TERREBONNE PARISH ROAD NO. 004 BRIDGE HAER No. LA-35
(Bridge Recall No. 200865)
Carries Parish Road 111 over Bayou du Large
Theriot
Terrebonne Parish
Louisiana

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED & INTERPRETIVE DRAWINGS

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
TERREBONNE PARISH ROAD NO. 004 BRIDGE
(Bridge Recall No. 200865)

HAER No. LA-35

Location: Carries Parish Road 111 over Bayou du Large, Theriot, Terrebonne Parish, Louisiana.

The Terrebonne Parish Road No. 004 Bridge (Bridge Recall No. 200865, also known as the Bayou du Large Bridge) is located at latitude 29.409722, north, longitude -90.786366 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: Terrebonne Parish.

Present Use: Vehicular traffic.

Significance: The Terrebonne Parish Road No. 004 Bridge is a cable-stayed swing bridge that has significance as an important example of a movable bridge. Its significance is demonstrated by the presence of distinctive engineering and design features of a cable-stayed swing bridge, which is characterized by a truss swing span, center-bearing turning mechanism, pivot pier, and tower structure above the pivot pier with cables that support the bridge in open position. A strengthening member has been welded to the top chord of the trusses that results in a minor loss of integrity, but the bridge continues to convey significant design features of the cable-stayed swing bridge type. This bridge was determined eligible for listing in the National Register of Historic Places (National Register) in 2013 under *Criterion C: Design/Engineering* at the state level of significance.[2]

Historian(s): Robert M. Frame and Christina Slattery, Senior Cultural Resource Specialists; 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 to prepare this document. It was prepared by senior cultural resource specialists Robert M. Frame and Christina Slattery of Mead & Hunt. Dietrich Floeter completed the photography.

---

[1] The bridge is also known as Structure No. P5529246904711.

[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: 1959.

2. Engineer: Unknown.

3. Builder/Contractor/Supplier: Unknown.

4. Original plans and construction: No original plans or construction drawings were located for this bridge.

5. Alterations and additions: At an unknown time, solid steel bars were welded directly across the inside and outside faces of the center tower on both trusses, rigidly connecting the upper chord members of the two truss arms of the swing span.

B. Historical Context:

Historical background
The Terrebonne Parish Road No. 004 Bridge (also known as the Bayou du Large Bridge), located 4.5 miles south of the unincorporated community of Theriot in Terrebonne Parish, carries Parish Road 111 (also known as Brady Road) over Bayou du Large. The surrounding region, known for its fertile soil and marshes, sustains an economy that largely depends on the production of shrimp, crabs, fish, and oysters. Bayous such as the Bayou du Large provide access between the Gulf of Mexico and inland residences and seafood markets. Because of the commercial fishing industry, many bridges throughout the parish are movable to accommodate frequent boat traffic at certain times of the year. The Terrebonne Parish Road No. 004 Bridge, a cable-stayed truss swing span, was constructed for this purpose.

The Louisiana Department of Highway's (LDH's) annual reports from 1957 to 1959 list work on Terrebonne Parish Road No. 004 Bridge with the approaches and the bridge noted as completed in 1959.[3] The concrete approach work was completed by R.B. Tyler Company of New Orleans.[4]

Swing-span bridges were used nationally from the 1890s to the 1920s, after which they were gradually supplanted by bascule and vertical lift bridges for many applications. Swing-span bridges open by rotating (swinging) the movable span 90 degrees in a horizontal plane about a vertical axis (the central pivot pier), so the span is parallel with the navigation channel. This creates open navigation channels on

[3] Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1959* (Baton Rouge, La.: Louisiana Department of Highways, 1959), 34–35; Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1958* (Baton Rouge, La.: Louisiana Department of Highways, 1958), 31; Louisiana Department of Highways, *Financial and Statistical Report, Fiscal Year Ended June 30, 1957* (Baton Rouge, La.: Louisiana Department of Highways, 1957), 28.

[4] "Bids Received for Widening Hammond Hwy," *Baton Rouge State Times Morning Advocate*, March 28, 1957.

either side of the central pier that supports the movable span. When in the closed position (closed to marine traffic), the span is supported at three points: the two span ends and the pivot pier. The pivot pier, generally at the mid-span point, supports the weight of the swing span itself. The piers at each span end are "rest piers," which stabilize the span end along with the pivot pier, and also support the live load (the weight of vehicular traffic) as it passes over the bridge.[5]

The restrictive element for a swing-span bridge is the unavoidable center pier, which remains an obstruction to navigation in the waterway when the span is open. Additionally, the swinging span requires a large circle of clear space in which to operate, limiting its applicability in congested urban waterway locations. For that reason, alternative types of movable spans were developed to replace their early swing-span bridges for river navigation. One key design feature that helps to differentiate among the various swing-span bridge types include the span type itself. Most swing-span bridges nationally resemble typical steel through-truss or plate girder bridges in the closed position. Extant examples of swing-span bridges in Louisiana feature four types of span construction: cable-stayed (I-beam and pony truss variations), through-truss, pony truss, and plate girder (most common).[6]

Cable-stayed swing bridges feature a steel beam or truss swing span and a tower structure above the pivot pier that connects to floorbeams via cables, which support the bridge arms when in the open position. The cable-stayed swing bridge type is restricted to small bayous in Terrebonne Parish near the Gulf of Mexico with a significant linear distribution of swing-span bridges along Bayou Teche, and smaller groups along Bayou Black, Bayou du Large, and Petit Caillou Bayou. The type is considered highly uncommon nationally, with no known examples outside of Louisiana. The Terrebonne Parish Road No. 004 Bridge is one of seven extant cable-stayed swing bridges in Louisiana built between 1945 and 1970 that are owned by Terrebonne Parish.[7] The other cable-stayed examples in the state include:

Bridge Recall No.	Name	Feature carried/crossed	Year built
200858	Terrebonne Parish Road No. 255 Bridge	Carries local road over Black Bayou	1945
200859	Terrebonne Parish Road No. 262 Bridge	Carries local road over Little Black Bayou	1958
200869	Terrebonne Parish Road No. 091 Bridge	Carries local road over Bayou Petit Caillou	1958
200868	Terrebonne Parish Road No. 283 Bridge	Carries local road over Bayou Grand Caillou	1960
200871	Terrebonne Parish Road No. 085 Bridge	Carries local road over Bayou Petit Caillou	1965
200852	Terrebonne Parish Road No. 293 Bridge	Carries local road over Bayou Petit Caillou	1968

Source: Mead & Hunt, Inc., *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges.*

[5] Louisiana Department of Transportation and Development, *Movable Bridge Inspectors Program Workbook* (Baton Rouge, La.: Louisiana Department of Transportation and Development, n.d.), II-11-14.

[6] Mead & Hunt, Inc., *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges*, 31.

[7] Mead & Hunt, Inc., *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges*.

Standard plans are known to have been developed for swing bridge types by the LADOTD and its predecessors (the Louisiana Highway Commission and the LDH) beginning in 1924 through at least the early 1960s.[8] The cable-stayed swing-span bridges in Terrebonne Parish do not appear to have followed a state standard design and little historical information about their design has been identified. However, the Terrebonne Parish Road No. 004 Bridge and the other cable-stayed swing bridges in the parish do appear to reflect a variation on a movable bridge design developed for use locally.

Another variation of swing spans is seen in the turning mechanism on the pivot pier of the swing span. Turning mechanisms generally are either center-bearing or rim-bearing, depending on the way the mechanism supports the weight of the span as it moves. When the movable span is opened, the entire weight of the span is carried to the pivot pier by either a series of rim-bearing rollers or a center-bearing pivot. Rim-bearing turning mechanisms, used earlier than center-bearing, have a large number of tapered rollers located on a circular track around the center of the pivot pier. Each roller is mounted on a radial shaft, which restrains it from moving away from the center of the span. A second track attached to the bottom of the swing span itself rests on top of the rollers. The entire weight of the span is carried by the rollers. A small radial bearing is provided at the center to keep the span in proper location. The center-bearing turning mechanism receives its name from a large bronze spherical thrust bearing at pivot pier that supports the entire weight of the movable span and also keeps the span in proper location. Balance wheels are provided on the center-bearing turning mechanism to prevent the span from tipping out of plane during operation. Terrebonne Parish Road No. 004 Bridge represents the center-bearing type.

Part II. Structural/Design Information

A. General Statement:

1. Character: The Terrebonne Parish Road No. 004 Bridge is a cable-stayed swing bridge and is a significant example of this movable bridge type.

2. Condition of fabric: Good.

B. Description: The Terrrebonne Parish Road No. 004 Bridge is located 4.5 miles south of the unincorporated community of Theriot and carries Parish Road No. 004 (also known as Brady Road) over Bayou du Large, a short distance south of the Falgout Canal in Terrebonne Parish. The bridge was completed in 1959 and is aligned on a nominal east-west axis. It is a welded, steel, cable-stayed, swing-

[8] Standard plans in the possession of LADOTD Bridge Office were reviewed for the development of the historic context for the Statewide Historic Bridge Inventory Project for bridges built in the state through 1970. Mead & Hunt, Inc., *Historic Context for Louisiana Bridges* (prepared for the Louisiana Department of Transportation and Development, December 2013), 75.

span bridge with truss stiffeners for the deck. The overall bridge length is 125'-0" and the swing span is 106'-0". The roadway between the trusses is 14'-0" clear.

Swing span

The swing span is comprised of three main components: a deck and floor system, a central tower with pivot mechanism, and trusses to stiffen the deck. Separate from the bridge structure is the operator's house, which contains the power source and mechanism for turning the swing span. The central tower supports the deck and floor system with sets of adjustable stay-rods (i.e., cable stays) with turnbuckles that extend diagonally from the top of the tower to floorbeam ends. There are four sets of three rods each, two sets on each side of the tower. The tower is constructed with a vertical I-beam column on each side of the span, joined at the top with a transverse I-beam strut to form an inverted U structure over the roadway at the center of the swing span. Each vertical column has simple diagonal I-beam braces extending from the column to the outside longitudinal I-beam of the floor system.

The floor system consists of seven lines of I-beam stringers extending the length of the span supported by rolled floorbeams. Three closely spaced floorbeams support the central tower over the turning mechanism. Six additional floorbeams, three on each side of the central tower, support the two extensions of the span beyond the tower. The ends of the six floorbeams are connected to the central-tower stay-rods with large U-bolts. The deck is comprised of timber planks laid across longitudinal timber beams mounted directly on the longitudinal I-beam stringers. The wood-plank surface has a pair of wheel tracks made of non-skid diamond steel plates.

The entire swing span is stiffened and stabilized by an ad hoc truss system welded in various places to the floorbeams. The trusses are designed and positioned in such a way that the span extensions on each side of the tower have their own truss system, giving the swing span the appearance of two pony trusses with a tower centered between them. This arrangement is similar to a conventional swing-span construction with a central vertical unit over a pivot pier and side spans with some vertical flexibility. Although the configurations resemble load-bearing pony trusses, there are no lower chords in tension. In addition, the arrangement of members has diagonals in unusual locations so the overall configuration is not an identifiable truss type. The welded connections of the members do not resemble typical truss connections that would be riveted or bolted. The upper chords of the two trusses on each side have been rigidly connected with horizontal I-beams and a solid steel bar welded directly across the inside and outside faces of the center tower.

Pivot pier and turning mechanism

The pivot pier is comprised of a framework of closely spaced, creosoted, 6'-0" by 10'-0" timbers and I-beams. This timber frame is mounted on cap beams atop timber piles. On top of the timber frame is a center-bearing steel pivot. Unlike most larger center-bearing swing spans, which turn on curved bearing plates, this bridge's turning mechanism utilizes a simple steel post or pintle as the pivot point. Around the center pivot is a circular "crane rail" or steel track. Riding on top of this construction is a square frame of I-beams mounted beneath the floor-system stringers of the swing span. The center of the frame turns on the pintle while the outside of the frame has four balance wheels that ride on crane rail track to keep the span in a level plane as it rotates open and closed.

There is no power mechanism or gear train associated with the pivot mechanism, since all movement of the span is accomplished by ropes attached to the fascia floor-system stringers. The span ends have no seating mechanism, locks, or other conventional swing-span equipment or devices. As the span swings in and out of the closed position, the west end I-beam (the end floorbeams) simply slides on and off a greased metal plate mounted on railroad ties that serves as a seat for the span end when in the closed position. The east end of the span meets a short steel-stringer approach span or jump span that has a similar seat of timbers and a metal plate on which the span end slides.

Operator's house and power device

Situated a few feet from the northwest corner of the bridge is the operator's house, which encloses the power source for turning the swing span, an electrically powered winch equipped with a friction spool or drum. The operator's house is a simple, one-story, rectangular, wood-frame structure with a low-pitch gable-end roof. The exterior is clad in galvanized corrugated metal panels. There are simple, one-over-one, double-hung windows and a doorway. A wood-plank deck wraps around the west end of the house.

In the lower part of house's south wall, facing the swing span, is a rectangular opening approximately 1' wide and 2' high. The four interior edges of the opening are fitted with rollers to facilitate the movement of two control ropes in and out of the building. A rope is attached to the stringer on each side of the west end of the swing span on the side of the bayou by the house. In that arrangement, one rope will pull the span end toward the house to close the bridge and the other will pull it away to open it.

The closing rope runs straight into the operator's house from the bridge. The opening rope follows a loop that extends away from the bridge, through a series of pulleys mounted on short pilings, and back under the span and into the operator's house. The entire range of the swing span motion is a 90-degree or quarter turn.

Inside the operator's house is the electric winch and friction spool for managing the ropes. This device serves as a power assist for pulling in ropes by hand. To open the span, the operator picks up the loose end of the rope connected to the side of the span away from the house. The operator loops the rope over the spool a few times, turns on the winch, and allows the spool to help pull in the rope and pull the span end away or open. To close the span, the operator picks up the other rope and follows the same action with the winch spool to haul the rope in, pulling the span end back toward the house and into a closed position. When the bridge is open for waterway traffic, a navigation channel is clear on the east side of the pivot pier. A timber fender system of pilings acts as protection for the span and pivot pier while guiding boats through the navigation channel.

Adjacent to each span end is a signal light and a pair of drop-arm traffic control gates to manage vehicular traffic when the swing span is open. The west gates and light are positioned off the bridge. The east gates are mounted on small steel platforms cantilevered off the sides of the approach span.

C. Site Information: The Terrebonne Parish Road No. 004 Bridge carries Parish Road No. 004 (also known as Brady Road) over Bayou du Large approximately 4.5 miles south of Theriot in Terrebonne Parish, Louisiana. The bridge is located at the edge of a residential subdivision that includes some commercial/industrial properties. At the bridge's location, the channel on one side of the bayou is mowed/landscaped grass, while the other side is unmaintained brushy vegetation with some deciduous trees. At this location, Parish Road 111/Brady Road carries one lane of vehicular traffic over the bridge.

Part III. Sources of Information

A. Primary Sources:

"Bids Received for Widening Hammond Hwy." *Baton Rouge State Times Morning Advocate*, March 28, 1957.

Louisiana Department of Highways. *Financial and Statistical Report, Fiscal Year Ended June 30, 1957*. Baton Rouge, La.: Louisiana Department of Highways, 1957.

———. *Financial and Statistical Report, Fiscal Year Ended June 30, 1958*. Baton Rouge, La.: Louisiana Department of Highways, 1958.

———. *Financial and Statistical Report, Fiscal Year Ended June 30, 1959*. Baton Rouge, La.: Louisiana Department of Highways, 1959.

Louisiana Department of Transportation and Development. *Movable Bridge Inspectors Program Workbook*. Baton Rouge, La.: Louisiana Department of Transportation and Development, n.d.

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

B. Secondary Sources:

Bridge Inspection Report. Recall No. 200865. July 30, 2013. Available in Bridge Maintenance and Inspection Division, Louisiana Department of Transportation and Development, Baton Rouge, La.

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

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

TERREBONNE PARISH ROAD NO. 004 BRIDGE **HAER No. LA-35**
(Bridge Recall No. 200865)
Carries Parish Road 111 over Bayou Du Large
Theriot
Terrebonne Parish
Louisiana

INDEX TO BLACK AND WHITE PHOTOGRAPHS

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

LA-35-1 North elevation, from north

LA-35-2 South elevation, from southeast

LA-35-3 Northeast elevation, from northeast

LA-35-4 Southwest elevation from southwest

LA-35-5 South elevation with 8-foot scale device, from southeast

LA-35-6 South elevation with bridge swung open, from southeast

LA-35-7 East elevation with bridge swung open, from east

LA-35-8 Detail of view to north from bridge, from south

LA-35-9 Detail of operating ropes and piers, from east

LA-35-10 Detail of view to south from bridge, from north

LA-35-11 Detail of winch in operator's house from north

LA-35-12 Detail of pivot pier at center of span, from west

LA-35-13 Detail view of center cable support tower, from east

LA-35-14 Detail view endpost and lower chord connection, from southwest

LA-35-15 Detail view of abutment showing end post, lower chord and floorbeam connections, from south

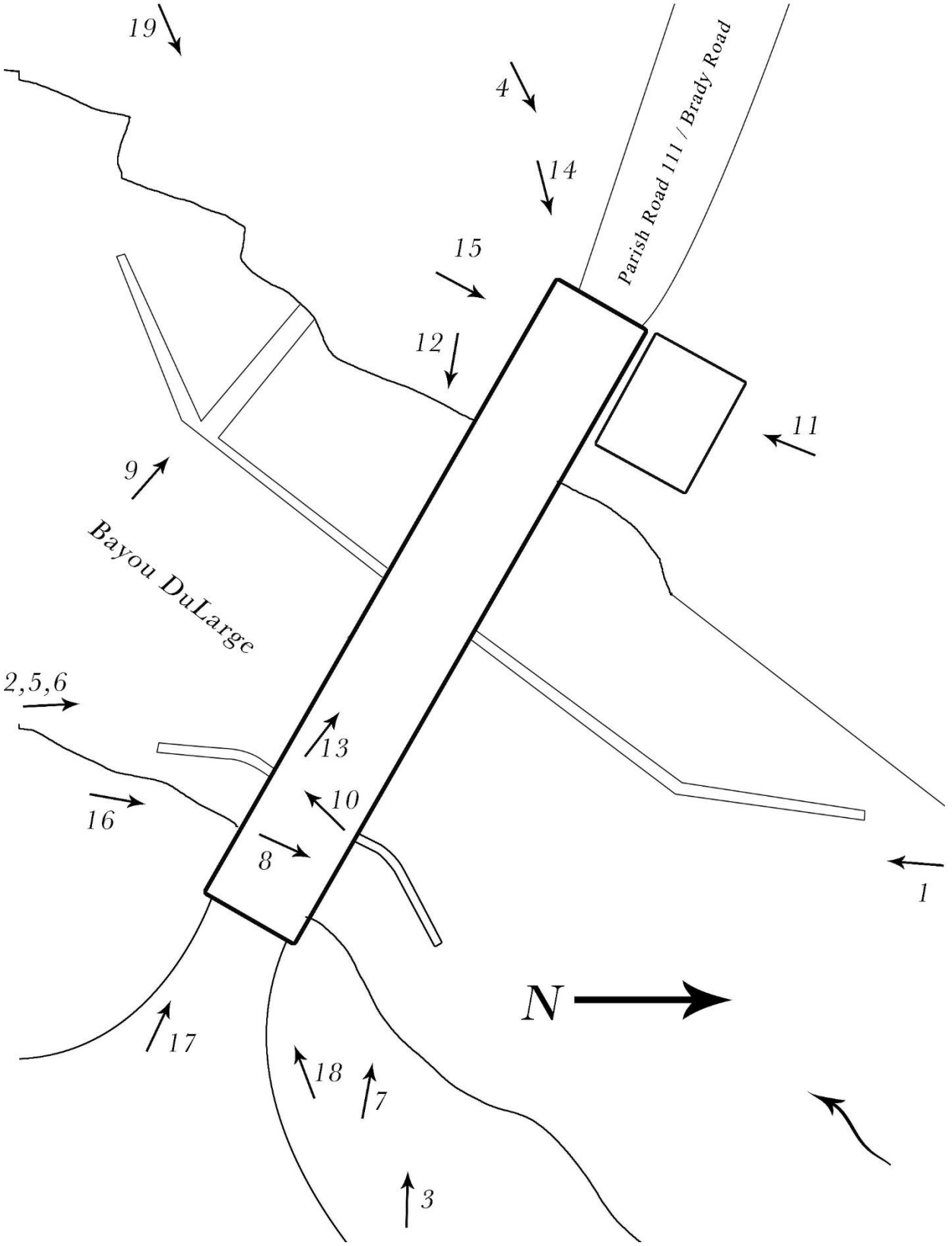
LA-35-16 Detail view of abutment showing side platform, from south

LA-35-17 Detail view of south traffic signal light, from east

LA-35-18 Detail view of south gate, from northeast

LA-35-19 General view of bridge from southwest

TERREBONNE PARISH ROAD NO. 004 BRIDGE
HAER No. LA-35
INDEX TO PHOTOGRAPHS



HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-1

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-2

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-3

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-4

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-5

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-6

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-7

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-8

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-9

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-10

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-11

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-12

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-13

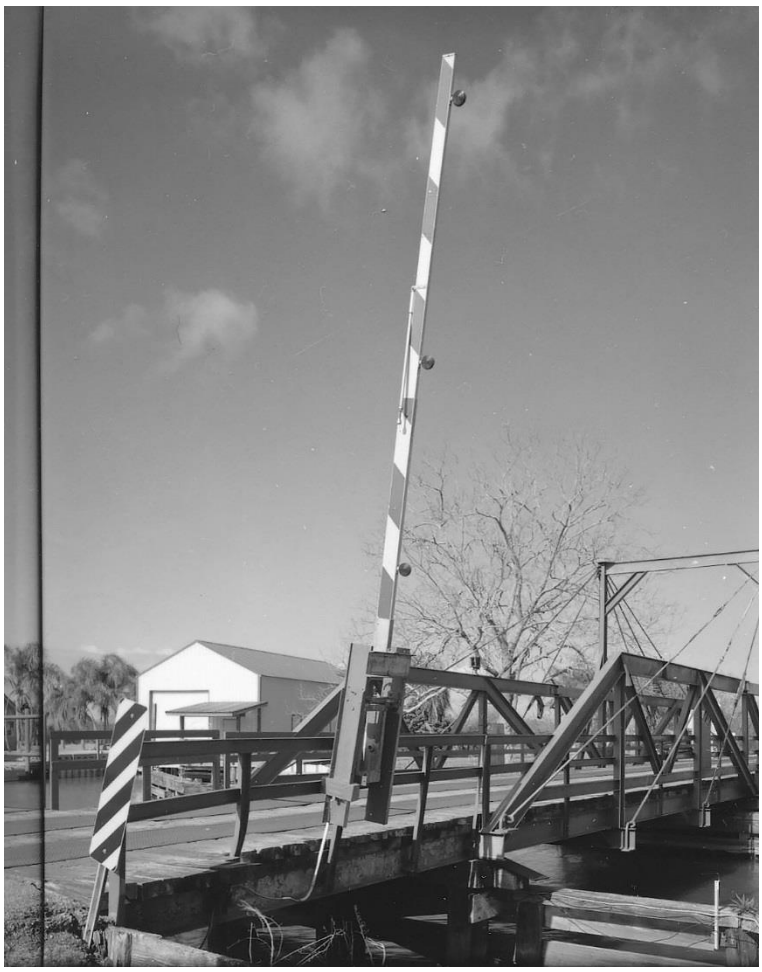
HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-14

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-15

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-16

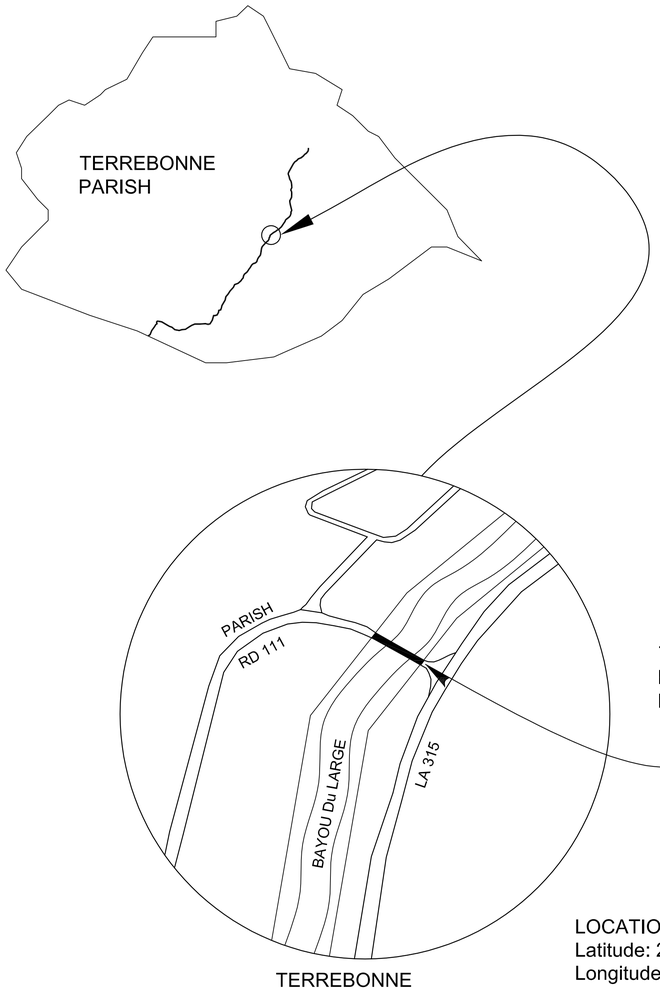
HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-17

HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-18

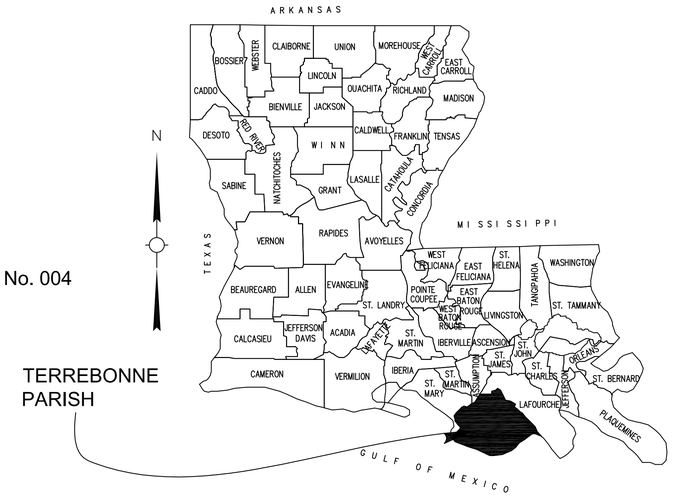


HISTORIC AMERICAN ENGINEERING RECORD
See Index to Photographs for Caption
HAER NO. LA-35-19

TERREBONNE PARISH ROAD NO. 004 BRIDGE



LOCATION MAP
Latitude: 29.409706 North
Longitude: -90.786326 West



LOUISIANA

The Terrebonne Parish Road No. 004 Bridge (Bridge Recall No. 200865), completed in 1959, is a cable-stayed swing bridge significant as an important example of a movable bridge type. Its significance is demonstrated by the presence of distinctive engineering and design features which is characterized by a truss swing span, center-bearing turning mechanism, pivot pier, and tower structure above the pivot pier with cables that support the bridge in open position. This bridge was determined eligible for listing in the National Register of Historic Places in 2013 under Criterion C: Design/Engineering at the state level of significance.

This documentation was prepared 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 to prepare this document. It was prepared by Robert M. Frame and Christina Slattery, Senior Cultural Resource Specialists, of Mead & Hunt, Stephen V. Estopinal, P.E., P.L.S. and Trenton Iglehart, Geodetic Analyst, of SJB Group, LLC. Dietrich Floeter completed the photography.

These measured drawings were prepared based on a site visit to complete laser scanning of the bridge, with selective hand measuring in the field to verify measurements.

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC
ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

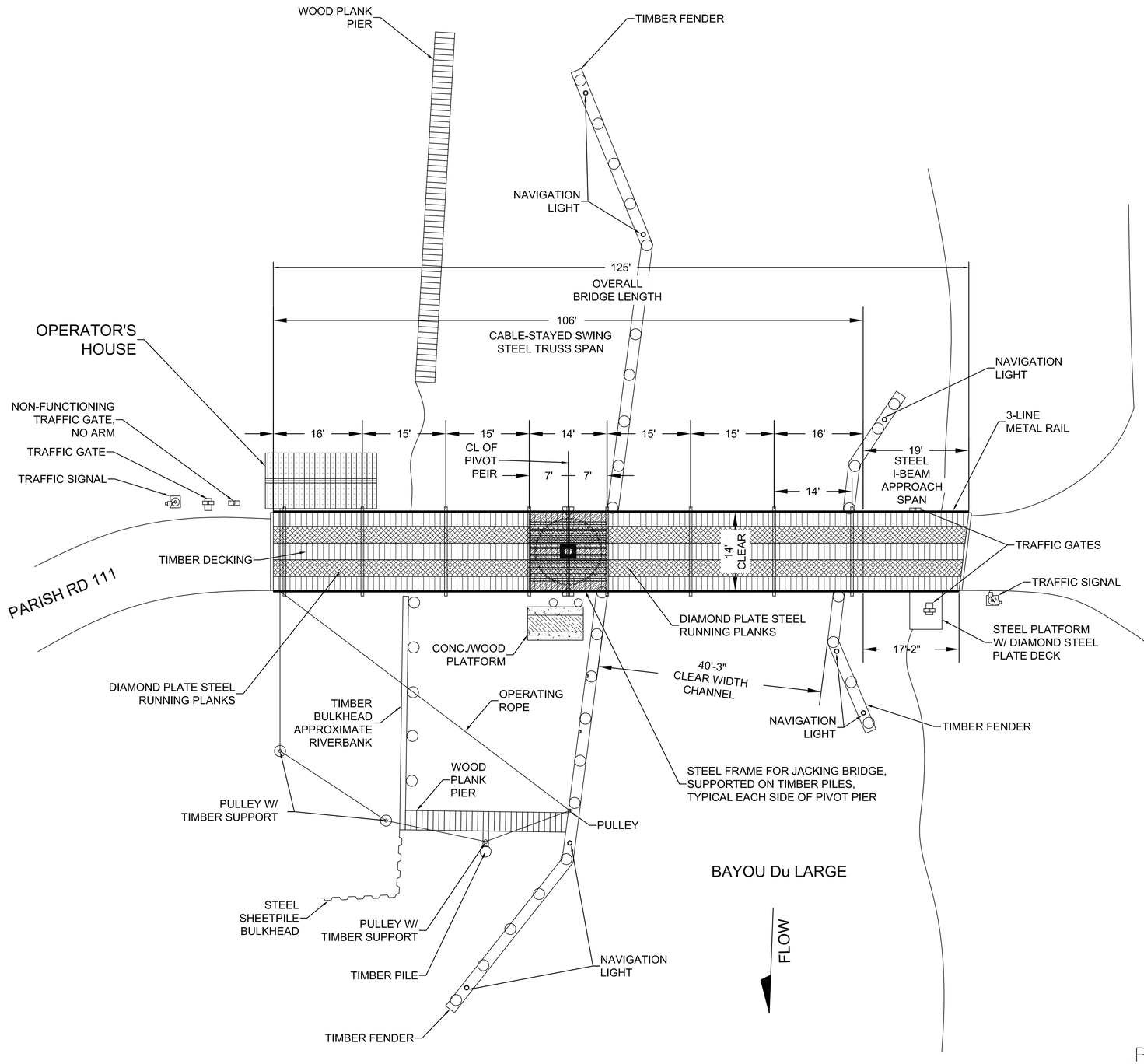
TERREBONNE PARISH ROAD NO. 004 BRIDGE
CARRIES PARISH ROAD III OVER BAYOU Du LARGE
TERREBONNE PARISH
LOUISIANA

SHEET 1 OF 4

HISTORIC AMERICAN ENGINEERING RECORD
LA-35

LIBRARY OF CONGRESS INDEX NUMBER

THERIOT



PLAN VIEW

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

THERIOT

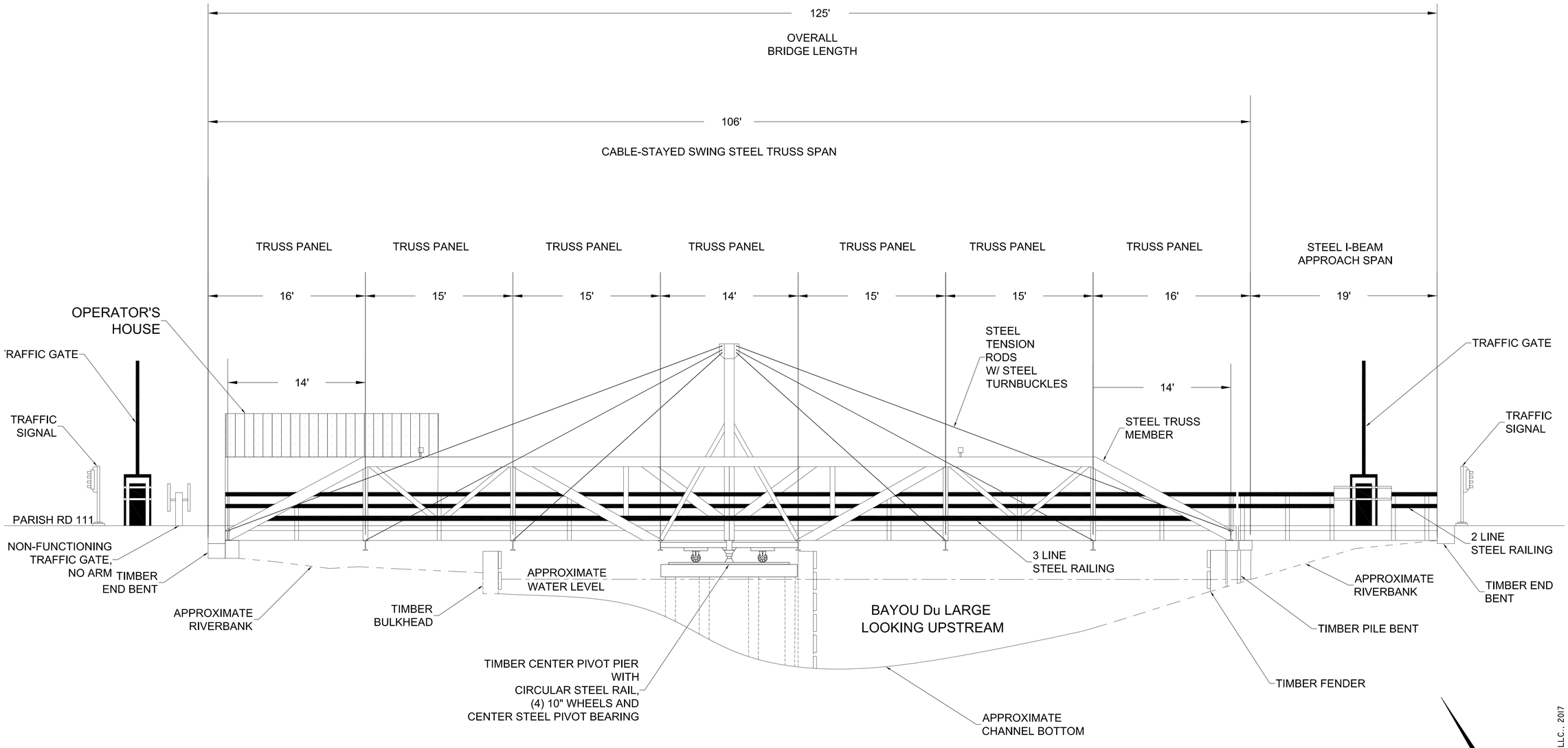
TERREBONNE PARISH ROAD NO.004 BRIDGE
CARRIES PARISH ROAD III OVER BAYOU DU LARGE
TERREBONNE PARISH

LOUISIANA

SHEET 2 OF 4

HISTORIC AMERICAN ENGINEERING RECORD
LA-35

LIBRARY OF CONGRESS INDEX NUMBER



PROFILE VIEW

TERREBONNE PARISH ROAD NO. 004 BRIDGE
CARRIES PARISH ROAD III OVER BAYOU DU LARGE
TERREBONNE PARISH

LOUISIANA

SHEET 3 OF 4

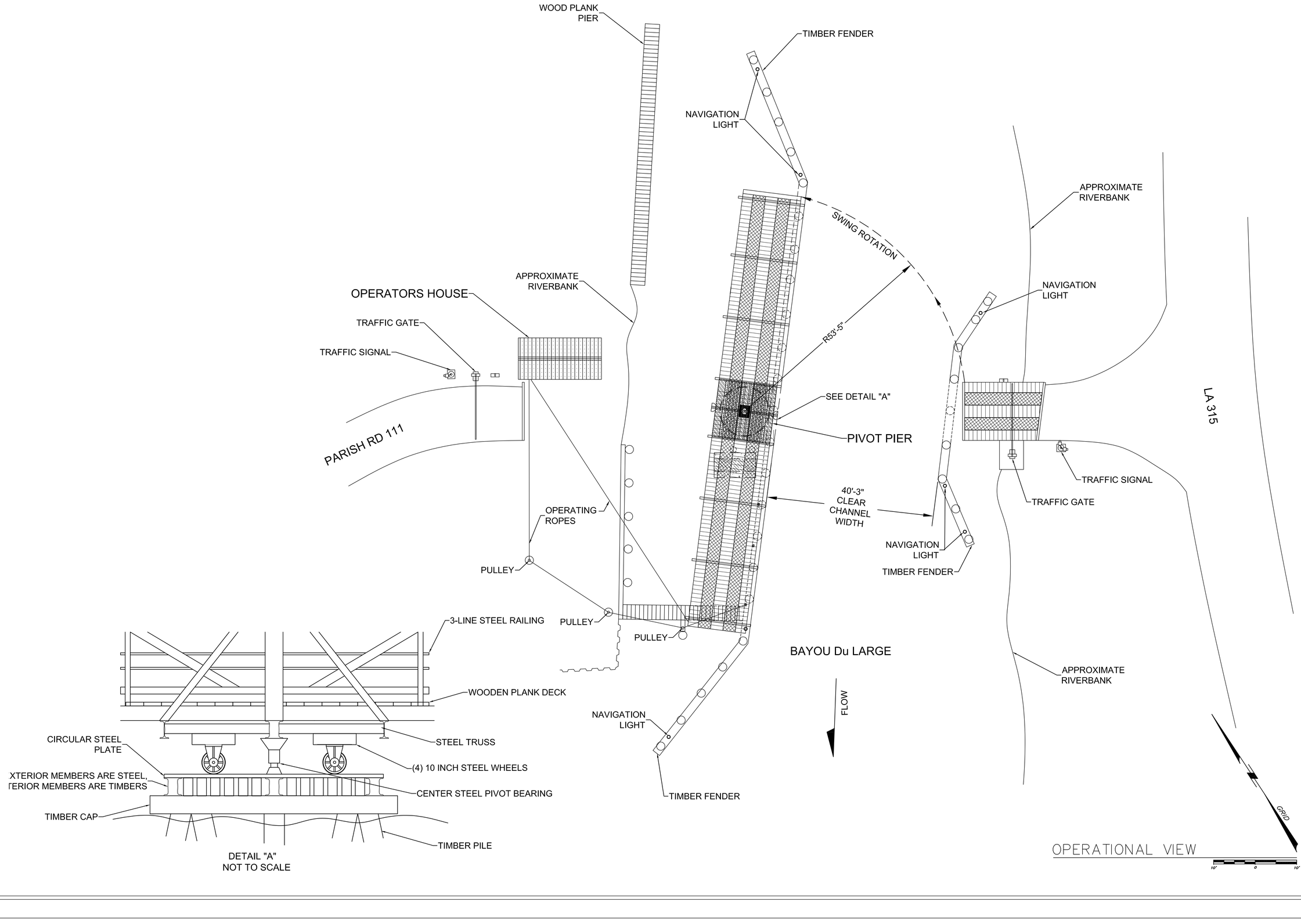
HISTORIC AMERICAN
ENGINEERING RECORD
LA-35

LIBRARY OF CONGRESS
INDEX NUMBER

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC
BRIDGE INVENTORY
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

THERIOT



OPERATIONAL VIEW

DELINEATED BY: T. IGLEHART, SJB GROUP, LLC., 2017

LOUISIANA HISTORIC
BRIDGE INVENTORY
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

TERREBONNE PARISH ROAD NO.004 BRIDGE
CARRIES PARISH ROAD III OVER BAYOU Du LARGE
TERREBONNE PARISH

LOUISIANA

THERIOT

SHEET 4 OF 4

HISTORIC AMERICAN ENGINEERING RECORD
LA-35

LIBRARY OF CONGRESS INDEX NUMBER

31435

Louisiana Historic Bridge

HAER Bridge

Base @ Modem

FS	Desc
500	60d set
501	PK nail set
502	60d set
503	60d set
504	60d set
505	PK nail set

Bridge 200865

A. Burns
R. Braden
R. Daumer

(3)

BK 16-10

9/21/16

31435c5092116 Modem

Processed by A.M.B

9/23/16

31435

Louisiana Historic Bridge

HAER Bridge

Scan 1 (Tripod)

Sta	503
BS CK	500

Scan 2 (Tripod)

Sta	505	
BS CK	503	501

Scan 3 (Tripod)

Sta	504
BS CK	502

Scan 4 (Tripod)

Sta	502
BS CK	504, 501

Scan 5 (Tripod)

Sta	501	BS CK	500, 502

Scan 6 (Tripod)

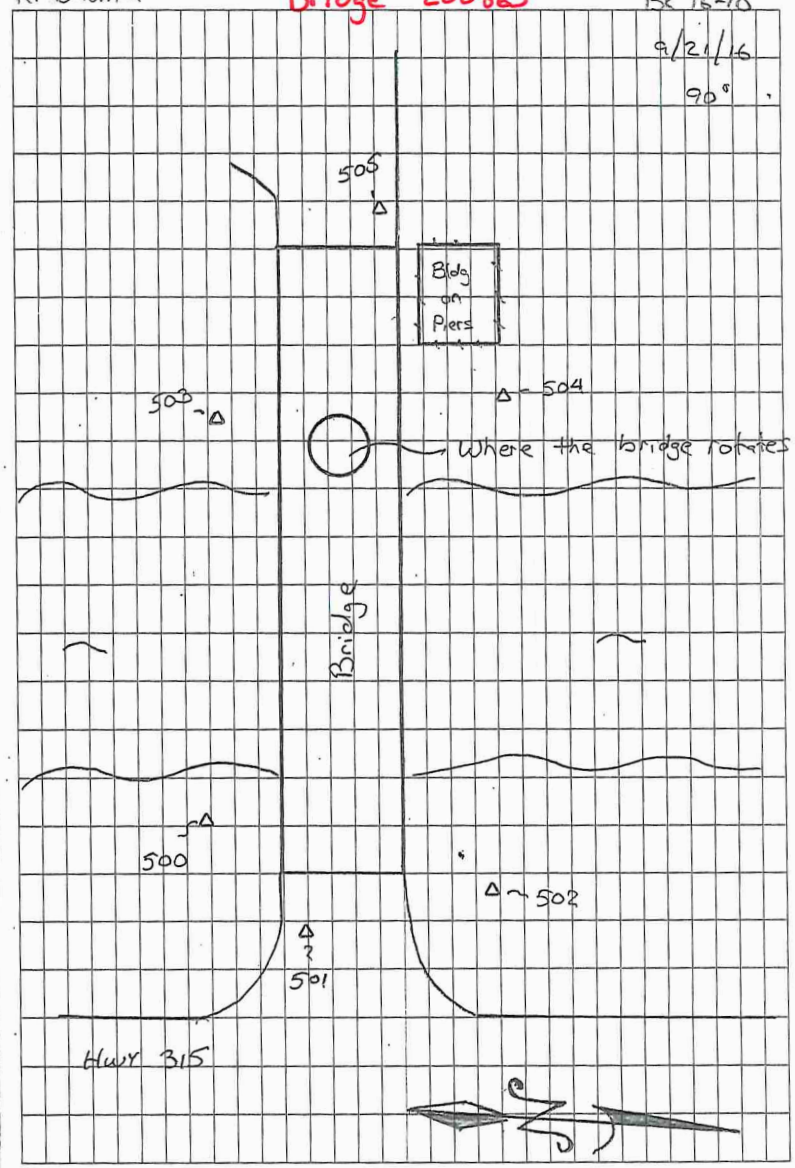
Sta	500	BS CK	501, 503

A. Burns
R. Broden
R. Daumer

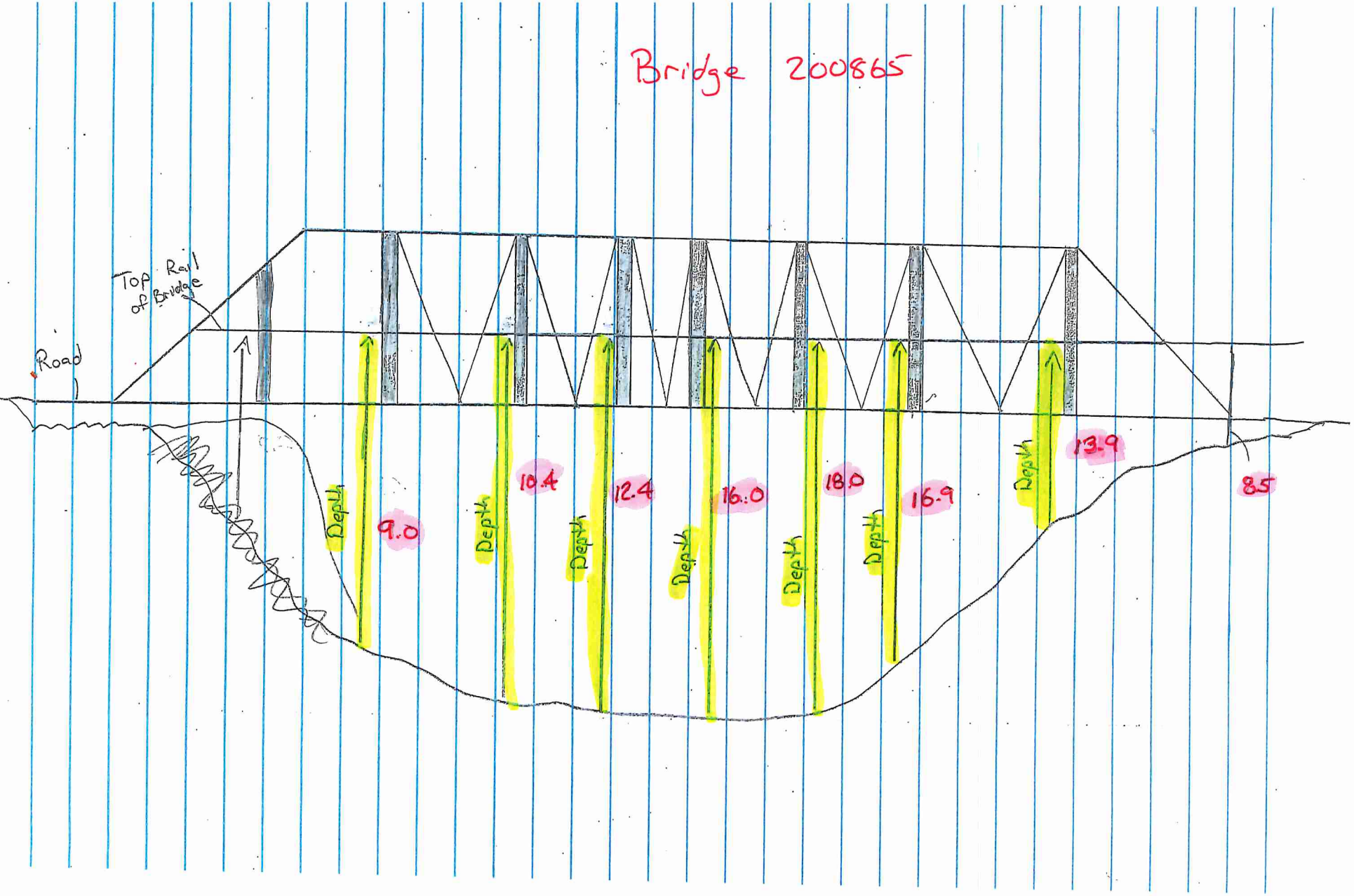
④

Bridge 200865

BK 15-10
9/21/16
90°



Bridge 200865



If you choose to do the measure down method, please do your measurements at the vertical beams as shown. Make a sketch with the depths also.


505
504
503
502
500
501

Status: VALID Registration

Mean Absolute Error:

for Enabled Constraints = 0.026 ft

for Disabled Constraints = 0.000 ft

Date: 2017.10.05 10:30:50

Database name : BRIDGE 200865

ScanWorlds
31435c5092116.txt (Leveled)
500: SW-006 (Leveled)
501: SW-005 (Leveled)
502: SW-004 (Leveled)
503: SW-001 (Leveled)
504: SW-003 (Leveled)
505: SW-002 (Leveled)

Constraints

Name	ScanWorld	ScanWorld	Type	On/Off	Weight	Error	Error Vector	Horz	Vert
505	31435c5092116.txt (Leveled)	505: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.009 ft	(-0.006, 0.004, 0.004) ft	0.008 ft	0.004 ft
504	31435c5092116.txt (Leveled)	502: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.011 ft	(-0.009, 0.006, 0.002) ft	0.011 ft	0.002 ft
504	31435c5092116.txt (Leveled)	504: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.038 ft	(-0.031, 0.022, -0.007) ft	0.038 ft	-0.007 ft
503	31435c5092116.txt (Leveled)	500: SW-006 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.045 ft	(-0.027, 0.017, -0.032) ft	0.032 ft	-0.032 ft
503	31435c5092116.txt (Leveled)	503: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.055 ft	(-0.017, 0.011, -0.051) ft	0.020 ft	-0.051 ft
502	31435c5092116.txt (Leveled)	502: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.011 ft	(0.009, -0.006, -0.002) ft	0.011 ft	-0.002 ft
502	31435c5092116.txt (Leveled)	504: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.038 ft	(0.031, -0.022, 0.007) ft	0.038 ft	0.007 ft
501	31435c5092116.txt (Leveled)	501: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.026 ft	(-0.022, -0.003, 0.015) ft	0.022 ft	0.015 ft
501	31435c5092116.txt (Leveled)	505: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.010 ft	(-0.008, -0.003, 0.005) ft	0.008 ft	0.005 ft
500	31435c5092116.txt (Leveled)	500: SW-006 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.037 ft	(0.030, -0.012, 0.018) ft	0.032 ft	0.018 ft
500	31435c5092116.txt (Leveled)	501: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.031 ft	(0.029, -0.006, 0.008) ft	0.030 ft	0.008 ft
503	500: SW-006 (Leveled)	503: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.022 ft	(0.010, -0.006, -0.019) ft	0.012 ft	-0.019 ft
500	500: SW-006 (Leveled)	501: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.011 ft	(0.000, 0.006, -0.009) ft	0.006 ft	-0.009 ft
500	500: SW-006 (Leveled)	503: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.017 ft	(-0.008, 0.005, 0.014) ft	0.009 ft	0.014 ft
500	501: SW-005 (Leveled)	503: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.025 ft	(-0.007, -0.002, 0.024) ft	0.007 ft	0.024 ft
501	501: SW-005 (Leveled)	505: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.017 ft	(0.014, -0.001, -0.010) ft	0.014 ft	-0.010 ft
504	502: SW-004 (Leveled)	504: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(-0.022, 0.016, -0.009) ft	0.027 ft	-0.009 ft
502	502: SW-004 (Leveled)	504: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(0.022, -0.016, 0.009) ft	0.027 ft	0.009 ft

ScanWorld Transformations
31435c5092116.txt (Leveled)
translation: (0.000, 0.000, 0.000) ft
rotation: (0.0000, 1.0000, 0.0000):0.000 deg

500: SW-006 (Leveled)
translation: (3455018.591, 331209.849, 8.891) ft
rotation: (0.0000, 0.0000, 1.0000):-120.904 deg

501: SW-005 (Leveled)
translation: (3455049.818, 331211.262, 12.355) ft
rotation: (-0.0000, -0.0000, -1.0000):33.146 deg

502: SW-004 (Leveled)
translation: (3455052.819, 331236.422, 10.863) ft
rotation: (-0.0000, -0.0000, -1.0000):-128.312 deg

503: SW-001 (Leveled)
translation: (3454934.144, 331262.640, 8.618) ft
rotation: (0.0000, 0.0000, 1.0000):47.266 deg

504: SW-003 (Leveled)
translation: (3454961.411, 331301.535, 8.982) ft
rotation: (0.0000, 0.0000, 1.0000):-118.307 deg

505: SW-002 (Leveled)
translation: (3454913.522, 331303.910, 12.324) ft
rotation: (-0.0000, -0.0000, -1.0000):-133.473 deg

Unused ControlSpace Objects : none

SJB GROUP, LLC
QUALITY BY DESIGN

Parks & Planning
Transportation
Site Development
Utility Systems
Land Surveying
Construction Services
Environmental Services
Real Estate Services

P. O. Box 1751
Baton Rouge, Louisiana
70821-1751
(225) 769-3400
Fax (225) 769-3596
www.sjbgroup.com

State Project No. H.007020
Historic Bridge Inventory

SJB Group performed terrestrial laser scanning and created deliverables in accordance with HAER 4.0 Measured Drawings for six bridges throughout Louisiana. The six bridges surveyed under this contract were bridge numbers 008970, 009130, 014900, 058710, 200865 and 200896. The following sections are a description of the equipment and procedures used for this project.

Section I – Equipment

The equipment used in the establishment of the primary control network for this project was manufactured by Leica. Real-time kinematic GPS observations were collected using a Leica GS15 Smart Antenna "Performance" and CS15 3.5G Field Controller. Figure 12 is an image of the equipment used.

Figure 1: Photograph of Leica TS15 Total Station and Leica CS/GS15 GPS uni

Below is a table of the serial numbers for the equipment used for this project.

Description	Model Number	Serial Number
Leica ScanStation	C10	1260997
Leica Base	GS15	1508955
Leica Rover	GS15	1509134
Leica Controller	CS15	25022556

Section II – Field Procedures

Marks set via real-time kinematic GPS observations were established through a series of ten (10) second observations. Each mark was occupied three (3) times throughout the day from at least two (2) different base stations for a total of six (6) observations. Primary control marks were periodically cross checked throughout the day to ensure an accurate basis of measurement.

Section III – Equipment

Scanning was performed with the Leica ScanStation C-10, serial number 120997, in conjunction with HDS 6 inch circular planar fixed height (1.472 meters) targets

Figure 2: Photograph of Leica ScanStation C10

Section IV – Field Procedures

Scanning observations were made by independent instrument locations which included a minimum of four HDS targets on Secondary Control Marks. At each scanning location the C10 collects observed data relative to the instrument and builds a data set which identifies the HDS target marks. Each data set is called a "Scan World" for the purposes of computation.

Section V – Data Processing

The separate Scan Worlds were "registered" using Leica Cyclone Version 8.0 software which merges the independent observations by resection and statistical comparison of the State Plane values associated with each of the HDS target locations. The State Plane resolution data set which merges all scanned information is presented in Appendix "E." TopoDOT version 9.0.0.0 was used to extract features from the point cloud registered in Leica Cyclone.