NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

1107

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. NAME OF PROPERTY

HISTORIC NAME: State Highway 3-A Bridge at Plum Creek
OTHER NAMES/SITE NUMBER: US 90/US 183 Bridge at Plum Creek (eastbound lanes); CW0029-03-013

2. LOCATION

STREET & NUMBER: US 90/US 183, 0.5 mi. west of jct. with I-10 **NOT FOR PUBLICATION:** N/A
CITY OR TOWN: Luling **VICINITY:** X
STATE: Texas **CODE:** TX **COUNTY:** Caldwell **CODE:** 055 **ZIP CODE:** 78648

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.)

Curtis Tunnell — 9-6-96

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

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 — for Edson H. Beall — 10-10-96
___ 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, bents and abutments
WALLS	N/A
ROOF	N/A
OTHER	superstructure: steel truss

NARRATIVE DESCRIPTION (see continuation sheets 7-1 through 7-4)

Description:

The State Highway (SH) 3-A Bridge at Plum Creek consists of a single 120-foot Parker through truss span and 38 concrete deck girder approach spans (see Photographs 1 and 2). The bridge serves the eastbound lanes of US 90/US 183 (former SH 3-A/SH 29) in southern Caldwell County. Caldwell County is in Central Texas just east of the Texas Hill Country. The bridge is about one mile north of the Gonzales County line and about three miles southeast of the town of Luling, an oil center on the Southern Pacific Railroad. The bridge links Luling with Lockhart and Gonzales, the county seats for Caldwell and Gonzales counties (see Figure 1).

For the truss span, Texas Highway Department (THD) engineers used standard designs that the Bridge Division developed. They chose the THD T22-120 standard design for a riveted Parker through truss which includes horizontal bracing across the three central panels. The truss span rests on reinforced concrete piers consisting of battered cylindrical columns in a dumbbell configuration. The bridge's 38 deck girder approach spans, supported on a series of concrete bents, total 1,073 feet (see Figure 2). These spans feature Type D open concrete railing which has been shortened. The exterior sections of railing at each end of the bridge flare out, providing a transition between the approach roadway and the bridge. Truss railing consists of two rows of 8-inch deep channels placed 18 inches apart. The bridge's eastern entrance features a bronze plaque affixed to the truss end post. In addition to naming the contractor, this plaque identifies THD employees and county officials involved in the project. It reads:

1931
PLUM CREEK BRIDGE

STATE HIGHWAY COMMISSION
W.R.ELY, CHAIRMAN
CONE JOHNSON, MEMBER
D.K. MARTIN, MEMBER
GIBB GILCHRIST, HIGHWAY ENGINEER
G.G. WICKLINE, BRIDGE ENGINEER
V.R. SCHMIDT, RESIDENT ENGINEER

CALDWELL COUNTY
M.O. FLOWERS, COUNTY JUDGE
M.W. CALLIHAN P.M. ROBERTS
J.J. DAVIS W.D. MOORE

COMMISSIONERS
GRANT WILLIAMS
CONTRACTOR

In 1930 and 1931, Grant Williams constructed the Plum Creek bridge under contract to THD. In 1952, THD maintenance forces shortened the concrete approach railing to about half its original height. THD undertook a project in 1956 to turn the Plum Creek bridge into part of a one-way pair by constructing a companion bridge to serve westbound lanes. In 1990, THD maintenance forces performed repairs on the bridge, adding nine new stringers and sealing joints. No other major repairs have been performed on this bridge. As such, the bridge retains integrity of design, materials and workmanship. The bridge and its surroundings appear relatively unchanged since 1931, maintaining integrity of location, setting, feeling and association. Although no projects are currently planned for this bridge, its BRINSAP sufficiency rating as of August 1995 is 35.1, making the bridge eligible for replacement under the feederal Highway Bridge Replacement and Rehabilitation Program (HBRRP).

GENERAL SPECS

TRUSS TYPE:	Parker through
THD STD. DESIGN:	T22-120
NO. TRUSS SPANS:	1
TRUSS SPAN LENGTH:	120'
ROADWAY WIDTH:	22'
DECK WIDTH:	25'
APPROACH SPANS:	38 - 28'6" DG-5 girder spans
OVERALL LENGTH:	1205'

SPECIAL FEATURES

BRIDGE PLAQUE:	yes
APPROACH RAILING:	Type D concrete railing (shortened)
OTHER:	none

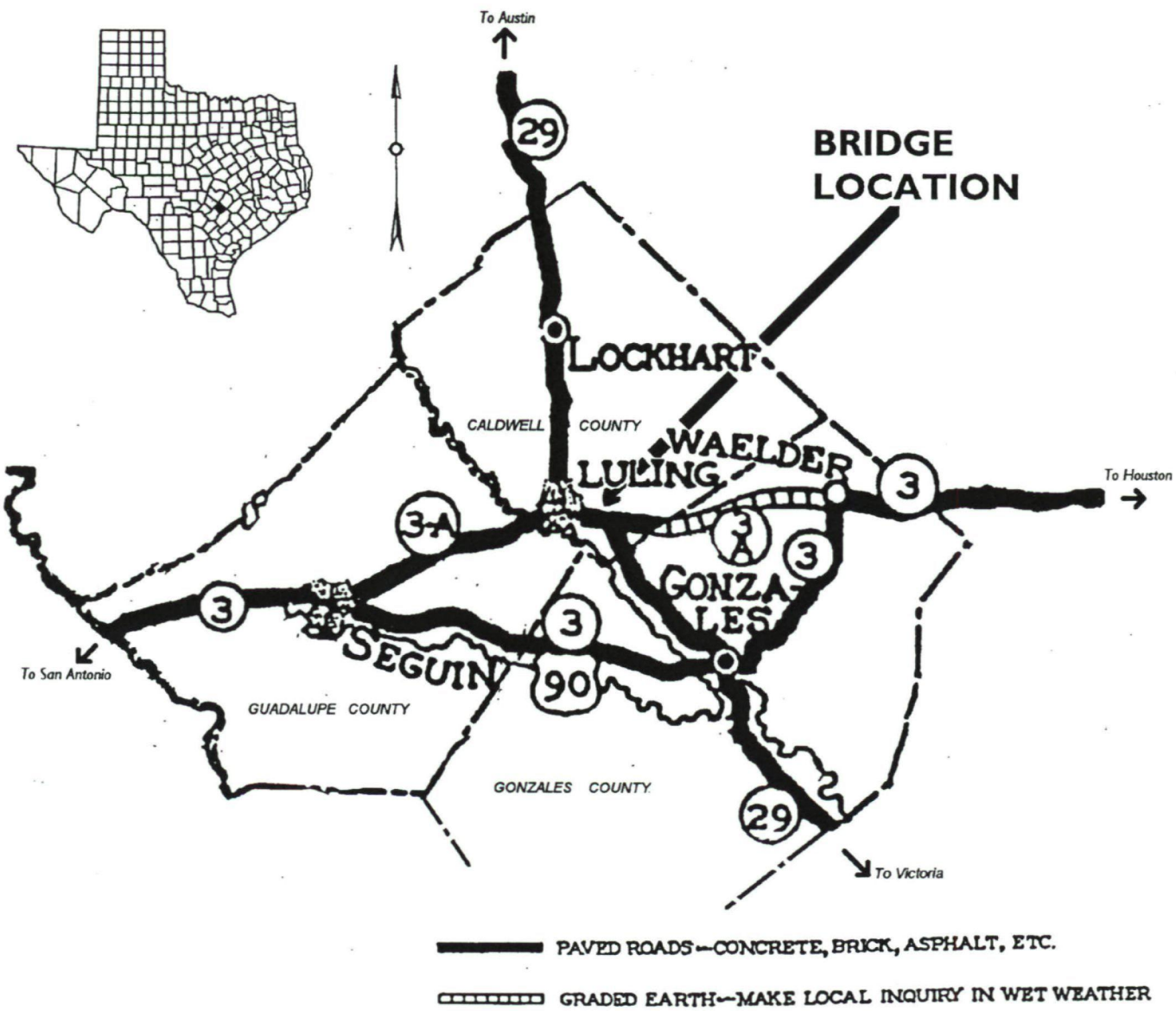
SUPERSTRUCTURE

TRUSS DEPTH:	26' 0"
TRUSS PANELS:	7 - 17'2" panels
TOP CHORD & END POSTS:	2 channels w/ cover plate and lacing
BOTTOM CHORD:	2 channels w/ batten plates
VERTICAL POSTS:	I-beam
DIAGONAL MEMBERS:	I-beam
DECK TYPE:	concrete

SUBSTRUCTURE

PIERS/INTERIOR BENTS:	concrete piers and bents
THD STD. DESIGN:	n/a
ABUTMENTS/END BENTS:	concrete abutments
THD STD. DESIGN:	UA-22

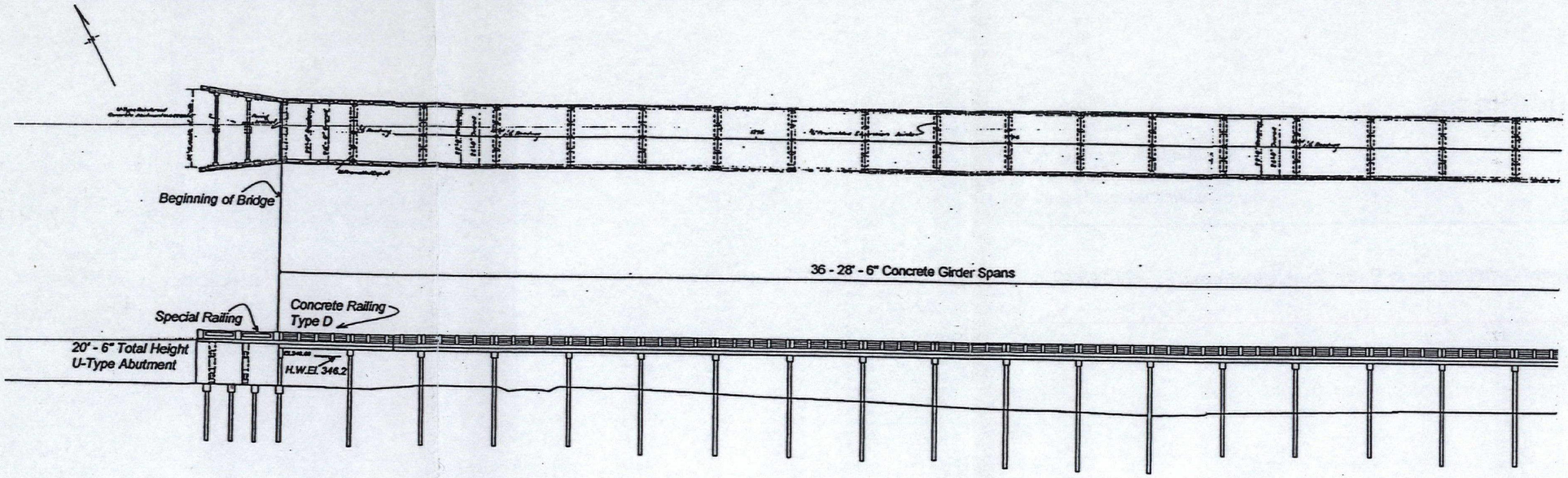
Figure 1. Historic map of SH 29 and SH 3-A showing the location of the Plum Creek bridge.



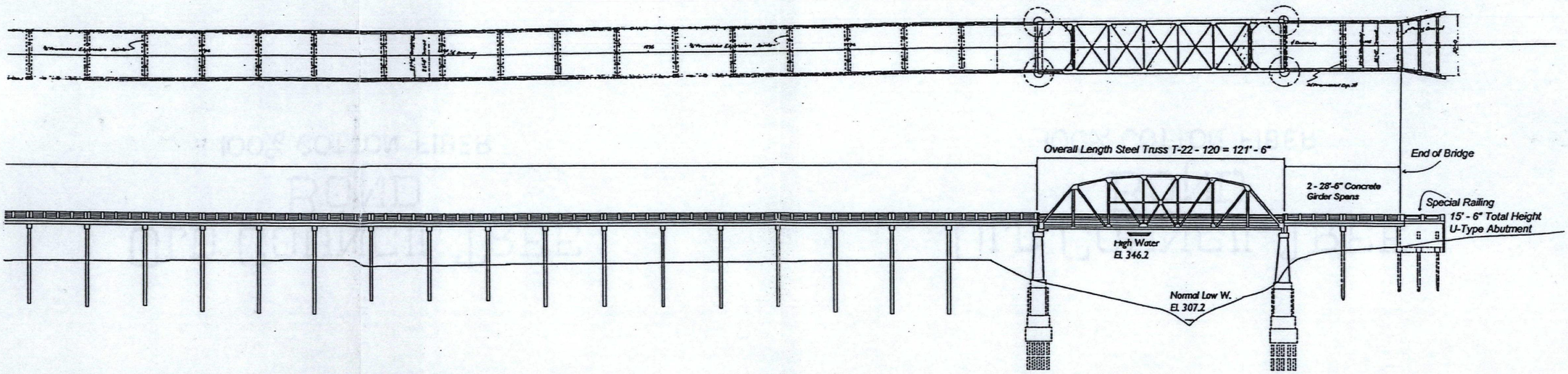
Source: Official Map of the Highway System of Texas, Federal Aid System, May 1935.

Figure 2. Elevation of the State Highway 3-A Bridge at Plum Creek as shown in the 1930 plans.

Source: Texas Highway Department, CSJ 0029-03-004, 1930.



TOTAL LENGTH OF BRIDGE = 1204' - 7 1/4"



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: 1930-1931

SIGNIFICANT DATES: 1930-1931

SIGNIFICANT PERSON: N/A

CULTURAL AFFILIATION: N/A

ARCHITECT/BUILDER: Bridge Designer: Texas Highway Department
Truss Fabricator: Virginia Bridge & Iron Company of Roanoke, Virginia
Bridge Builder: Grant Williams of Oklahoma City, Oklahoma

NARRATIVE STATEMENT OF SIGNIFICANCE (see continuation sheets 8-5 through 8-7)

9. MAJOR BIBLIOGRAPHIC REFERENCES

BIBLIOGRAPHY (see continuation sheet 9-8)
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:

Statement of Significance:

The State Highway 3-A Bridge at Plum Creek, built from 1930 to 1931, is significant for embodying the defining characteristics of a THD truss bridge. As such, the bridge meets National Register Criterion C in the area of Engineering at a state level of significance.

The Plum Creek bridge was built on a segment of highway shared by two routes, SH 3-A and SH 29, that traversed Caldwell County. The segment originated in Luling where the two routes met, proceeding southeasterly for four miles before dividing just north of the Gonzales County line. SH 3-A (now US 90) continued its course eastward across the southern tip of Caldwell County. This route was the northern branch of former SH 3, the Southern National Highway, which linked Del Rio, San Antonio, Houston, Beaumont and Orange. SH 3 split into two branches in Central Texas, between Seguin (Guadalupe County) and Waelder (in eastern Gonzales County). The primary route, SH 3, took a southerly course through Gonzales while the northern route, SH 3-A, passed through Luling before rejoining the primary route in Waelder. By the late 1930s, SH 3-A replaced SH 3 as the primary route and was designated US 90. This segment of highway also served as part of SH 29 (now US 183). SH 29, also known as the Middle Buster Highway, ran north-to-south from Austin through Lockhart and Luling, where it briefly joined SH 3-A, and then continued on through Victoria to Port O'Connor on the Gulf Coast. By 1952, SH 29 had been improved and redesignated US 183, and the shared segment of highway in southern Caldwell County was designated US 90/US 183.

The Plum Creek bridge was built as part of a larger THD project to reconstruct the eastern half of SH 3-A on a new location. The new route from Luling to Waelder would allow for improved crossings with better storm water drainage and less possibility of bridge flooding. In addition to the construction of the truss bridge, the project included new roadway grading and concrete drainage structures. THD prepared the plans and, because it was a federal aid project, the Bureau of Public Roads (BPR) reviewed and approved them. The THD resident engineer in Luling supervised the construction, which engineers from both THD and BPR inspected.

THD bridge engineers chose the T22-120 design for the truss span of the Plum Creek bridge. The T22-120 is one of 25 THD standard designs that the Bridge Division developed for Parker through truss spans and one of only 11 of these designs represented by bridges in Texas today. The T22-120 was first designed about 1930; a second version was completed in 1932. The Plum Creek bridge is the only surviving example of the T22-120 standard design, conforming to the first version which called for the use of horizontal bracing to prevent buckling of tall vertical members. The design was improved in the second version, eliminating the need for horizontal bracing despite an increase in truss height. Only one other THD standard design, the T22-250, utilized horizontal bracing. The US 69 Bridge at the Red River in Grayson County, built the same year as the Plum Creek bridge, is the only bridge conforming to this standard design. These two bridges are representative of a temporary solution to the potential buckling of vertical members in tall trusses; the problem was subsequently eliminated through the improved design of the vertical members themselves.

The bridge's 38 deck girder approach spans provide a lengthy approach of more than 1,000 feet. Although construction plans for the bridge show paneled concrete entrance railing, the bridge today exhibits shortened Type D railing flared at each entrance. Since no as-built drawings of the bridge exist, it is unclear whether the paneled railing was ever constructed or whether it was later replaced.

The Texas Highway Commission opened bids for the construction of the Plum Creek bridge on July 30, 1930. After reviewing the five bids submitted, the Commission awarded the contract to Grant Williams of Oklahoma City, who submitted the low bid of about $109,000. The contract for the rest of the work on SH 3-A, i.e., roadway grading and concrete drainage structures, was awarded to the Standifer Brothers (address unknown). The Virginia Bridge and Iron Company of Roanoke, Virginia, fabricated the truss span.

Construction of the Plum Creek bridge began on October 9, 1930, and was completed by August 1931. Work on the grading and concrete structures took place between October 1930 and January 1933. During construction of the bridge, THD engineers judged the piers' timber foundation piling unnecessary, as the soil was stable enough to support a simple spread footing. The total cost of the bridge came to about $114,000. From 1932 to 1934, THD implemented projects to place concrete paving on the same section of SH 3-A, from Luling to Waelder.

In the 1950s, THD implemented two projects affecting the Plum Creek bridge. In 1952, THD maintenance forces shortened the bridge's concrete approach railing. This was done as part of a THD campaign promoting bridge safety initiated by DeWitt C. Greer, then State Highway Engineer. In 1944, he released Administrative Circular 3-44 encouraging districts to shorten Type C and Type D concrete bridge railing. Evidently, the standard railing height of just over 3 feet made bridges appear narrow, causing drivers to veer toward the center of the roadway and sometimes collide. By shortening the railing, the illusion of the narrow bridge relative to the approach roadway was lessened. In addition, the decreased railing height allowed truck overhangs to clear the railings. The retrofit was performed by sawing off the top of each concrete post, removing the upper row of railing and casting a new top on each post.

In 1956, THD responded to increasing traffic volumes on US 90/US 183 by constructing a series of concrete slab, girder, and I-beam spans adjacent to the Plum Creek bridge to serve westbound traffic (see Photograph 3). The Plum Creek bridge was then converted into a one-way bridge providing two lanes for eastbound traffic on the route. This configuration lightened the traffic burden on the truss bridge, allowing for its preservation in place.

In 1990, THD maintenance forces performed a structural upgrade to the bridge deck. This entailed placing nine new stringers adjacent to the original stringers which were in an advanced state of deterioration. In addition, construction and expansion joints were routed, cleaned and sealed.

The modifications to the railing and deck do not substantially compromise the bridge's integrity. In particular, the railing modification is sympathetic to the original design and the majority of the original material remains. This alteration represents the first step taken in the evolution toward safer railing design.

The deck upgrade modified only the underside of the bridge and did not alter the bridge's original appearance. The amount of new material is minimal and the vast majority of the original structure remains functional. Although the construction of the companion structure has somewhat altered the setting of the truss bridge, as a transportation facility it is compatible with the use of the original bridge and therefore does not significantly compromise its integrity.

Bibliography:

Texas Highway Department. Administrative Circular No. 3-44, February 29, 1944, located at TxDOT headquarters in Austin.

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. 0029-03-004, located at TxDOT headquarters in Austin.

Texas Highway Department. Plans of Proposed State Highway Improvement. Control-Section-Job No. 0029-03-048, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0029-03-003, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0029-03-004, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0029-03-022, located at TxDOT headquarters in Austin.

Verbal Boundary Description:

The nomination boundaries encompass the complete structure, State Highway 3-A Bridge at Plum Creek, including the approach spans and concrete approach railing, as well as the ground upon which the structure stands.

Boundary Justification:

The boundary includes all components historically associated with the property.

10. GEOGRAPHICAL DATA

ACREAGE OF PROPERTY: less than one acre

UTM REFERENCES	Zone	Easting	Northing		Zone	Easting	Northing
1	15	635430	3281230	3	_	_____	_____
2	_	_____	_____	4	_	_____	_____

(___see continuation sheet)

VERBAL BOUNDARY DESCRIPTION (see continuation sheet 10-8)

BOUNDARY JUSTIFICATION (see continuation sheet 10-8)

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:** September 1996

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

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: State Highway 3-A Bridge at Plum Creek

MULTIPLE NAME: Historic Bridges of Texas MPS

STATE & COUNTY: TEXAS, Caldwell

DATE RECEIVED: 9/09/96 DATE OF PENDING LIST: 9/24/96
DATE OF 16TH DAY: 10/10/96 DATE OF 45TH DAY: 10/24/96
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 96001107

NOMINATOR: STATE

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	N	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	N

COMMENT WAIVER: N

✓ ACCEPT ___ RETURN ___ REJECT 10·10·96 DATE

ABSTRACT/SUMMARY COMMENTS:

RECOM./CRITERIA_____

REVIEWER_____ DISCIPLINE_____

TELEPHONE_____ DATE_____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

SITE NO. CW0029-03-013

SH 3-A BRIDGE AT PLUM CREEK

HISTORIC BRIDGES OF TEXAS

CALDWELL CO., TEXAS

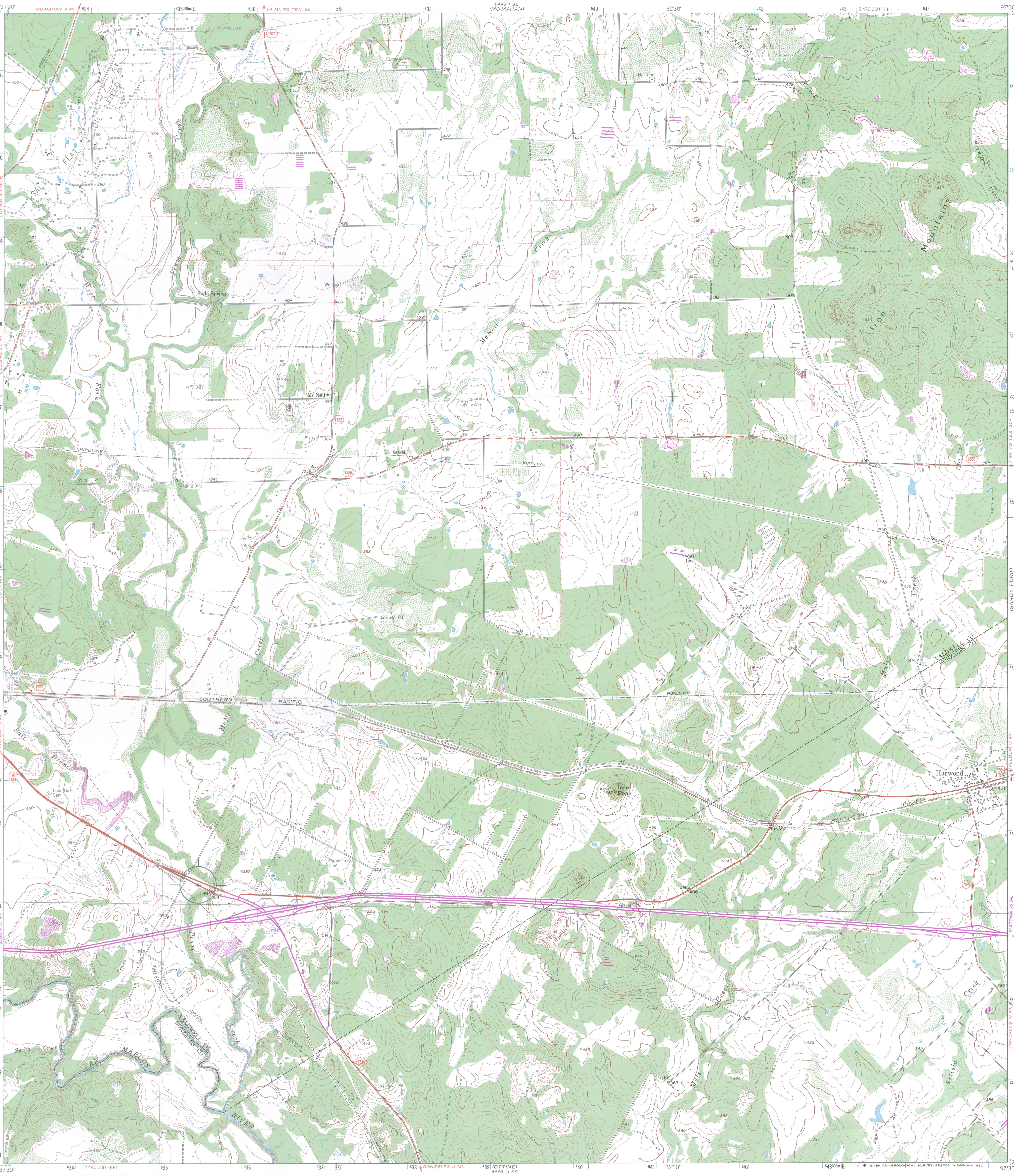
PHOTOGRAPH 1 OF 3

SITE NO. CW0029-03-013
SH 3-A BRIDGE AT PLUM CREEK
HISTORIC BRIDGES OF TEXAS
CALDWELL CO., TEXAS
PHOTOGRAPH 2 OF 3

SITE NO. CW0029-03-013
SH 3-A BRIDGE AT PLUM CREEK
HISTORIC BRIDGES OF TEXAS
CALDWELL CO., TEXAS
PHOTOGRAPH 3 OF 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HARWOOD QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)



97°37'30" 29°45' — 97°30' 29°45'
97°37'30" 29°37'30" — 97°30' 29°37'30"

HISTORIC BRIDGES OF TEXAS
SH 3-A BRIDGE AT PLUM CREEK
VICINITY OF LULING, CALDWELL CO, TEXAS
UTM REFERENCE: 14/635430/3281230

SITE NO: CW0029-03-013

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1982

Mapped, edited, and published by the Geological Survey

Control by USGS, NOS/NOAA and USCE

Topography by photogrammetric methods from aerial photographs taken 1963. Field checked 1964

Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system, south central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue

Fine red dashed lines indicate selected fence lines

To place on the predicted North American Datum 1983 move the projection lines 20 meters south and 27 meters east as shown by dashed corner ticks

Revisions shown in purple and woodland compiled from aerial photographs taken 1978 and other source data
This information not field checked. Map edited 1981

MN GN 0°43' 13 MILS 7½° 133 MILS

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

2997-314

ROAD CLASSIFICATION

Heavy-duty .... Light-duty ....
Medium-duty .... Unimproved dirt ....
U.S. Route State Route
Interstate Route

HARWOOD, TEX.
N2937.5—W9730/7.5

1964
PHOTOREVISED 1981
DMA 6443 II NE-SERIES V882