

# HISTORIC BRIDGE INVENTORY

## Ligurta Underpass

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	08406
milepost	0.70	inventory route	Southern Pacific Railroad
location	0.7 mi NE Jct I8	feature intersected	Old US 80
city/vicinity	Ligurta	USGS quadrangle	Ligurta
district	82	UTM reference	11.753900.3618465

### STRUCTURAL INFORMATION

main span number	3	main span type	402
appr. span number	0	appr. span type	
degree of skew	48	guardrail type	5
main span length	38.0	superstructure	steel I-beam stringer
structure length	83.0	substructure	concrete abutments and wingwalls
roadway width	31.0	floor/decking	railroad ballast deck
structure width	33.2	other features	modest Art Moderne scoring on pylons

### HISTORICAL INFORMATION

construction date	1949	designer/engineer	Arizona Highway Department
project number	FI-82(10)	builder/contractor	Western Constructors Inc., Phoenix AZ
information source	ADOT bridge records	structure owner	Union Pacific Railroad
alteration date(s)		alterations	

### NATIONAL REGISTER EVALUATION

inventory score	43	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	eligible
		NRHP criteria	A _____ B _____ C <u>x</u>
		signif. statement	well-preserved example of AHD architectural detailing on grade separation

### FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign  
420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004

## LIGURTA UNDERPASS

Structure No. 8406



### PHOTO INFORMATION

date of photo.: November 2002

view direction: north northwest

photo no.: 03.02.171 03.02.172



## CONSTRUCTION HISTORY

In August 1947 Arizona Highway Department engineers began production of construction drawings for a grade separation structure on U.S. Highway 80 east of Yuma. Located near the railroad siding of Ligurta (derived from the Spanish word for lizard), the structure would carry the double tracks of the Southern Pacific Railroad over the highway. It would replace an existing three-span steel girder overpass at this location. As delineated by AHD, the replacement structure consisted of three steel stringer spans simply supported by reinforced concrete abutments and piers. The stringers were rolled wide flanges braced laterally with I-beams riveted to the wide flanges' webs. These stringers carried a concrete slab over which a railroad ballast deck was laid. The deck was bounded on both sides by aluminum baluster guardrails, which were flanked on either end by a concrete bulkhead with a stepped pattern.

AHD designated the project as FGI 82(10) and in the spring of 1948 awarded a contract for its construction to Western Constructors Inc. The Phoenix-based contractors began substructural excavation soon thereafter. Using a steel superstructure fabricated by the Bethlehem Pacific Coast Steel Corporation, Western Constructors completed the Ligurta Underpass in 1949. It carried mainline traffic on US 80 until the highway was superseded by Interstate 8 in the late 1960s and the original route abandoned to Yuma County. Today the Ligurta Underpass continues to carry intermittent traffic on this county road, in unaltered condition.

## SIGNIFICANCE STATEMENT

The Ligurta Underpass was built as an integral part of US 80, one of Arizona's most important transcontinental highways. The Underpass was built relatively late as a replacement structure, however, limiting its historical importance as a transportation-related resource. The Ligurta Underpass accrues more significance for its architectural design. The Arizona Highway Department typically maintained two sets of design standards for its grade separations located in urban settings and those located at rural crossings. The urban structures built during the Great Depression generally received architectural treatment—either Spanish Revival or Art Moderne—intended to integrate them visually with their surroundings, while the rural structures tended to be more plain-faced, with minimal architectural detailing. The Ligurta Underpass is a noteworthy exception to this trend. AHD engineers were so concerned with its proportions and detailing that they produced a line-drawing rendering of it in one-point perspective as part of the construction drawings. With its clean proportions and Art Moderne detailing, the structure is distinguished as one of the more aesthetically successful examples among the AHD-designed bridges of the pre-War period.

## NATIONAL REGISTER EVALUATION

## TECHNOLOGICAL SIGNIFICANCE

- ☐ represents the work of a master  
☐ possesses high artistic values  
☒ represents a type, period or method of construction

## HISTORICAL SIGNIFICANCE

- ☐ associated with significant persons  
☐ associated with significant events or patterns  
☐ contributes to historical district

## NATIONAL REGISTER CRITERIA

- ☐ Criterion A  
☐ Criterion B  
☒ Criterion C

## NATIONAL REGISTER ELIGIBILITY

- individually eligible ☒ yes ☐ no  
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Engineering

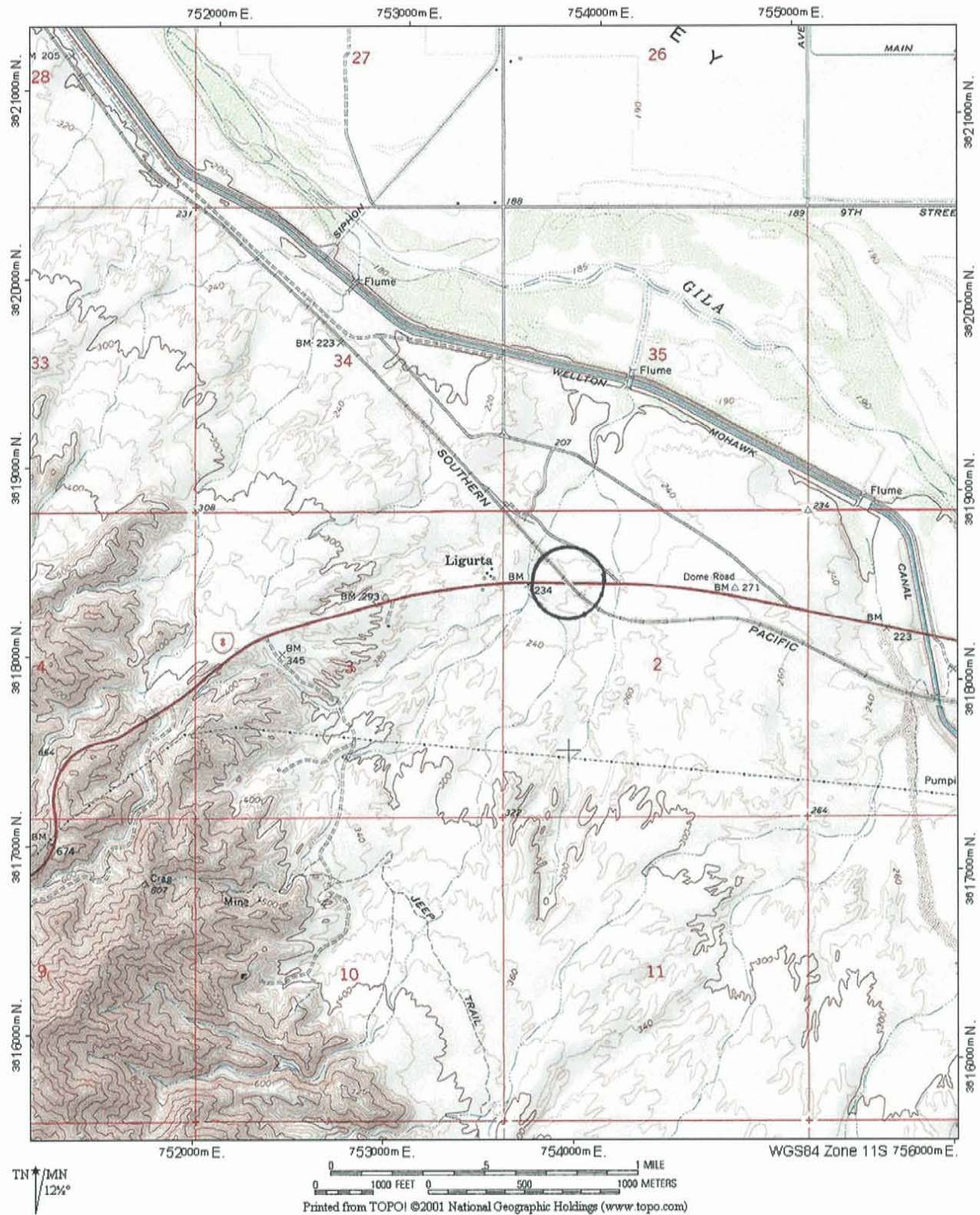
PERIOD OF SIGNIFICANCE: 1949-1964

THEME(S): Transportation: Highways



# LIGURTA UNDERPASS

Structure No. 8406



Location Map

# HISTORIC BRIDGE INVENTORY

## Wash Bridge

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	08408
milepost	2.15	inventory route	Old US 80
location	15.1 mi W Jct FAS 328	feature intersected	Dry Wash
city/vicinity	Ligurta	USGS quadrangle	Ligurta
district	82	UTM reference	11.755535.3618277

### STRUCTURAL INFORMATION

main span number	4	main span type	104
appr. span number	0	appr. span type	
degree of skew	30	guardrail type	4
main span length	40.0	superstructure	concrete deck girder
structure length	205.0	substructure	concrete abutments, wingwalls and piers
roadway width	30.0	floor/decking	concrete deck with asphalt overlay
structure width	35.2	other features	AHD standard slotted concrete guardrails with Thrie beams at approaches

### HISTORICAL INFORMATION

construction date	1931	designer/engineer	Arizona Highway Department
project number	FAP 26-D (Reo.)	builder/contractor	Canion, Francis & Royden, Phoenix AZ
information source	ADOT bridge records	structure owner	Yuma County
alteration date(s)		alterations	

### NATIONAL REGISTER EVALUATION

inventory score	50	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	eligible
		NRHP criteria	A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/>
		signif. statement	well-preserved example of standard structural type, on important route

### FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign  
420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004





PHOTO INFORMATION

date of photo.: February 2003

view direction: east northeast

photo no.: 03.02.169 03.02.170

## CONSTRUCTION HISTORY

In the summer of 1930 the Arizona Highway Department contemplated improving a segment of the Ocean-to-Ocean Highway in Yuma County. This part of the route, called the Yuma-Wellton Highway, began just east of a railroad stop named Ligurta and extended for 5.6 miles eastward toward Wellton. It included highway grading and surfacing, as well as the construction of two almost identical reinforced concrete bridges over intermittent washes. This structure over an unnamed wash was comprised of four concrete girder spans supported by concrete abutments and piers. As delineated by AHD engineers, the girders extended 30 feet and featured angled haunches at the supports. The concrete deck cantilevered slightly over the spandrel beams on concrete brackets; it was bounded by concrete guardrails with slotted "doghouse" cutouts. The construction was designated as Federal Aid Project 26, 2<sup>nd</sup> Reopening. In August 1930 AHD advertised for competitive bids for the project, awarding the construction contract to Canion-Francis & Royden of Phoenix on September 3. The contractors, who had just completed a 3½-mile segment immediately west of this, began work immediately. By the end of the year, under the supervision of AHD Resident Engineer James Parker, they reported the work 50 percent complete. The Canion-Francis & Royden crew completed the highway and bridges in March 1931. The route carried mainline traffic for some 37 years until construction of Interstate 8 in 1967. At that time this bridge was retired from the primary road system and left in place as a county-owned bridge. It now carries local traffic beside the interstate, in unaltered condition.

## SIGNIFICANCE STATEMENT

The Wash Bridge is historically noteworthy for its association with US 80. Alternately known as the Phoenix-Yuma Highway (in Arizona) and the Ocean-to-Ocean Highway (its national designation), the road has served historically as the principal east-west transcontinental route across southern Arizona. During the 1920s and 1930s, it carried the heaviest highway traffic in Arizona. Built in 1930 during a period of extensive highway construction in Arizona, this bridge was an integral part of this significant highway. The bridge is technologically important as a representative example of AHD bridge construction. The state had begun using concrete for bridge superstructures as early as 1910. The earliest girder bridges, such as the Antelope Hill Bridge [abd.] in Yuma County and the Santa Cruz River Bridge [8166] in Santa Cruz County, employed two deep girders that were cast integrally with the concrete deck. By the 1920s AHD had refined its girder standard to incorporate four or more shallower girders, to create greater under-bridge clearance. The Wash Bridge uses this latter design. It is today distinguished as one of the best-preserved early examples in Arizona of this revised configuration.

## NATIONAL REGISTER EVALUATION

## TECHNOLOGICAL SIGNIFICANCE

- ☐ represents the work of a master
- ☐ possesses high artistic values
- ☒ represents a type, period or method of construction

## HISTORICAL SIGNIFICANCE

- ☐ associated with significant persons
- ☒ associated with significant events or patterns
- ☐ contributes to historical district

## NATIONAL REGISTER CRITERIA

- ☒ Criterion A
- ☐ Criterion B
- ☒ Criterion C

## NATIONAL REGISTER ELIGIBILITY

- individually eligible ☒ yes ☐ no
- contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering

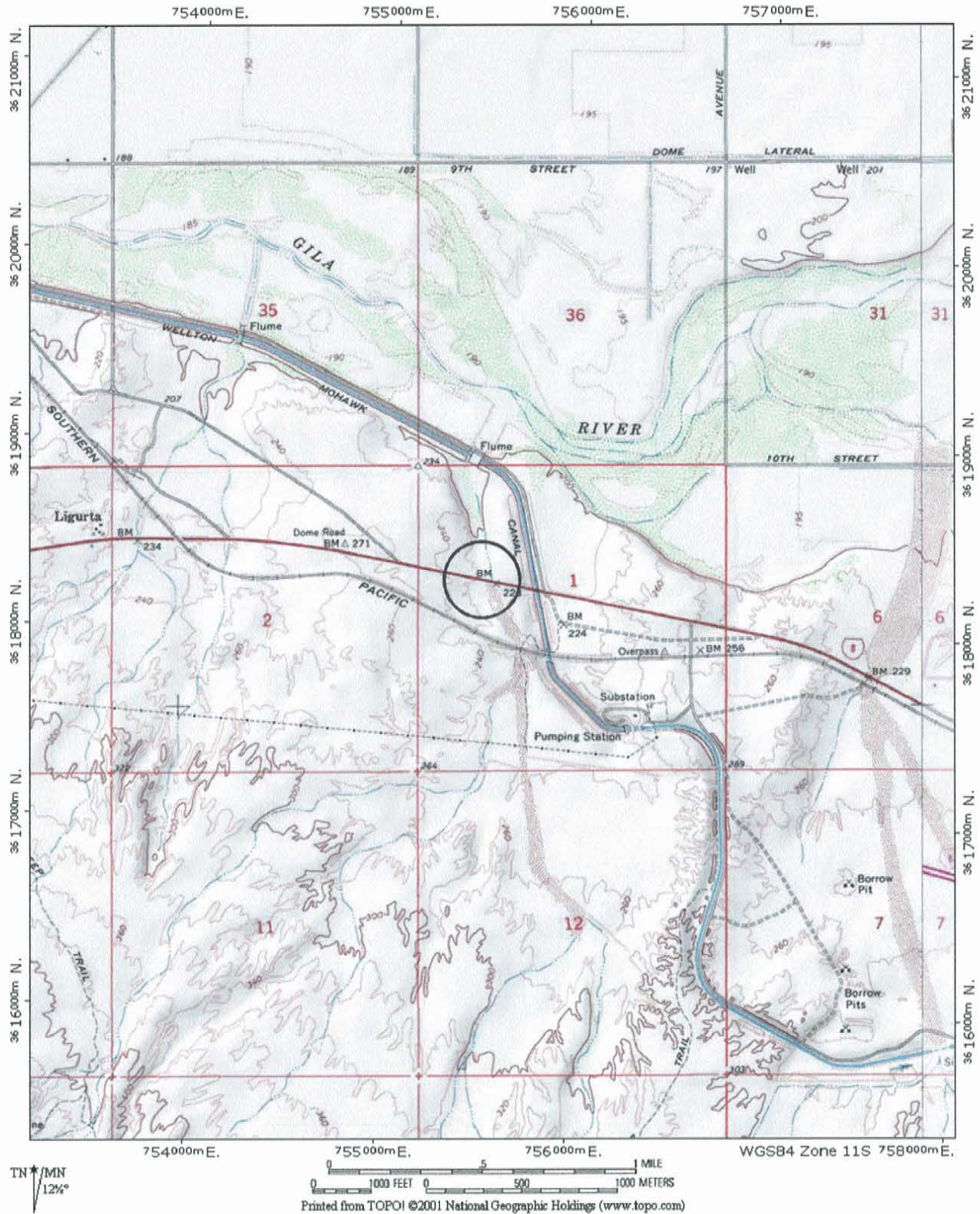
PERIOD OF SIGNIFICANCE: 1931-1964

THEME(S): Transportation: Highways



# WASH BRIDGE

Structure No. 8408



Location Map



# HISTORIC BRIDGE INVENTORY

## Ligurta Wash Bridge

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	08410
milepost	3.45	inventory route	Old US 80
location	Old US 80 & Ligurta	feature intersected	Ligurta Wash
city/vicinity	Ligurta	USGS quadrangle	Ligurta
district	82	UTM reference	11.757550.3617810

### STRUCTURAL INFORMATION

main span number	4	main span type	104
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	4
main span length	36.0	superstructure	concrete deck girder
structure length	146.0	substructure	concrete abutments, wingwalls and piers
roadway width	34.4	floor/decking	concrete deck with asphalt overlay
structure width	35.7	other features	AHD standard slotted concrete guardrails with Thrie beams at approaches

### HISTORICAL INFORMATION

construction date	1931	designer/engineer	Arizona Highway Department
project number	FAP 26-D (Reo.)	builder/contractor	Canion, Francis & Royden, Phoenix AZ
information source	ADOT bridge records	structure owner	Yuma County
alteration date(s)		alterations	

### NATIONAL REGISTER EVALUATION

inventory score	47	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	eligible
		NRHP criteria	A <u>x</u> B <u>  </u> C <u>x</u>
		signif. statement	well-preserved example of standard structural type, on important route

### FORM COMPLETED BY

Clayton B. Fraser, Principal

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420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004



PHOTO INFORMATION

date of photo.: February 2003

view direction: west northeast

photo no.: 03.02.167 03.02.168



## CONSTRUCTION HISTORY

In the summer of 1930 the Arizona Highway Department contemplated improving a segment of the Ocean-to-Ocean Highway in Yuma County. This part of the route, called the Yuma-Wellton Highway, began just east of a railroad stop named Ligurta and extended for 5.6 miles eastward toward Wellton. It included highway grading and surfacing, as well as the construction of two almost identical reinforced concrete bridges over intermittent washes. The structure over Ligurta Wash was comprised of four concrete girder spans supported by concrete abutments and piers. As delineated by AHD engineers, the girders extended 36 feet and featured angled haunches at the supports. The concrete deck cantilevered slightly over the spandrel beams on concrete brackets; it was bounded by concrete guardrails with slotted "doghouse" cutouts. The construction was designated as Federal Aid Project 26, 2<sup>nd</sup> Reopening. In August 1930 AHD advertised for competitive bids for the project, awarding the construction contract to Canion-Francis & Royden of Phoenix on September 3. The contractors, who had just completed a 3½-mile segment immediately west of this, began work immediately. By the end of the year, under the supervision of AHD Resident Engineer James Parker, they reported the work 50 percent complete. The Canion-Francis & Royden crew completed the highway and bridges in March 1931. The route carried mainline traffic for some 37 years until construction of Interstate 8 in 1967. At that time the Ligurta Wash Bridge was retired from the primary road system and left in place as a county-owned bridge. It now carries local traffic beside the interstate, in unaltered condition.

## SIGNIFICANCE STATEMENT

The Ligurta Wash Bridge is historically noteworthy for its association with US 80. Alternately known as the Phoenix-Yuma Highway (in Arizona) and the Ocean-to-Ocean Highway (its national designation), the road has served historically as the principal east-west transcontinental route across southern Arizona. During the 1920s and 1930s, it carried the heaviest highway traffic in Arizona. Built in 1930 during a period of extensive highway construction in Arizona, the Ligurta Wash Bridge was an integral part of this significant highway. The bridge is technologically important as a representative example of AHD bridge construction. The state had begun using concrete for bridge superstructures as early as 1910. The earliest girder bridges, such as the Antelope Hill Bridge [abd.] in Yuma County and the Santa Cruz River Bridge [8166] in Santa Cruz County, employed two deep girders that were cast integrally with the concrete deck. By the 1920s AHD had refined its girder standard to incorporate four or more shallower girders, to create greater under-bridge clearance. The Ligurta Wash Bridge uses this latter design. It is today distinguished as one of the best-preserved early examples in Arizona of this revised configuration.

## NATIONAL REGISTER EVALUATION

### TECHNOLOGICAL SIGNIFICANCE

- ☐ represents the work of a master  
☐ possesses high artistic values  
☒ represents a type, period or method of construction

### HISTORICAL SIGNIFICANCE

- ☐ associated with significant persons  
☒ associated with significant events or patterns  
☐ contributes to historical district

### NATIONAL REGISTER CRITERIA

- ☒ Criterion A  
☐ Criterion B  
☒ Criterion C

### NATIONAL REGISTER ELIGIBILITY

- individually eligible ☒ yes ☐ no  
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering

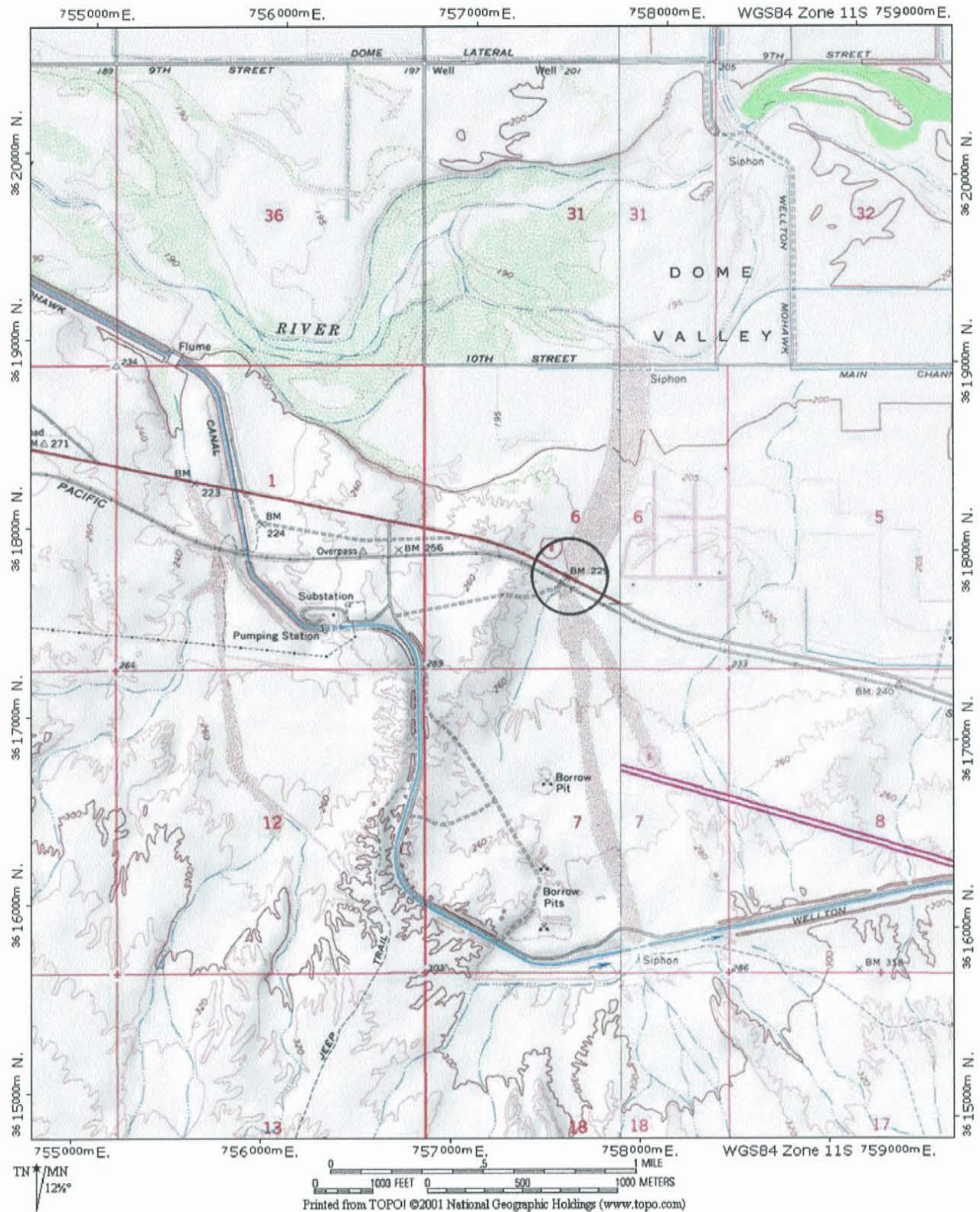
PERIOD OF SIGNIFICANCE: 1931-1964

THEME(S): Transportation: Highways



# LIGURTA WASH BRIDGE

Structure No. 8410



Location Map



# HISTORIC BRIDGE INVENTORY

## Ocean-to-Ocean Bridge

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	08533
milepost	0.03	inventory route	Penitentiary Avenue
location	0.5 mi NE I 8	feature intersected	Colorado River
city/vicinity	Yuma	USGS quadrangle	Yuma East
district	82	UTM reference	11.723383.3623720

### STRUCTURAL INFORMATION

main span number	1	main span type	310
appr. span number	1	appr. span type	309
degree of skew	0	guardrail type	
main span length	336.0	superstructure	steel pin-connected Pennsylvania through truss
structure length	444.0	substructure	concrete abutments, wingwalls and piers
roadway width	18.0	floor/decking	concrete deck with asphalt overlay
structure width	35.0	other features	upper chord: 2 built-up channels w/ cover plate and double lacing; lower chord: 2 rectangular eyebars; vertical: 2 channels w/ lacing; diagonal: 4 rectangular eyebars; steel lattice guardrails

### HISTORICAL INFORMATION

construction date	1915	designer/engineer	US Office of Indian Affairs
project number		builder/contractor	Omaha Structural Steel Works, Omaha NE
information source	ADOT bridge records	structure owner	Yuma County
alteration date(s)	1943 2002	alterations	deck replaced; bridge rehabilitated and "Ocean-to-Ocean Highway" sign replicated

### NATIONAL REGISTER EVALUATION

inventory score	93	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	listed
		NRHP criteria	A <u>x</u> B <u>  </u> C <u>x</u>
		signif. statement	one of the most important wagon bridges in Southwest

### FORM COMPLETED BY

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420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004

# OCEAN-TO-OCEAN BRIDGE

Structure No. 8533



## PHOTO INFORMATION

date of photo: March 2003

view direction: west north

photo no.: 03.03.145 03.03.146



## CONSTRUCTION HISTORY

After years of agitating by Yuma citizens, Arizona Representative Carl Hayden in 1913 steered a bill through Congress authorizing construction of a steel highway bridge over the Colorado River at Yuma. Ostensibly to provide a crossing for the Yuma Indian Reservation across the river in California, the Yuma bridge was funded in part by the Office of Indian Affairs [OIA]. The State of Arizona would contribute \$25,000, as would Imperial County, California. OIA engineers in Washington designed this long-span through truss and located it at the foot of Prison Hill Road, near the Territorial Penitentiary, immediately upstream from the existing ferry here. As delineated, the structure consisted of a pin-connected Pennsylvania through truss, with a rigid-connected Warren deck truss approach span at one end. The trusses would be carried high over the river by concrete abutments and pier.

In June 1914 the OIA contracted with the Omaha Structural Steel Works of Nebraska to fabricate and construct the bridge for over \$72,000. But the OIA engineers were unfamiliar with the vagaries of the Colorado River, and problems arose soon after construction began in October. After the falsework was washed away twice that winter, Omaha Steel opted to erect the truss on barges and float it into position. On March 3, 1915, the 336-foot-long span was swung in a carefully choreographed maneuver amidst widespread celebrating throughout the town. On May 22 the bridge was ceremoniously opened to traffic. The bridge carried the Ocean-to-Ocean Highway for decades before the highway was superseded by Interstate 8. It still functions in place, bearing local city-street traffic. The structure has recently been rehabilitated and a replica of the original "Ocean-to-Ocean Highway" sign installed on one of its truss webs.

## SIGNIFICANCE STATEMENT

The first train crossed the Colorado River on a bridge in September 1877, and the Yuma crossing has been a pivotal one for Southwestern transportation since. The Penitentiary Avenue bridge, located on a site originally intended for a railroad structure, formed a crucial link on the nationally important Ocean-to-Ocean Highway. "This is the first highway bridge built across the Colorado River in all its length," the *Yuma Sun* stated in 1915. Although the writer neglected the dozens of bridges at the river's upper reaches in Colorado, the Ocean-to-Ocean Bridge was the first highway span over the lower Colorado. Technologically, the structure is significant as the earliest and longest through truss in Arizona, the only Pennsylvania truss and one of only three pin-connected trusses among Arizona's vehicular structures. It is today distinguished as one of the most important early spans in the Southwest.

## NATIONAL REGISTER EVALUATION

## TECHNOLOGICAL SIGNIFICANCE

- ☐ represents the work of a master  
☐ possesses high artistic values  
☒ represents a type, period or method of construction

## HISTORICAL SIGNIFICANCE

- ☐ associated with significant persons  
☒ associated with significant events or patterns  
☐ contributes to historical district

## NATIONAL REGISTER CRITERIA

- ☒ Criterion A  
☐ Criterion B  
☒ Criterion C

## NATIONAL REGISTER ELIGIBILITY

- individually eligible ☒ yes ☐ no  
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering  
 PERIOD OF SIGNIFICANCE: 1915-1964  
 THEME(S): Transportation: Highways



## Structure No. 8533





# HISTORIC BRIDGE INVENTORY

## Antelope Hill Bridge

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	abd.
milepost	0.00	inventory route	abd. US 95
location	3.6 mi NW of Tacna	feature intersected	Gila River
city/vicinity	Tacna	USGS quadrangle	Wellton Mesa
district	82	UTM reference	11.779955.3623620

### STRUCTURAL INFORMATION

main span number	15	main span type	104
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	0
main span length	65.0	superstructure	concrete two-beam deck girder
structure length	975.0	substructure	concrete abutments, wingwalls and bullnosed piers
roadway width	16.0	floor/decking	concrete deck
structure width	18.0	other features	incised panels on girder spandrels; threaded steel pipe guardrails (removed); concrete curbs

### HISTORICAL INFORMATION

construction date	1915	designer/engineer	Arizona State Engineer
project number		builder/contractor	Perry E. Borchers; convict work force
information source	ADOT bridge records	structure owner	Yuma County
alteration date(s)	ca1950	alterations	bridge badly deteriorated, with several spans washed away

### NATIONAL REGISTER EVALUATION

inventory score	80	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	listed
		NRHP criteria	A <u>x</u> B <u>  </u> C <u>x</u>
		signif. statement	one of state's most important early wagon bridges, located on important route

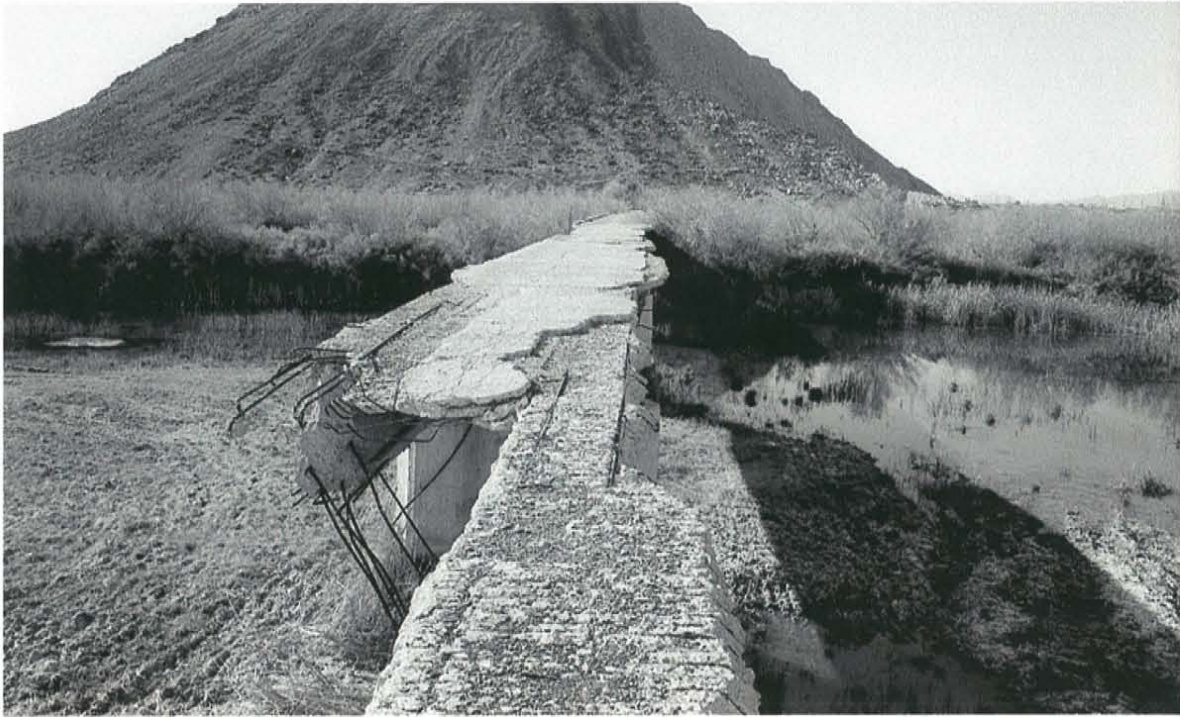
### FORM COMPLETED BY

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420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004

# ANTELOPE HILL BRIDGE

Structure No.: abandoned



## PHOTO INFORMATION

date of photo.: March 2003

view direction: south west

photo no.: 03.02.164 03.02.165



# ANTELOPE HILL BRIDGE

Structure No.: abandoned

## CONSTRUCTION HISTORY

An integral part of the Ocean-to-Ocean Highway across southern Arizona was the bridge over the Gila River. Located at the foot of Antelope Hill, it crossed this problematic river about 3½ miles northwest of Tacna. In 1912 Arizona State Engineer Lamar Cobb first surveyed sites at Antelope Hill and the nearby town of Dome and selected the former for a bridge. The next year his office designed a multiple-span concrete structure comprised of 15 girder spans supported by massive bullnosed concrete piers. The longest of these spans extended 65 feet, and the bridge's overall length was almost 1000 feet, not including the timber trestle approaches on the ends. In December Cobb advertised for competitive bids to build the immense structure. Opting instead to use prison labor, the state rejected all bids. Cobb then redesigned and rebid the project when it became apparent that not enough prison manpower would be available. In May 1914 Perry Borchers was hired to build the bridge. But Borchers was in over his head. He began construction in June but soon defaulted, and after floods damaged the partially completed structure that winter, the state again undertook the project with prison laborers. The Antelope Hill Bridge was finally opened to traffic on August 18, 1915, with a gala picnic attended by thousands of well-wishers. With a poorly selected site, however, it suffered extensive damage with almost every major flood on the Gila. After years of repeated reconstruction of the concrete bridge and timber pile approach trestles, the Antelope Hill Bridge was replaced in 1929 by the McPhaul Bridge [abd.] and vacated. Today it stands abandoned in place in badly deteriorating condition, with the steel pipe guardrails removed, the deck disintegrating and some of its spans and piers washed away.

## SIGNIFICANCE STATEMENT

As a major crossing on a nationally important transcontinental route, the Antelope Hill Bridge is significant for its pivotal role in early Arizona transportation. The bridge is also significant in Arizona history as one of the few structures remaining from the early state period that had been built using prison labor. The bridge is technologically significant as an outstanding example of a formative structural type. Although numerous concrete girder bridges were erected throughout Arizona in the 1910s, 1920s and 1930s, most featured designs with four or more relatively shallow girders. The earliest concrete girders in Arizona typically employed two-girder designs. Of these, only the Santa Cruz [8166], Hell Canyon [abd.], and Antelope Hill bridges remain. The Antelope Hill Bridge is now in ruins, due to the ravages of the Gila River. Although this has impacted its structural integrity seriously, the bridge still conveys a sense of its intact self. The destruction from the river is an integral part of its history, and the extensive damage adds to the bridge's interpretive value. The Antelope Hill Bridge is an important early remnant of highway construction in Arizona.

## NATIONAL REGISTER EVALUATION

### TECHNOLOGICAL SIGNIFICANCE

- ☐ represents the work of a master  
☐ possesses high artistic values  
☒ represents a type, period or method of construction

### HISTORICAL SIGNIFICANCE

- ☐ associated with significant persons  
☒ associated with significant events or patterns  
☐ contributes to historical district

### NATIONAL REGISTER CRITERIA

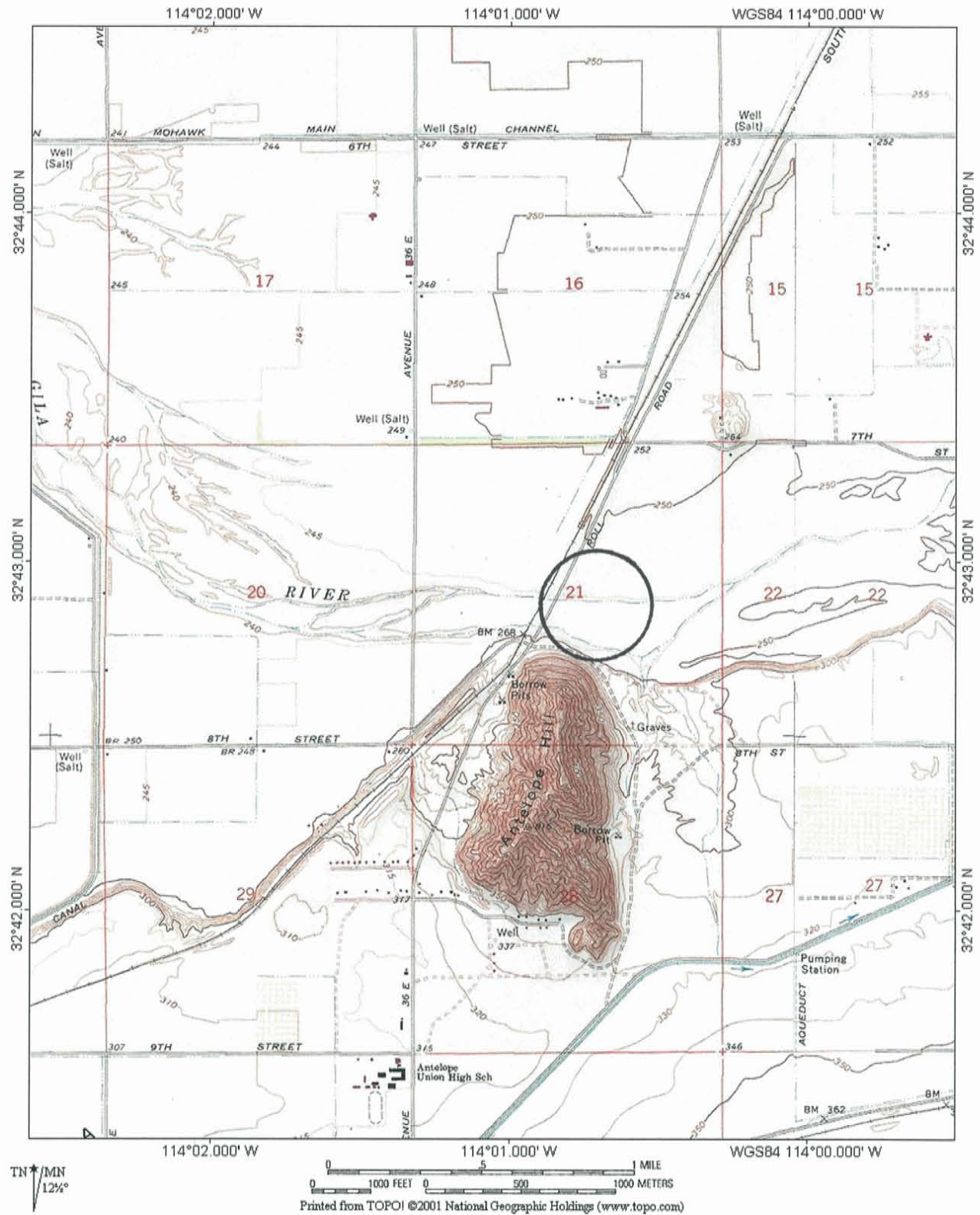
- ☒ Criterion A  
☐ Criterion B  
☒ Criterion C

### NATIONAL REGISTER ELIGIBILITY

- individually eligible ☒ yes ☐ no  
contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering  
PERIOD OF SIGNIFICANCE: 1915-1964  
THEME(S): Transportation: Highways

Structure No.: abandoned



### Location Map



# HISTORIC BRIDGE INVENTORY

## McPhaul Bridge

### PROPERTY IDENTIFICATION

county	Yuma	inventory number	abd.
milepost	0.00	inventory route	abd. US 95
location	0.2 mi N of Dome	feature intersected	Gila River
city/vicinity	Dome	USGS quadrangle	Laguna Dam
district	82	UTM reference	11.741563.3627538

### STRUCTURAL INFORMATION

main span number	1	main span type	313
appr. span number	0	appr. span type	
degree of skew	0	guardrail type	0
main span length	798.0	superstructure	steel suspension bridge with rocker-type towers
structure length	1184.0	substructure	concrete abutments, deadmen and spill-through piers
roadway width	14.7	floor/decking	timber deck with asphalt overlay
structure width	21.0	other features	main suspension cable: 3 parallel strands of 290 #8 Roebling bridge wire (5-3/4" diameter); rocker-type braced steel towers (70.5' tall) w/ cast steel cable cradles; rigid Warren pony stiffening trusses

### HISTORICAL INFORMATION

construction date	1929	designer/engineer	Arizona Highway Department
project number		builder/contractor	Levy Construction Company, Denver CO
information source	ADOT bridge records	structure owner	Yuma County
alteration date(s)		alterations	

### NATIONAL REGISTER EVALUATION

inventory score	91	For additional information, see "Vehicular Bridges in Arizona 1880-1964" National Register Multiple Property Documentation Form	
		NRHP eligibility	listed
		NRHP criteria	A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/>
		signif. statement	extraordinary long-span example of uncommon structural type, located on important route

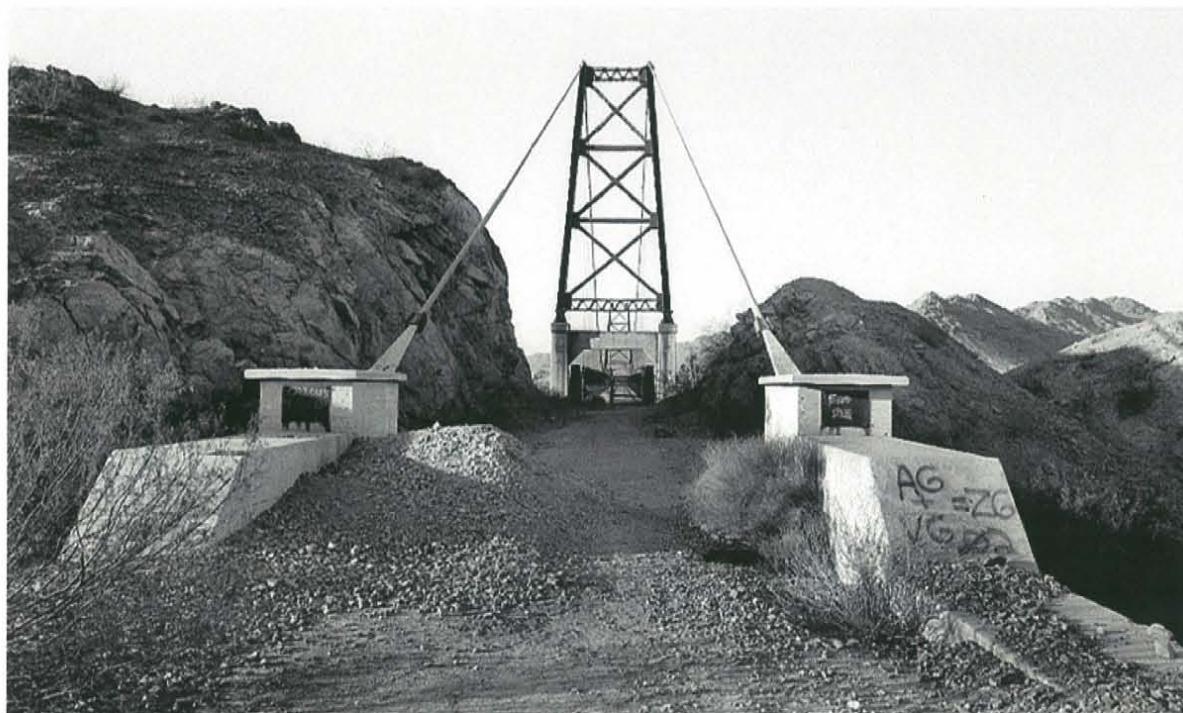
### FORM COMPLETED BY

Clayton B. Fraser, Principal

FRASERdesign  
420 South County Road 23E  
Loveland, Colorado 80537  
31 October 2004

# McPHAUL BRIDGE

Structure No.: abandoned



## PHOTO INFORMATION

date of photo.: March 2003

view direction: north southeast

photo no.: 03.03.186 03.03.193



## CONSTRUCTION HISTORY

When Arizona State Engineer Lamar Cobb first looked for a crossing location of the Gila River for the Ocean-to-Ocean Highway in Yuma County, he inspected sites at Dome and Antelope Hill and chose the latter. The Antelope Hill Bridge [abd.], a multiple-span concrete girder structure, was completed in 1915 and immediately began suffering damage with almost every flood on the Gila. Eventually, after years of repairs, it was abandoned altogether. The highway had already been rerouted through Telegraph Canyon, eliminating the need for the bridge altogether, when the Highway Department decided to replace the existing ford at Dome with a bridge. Soundings were taken, a site selected near a granite outcrop, and in 1927 the engineers decided to avoid the scouring problems of the Antelope Hill Bridge by free-spanning the river completely with a long suspension bridge.

In January 1928 AHD contracted with the Levy Construction Company of Denver to build the structure for \$152,454. Although AHD engineers had outlined the bridge's location and span, Levy engineered the bridge itself with the assistance of nationally known consulting engineer Ralph Modjeski. Construction began in mid-1928 and was completed in December 1929. The McPhaul Bridge carried traffic on US 95 until its replacement in 1968. It was abandoned in place and, though closed, still spans the Gila River in unaltered and relatively good condition.

## SIGNIFICANCE STATEMENT

The McPhaul Bridge is significant for several reasons. First, it formed an integral link on a regionally important north-south highway in western Arizona. Second, it was one of two bridges in the state (other: Red Rock Bridge (J.A.L. Waddell)) associated with a pre-eminent American civil engineer—in this case Pennsylvania engineer Ralph Modjeski. Finally the McPhaul Bridge is technologically important as one of two vehicular suspension spans in Arizona (other: Cameron Bridge). Its rocker-type towers are rare among suspension bridges, distinguishing this structure even further among the vehicular spans in the state. Because of their exotic nature and high construction costs, suspension bridges were infrequently erected in this country, and few from the pre-Depression era have remained intact. The McPhaul Bridge is also noteworthy for its scale. At the time of its completion, the bridge had the longest span length of any bridge in the state, and it has the longest span among all the bridges in the inventory. Strikingly beautiful, graceful and exotic as well as historically and technologically important, the McPhaul Bridge is among Arizona's most important vehicular structures.

## NATIONAL REGISTER EVALUATION

## TECHNOLOGICAL SIGNIFICANCE

☐ represents the work of a master  
☐ possesses high artistic values  
☒ represents a type, period or method of construction

## HISTORICAL SIGNIFICANCE

☐ associated with significant persons  
☒ associated with significant events or patterns  
☐ contributes to historical district

## NATIONAL REGISTER CRITERIA

☒ Criterion A  
☐ Criterion B  
☒ Criterion C

## NATIONAL REGISTER ELIGIBILITY

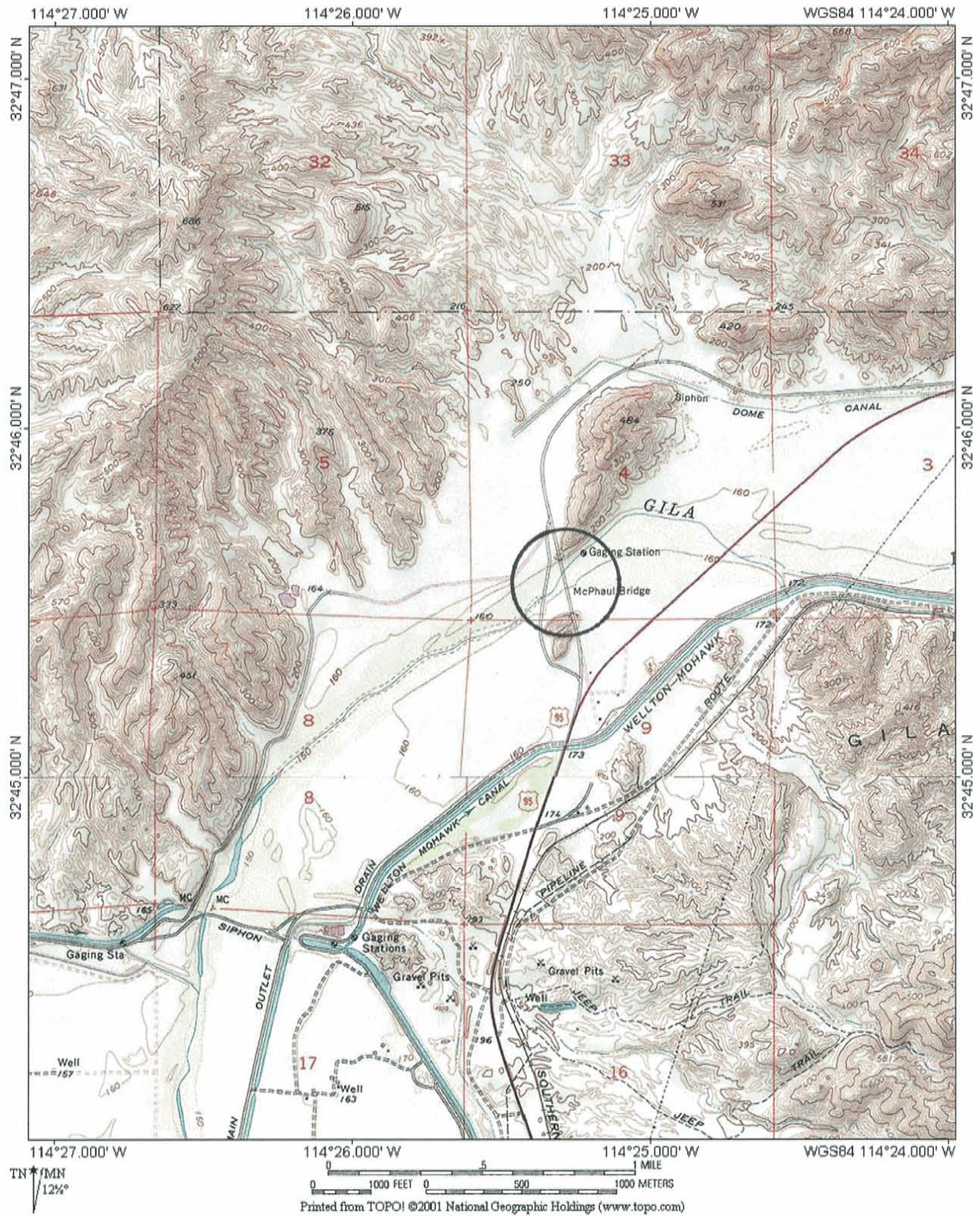
individually eligible ☒ yes ☐ no  
 contributes to district ☐ yes ☒ no

AREA OF SIGNIFICANCE: Transportation; Engineering  
 PERIOD OF SIGNIFICANCE: 1929-1964  
 THEME(S): Transportation: Highways



# McPAUL BRIDGE

Structure No.: abandoned



Location Map