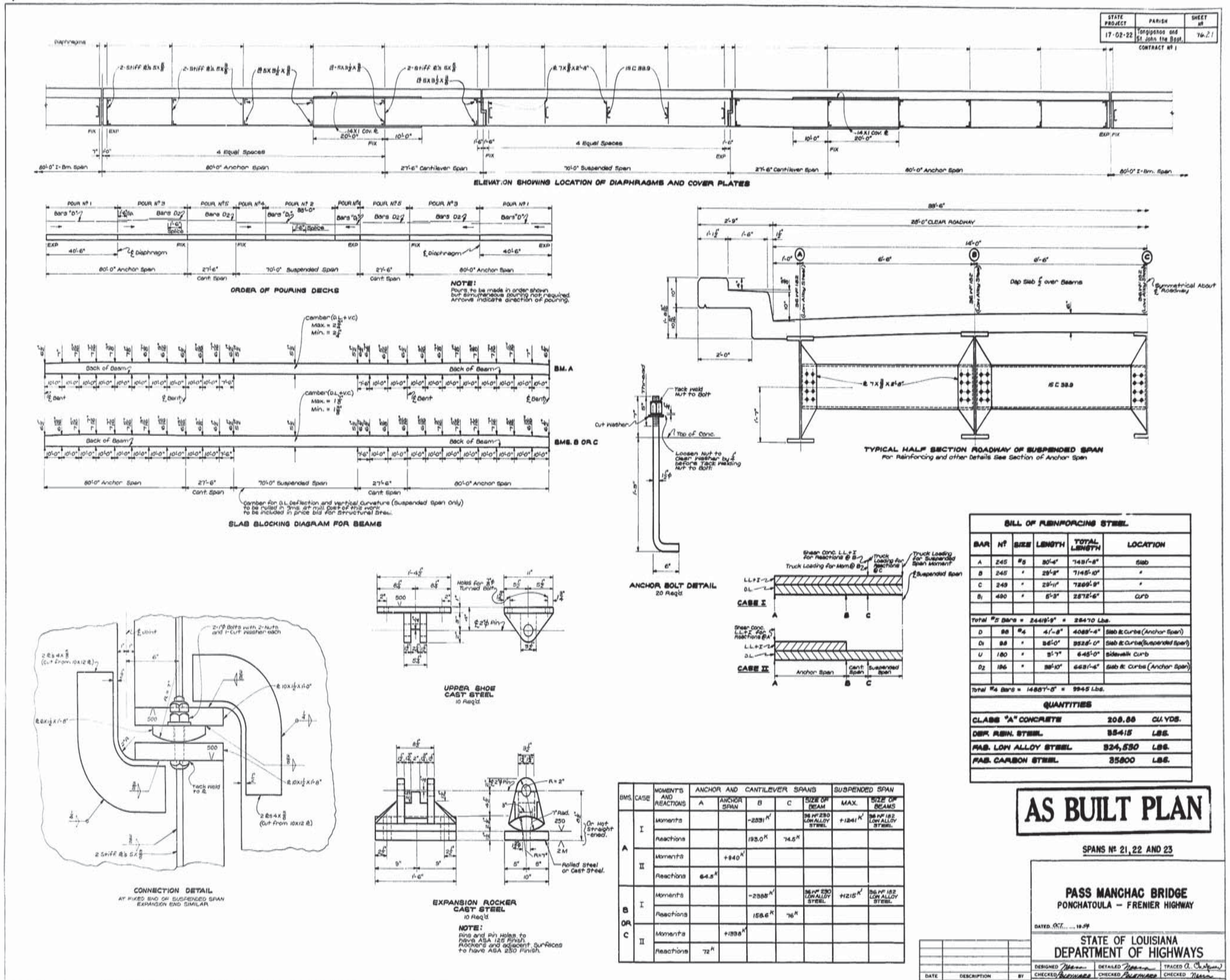
AS BUILT PLANS



FINAL TRACINGS

AS BUILT PLANS

21



BILL OF REINFORCING STEEL					
BAR	Nº	SIZE	LENGTH	TOTAL LENGTH	LOCATION
A	245	#5	30'-4"	7431'-8"	Slab
B	245	"	29'-2"	7145'-10"	"
C	249	"	29'-11"	7269'-9"	"
B1	490	"	5'-3"	2572'-6"	Curb
Total #5 Bars = 24419'-9" = 25470 Lbs.					
D	98	#4	41'-8"	4083'-4"	Slab & Curbs (Anchor Span)
D1	98	"	36'-0"	3528'-0"	Slab & Curbs (Suspended Span)
U	180	"	3'-7"	645'-0"	Sidewalk Curb
D2	196	"	33'-10"	6631'-4"	Slab & Curbs (Anchor Span)
Total #4 Bars = 14887'-8" = 9945 Lbs.					

QUANTITIES		
CLASS "A" CONCRETE	206.86	CU. YDS.
DEF. REIN. STEEL	35415	LBS.
FAB. LOW ALLOY STEEL	324,530	LBS.
FAB. CARBON STEEL	35800	LBS.

BMS.	CASE	MOMENTS AND REACTIONS	ANCHOR AND CANTILEVER SPANS: A	ANCHOR SPAN	B	C	SIZE OF BEAM	SUSPENDED SPAN: MAX.	SIZE OF BEAMS
A	I	Moments			-2331K'		36 WF 230 LOW ALLOY STEEL	+1241K'	36 WF 182 LOW ALLOY STEEL
		Reactions			193.0K	74.5K			
	II	Moments		+940K'					
		Reactions	64.5K						
B OR C	I	Moments			-2388K'		36 WF 230 LOW ALLOY STEEL	+1215K'	36 WF 182 LOW ALLOY STEEL
		Reactions			158.6K	76K			
	II	Moments		+1338K'					
		Reactions	72K						

AS BUILT PLAN

SPANS Nº 21, 22 AND 23

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

BRIDGE DESIGN SECTION

DATE | DESCRIPTION | BY
REVISIONS

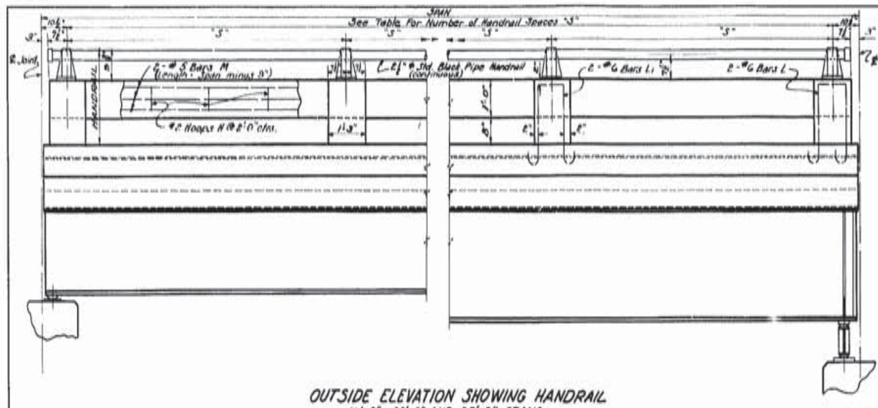
SHEET 2 OF 2

FINAL TRACINGS | AS BUILT PLANS

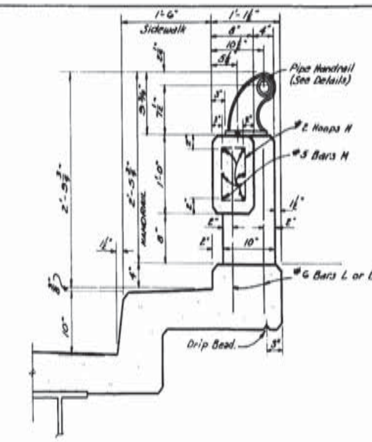
22

STATE PROJECT	PARISH	SHEET Nº
17 · 02 · 22	Tangipahoa and St John the Bapt	17 22

CONTRACT Nº 1

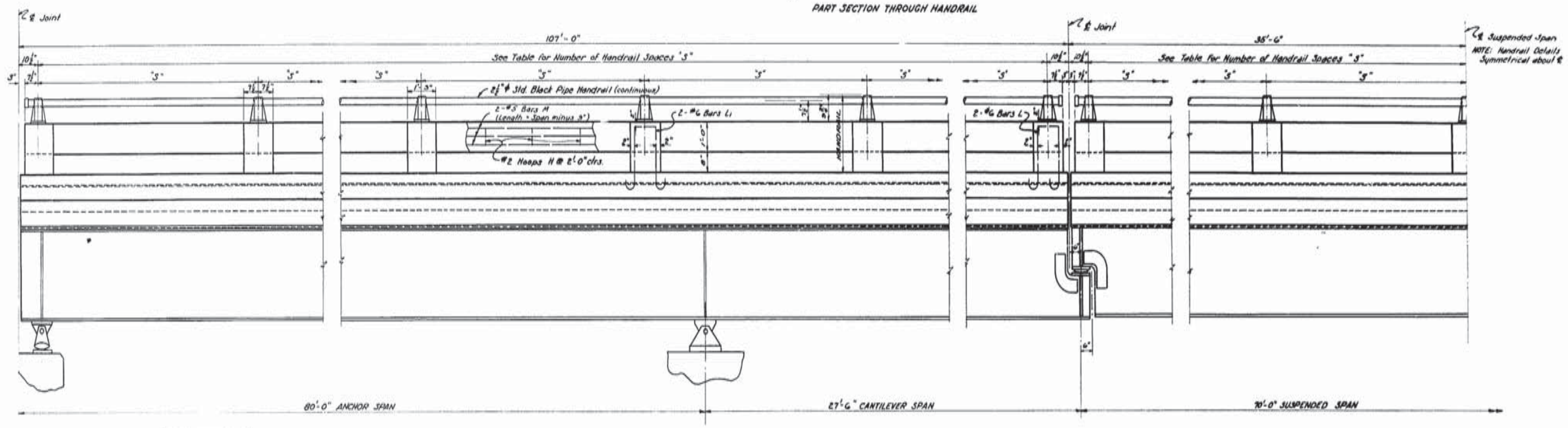


OUTSIDE ELEVATION SHOWING HANDRAIL
40'-0", 80'-0" AND 85'-0" SPANS

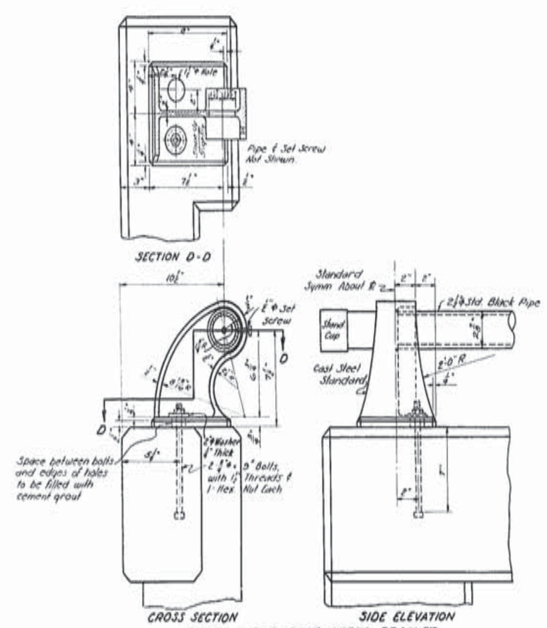


PART SECTION THROUGH HANDRAIL

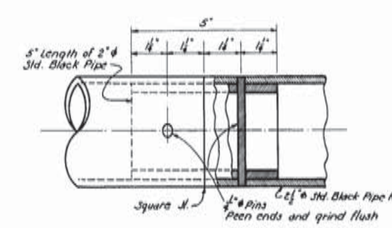
HANDRAIL DIMENSIONS AND QUANTITIES					
LOCATION	TYPE	LENGTH	HANDRAIL SPACES "S"		PIPE AND CONCRETE HANDRAIL
SPANS		FT. - IN.	Nº	FT. - IN.	LIN. FT.
1 THRU 15 & 29 THRU 51	SPANS	40 - 0	4	9 - 6¾	79.00
16 THRU 20 & 24 THRU 25 & 27 THRU 38	SPANS	80 - 0	9	8 - 8⅝	159.00
26	SPANS	85 - 0	9	9 - 3	169.00
21	ANCHOR SPAN / CANTILEVER SPAN	80 - 0 / 27 - 0	11	9 - 6 11/16	213.00
22	SUSPENDED SPAN	71 - 0	8	8 - 7⅞	141.00
23	CANTILEVER SPAN / ANCHOR SPAN	27 - 0 / 80 - 0	11	9 - 6 11/16	213.00



OUTSIDE ELEVATION SHOWING HANDRAIL
ANCHOR SPAN PLUS CANTILEVER SPAN AND SUSPENDED SPAN



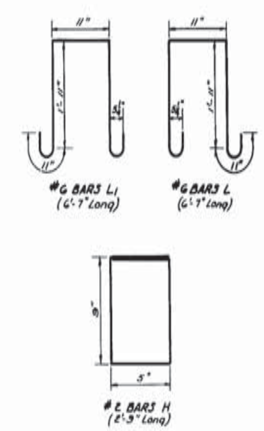
CROSS SECTION SIDE ELEVATION
DETAILS FOR CAST STEEL BRACKET
APPROX. WT.=25 LBS. EACH



DETAILS OF PIPE SPLICE

NOTE: PIPE SPLICES TO BE MADE AT ℄ OF CAST STEEL HANDRAIL BRACKETS ONLY.

AS BUILT PLAN



NOTE: No splice allowed in 40'-0" Spans. One 1'-10" Splice allowed in 71'-0" Suspended Span. Two 1'-10" Splices allowed in 80'-0", 85'-0" and 107'-0" (80'-0" Anchor Span plus 27'-0" Cantilever Span) Spans.

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwys. Std. Specs.
DESIGN SPECIFICATIONS: A.A.S.H.O. 1953.
Concrete, cast steel brackets, pipe and reinforcing steel in Handrail above top of 4" sidewalk curb to be paid for per lineal foot of PIPE and CONCRETE HANDRAIL. This includes bars L and L1 that project into said 4" curb.
All concrete to be Class "A".
Concrete rail and concrete posts to be poured in one operation.
Exposed concrete corners to have ¾" chamfer.
Reinforcement bars shall be Intermediate or Hard Grade A.S.T.M. A15 or Rail Steel A.S.T.M. A16.
Dimensions relating to Reinforcing Steel are to bar centers.
HANDRAIL PIPE and CASTINGS to be painted with one shop coat and three field coats in accordance with the "Special Provisions for Painting of Metal Surfaces." Shop coat to be applied before erection.

NOTE: ALL CONCRETE HANDRAIL POSTS INCLUDING BRIDGE END FLARES TO BE PERPENDICULAR TO 4" SIDEWALK CURB AND ALSO CAST STEEL BRACKETS FOR PIPE RAILING TO BE PERPENDICULAR TO CONCRETE RAILING.

HANDRAIL DETAILS

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 22 1959

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

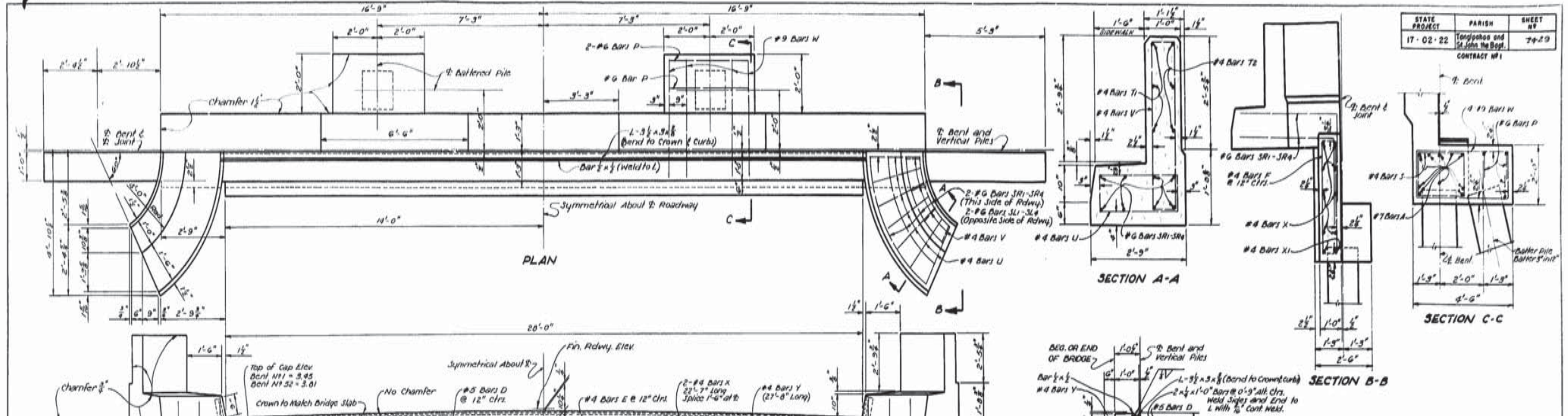
DATE	DESCRIPTION	BY
REVISIONS		

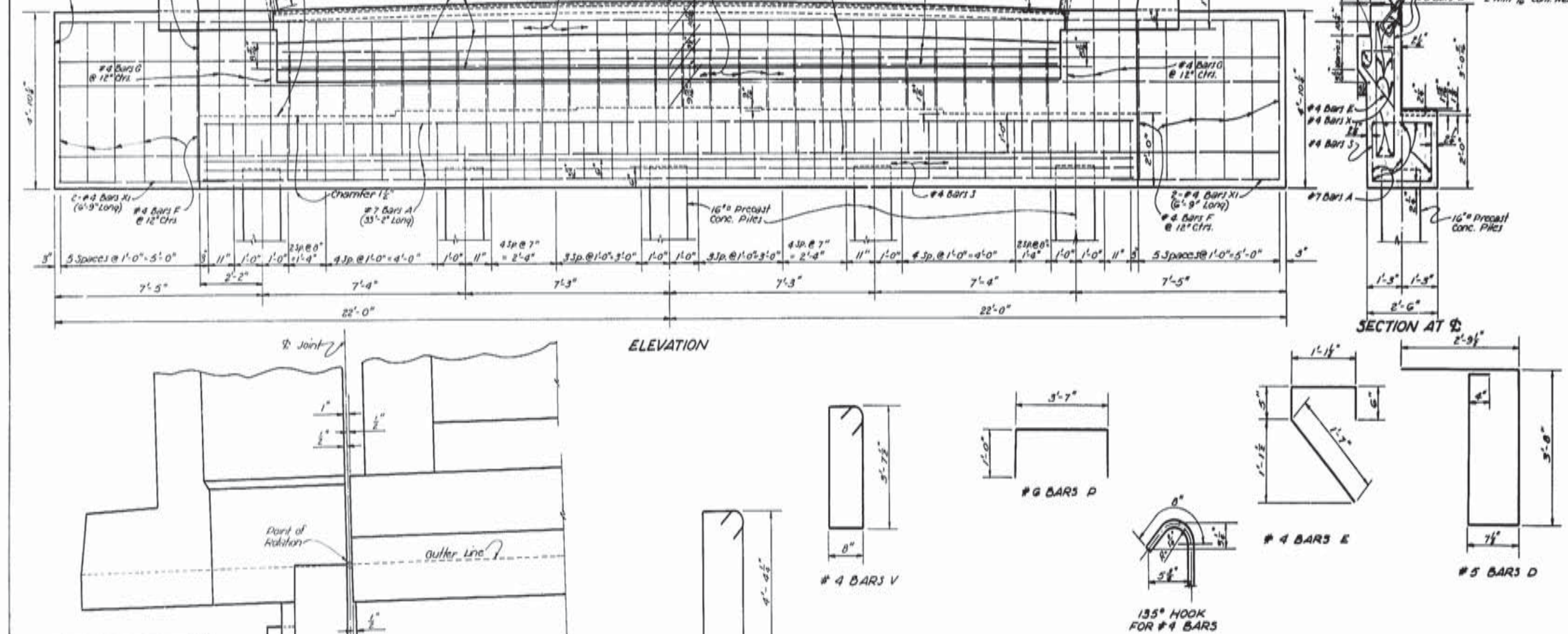
DESIGNED	DETAILED Ableson	TRACED C. Hinkley
CHECKED	CHECKED Arroyo	CHECKED Arroyo
BRIDGE DESIGN SECTION		

FINAL TRACINGS   AS BUILT PLANS

STATE PROJECT	PARISH	SHEET Nº
17 - 02 - 22	Tangipahoa and St. John the Bapt.	74-29

CONTRACT Nº 1



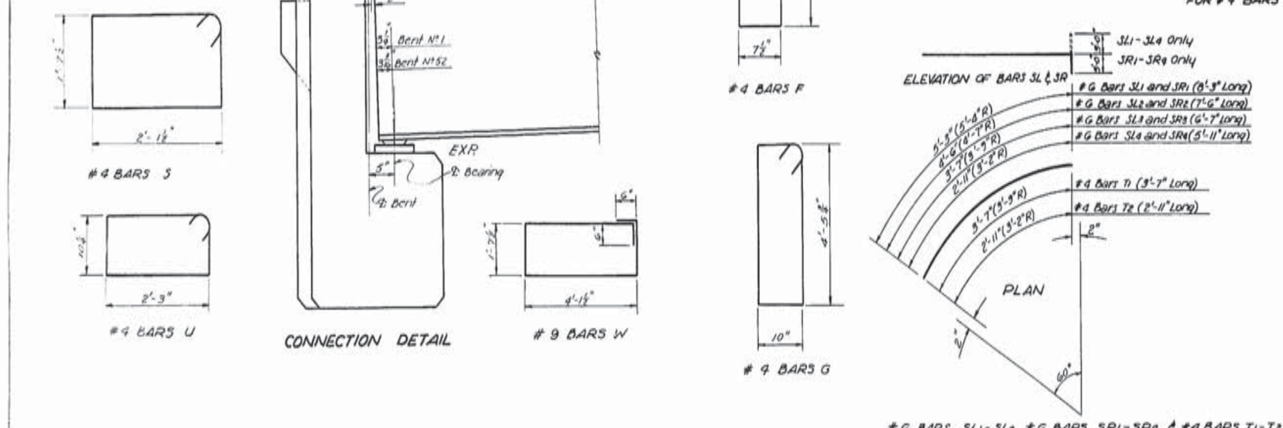


BILL OF REINFORCING STEEL (1) BENT

BAR	SIZE	Nº	UNIT LENGTH	TOTAL LENGTH	LOCATION
W	#9	8	12'-6"	100'-0"	SECTION C-C
TOTAL # 9 BARS = 100'-0" = 340 LBS.					
A	#7	10	33'-2"	331'-8"	CAP
TOTAL # 7 BARS = 331'-8" 678 LBS.					
SL1	#6	2	8'-3"	16'-6"	FLARE
SL2	#6	2	7'-6"	15'-0"	FLARE
SL3	#6	2	6'-7"	13'-2"	FLARE
SL4	#6	2	5'-11"	11'-10"	FLARE
SR1	#6	2	8'-3"	16'-6"	FLARE
SR2	#6	2	7'-6"	15'-0"	FLARE
SR3	#6	2	6'-7"	13'-2"	FLARE
SR4	#6	2	5'-11"	11'-10"	FLARE
P	#6	6	5'-7"	33'-6"	SECTION C-C
TOTAL # 6 BARS = 146'-6" = 220 LBS.					
D	#5	28	11'-1"	310'-4"	SECTION @ ℄
TOTAL # 5 BARS = 310'-4" = 324 LBS.					
E	#4	28	3'-8"	102'-8"	HAUNCH
F	#4	12	11'-0"	132'-0"	WALL
O	#4	6	11'-8"	70'-0"	WALL & FLARE
S	#4	34	8'-7"	291'-10"	CAP
T1	#4	6	3'-7"	21'-6"	FLARE
T2	#4	6	2'-11"	17'-6"	FLARE
U	#4	14	7'-3"	101'-6"	FLARE
V	#4	8	9'-7"	76'-8"	FLARE
X	#4	16	22'-7"	361'-4"	WALL
X1	#4	4	6'-9"	27'-0"	WALL
Y	#4	2	27'-8"	55'-4"	HAUNCH
TOTAL # 4 BARS = 1257'-4" = 840 LBS.					

QUANTITIES (1) BENT

CLASS "A" CONCRETE	15.83	CU. YDS.
DEF. REIN. STEEL	2402	LBS.
FAB. CARBON STEEL	340	LBS.
AV. PILE LOAD	32.00	TONS



GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Latest Approved La. Dept. of Hwys. Std. Specs.
DESIGN SPECIFICATIONS: A.A.S.H.O. Std. Specs. for Hwy. Bridge's, 1953.
LIVE LOAD: H20-S16-44.
Reinforcement Bars Shall be Intermediate or Hard Grade, A.S.T.M. A15 or Rail Steel, A.S.T.M. A16.
All Dimensions to Reinforcing Steel are to Bar Centers.
See Special Detail For 16" ⌀ Precast Conc. Piles.
Concrete and Steel in SIDEWALK, CURB FLARE AND HANDRAIL FLARE are Included in Bent Cap Quantities and are to be Paid for as Part of Bent.
To Provide for Future Extension of Bridge, the End Bent is Designed for Same Loads as Intermediate Bents.

AS BUILT PLAN

BENTS Nº 1 & Nº 52

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY
REVISIONS		

DESIGNED R.H. Watson · DETAILED R.H. Watson · TRACED E.C. [illegible]
CHECKED Nassar · CHECKED Nassar · CHECKED [illegible]

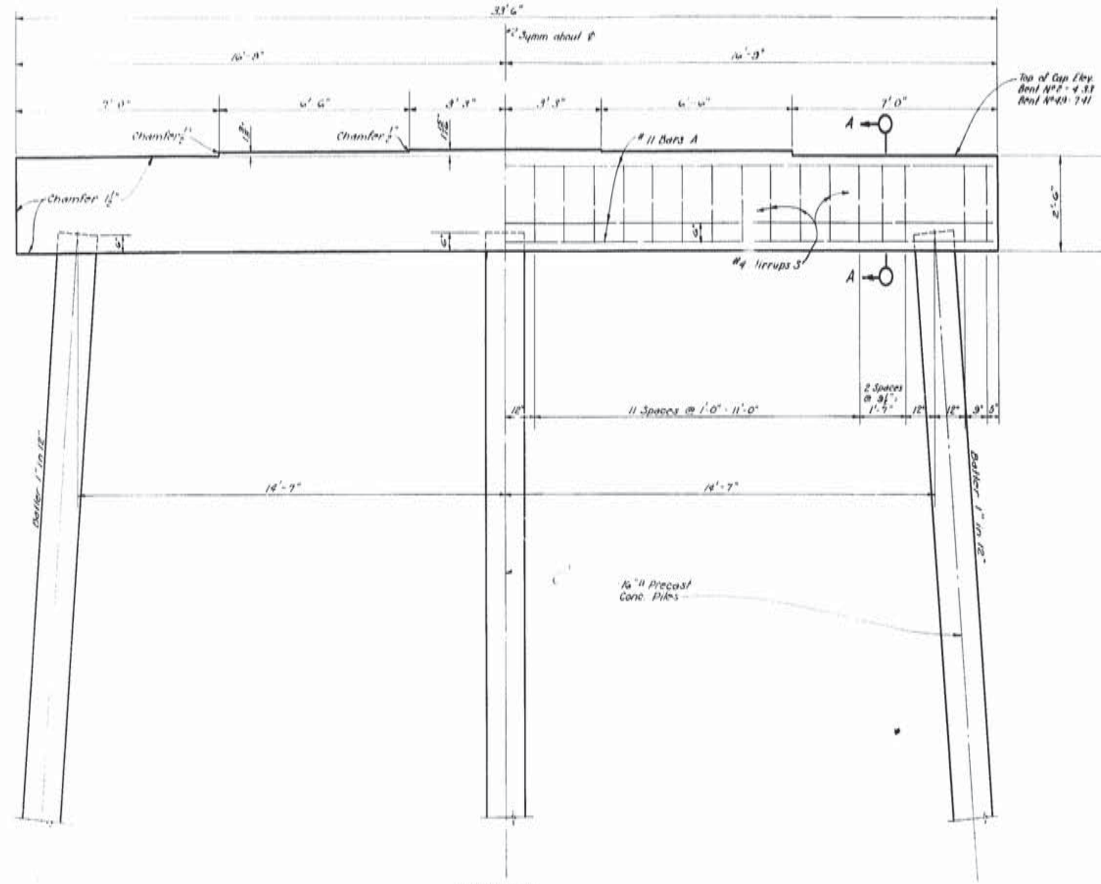
BRIDGE DESIGN SECTION

FINAL TRACINGS | AS BUILT PLANS

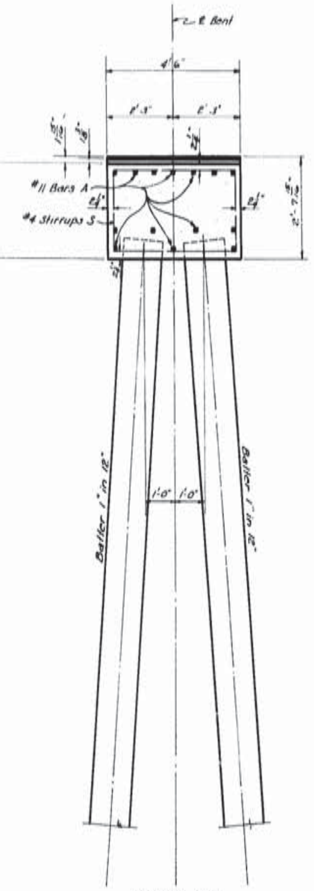
30

STATE PROJECT	PARISH	SHEET Nº
17-02-22	Tangipahoa and St. John the Bapt.	30

CONTRACT Nº 1

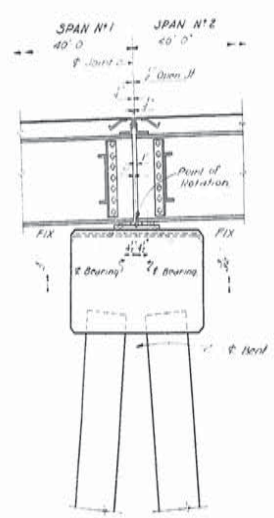


ELEVATION
BENT Nº 2 & BENT Nº 49

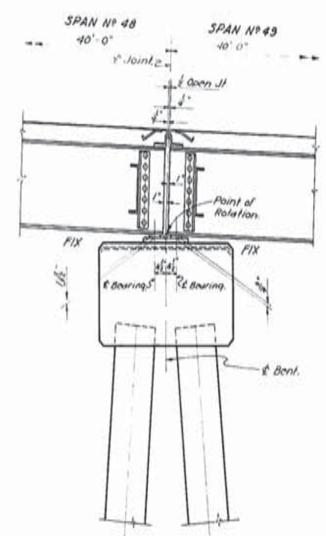


SECTION A-A

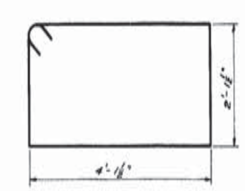
ESTIMATED QUANTITIES IN ONE BENT				
BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	14	#11	33'-2"	464'-4"
TOTAL Nº 11 BARS = 464'-4" = 2467 LBS.				
S	32	#4	13'-6"	432'-0"
TOTAL Nº 4 BARS = 432'-0" = 289 LBS.				
CLASS "A" CONCRETE				= 14.18 CU. YDS.
DEFORMED REINF. STEEL				= 2756 LBS.
MAXIMUM PILE LOAD				= 32.00 TONS/PILE



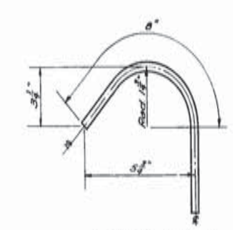
CONNECTION DETAIL
BENT Nº 2
REINFORCING NOT SHOWN



CONNECTION DETAIL
BENT Nº 49
REINFORCING NOT SHOWN



#4 STIRRUPS "S"
13'-6" Long



135° HOOK - #4 BARS

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwy. Std. Specs.
DESIGN SPECIFICATIONS: A.A.S.H.O. 1953
Live Load: H20-S16-44
All dimensions to reinforcing steel are to bar centers.
Reinforcement bars shall be intermediate or hard grade A.S.T.M. A-15
or Rail Steel A.S.T.M. A-16.
Chamfer all exposed corners 1½" unless otherwise noted.
See Special Detail for 16" ☐ Precast Conc. Piles.

AS BUILT PLAN

BENTS Nº 2 AND Nº 49

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 13, 1959

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY
REVISIONS		

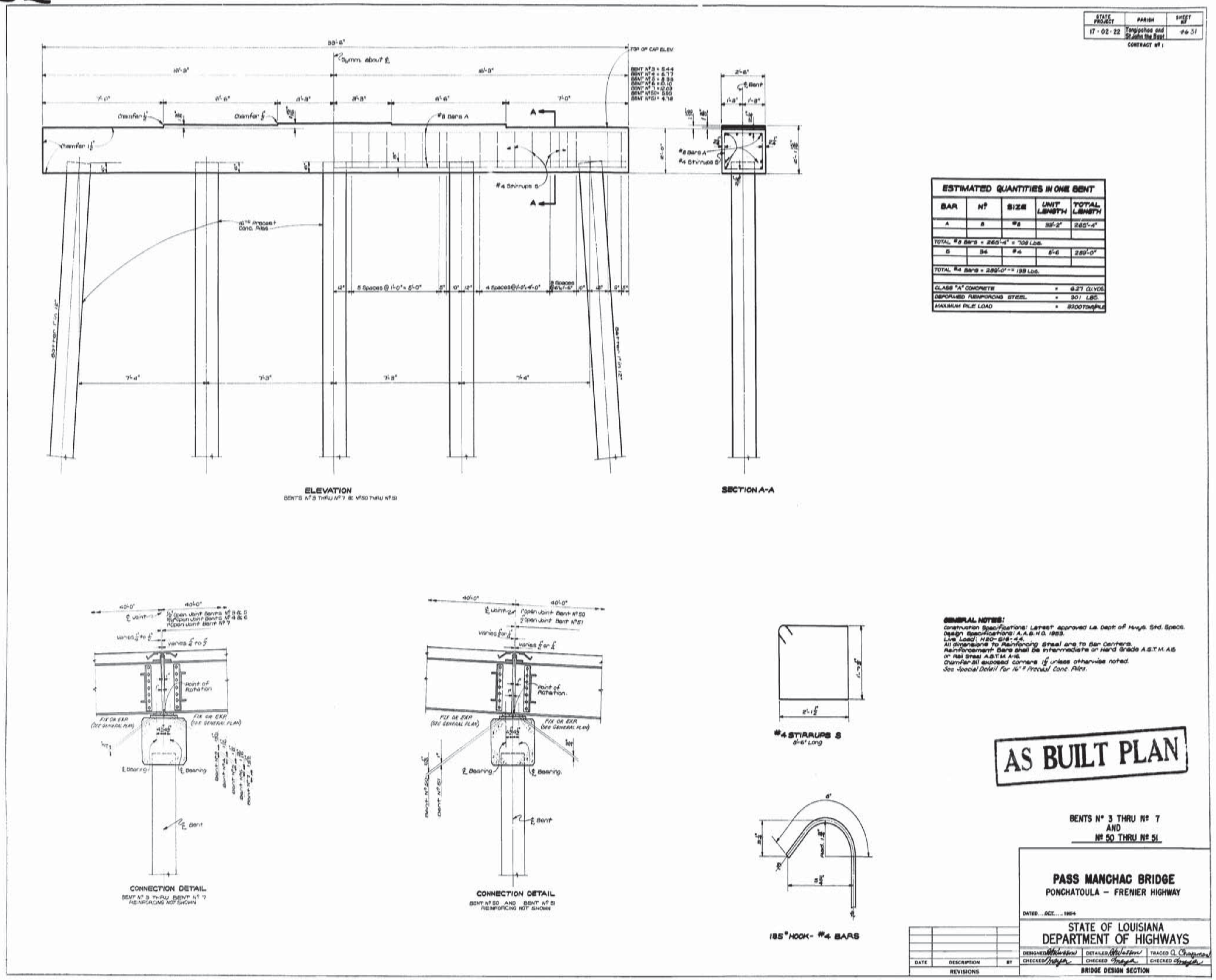
DESIGNED R.H. Watson | DETAILED R.H. Watson | TRACED C. Huntley
CHECKED Mayer | CHECKED Mayer | CHECKED Mayer

BRIDGE DESIGN SECTION

FINAL TRACINGS

AS BUILT PLANS

32



ESTIMATED QUANTITIES IN ONE BENT

BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	8	#8	33'-2"	265'-4"
TOTAL #8 Bars = 265'-4" = 708 Lbs.				
S	34	#4	8'-6	289'-0"
TOTAL #4 Bars = 289'-0" = 193 Lbs.				
CLASS "A" CONCRETE			=	6.27 CU.YDS.
DEFORMED REINFORCING STEEL			=	901 LBS.
MAXIMUM PILE LOAD			=	32 TONS/PILE

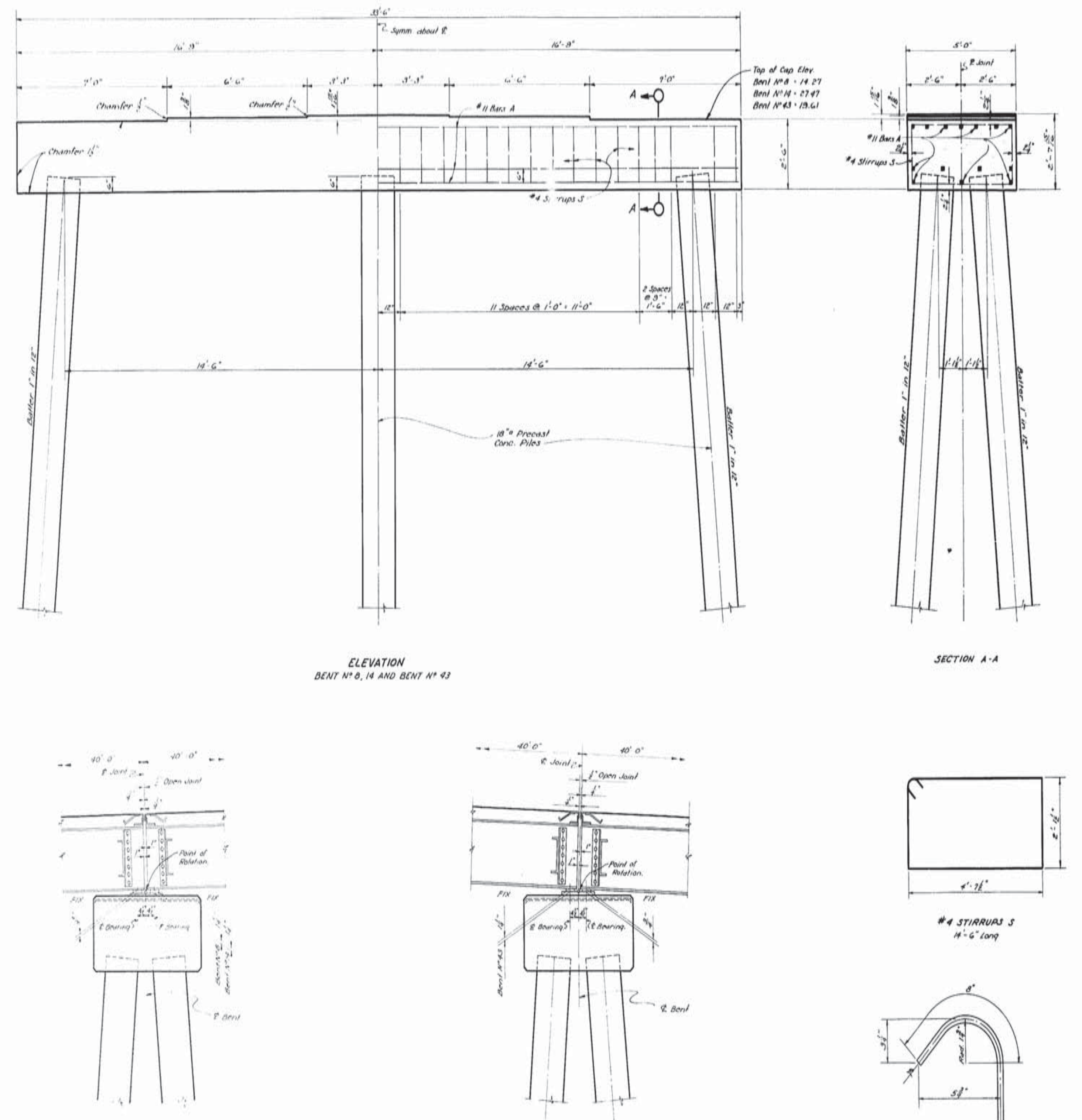
FINAL TRACINGS

AS BUILT PLANS

34

STATE PROJECT	PARISH	SHEET Nº
17-02-22	Tangipahoa and St. John the Bapt.	43-52

CONTRACT Nº 1



ELEVATION
BENT Nº 8, 14 AND BENT Nº 43

SECTION A-A

CONNECTION DETAIL
BENT Nº 8 & 19
REINFORCING NOT SHOWN

CONNECTION DETAIL
BENT Nº 43
REINFORCING NOT SHOWN

#4 STIRRUPS S
14'-6" Long

135° HOOK - #4 BARS

ESTIMATED QUANTITIES IN ONE BENT				
BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	14	#11	33'-2"	464'-4"
TOTAL Nº 11 BARS = 464'-4" = 2467 LBS.				
S	32	#4	14'-6"	464'-0"
TOTAL Nº 4 BARS = 464'-0" = 310 LBS.				
CLASS "A" CONCRETE			= 15.73 CU. YDS.	
DEF. REINF. STEEL			= 2777 LBS.	
MAXIMUM PILE LOAD			= 36.00 TONS/PILE	

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwy. Std. Specs.
DESIGN SPECIFICATIONS: A.A.S.H.O. 1953.
Live Load: H20-S16-44.
All dimensions to reinforcing steel are to bar centers.
Reinforcement bars shall be intermediate or hard grade A.S.T.M. A-15 or rail steel A.S.T.M. A-16.
Chamfer all exposed corners $1\frac{1}{2}$" unless otherwise noted.
See Special Detail For 18" ⊡ Precast Conc. Piles.

AS BUILT PLAN

BENTS Nº 8, 14 AND BENT Nº 43

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 19, 1959

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED Atchison	DETAILED R. Atchison	TRACED E. Hinkley
CHECKED Mayer	CHECKED Mayer	CHECKED Mayer

BRIDGE DESIGN SECTION

DATE	DESCRIPTION	BY

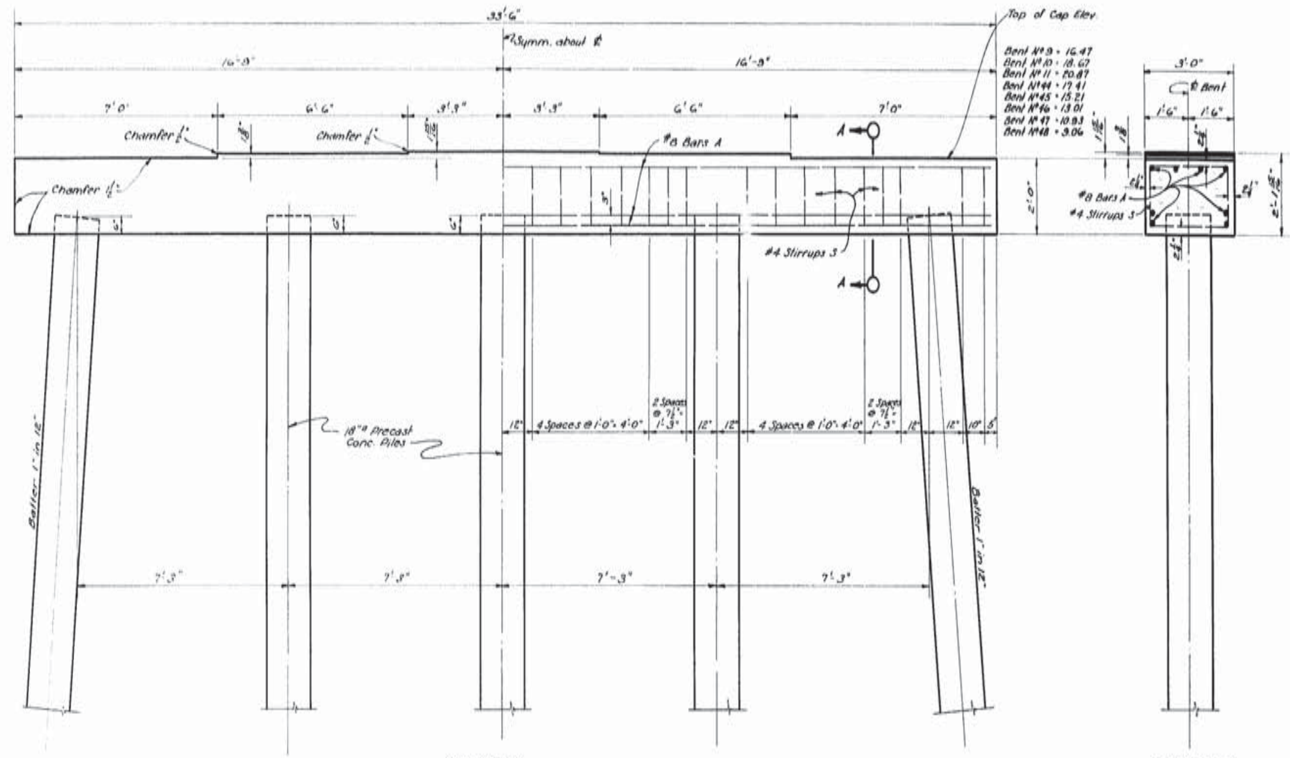
REVISIONS

FINAL TRACINGS | AS BUILT PLANS

36

STATE PROJECT	PARISH	SHEET Nº
17-02-22	Tangipahoa and St. John the Bapt.	28 55

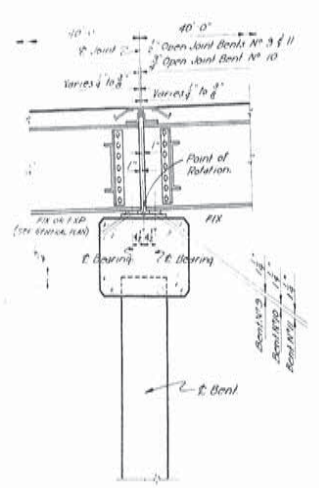
CONTRACT Nº 1



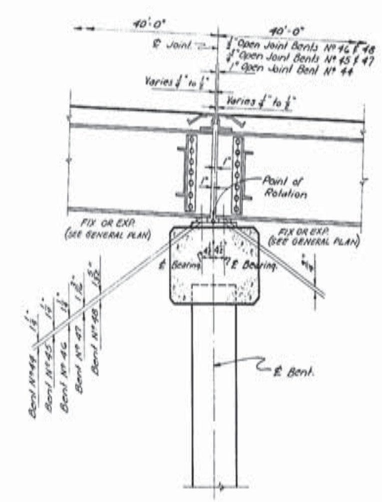
ELEVATION
BENTS Nº 9 THRU Nº 11 & Nº 44 THRU Nº 48

SECTION A-A

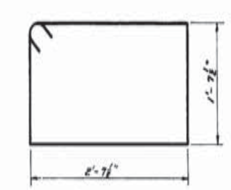
ESTIMATED QUANTITIES IN ONE BENT				
BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	8	#8	33'-2"	265'-4"
TOTAL #8 BARS = 265'-4" = 708 LBS.				
S	32	#4	9'-6"	304'-0"
TOTAL #4 BARS = 304'-0" = 203 LBS.				
CLASS "A" CONCRETE			= 7.52 CU. YDS.	
DEF. REINF. STEEL			= 911 LBS.	
MAXIMUM PILE LOAD			= 33.00 TONS/PILE	



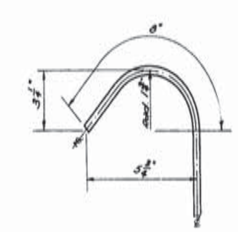
CONNECTION DETAIL
BENT Nº 9 THRU BENT Nº 11
REINFORCING NOT SHOWN



CONNECTION DETAIL
BENT Nº 44 THRU BENT Nº 48
REINFORCING NOT SHOWN



#4 STIRRUPS S
9'-6" Long



135° HOOK - #4 BARS

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwys. Std. Specs.
DESIGN SPECIFICATIONS: A.A.S.H.O. 1953.
Live Load: H20-S16-44.
All dimensions to reinforcing steel are to bar centers.
Reinforcement bars shall be intermediate or hard grade A.S.T.M. A 15 or rail steel A.S.T.M. A16.
Chamfer all exposed corners 1½" unless otherwise noted.
See Special Detail for 18" □ Precast Conc. Piles.

AS BUILT PLAN

BENTS Nº 9 THRU Nº 11
AND
Nº 44 THRU Nº 48

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED Oct. 18 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

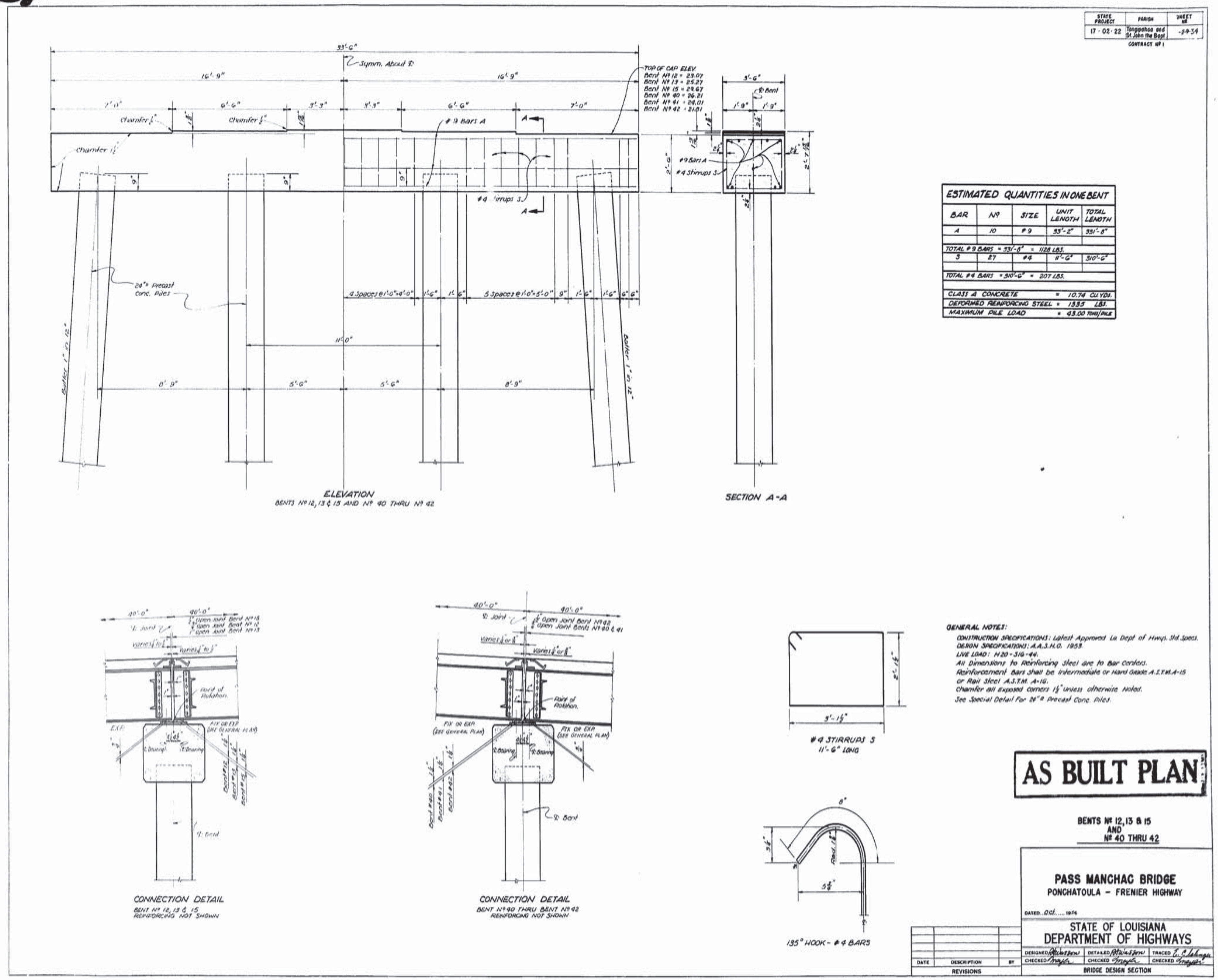
DATE	DESCRIPTION	BY
REVISIONS		

DESIGNED | DETAILED | TRACED C. Hinkley
CHECKED | CHECKED | CHECKED

BRIDGE DESIGN SECTION

FINAL TRACINGS | AS BUILT PLANS

3D



ESTIMATED QUANTITIES IN ONE BENT				
BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	10	#9	33'-2"	331'-8"
TOTAL #9 BARS = 331'-8" = 1128 LBS.				
S	27	#4	11'-6"	310'-6"
TOTAL #4 BARS = 310'-6" = 207 LBS.				
CLASS A CONCRETE = 10.74 CU. YDS.				
DEFORMED REINFORCING STEEL = 1335 LBS.				
MAXIMUM PILE LOAD = 43.00 TONS/PILE				

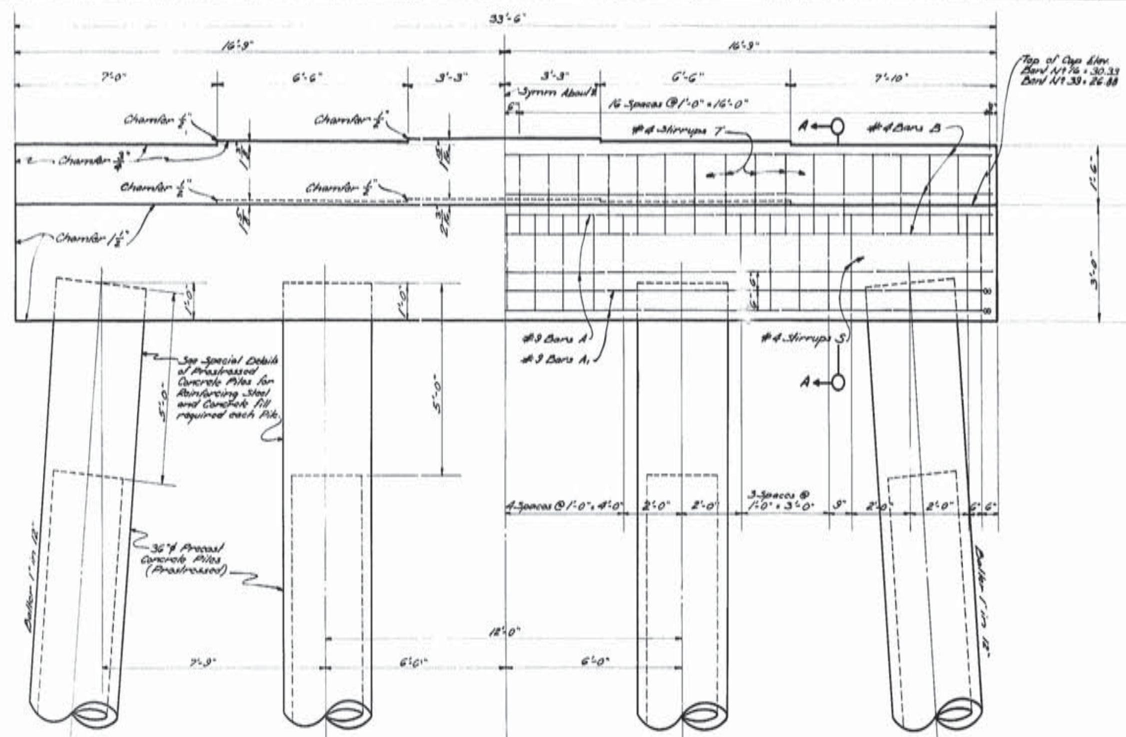
FINAL TRACINGS

AS BUILT PLANS

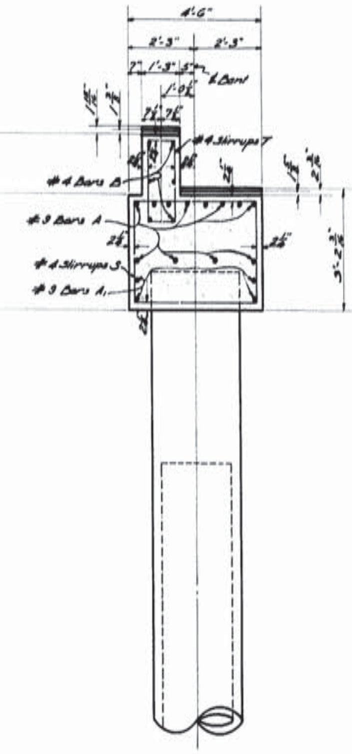
40

STATE PROJECT	PARISH	SHEET NO
17-02-22	Tangipahoa and St. John the Bapt.	40 35

CONTRACT NO 1

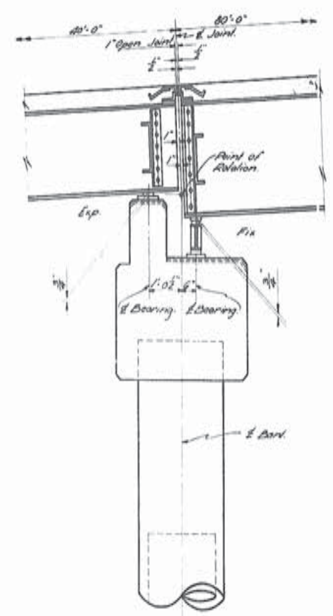


ELEVATION
BENTS No 16 AND No 39

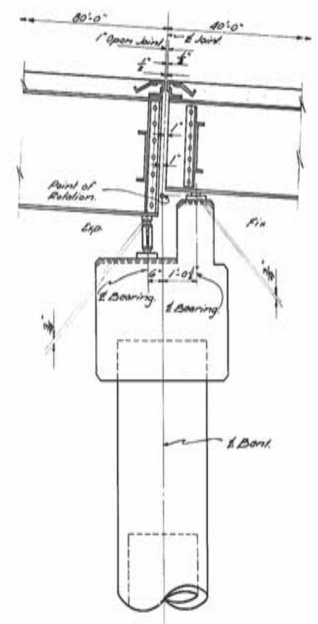


SECTION A-A

ESTIMATED QUANTITIES IN ONE BENT				
BAR	No	SIZE	UNIT LENGTH	TOTAL LENGTH
A	12	#9	33'-2"	398'-0"
A_1	4	#9	40'-1"	160'-4"
TOTAL #9 BARS = 558'-4" = 1898 LBS.				
B	6	#4	33'-2"	199'-0"
S	23	#4	14'-6"	333'-6"
T	34	#4	7'-4"	249'-4"
TOTAL #4 BARS = 781'-10" = 522 LBS.				
CLASS "A" CONCRETE = 18.44 CU. YDS.				
DEFORMED REINFORCING STEEL = 2420 LBS.				
MAXIMUM PILE LOAD 62.50 TONS/PILE				

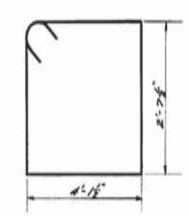


CONNECTION DETAIL
BENT No 16
REINFORCING NOT SHOWN

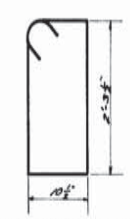


CONNECTION DETAIL
BENT No 39
REINFORCING NOT SHOWN

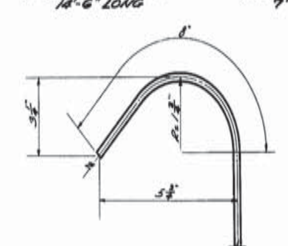
9 BARS A_1
40'-1" LONG



4 STIRRUPS S
14'-6" LONG



4 STIRRUPS T
7'-4" LONG



135° HOOK FOR # 4 BARS

GENERAL NOTES:
Construction Specifications: Latest Approved La. Dept. of Hwys. Std. Specs.
Design Specifications: A.A.S.H.O. 1953.
Live Load: H20-S16-44.
All Dimensions to Reinforcing Steel are to Bar Centers.
Reinforcement Bars shall be Intermediate or Hard Grade A.S.T.M. A-15 or Rail Steel A.S.T.M. A-16.
Chamfer all corners 3/4" unless otherwise noted.

AS BUILT PLAN

BENTS No 16 AND No 39

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED Oct. 18... 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED Mawsson	DETAILED Mawsson	TRACED M. Garon
CHECKED Maya	CHECKED Maya	CHECKED Maya

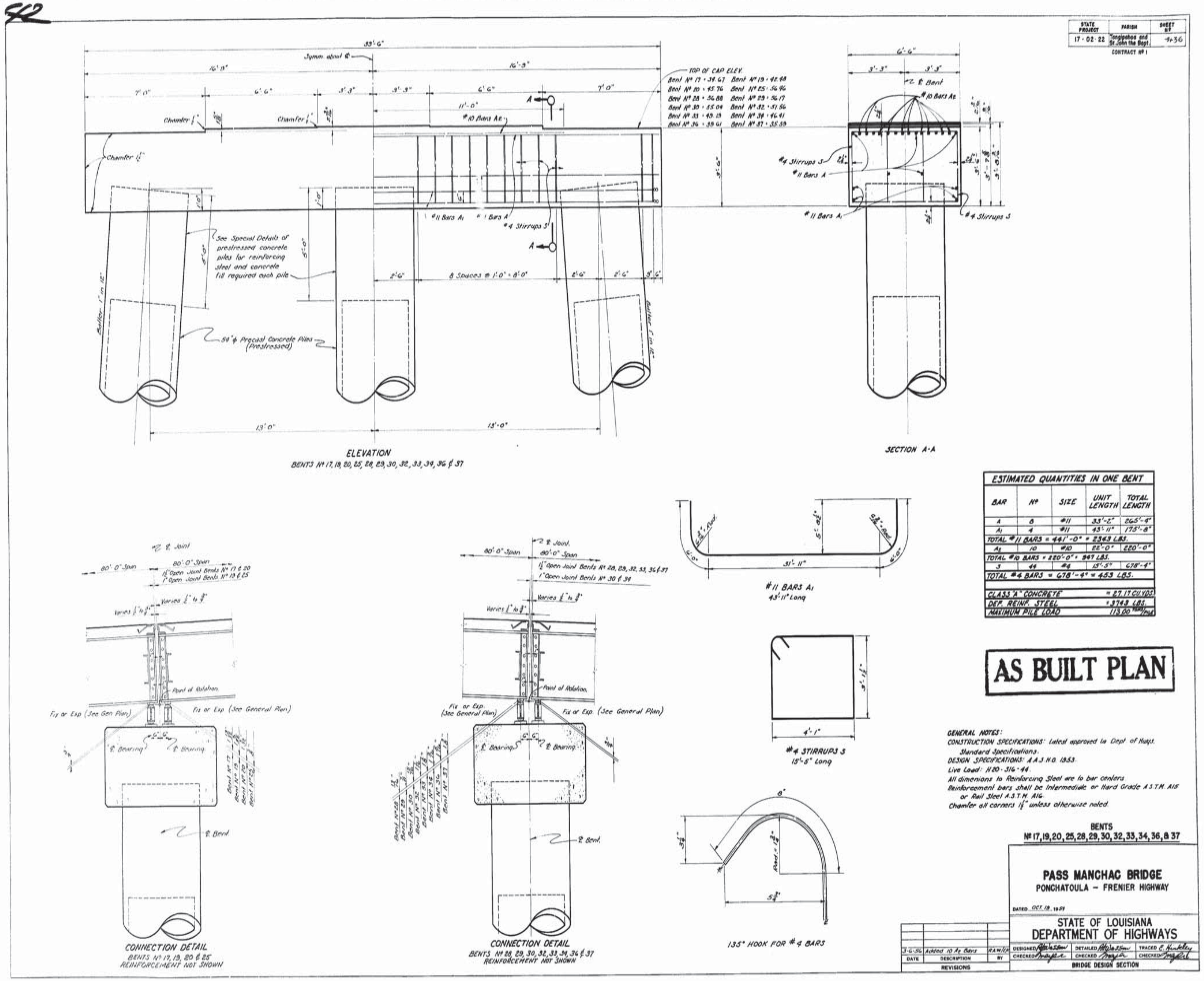
BRIDGE DESIGN SECTION

DATE	DESCRIPTION	BY

REVISIONS

FINAL TRACINGS

AS BUILT PLANS



ESTIMATED QUANTITIES IN ONE BENT				
BAR	No	SIZE	UNIT LENGTH	TOTAL LENGTH
A	8	#11	33'-2"	265'-4"
A_1	4	#11	43'-11"	175'-8"
TOTAL #11 BARS = 441'-0" = 2343 LBS.				
A_2	10	#10	22'-0"	220'-0"
TOTAL #10 BARS = 220'-0" = 947 LBS.				
S	44	#4	15'-5"	678'-4"
TOTAL #4 BARS = 678'-4" = 453 LBS.				
CLASS "A" CONCRETE				= 27.17 CU.YDS.
DEF. REINF. STEEL				= 3743 LBS.
MAXIMUM PILE LOAD				113.00 TONS/PILE

GENERAL NOTES:
CONSTRUCTION SPECIFICATIONS: Latest approved La. Dept. of Hwys. Standard Specifications.
DESIGN SPECIFICATIONS: A.A.S.H.O. 1953.
Live Load: H20-S16-44.
All dimenions to Reinforcing Steel are to bar centers.
Reinforcement bars shall be Intermediate or Hard Grade A.S.T.M. A15 or Rail Steel A.S.T.M. A16.
Chamfer all corners 1½" unless otherwise noted.

BENTS
No 17, 19, 20, 25, 28, 29, 30, 32, 33, 34, 36, & 37

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

DATED OCT. 19, 1951

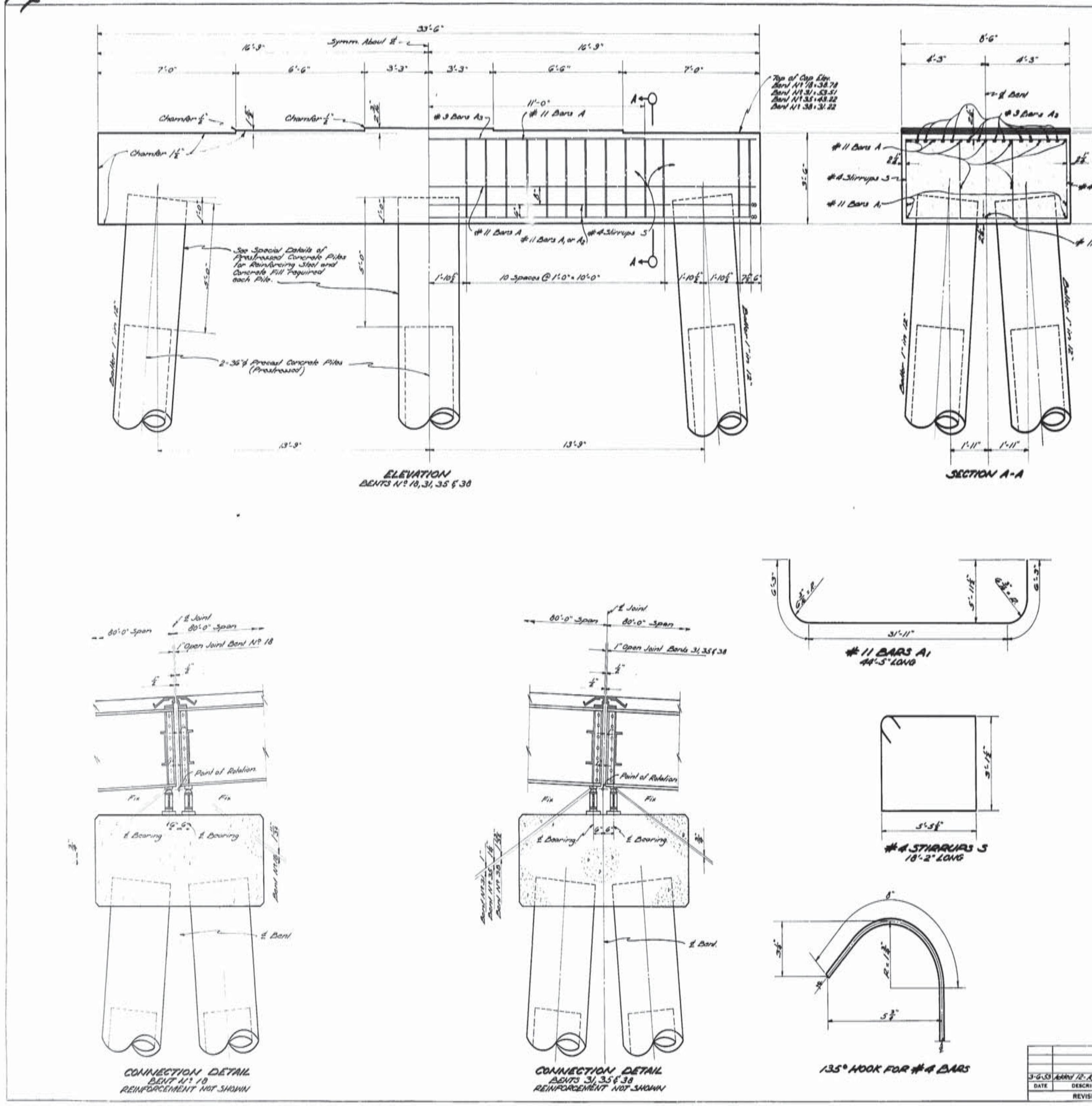
STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY
3-6-56	Added 10 A_2 Bars	RAW/EK
REVISIONS		

DESIGNED / CHECKED / DETAILED / CHECKED / TRACED E. Hinkley / CHECKED
BRIDGE DESIGN SECTION

FINAL TRACINGS
AS BUILT PLANS

44



STATE PROJECT	PARISH	SHEET No.
17-02-22	TANGIPAHOA AND ST. JOHN THE BAPT.	83.57

CONTRACT No.

ESTIMATED QUANTITIES IN ONE BENT

BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	9	#11	33'-2"	298'-6"
A_1	4	#11	44'-5"	177'-8"
A_2	1	#11	32'-10"	32'-10"
TOTAL #11 BARS = 509'-0" = 2704 LBS.				
A_3	12	#3	22'-0"	264'-0"
TOTAL #3 BARS = 264'-0" = 99 LBS.				
S	52	#4	18'-2"	944'-8"
TOTAL #4 BARS = 944'-8" = 631 LBS.				
CLASS "A" CONCRETE				36.27 CU. YDS.
DEFORMED REINFORCING STEEL = 4833 LBS.				
MAXIMUM PILE LOAD				= 67.50 TONS/PILES

GENERAL NOTES:
Construction Specifications: Latest Approved La. Dept. of Hwys. Standard Specifications.
Design Specifications: A.A.S.H.O. 1953.
Live Load: H20-S16-44
All Dimensions relating to Reinforcing Steel are to Bar Centers.
Reinforcement Bars shall be Intermediate or Hard Grade A.S.T.M. A15 or Rail Steel A.S.T.M. A16.
Chamfer all Corners 1½" unless otherwise noted.

AS BUILT PLAN

BENTS 18, 31, 35 & 38

PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY

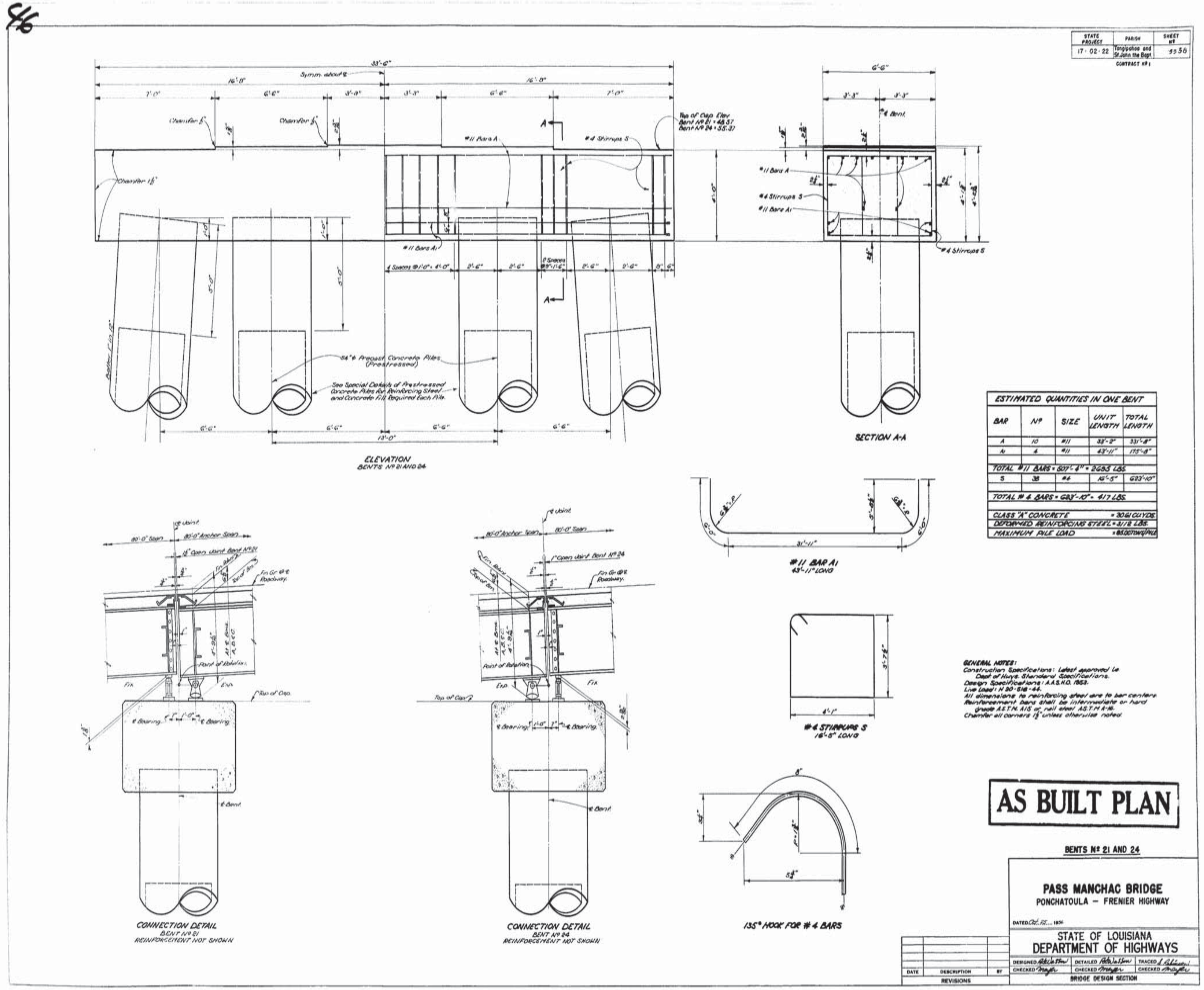
DATED Oct. 1954

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY			
3-6-55	Added 12-A_3 Bars	RAW/H.B.	DESIGNED R.H. Watson / CHECKED Meyer	DETAILED R.H. Watson / CHECKED Meyer	TRACED M. Garen / CHECKED Meyer
REVISIONS			BRIDGE DESIGN SECTION		

FINAL TRACINGS

AS BUILT PLANS

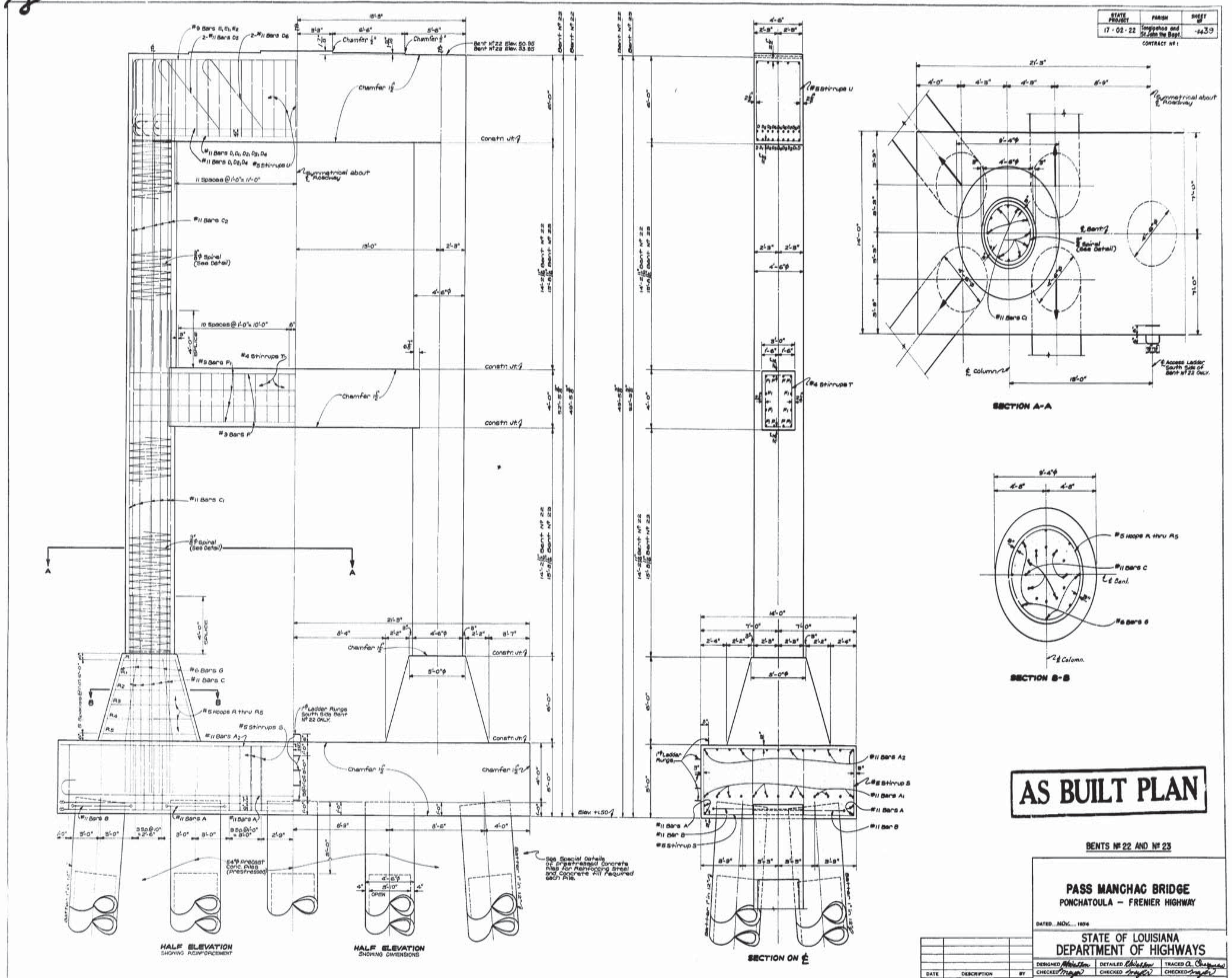


ESTIMATED QUANTITIES IN ONE BENT				
BAR	Nº	SIZE	UNIT LENGTH	TOTAL LENGTH
A	10	#11	33'-2"	331'-8"
A1	4	#11	43'-11"	175'-8"
TOTAL #11 BARS = 507'-4" = 2693 LBS.				
S	38	#4	16'-5"	623'-10"
TOTAL #4 BARS = 623'-10" = 417 LBS.				
CLASS "A" CONCRETE = 30.61 CU.YDS.				
DEFORMED REINFORCING STEEL = 3112 LBS.				
MAXIMUM PILE LOAD = 85.00 TONS/PILE				

GENERAL NOTES:
Construction Specifications: Latest approved La. Dept. of Hwys. Standard Specifications.
Design Specifications: A.A.S.H.O. 1953.
Live Load: H 20-S16-44.
All dimensions to reinforcing steel are to bar centers.
Reinforcement bars shall be intermediate or hard grade A.S.T.M. A15 or rail steel A.S.T.M. A-16.
Chamfer all corners 1½" unless otherwise noted.

FINAL TRACINGS

AS BUILT PLANS



BENTS Nº 22 AND Nº 23

PASS MANCHAC BRIDGE

PONCHATOULA – FRENIER HIGHWAY

DATED NOV. 1954

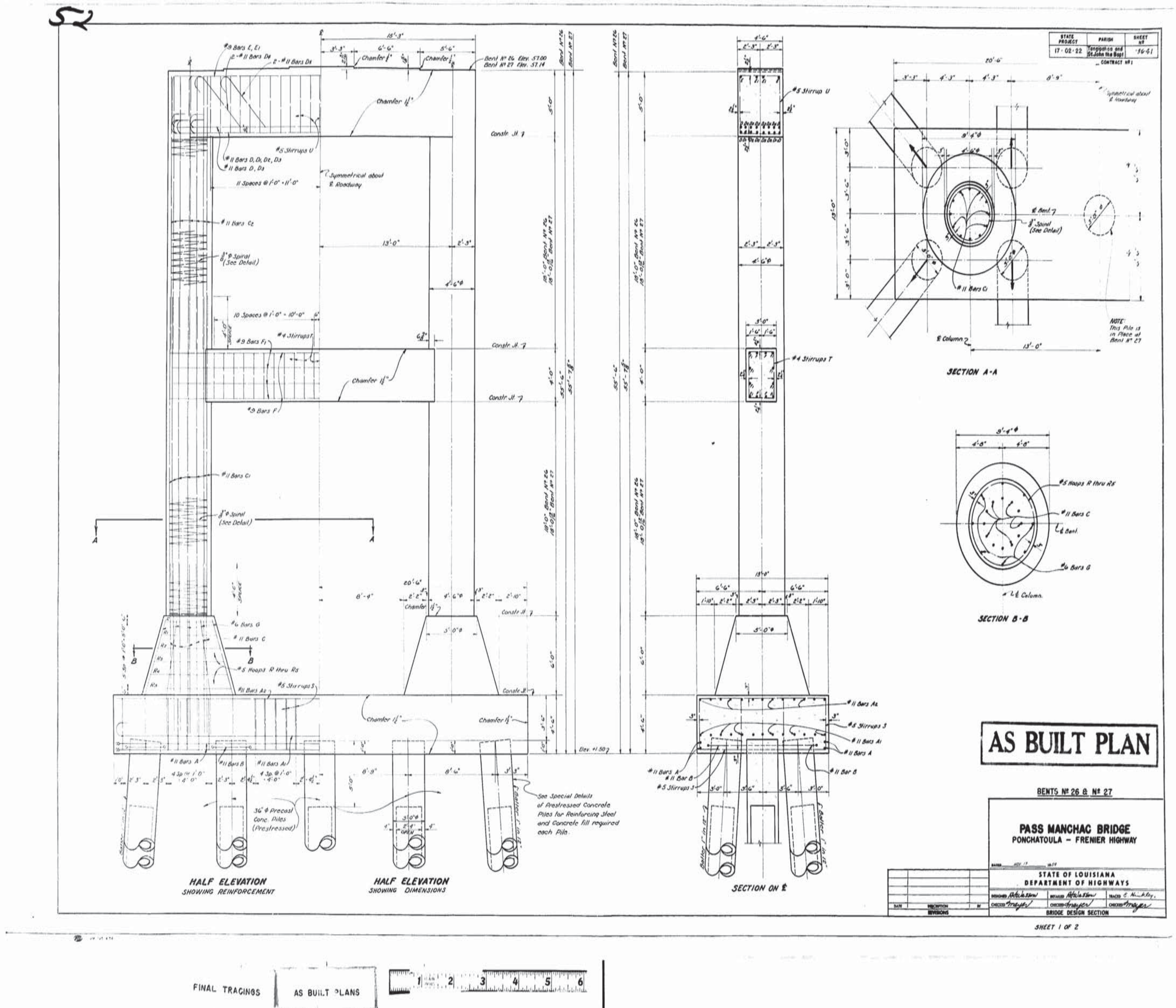
STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

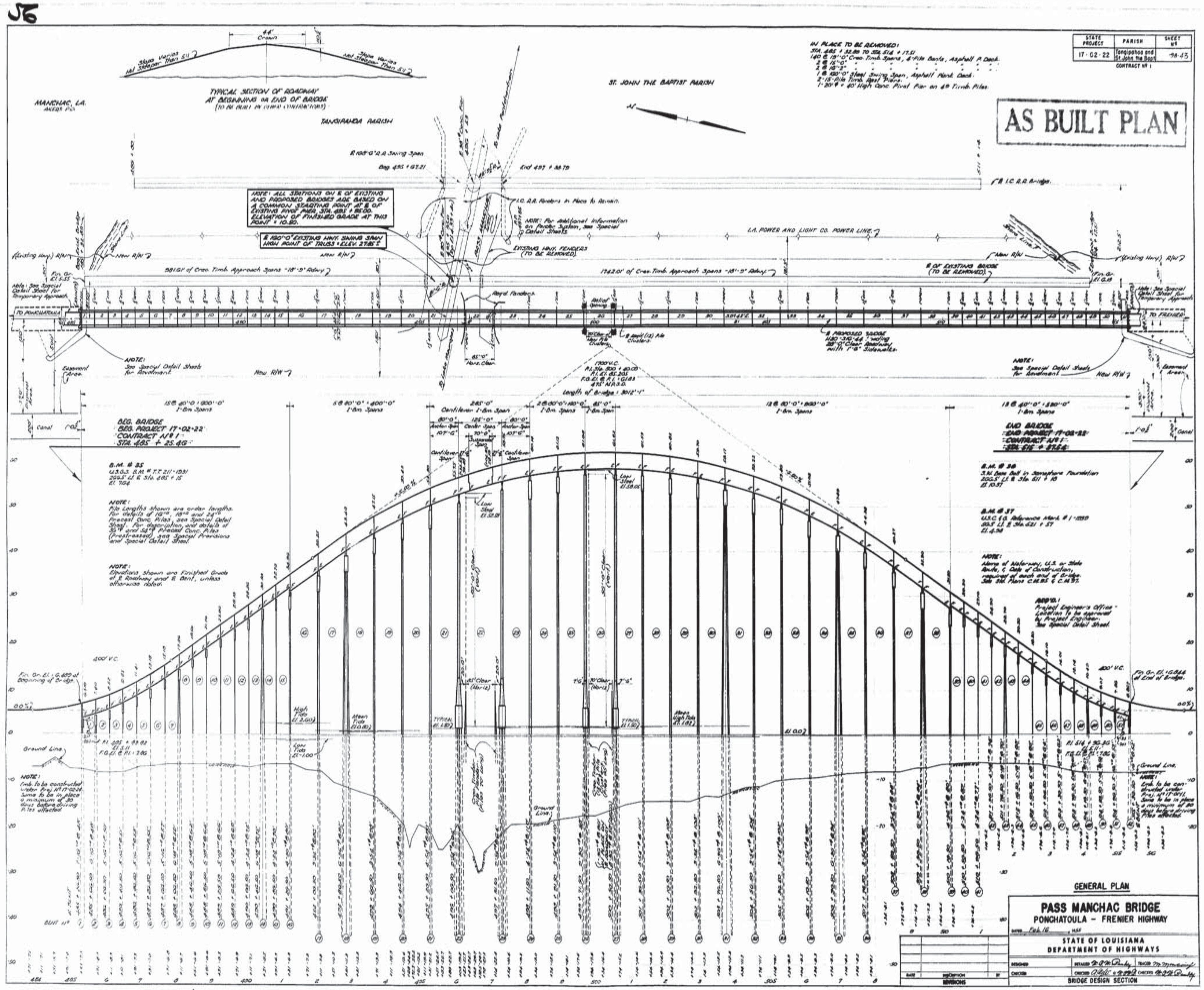
BRIDGE DESIGN SECTION

SHEET 1 OF 2

FINAL TRACINGS

AS BUILT PLANS


52
HALF ELEVATION
SHOWING REINFORCEMENT
HALF ELEVATION
SHOWING DIMENSIONS
SECTION ON ℄
SECTION A-A
SECTION B-B
See Special Details of Prestressed Concrete Piles for Reinforcing Steel and Concrete fill required each Pile.
36" ϕ Precast Conc. Piles (Prestressed)
AS BUILT PLAN
BENTS Nº 26 & Nº 27
PASS MANCHAC BRIDGE
PONCHATOULA – FRENIER HIGHWAY
STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS
BRIDGE DESIGN SECTION
SHEET 1 OF 2
FINAL TRACINGS
AS BUILT PLANS



FINAL TRACINGS

AS BUILT PLANS