Bridge NRHP Eligibility Report

Structure ID:	Disposition:	Year Built:	Year Rcnst:
021840031401006	Rehabilitated	1934	1994

District:	Fort Worth	***Span Type:***	Simple Span
County:	Parker	***Roadway Type:***	Through
Location:	1.78 MI W OF FM 113	***Member Type:***	Parker Truss, Polygonal Top Ch
Facility Carried:	IH 20 N FTG RD	***Main Span Length:***	0165
Feature Crossed:	BRAZOS RIVER	***Structure Length:***	000892
NRHP Det. Date:		***Evaluator:***	

Historical Significance: 1 NR Listed

NRHP Eligibility Determination Statement:

This bridge is currently listed on the National Register of Historic Places.
This bridge is listed in the On-System Historic Metal Truss Bridge Task Force Report. Please see the Task Force Report for a discussion of recommended options regarding this bridge.
The State Highway 89 Bridge at the Brazos River consists of three 165-foot Parker through truss spans and 11 concrete girder approach spans. The bridge carries two lanes of traffic on the westbound frontage road of Interstate 20 (I-20), former State Highway (SH) 87. It is about 3 miles east of the Palo Pinto County line in southwest Parker County. Parker County is in North Central Texas and is part of the Fort Worth metropolitan area. The county's economy relies primarily on cattle and horse ranching, as well as varied manufacturing.
For the truss spans, Texas Highway Department (THD) engineers chose the THD T24-165 design for a riveted Parker through truss, one of many standard designs the Bridge Division developed.
The three truss spans rest on reinforced concrete piers consisting of battered cylindrical columns in a dumbbell configuration. The bridge's 11 concrete girder approach spans, supported on a series of concrete bents, feature Type K open concrete approach railing. Truss railing consists of a single row of 12-inch deep channel. A bronze plaque affixed to the railing end post names the bridge contractor, as well as THD officials involved in the project. The plaque reads:

1934

BRAZOS RIVER BRIDGE

STATE HIGHWAY COMMISSION

JOHN WOOD, CHAIRMAN

W.R. ELY, MEMBER

D.K. MARTIN, MEMBER

GIBB GILCHRIST-STATE HIGHWAY ENGINEER

G.G. WICKLINE, BRIDGE ENGINEER

M.C. WELBORN, DIVISION ENGINEER

C.B. COLLOM, RESIDENT ENGINEER

BUCKNER BROTHERS,

CONTRACTORS

In 1933 and 1934, the Buckner Brothers built the Brazos River bridge under contract to THD. From 1967 to 1970, THD constructed new bridges over the Brazos, converting the original truss bridge and its approach roadways for use as the westbound frontage road. In 1994, several bent caps with spalled concrete and protruding rebar were patched or replaced. No other major alterations have been performed on the bridge. As such, it retains substantial integrity of design, materials and workmanship. Because the bridge remains in place serving vehicular traffic on a state highway, it also retains integrity of location and association. Although the construction of the new bridges has somewhat compromised integrity of setting and feeling, the truss bridge retains substantial integrity overall. Although no projects are currently planned for this bridge, its BRINSAP sufficiency rating as of October 1994 is 48.8, making the bridge eligible for replacement under the federal Highway Bridge Replacement and Rehabilitation Program (HBRRP).

The State Highway 89 Bridge at the Brazos River is significant for embodying the defining characteristics of a THD truss bridge. As such, it meets National Register Criterion C in the area of Engineering at a state level of significance.

The Brazos River bridge was built on SH 89 (now I-20), a 45 mile route that extended from Weatherford, the Parker County seat, through Palo Pinto and Erath counties to SH 1 (now SH 16) just inside Eastland County. By 1939, the route was incorporated into SH 80, which ran west-to-east from El Paso through the Dallas/Fort Worth area to Shreveport, Louisiana. Beginning about 1964, this route was upgraded and given the additional designation I-20.

THD constructed the Brazos River bridge as part of a larger state undertaking to build SH 89. THD engineers prepared the plans for the Brazos River bridge. The THD resident engineer in Weatherford supervised the construction; he and the division (now district) engineer in Fort Worth also performed monthly inspections of the work.

THD bridge engineers chose the T24-165 design for the truss spans of the Brazos River bridge. The T24-165 is one of 25 different THD standard designs the Bridge Division developed for Parker through truss spans; only 11 of these designs are represented by Texas bridges today. The Brazos River bridge is the only example of the T24-165 surviving in Texas.

The Texas Highway Commission held bidding for the bridge project in November 1933. After reviewing the bids submitted, the commission awarded the contract to the Buckner Brothers of Cleburne, Texas, which submitted the low bid of about $105,000. The Houston Structural Steel Company, owned and operated by the Mosher Steel & Machinery Company of Dallas, fabricated the steel portion of the bridge. Work on the bridge began on December 13, 1933, and was completed on September 28, 1934. The total cost of the project came to about $116,000.

Several events complicated the bridge's construction. First, the bridge's east embankment was raised further west than indicated on the plans, and the bridge had to be shifted 15 feet west to avoid removing the rip-rap already constructed on the bridge's east end. In addition, the rip-rap on the west end had to be constructed on a steeper slope than that called for in the plans (2:1 rather then 1½:1). Next, the sole concrete mixer on site broke down while concrete was being placed on an approach span. The crew was required to place the remaining concrete by hand. The delay resulted in the first portion of concrete drying before the remainder could be placed. Grout was applied to the surface of the dry concrete to aid in its bonding with the wet concrete, but the THD resident and division engineers refused to accept the span and required the contractor to rebuild it. However, they agreed to apply a load test to see if the span might have adequate strength. The span held up under a 50 percent overload with no signs of distress and the THD engineers reversed their decision.

From 1967 to 1970, THD responded to increasing traffic volumes on I-20 by constructing two steel and concrete bridges on the south side of the Brazos River bridge to serve the main traffic lanes. The original

truss bridge was retained in place on what became the westbound frontage road. This configuration lightened the traffic burden on the truss bridge, allowing for its preservation in place. Although the construction of the new structures has somewhat altered the setting of the truss bridge, as transportation facilities they are compatible with the use of the original bridge and therefore do not significantly compromise its integrity.

Bibliography:

Texas Highway Department. General Information on Texas Highways. Austin: Von Boeckmann-Jones, 1919.

Texas Highway Department. Plans of Proposed State Highway Improvement. Control-Section-Job No. 0314-01-003, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0314-01-003, located at TxDOT headquarters in Austin.

NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. NAME OF PROPERTY

HISTORIC NAME: State Highway 89 Bridge at the Brazos River
OTHER NAMES/SITE NUMBER: I-20 Bridge at the Brazos River (westbound frontage road); PR0314-01-006

2. LOCATION

STREET & NUMBER: I-10, 1.7 miles west of junction with FM 113 **NOT FOR PUBLICATION:** N/A
CITY OR TOWN: Millsap **VICINITY:** X
STATE: Texas **CODE:** TX **COUNTY:** Parker **CODE:** 367 **ZIP CODE:** 76066

3. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this _x_ nomination __request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _x_ meets __does not meet the National Register criteria. I recommend that this property be considered significant __nationally _x_ statewide __locally. (__See continuation sheet for additional comments.)

Signature of certifying official — Date

State Historic Preservation Officer, Texas Historical Commission

State or Federal agency and bureau

In my opinion, the property _x_ meets __does not meet the National Register criteria.
(__See continuation sheet for additional comments.)

Signature of commenting or other official — Date

Director of Environmental Affairs, Texas Department of Transportation

State or Federal agency and bureau

4. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:	Signature of the Keeper	Date of Action
___ entered in the National Register ___ See continuation sheet.		
___ determined eligible for the National Register ___ See continuation sheet.		
___ determined not eligible for the National Register		
___ removed from the National Register		
___ other (explain): _____		

5. CLASSIFICATION

OWNERSHIP OF PROPERTY: public-State

CATEGORY OF PROPERTY: structure

NUMBER OF RESOURCES WITHIN PROPERTY:	CONTRIBUTING	NONCONTRIBUTING
	0	0 BUILDINGS
	0	0 SITES
	1	0 STRUCTURES
	0	0 OBJECTS
	1	0 TOTAL

NUMBER OF CONTRIBUTING RESOURCES PREVIOUSLY LISTED IN THE NATIONAL REGISTER: 0

NAME OF RELATED MULTIPLE PROPERTY LISTING: Historic Bridges of Texas, 1866-1945

6. FUNCTION OR USE

HISTORIC FUNCTIONS: TRANSPORTATION/road-related (vehicular)

CURRENT FUNCTIONS: TRANSPORTATION/road-related (vehicular)

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: Other: Parker through truss bridge

MATERIALS:

FOUNDATION	substructure: concrete piers and bents
WALLS	N/A
ROOF	N/A
OTHER	superstructure: steel truss

NARRATIVE DESCRIPTION (see continuation sheets 7-1 through 7-3)

8. STATEMENT OF SIGNIFICANCE

APPLICABLE NATIONAL REGISTER CRITERIA

___ **A** PROPERTY IS ASSOCIATED WITH EVENTS THAT HAVE MADE A SIGNIFICANT CONTRIBUTION TO THE BROAD PATTERNS OF OUR HISTORY.

___ **B** PROPERTY IS ASSOCIATED WITH THE LIVES OF PERSONS SIGNIFICANT IN OUR PAST.

_x_ **C** PROPERTY EMBODIES THE DISTINCTIVE CHARACTERISTICS OF A TYPE, PERIOD, OR METHOD OF CONSTRUCTION OR REPRESENTS THE WORK OF A MASTER, OR POSSESSES HIGH ARTISTIC VALUE, OR REPRESENTS A SIGNIFICANT AND DISTINGUISHABLE ENTITY WHOSE COMPONENTS LACK INDIVIDUAL DISTINCTION.

___ **D** PROPERTY HAS YIELDED, OR IS LIKELY TO YIELD, INFORMATION IMPORTANT IN PREHISTORY OR HISTORY.

CRITERIA CONSIDERATIONS: N/A

AREAS OF SIGNIFICANCE: Engineering

PERIOD OF SIGNIFICANCE: 1933-1934

SIGNIFICANT DATES: 1933-1934

SIGNIFICANT PERSON: N/A

CULTURAL AFFILIATION: N/A

ARCHITECT/BUILDER: Bridge Designer: Texas Highway Department
Truss Fabricator: Houston Structural Steel Company, owned and operated by the Mosher Steel & Machinery Company of Dallas, Texas
Bridge Builder: Buckner Brothers of Cleburne, Texas

NARRATIVE STATEMENT OF SIGNIFICANCE (see continuation sheets 8-4 through 8-5)

9. MAJOR BIBLIOGRAPHIC REFERENCES

BIBLIOGRAPHY (see continuation sheet 9-6)

PREVIOUS DOCUMENTATION ON FILE (NPS): N/A

___ preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey #
___ recorded by Historic American Engineering Record #

PRIMARY LOCATION OF ADDITIONAL DATA:

_x_ State historic preservation office *(Texas Historical Commission)*
_x_ Other state agency *(Texas Department of Transportation)*
___ Federal agency
___ Local government
___ University
___ Other -- Specify Repository:

10. GEOGRAPHICAL DATA

ACREAGE OF PROPERTY: less than one acre

UTM REFERENCES	Zone	Easting	Northing		Zone	Easting	Northing
1	14	590670	3614570	3	_	____	____
2	_	____	____	4	_	____	____

(___see continuation sheet)

VERBAL BOUNDARY DESCRIPTION (see continuation sheet 10-6)

BOUNDARY JUSTIFICATION (see continuation sheet 10-6)

11. FORM PREPARED BY

NAME/TITLE: text by Regina A. Lauderdale
graphics by Pat St.George

ORGANIZATION: Texas Historical Commission/
Texas Department of Transportation **DATE:** April 1995

STREET & NUMBER: Texas Historical Commission **TELEPHONE:** 512/463-6094
P.O. Box 12276

CITY OR TOWN: Austin **STATE:** TX **ZIP CODE:** 78711

ADDITIONAL DOCUMENTATION

CONTINUATION SHEETS

MAPS

PHOTOGRAPHS

ADDITIONAL ITEMS

PROPERTY OWNER

NAME Texas Department of Transportation

STREET & NUMBER 125 East 11th Street **TELEPHONE** 512/416-2606

CITY OR TOWN Austin **STATE** TX **ZIP CODE** 78701

Description:

The State Highway 89 Bridge at the Brazos River consists of three 165-foot Parker through truss spans and 11 concrete girder approach spans (see Photograph 1). The bridge carries two lanes of traffic on the westbound frontage road of Interstate 20 (I-20), former State Highway (SH) 87. It is about 3 miles east of the Palo Pinto County line in southwest Parker County (see Figure 1). Parker County is in North Central Texas and is part of the Fort Worth metropolitan area. The county's economy relies primarily on cattle and horse ranching, as well as varied manufacturing.

For the truss spans, Texas Highway Department (THD) engineers chose the THD T24-165 design for a riveted Parker through truss, one of many standard designs the Bridge Division developed. The three truss spans rest on reinforced concrete piers consisting of battered cylindrical columns in a dumbbell configuration (see Photograph 2). The bridge's 11 concrete girder approach spans, supported on a series of concrete bents, feature Type K open concrete approach railing (see Figure 2). Truss railing consists of a single row of 12-inch deep channel. A bronze plate affixed to the railing end post to names the bridge contractor, as well as THD officials involved in the project.

In 1933 and 1934, the Buckner Brothers built the Brazos River bridge under contract to THD. From 1967 to 1970, THD constructed new bridges over the Brazos, converting the original truss bridge and its approach roadways for use as the westbound frontage road. In 1994, several bent caps with spalled concrete and protuding rebar were patched or replaced. No other major alterations have been performed on the bridge. As such, it retains substantial integrity of design, materials and workmanship. Because the bridge remains in place serving vehicular traffic on a state highway, it also retains integrity of location and association. Although the construction of the new bridges has somewhat compromised integrity of setting and feeling, the truss bridge retains substantial integrity overall. Although no projects are currently planned for this bridge, its BRINSAP sufficiency rating as of December 1992 is 34.0, making the bridge eligible for replacement.

GENERAL SPECS

TRUSS TYPE:	Parker through
THD STD. DESIGN:	T24-165
NO. TRUSS SPANS:	3
TRUSS SPAN LENGTH:	165'
ROADWAY WIDTH:	24'
DECK WIDTH:	26'
APPROACH SPANS:	1 - 46' & 10 - 34'6" girder spans
OVERALL LENGTH:	892'

SPECIAL FEATURES

BUILDER/DATE PLATE:	yes
APPROACH RAILING:	Type K
OTHER:	none

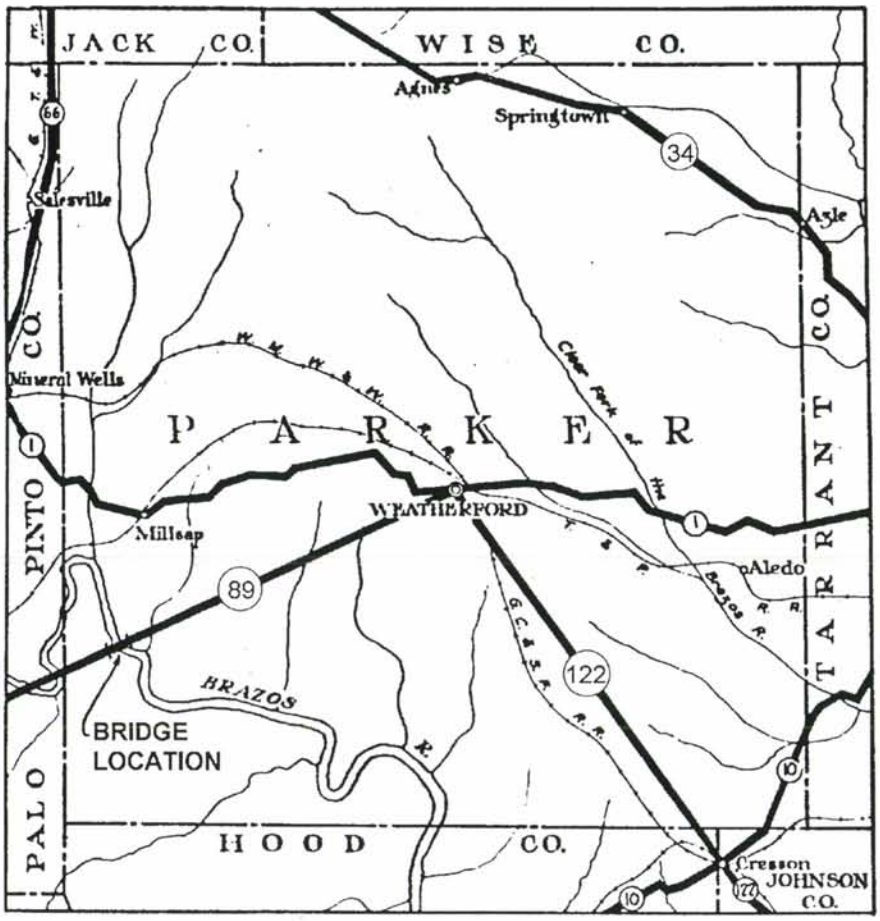
SUPERSTRUCTURE

TRUSS DEPTH:	32'0"
TRUSS PANELS:	7 - 23'7" panels
TOP CHORD & END POSTS:	2 channels w/ cover plate and lacing
BOTTOM CHORD:	2 channels w/ batten plates
VERTICAL POSTS:	2 channels w/ lacing or I-beam
DIAGONAL MEMBERS:	2 angles w/ batten plates or I-beam
DECK TYPE:	concrete

SUBSTRUCTURE

PIERS/INTERIOR BENTS:	concrete piers and bents
THD STD. DESIGN:	G-24-34.5
ABUTMENTS/END BENTS:	concrete end bents
THD STD. DESIGN:	G-24-46 and G-24-24-34.5

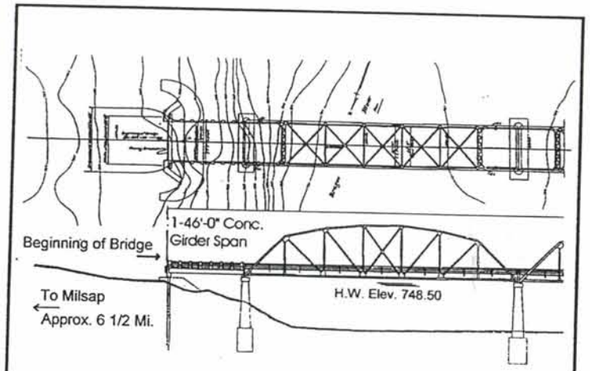
Figure 1. Map of SH 89 with the location of the Brazos River bridge as shown in the 1933 plans.



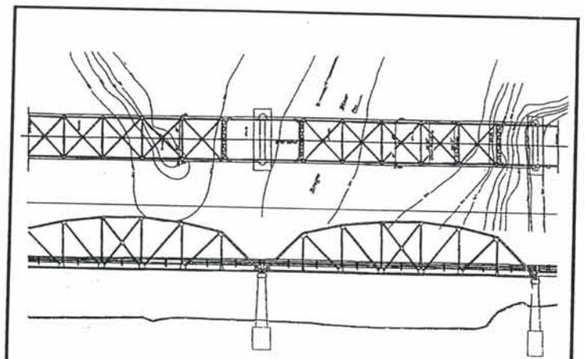
Source: Texas Highway Department, CSJ 0314-01-003, 1933.

Figure 2. Elevation of the Brazos River bridge as shown in the 1933 plans.

Source: Texas Highway Department, CSJ 0314-01-003, 1933.

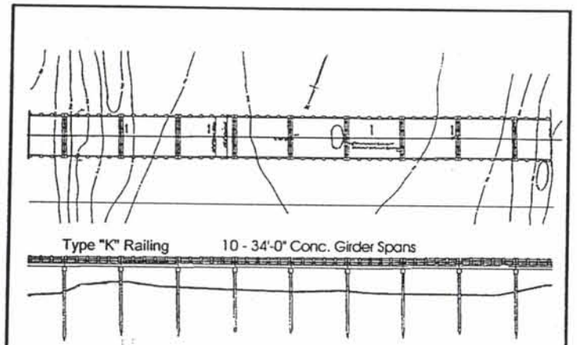


PLAN SHEET 1 OF 4

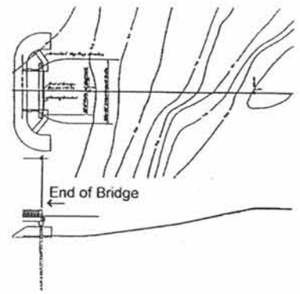


TOTAL LENGTH OF BRIDGE = 892' - 3"

PLAN SHEET 2 OF 4



PLAN SHEET 3 OF 4



PLAN SHEET 4 OF 4

Statement of Significance:

The State Highway 89 Bridge at the Brazos River is significant for embodying the defining characteristics of a THD truss bridge. As such, it meets National Register Criterion C in the area of Engineering at a state level of significance.

The Brazos River bridge was built on SH 89 (now I-20), a 45 mile route that extended from Weatherford, the Parker County seat, through Palo Pinto and Erath counties to SH 1 (now SH 16) just inside Eastland County. By 1939, the route was incorporated into SH 80, which ran west-to-east from El Paso through the Dallas/Fort Worth area to Shreveport, Louisiana. Beginning about 1964, this route was upgraded and given the additional designation I-20.

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THD bridge engineers chose the T24-165 design for the truss spans of the Brazos River bridge. The T24-165 is one of 25 different THD standard designs the Bridge Division developed for Parker through truss spans; only 11 of these designs are represented by Texas bridges today. The Brazos River bridge is one of two examples of the T24-165 surviving in Texas. The other bridge, located in Gregg County, is scheduled for a replacement in 1995 or 1996. As a result, the State Highway 89 Bridge at the Brazos River will become the last remaining example of this standard design.

The Texas Highway Commission held bidding for the bridge project in November 1933. After reviewing the bids submitted, the commission awarded the contract to the Buckner Brothers of Cleburne, Texas, which submitted the low bid of about $105,000. The Houston Structural Steel Company, owned and operated by the Mosher Steel & Machinery Company of Dallas, fabricated the steel portion of the bridge. Work on the bridge began on December 13, 1933, and was completed on September 28, 1934. The total cost of the project came to about $116,000.

Several events complicated the bridge's construction. First, the bridge's east embankment was raised further west than indicated on the plans, and the bridge had to be shifted 15 feet west to avoid removing the rip-rap already constructed on the bridge's east end. In addition, the rip-rap on the west end had to be constructed on a steeper slope than that called for in the plans (2:1 rather then 1½:1). Next, the sole concrete mixer on site broke down while concrete was being placed on an approach span. The crew was required to place the remaining concrete by hand. The delay resulted in the first portion of concrete drying before the remainder could be placed. Grout was applied to the surface of the dry concrete to aid in its bonding with the wet concrete, but the THD resident and division engineers refused to accept the span and required the contractor to rebuild it. However, they agreed to apply a load test to see if the span might have adequate strength. The span held up under a 50 percent overload with no signs of distress and the THD engineers reversed their decision.

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Bibliography:

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Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0314-01-003, located at TxDOT headquarters in Austin.

Verbal Boundary Description:

The nomination encompasses the complete structure, State Highway 89 Bridge at the Brazos River, from the extreme limits of the west end bent to the extreme limits of the east end bent.

Boundary Justification:

The boundary includes all components of the bridge substructure and superstructure, including the approach spans and concrete approach railing, historically associated with the property.

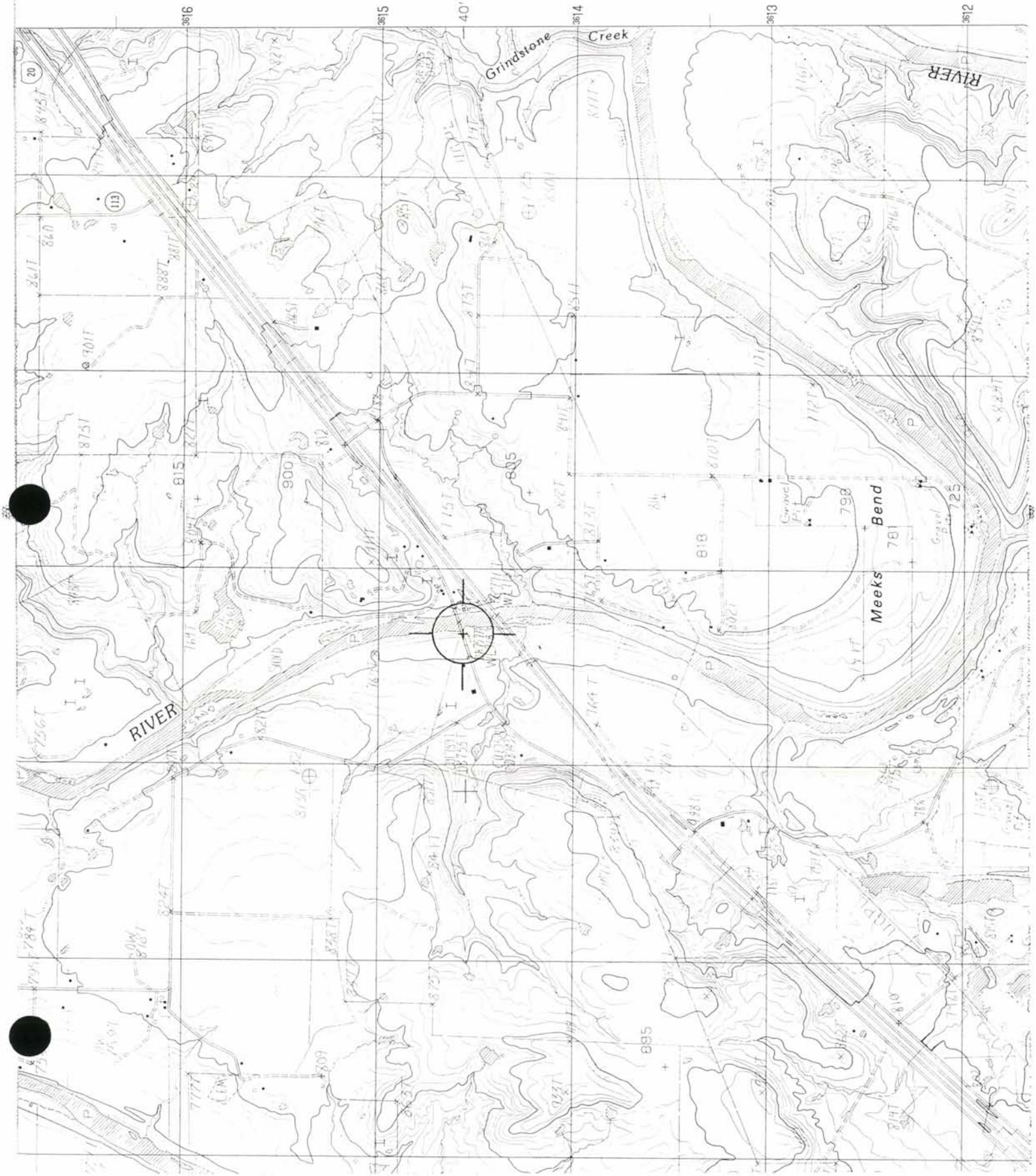
HISTORIC BRIDGES OF TEXAS

SITE NO: PR0314-01-006

SH 89 BRIDGE AT BRAZOS RIVER

VICINITY OF BROCK JUNCTION, PARKER CO., TEXAS

UTM REFERENCE: 14/590670/3614570

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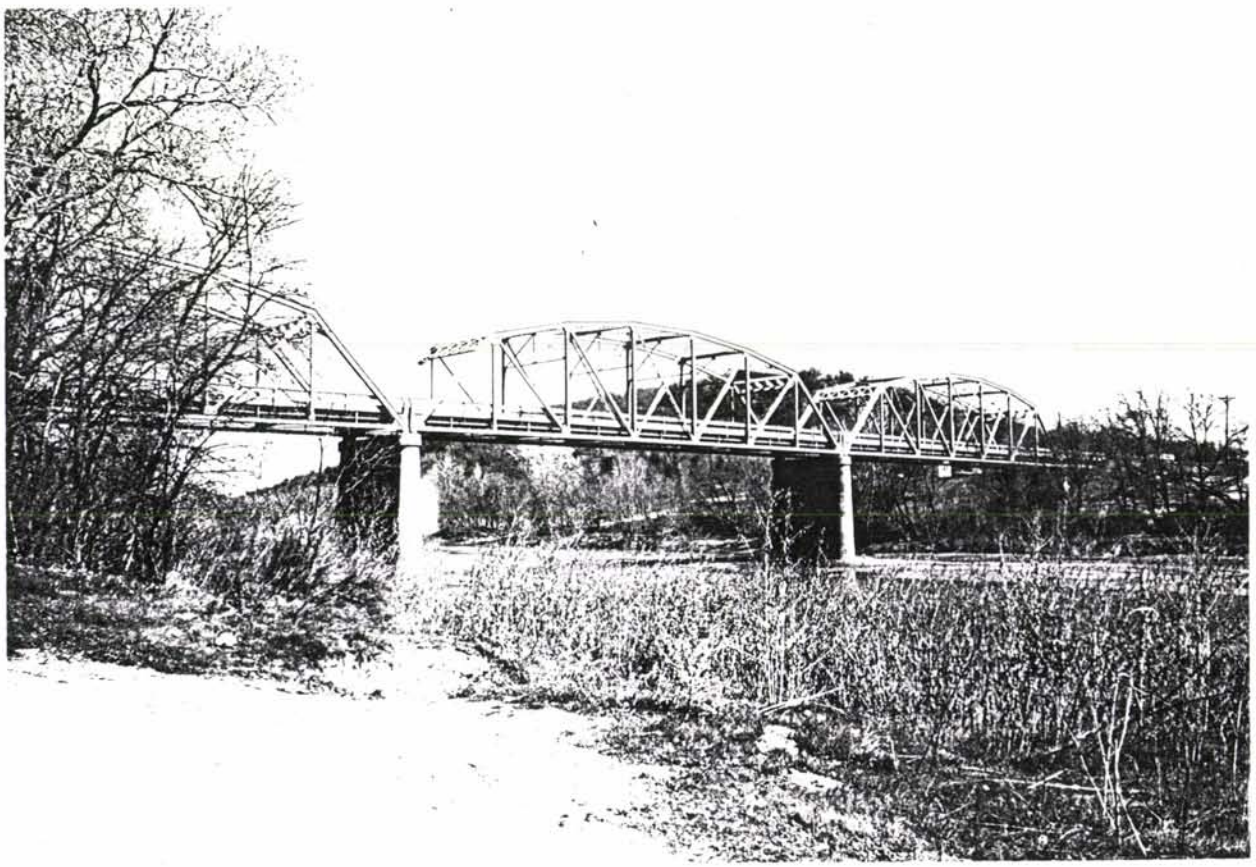
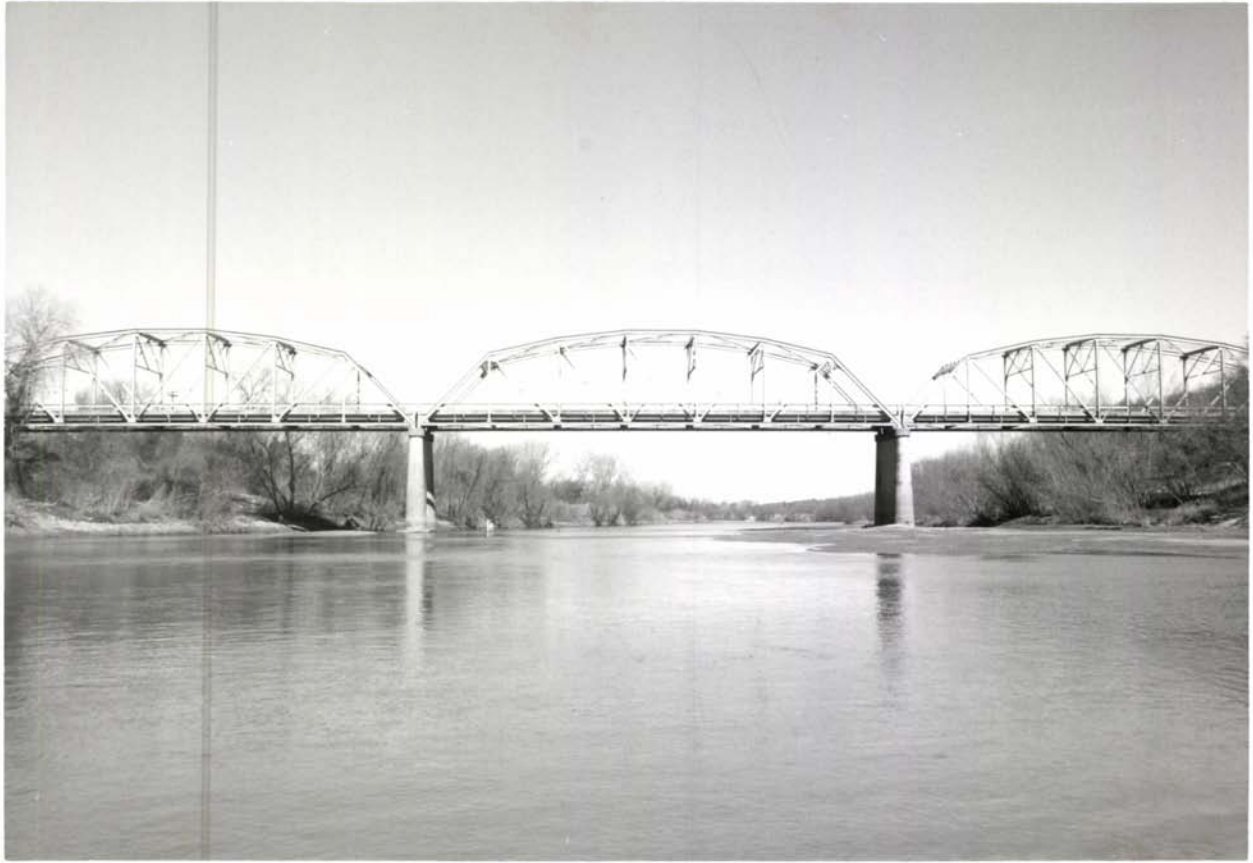


SITE NO. PR0314-01-006
SH 89 BRIDGE AT BRAZOS RIVER
HISTORIC BRIDGES OF TEXAS
PARKER CO., TEXAS
PHOTOGRAPH 1 OF 2

SITE NO. PR0314-01-006
SH 89 BRIDGE AT BRAZOS RIVER
HISTORIC BRIDGES OF TEXAS
PARKER CO., TEXAS
PHOTOGRAPH 2 OF 2


14 FT 6 IN




1934
BRAZOS RIVER BRIDGE
STATE HIGHWAY COMMISSION
JOHN WOOD, CHAIRMAN
W.R. BEV, MEMBER
D.K. MARTIN, MEMBER