Form No. 10-300 REV. (9/77)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED JUL 16 1981
DATE ENTERED AUG 13 1981

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
McPhaul Suspension Bridge

AND/OR COMMON
Dome Bridge

2 LOCATION

STREET & NUMBER
W of Dome
Rural
_NOT FOR PUBLICATION

CITY, TOWN
Dome
X VICINITY OF

CONGRESSIONAL DISTRICT
03

STATE
Arizona

CODE
04

COUNTY
Yuma

CODE
027

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
_DISTRICT	X PUBLIC	_OCCUPIED	_AGRICULTURE	_MUSEUM
_BUILDING(S)	_PRIVATE	X UNOCCUPIED	_COMMERCIAL	_PARK
X STRUCTURE	_BOTH	_WORK IN PROGRESS	_EDUCATIONAL	_PRIVATE RESIDENCE
_SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	_ENTERTAINMENT	_RELIGIOUS
_OBJECT	_IN PROCESS	_YES: RESTRICTED	_GOVERNMENT	_SCIENTIFIC
	_BEING CONSIDERED	X YES: UNRESTRICTED	_INDUSTRIAL	_TRANSPORTATION
		_NO	_MILITARY	X OTHER: abandoned

4 OWNER OF PROPERTY

NAME
Yuma County

STREET & NUMBER
Yuma County Courthouse

CITY, TOWN
Yuma
_ VICINITY OF

STATE
Arizona

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Yuma County Courthouse

STREET & NUMBER
180 W. 1st Street

CITY, TOWN
Yuma

STATE
Arizona

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
Arizona Historic Engineering Site Inventory

DATE
May 28, 1980
_FEDERAL X STATE _COUNTY _LOCAL

DEPOSITORY FOR SURVEY RECORDS
History of Engineering Program, Texas Tech University

CITY, TOWN
Lubbock

STATE
Texas

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	XUNALTERED	XORIGINAL SITE
XGOOD	_RUINS	_ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The McPhaul (or Dome) Suspension Bridge was built across the Gila River in 1928 about 12 miles east of Yuma, Arizona. The main span is a 798-foot Warren-type pony truss bridge suspended by cables from above with both ends anchored by means of pin connected rocker arms. This span is supported by two steel cables 5 3/4 inches in diameter and 1,300.70 feet in length. These cables required 429 miles of wire in their construction.

The entire length of the bridge is 1,184 feet. It consists of the 798-foot main span, two approach spans, 57 feet and 114 feet long respectively, and approach roadways, 140 feet and 75 feet long respectively, at each end.

The two main towers are rocker type towers built of structural steel with cast steel rockers secured to their base. Each tower is 70'6" tall, and is mounted on reinforced concrete piers which are 21 feet high. Therefore, the tops of the towers are 91'6" above the roadway.

The bridge is 19 feet wide and the roadway is 16 feet wide. The clear width of the bridge, however, is only 14'8". The deck of the bridge is composed of laminated wood covered with asphalt, resting on wooden stringers which, in turn, rest on steel floor beams. Today, the bridge is in good serviceable condition, except that gravel is piled up at each end of the structure to prevent vehicular access.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER
__1800-1899	X COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	X TRANSPORTATION
X 1900-	__COMMUNICATIONS	X INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES 1928 BUILDER/ARCHITECT Levy Construction Co., Los Angeles, CA

STATEMENT OF SIGNIFICANCE

The McPhaul Suspension Bridge, or Dome Bridge, is significant for its early construction date, for its size and for the rarity of its type in Arizona. It was built during the first years of Arizona's highway construction program and carried U.S. 95, a major north-south route, across the Gila River. As a result, the bridge was an important link in Arizona's and the Southwestern United States' transportation network. When completed, the 798-foot main span of the McPhaul Bridge was the longest single span in the entire state. Also, it is the larger of the only two suspension bridges that were built in Arizona.

The Dome Bridge was built to eliminate a very dangerous ford across the Gila River. The State of Arizona designed the structure, then advertised for bids. The Levy Construction Company of Los Angeles won the award on January 3, 1928, with a low bid of $152,454. Construction began in mid-1928 and was finished by December of 1929. The Board of Supervisors inspected the bridge on December 4, 1929, and it was opened to traffic on December 20. Total cost to the State of Arizona was $167,699.40. The bridge served Arizona until 1968. At that time it was replaced and then abandoned. Under Arizona law, the bridge ownership reverted to Yuma County, the county in which the structure is located.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Arizona, Highway Commission, Director. "Yuma-Quartzsite Highway, U.S. Route 95 . . . April 26, 1968 Resolution 68-77." 1 lv. TS. "Antique Bridges File," Structures Section, Arizona Department of Transportation, Phoenix, Arizona.

(continued)

UTM NOT VERIFIED

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 2.7 acres ACREAGE NOT VERIFIED

QUADRANGLE NAME Laguna Dam QUADRANGLE SCALE 7.5'

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	1 1	7 4 1 ~~6 1 0~~ 525	3 6 2 7 ~~4 6 0~~ 600
B	1 1	7 4 1 ~~6 8 0~~ 605	3 6 2 7 ~~1 8 0~~ 395
C			
D			
E			
F			
G			
H			

VERBAL BOUNDARY DESCRIPTION

The boundaries of this nomination are along and 50 feet on either side of a line from points A and B. This will form a rectangle 1,184 feet long and 100 feet wide. The bridge lies within this rectangle.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
N/A			

11 FORM PREPARED BY

NAME / TITLE
Don Abbe, Research Assistant

ORGANIZATION
History of Engineering Program

DATE
May 22, 1980

STREET & NUMBER
P.O. Box 4089, Texas Tech University

TELEPHONE
(806) 742-3591

CITY OR TOWN
Lubbock

STATE
Texas

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL X STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE Ann D. Pritzlaff

TITLE Arizona State Historic Preservation Officer DATE 8 July 1981

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

Entered in the National Register

Delores Byers DATE 8/13/81

KEEPER OF THE NATIONAL REGISTER

ATTEST: DATE

CHIEF OF REGISTRATION

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

Arizona Highway Department. "Bridge Plans -- Dome Bridge." November, 1927. 3 lvs. Blueprint measured drawings. Structures Section, Arizona Department of Transportation, Phoenix, Arizona.

"Arizona State Register of Historic Sites Nomination Form." 11/15/71.

Rath, A.F. "Completion of the New Suspension Dome Bridge Marks Passing of Dangerous Crossing." Arizona Highways, No. 12 (December, 1929). pp. 8-9.

Toney, Martin to Peter J. Urban. Letter, April 1, 1977.

Yuma Morning Sun (Yuma, Arizona), January 6, 1928.

Yuma Morning Sun (Yuma, Arizona), December 4, 1929.

Yuma Morning Sun (Yuma, Arizona), December 21, 1929.

HABS/HAER INVENTORY

See "HABS/HAER Inventory Guidelines" before filling out this card.

1. NAME(S) OF STRUCTURE

Dome Bridge (McPhaul Bridge, Gila River Bridge)

2. LOCATION

Abandoned highway route over the Gila River
.02 miles north of Dome; SE1/4 S1 T8S R21W
Yuma County, Arizona 027

3. DATE(S) OF CONSTRUCTION

1928-29

4. USE (ORIGINAL/CURRENT)

highway bridge / abandoned

5. RATING

individually listed, NRHP: national signif.

6. CONDITION

fair / good

7. DESCRIPTION

span number : 1
span length : 798.0'
total length: 1184.0'
roadway wdt.: 14.7'

superstructure: steel suspension w/ rocker type towers and riveted Warren pony trusses
substructure : concrete abutments and spill-through piers
floor/decking : asphalt over timber deck w/ steel stringers
other features: main suspension cable: 3 parallel strands of 290 #8 Roebling bridge wire (5-3/4" diameter; 1300.7' long each; 427 mi. total wire lengths; 157,000 pound total wire weight); rocker type braced towers (70.5' tall) w/ cast steel cable cradles; steel pipe guardrails; stiffening trusses upper chord: 2 channels w/ cover plate and webbing; lower chord; 2 channels w/ batten plates; diagonal and vertical: wide flange

8. HISTORICAL DATA

When the Arizona State Engineer first looked for a crossing 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 highway had already been rerouted through Telegraph Canyon, eliminating the crossing altogether, when the Highway Department decided to replace the 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 multi-span Antelope Hill Bridge by free-spanning the river completely with a long suspension bridge. In January 1928, AHD awarded a contract to 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 with the assistance of consulting engineer Ralph Modjeski. Construction began in mid-1928 and was completed in December 1929. The bridge carried traffic on U.S. 95 until its replacement and abandonment in 1968.

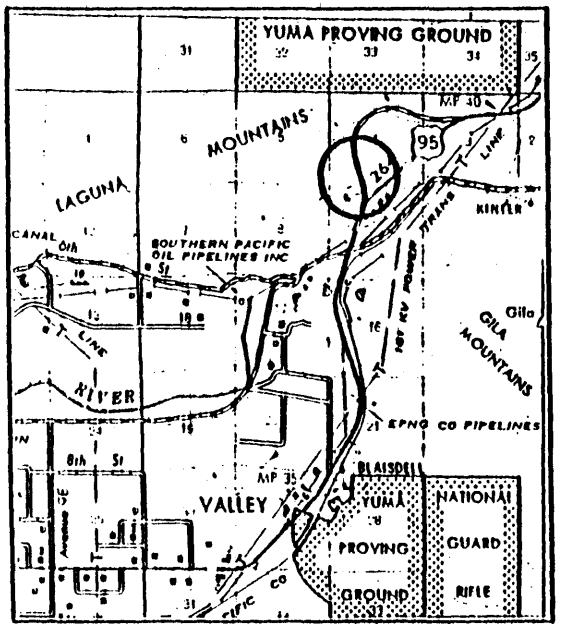
9. SIGNIFICANCE

The Dome Bridge is significant for several reasons. First, it formed an intergral link on a regionally important north-south highway in western Arizona. Second, it was one of two bridges in the state (the 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 Dome Bridge is technologically important as one of two vehicular suspension spans in Arizona (the other: Cameron Bridge). Because of their exotic nature and expensive erection costs, suspension bridges were infrequently erected in this country. At the time of its completion, the bridge had the longest span length of any bridge in the state, and its has the longest span among all the bridges in the inventory. Strikingly beautiful and graceful as well as historically and technologically significant, the Dome Bridge was individually listed on NRHP in 1981.

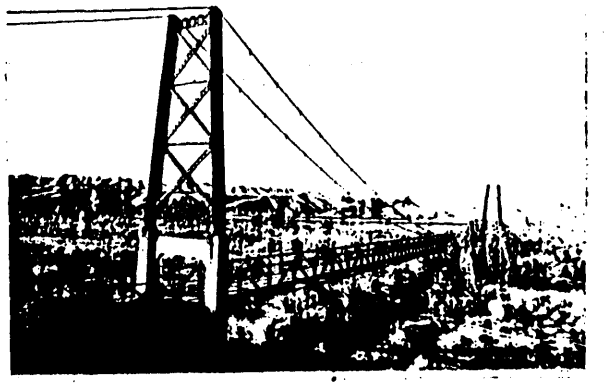
10. NAME(S) OF STRUCTURE

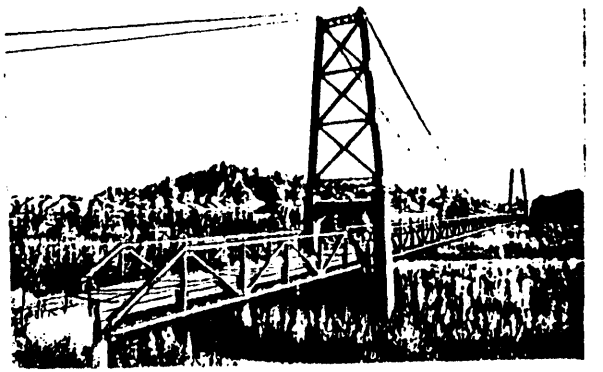
Dome Bridge (McPhaul Bridge)

11. PHOTOS (W/ FILM ROLL & FRAME NO.) AND SKETCH MAP OF LOCATION



LOCATION MAP
TAKEN FROM DEPARTMENT OF TRANSPORTATION
GENERAL HIGHWAY MAP





12. SOURCES

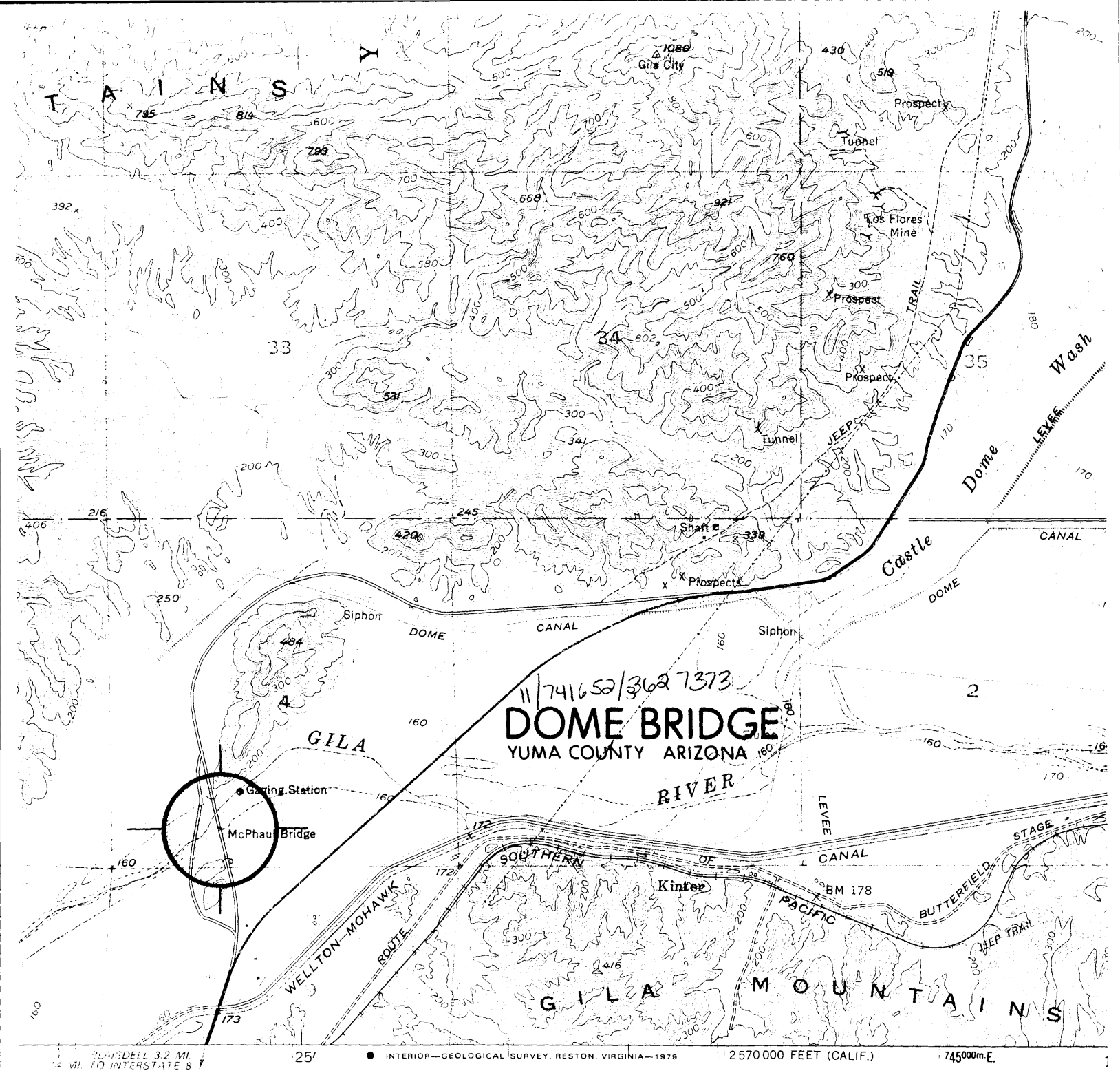
A.F. Rath, "Completion of the New Suspension Bridge Marks the Passage of Dangerous Crossing," Arizona Highways: 12:1929:8-9.

Original construction drawings, Structures Section, Arizona Department of Transportation, Phoenix AZ.

Yuma Morning Sun: 6 January 1928; 4 December 1929; 21 December 1929.

Field inspection by Clayton Fraser, 10 December 1986.

13. INVENTORIED BY:	AFFILIATION	DATE
Clayton B. Fraser	Fraserdesign Loveland Colorado	1 April 1987



1 MILE

0 6000 7000 FEET

1 KILOMETER

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Medium-duty ——— Unimproved dirt - - -

U. S. Route State Route

IURS
1929

ARIZONA

QUADRANGLE LOCATION

STANDARDS
, OR RESTON, VIRGINIA 22092
'AILABLE ON REQUEST

Provisions shown in purple and scrolland compiled from aerial photographs taken 1975 and other source data. Not field checked. Map edited 1979

LAGUNA DAM, ARIZ.—CA

SW/4 LAGUNA 15' QUADRANGLE

N3245—W11422.5/7.5

1955

PHOTOREVISED 1979

DMA 3149 IV SW—SERIES V898