

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM
FOR FEDERAL PROPERTIES

(Type all entries - complete applicable sections)

STATE:
California

COUNTY:
Mariposa

FOR NPS USE ONLY

ENTRY DATE
MAY 2 1975

1. NAME

COMMON:
Big Gap Flume

AND/OR HISTORIC:

2. LOCATION *off CA 120 in Stanislaus National Forest*

STREET AND NUMBER: *Traveling East on State Hwy. 120, just past Buck Meadows, turn North onto Forest Service Rd. #1Nn0.2, approximately 1/2 mile running**

CITY OR TOWN: N/A *Grounds of road* CONGRESSIONAL DISTRICT: 15

STATE: California CODE: 06 COUNTY: Mariposa CODE: 043

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input checked="" type="checkbox"/> Site <input type="checkbox"/> Building <input type="checkbox"/> Structure <input checked="" type="checkbox"/> Object	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Both	Public Acquisition: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input type="checkbox"/> Occupied <input checked="" type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input checked="" type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input type="checkbox"/> Transportation <input checked="" type="checkbox"/> Other (Specify) None
		<input type="checkbox"/> Comments _____ _____	

4. AGENCY

USDA, Forest Service, Stanislaus National Forest (Sonora Office)
175 So. Fairview Lane, Sonora, CA 95370

REGIONAL HEADQUARTERS: (If applicable)
Regional Office

CITY OR TOWN: San Francisco

STREET AND NUMBER: 630 Sansome Street

STATE: California CODE: 06

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.:
Mariposa County Court House

STREET AND NUMBER:
Bullion Street (P.O. Box 274)

CITY OR TOWN: Mariposa

STATE: California CODE: 08

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: USDA - Forest Service, National Register of Historic Places Inventory Site Form, 05-16-54-23

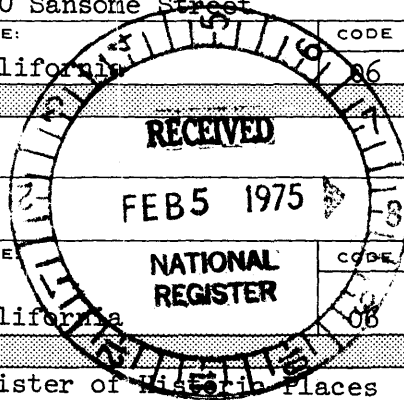
DATE OF SURVEY: 1973 Federal State County Local

DEPOSITORY FOR SURVEY RECORDS:
USDA, Forest Service, Regional Office

STREET AND NUMBER:
630 Sansome Street

CITY OR TOWN: San Francisco

STATE: California CODE: 06



SEE INSTRUCTIONS

STATE:

COUNTY:

ENTRY NUMBER

FOR NPS USE ONLY

DATE

*Refer to Continuation Sheet

7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input type="checkbox"/> Unaltered		<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

Designed for gravity flow, a high structure was a necessary part of the engineering project involved in the building of the Golden Rock Water Ditch. The wooden flume that crossed Conrad Gulch was 2,200 feet across¹. There were eleven towers, the highest being 265 feet. The bases of the towers were 50 feet square, tapering together towards the top; the end of one post rested on another. The flume box was 250 feet high from the deepest point in the canyon and is remembered to have been the same size as the ditch, 6 feet wide and 4 feet deep (B.T. Rocca, 7-26-74). It was built of sugar pine, and was supported by cross beams spaced at approx. 3 foot intervals. The cross beams were attached to the 2 main suspension cables that reached from the top of the towers by guy wires. The main cables were about 3 inches in diameter; the secondary cables were smaller, about .125 inches. The weight of the flume when running at full force, (about 1,500 inches) taking into consideration the weight of the lumber, iron work, and water logging, must have been close to 25 tons per each 200 foot section.

After the flume collapsed on October 5, 1867, a pipe was constructed. An inverted siphon supported by trestle work much shorter than the previous, was employed to carry the water across the gulch. The pipe was 2,262 feet long and weighed over 28 tons. The pipe was 22 inches in diameter, and sustained 215 feet dead pressure. At an estimated thickness of 1/4 inch, allowing 75% efficiency, the pipe would have to have been riveted double or triple to stand the tensile strain of approximately 11,000 pounds per square inch (B. Bader, 7-1974).

Presently, there are only a few remains of the old wooden flume. The mounds where the anchors or "deadmen" were buried for the cable which stabilized the flume from lateral sway are still visible. There are trench like impressions which can be found on each side of Conrad Gulch in a line where the footings for the original trestle work was. The pipe remains yet, lacking its trestle work; it crosses the gulch with its own strength. The rivets, seams and plugs all constructed laboriously by hand can still be seen.

¹Unless otherwise indicated, all figures and information was taken from "The Quarterly" and the "Chispa" (refer to bibliography).

SEE INSTRUCTIONS

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- Pre-Columbian 16th Century 18th Century 20th Century
 15th Century 17th Century 19th Century

SPECIFIC DATE(S) (If Applicable and Known) 1859-1942

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|--|---|---|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input checked="" type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Philosophy | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Historic | <input checked="" type="checkbox"/> Industry | <input type="checkbox"/> Science | _____ |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Sculpture | _____ |
| <input checked="" type="checkbox"/> Architecture | <input type="checkbox"/> Landscape Architecture | <input checked="" type="checkbox"/> Social/Humanitarian | _____ |
| <input type="checkbox"/> Art | <input type="checkbox"/> Literature | <input type="checkbox"/> Theater | _____ |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Military | <input type="checkbox"/> Transportation | _____ |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Music | | |
| <input type="checkbox"/> Conservation | | | |

STATEMENT OF SIGNIFICANCE

As techniques of extracting gold became more complex, the demand for greater amounts of water increased. The Golden Rock Water Company employed mostly Chinese laborers to ditch water from the Middle and South Forks of the Tuolumne River to a dam near Hardin's Mill (presently Hardin Flat). The only way to allow the water to cross Conrad Gulch in a gravity flow system was to suspend a wooden flume by trestle works. In 1859 with G. W. Holt's design, Conrad and he, both experienced contractors, built the suspended flume for \$80,000 in stock, scrip and cash with relatively primitive tools. The first water ran through the 36 mile ditch March 29, 1860 and continued for 9 years. The water ran by gravity flow at the rate of about 8 feet per mile in the ditch, supplying water for miners in Garrote, Big Oak Flat, Moccasin Creek and nearby areas.

In 1868 the flume fell to the ground with a tremendous crash, leaving only splinters. Andrew Rocca, the new owner, immediately set out to replace the vital part of the water ditch. The iron sheets for the pipe were brought from San Francisco up the San Juaquin River to Stockton and by horse teams to Mariposa County. The pipe reached its destination, was put together on the ground and had water running through it in two months, on July 30, 1869. All together it is believed to only have cost \$12,000. The low cost (even then) and the short amount of time it took to construct the pipe may be attributed to the cooperative labor effort of approximately 2000 miners from Mariposa and Tuolumne Counties, who forgot their ongoing county rival grievences long enough to construct the badly needed crossing; each of the counties' livelihood depended on the water running through the ditch.

The Golden Rock Water Company did well until Rocca sold out in 1875. After this, the ditch was owned by several large mining companies. In 1905 the ditch was acquired by Big Creek Gold Mining Company which later became the Tuolumne River Power Company. They planned to use the ditch for mining, timber, and predominantly electrical power, which was important for a short time up to 1915. From 1917 to 1923 the ditch was owned by the City and County of San Francisco. They used it primarily as a supply for their railroad and buildings along with fire protection for the town of Groveland. Slowly the ditch lost importance, especially after the O'Shaunessey Dam (Hetch Hetchy) was built. Finally in 1942, Tuolumne County bought the ditch for \$750.00 of accumulated delinquent taxes.

The engineering was quite an undertaking in the construction of the flume *

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Bader, Bob. Supervisory Civil Engineer, Stanislaus National Forest 7-1974.
 De Ferrari, Carlo M. "The Big Gap Flume" Chispa, 2, No. 3(1972), pps 373-377.
 Rocca, Bernard. Son of Andrew Rocca, correspondence 7-26-74.
 Rocca Goss, Helen. "Tuolumne County's Golden Rock Water Ditch." The Quarterly, 3, No. 3(1964), pps 76-82.
 Rocca Goss, Helen. Daughter of Andrew Rocca, correspondence 7-16-74.

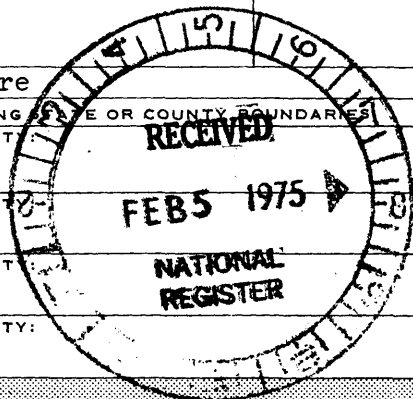
10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES, DEFINING A RECTANGLE LOCATING THE PROPERTY			O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE		LATITUDE	LONGITUDE	
	Degrees Minutes Seconds	Degrees Minutes Seconds	Degrees Minutes Seconds	Degrees Minutes Seconds		
NW	° ' "	° ' "	120° 03' 35"	37° 49' 20"		
NE	° ' "	° ' "				
SE	° ' "	° ' "				
SW	° ' "	° ' "				

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 1/4 acre

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

STATE:	CODE	COUNTY:	CODE
N/A			
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE



10/75082
4189940
00

SEE INSTRUCTIONS

11. FORM PREPARED BY

NAME AND TITLE: Earlene Von Epps Daniels, Forestry Aid (Historian) DATE: December 5, 1974

BUSINESS ADDRESS: USDA - Forest Service
Stanislaus National Forest, Sonora Office

STREET AND NUMBER: 175 South Fairview Lane PHONE: 209-532-3671

CITY OR TOWN: Sonora STATE: California CODE: 06

12. CERTIFICATION OF NOMINATION

<p>State Liaison Officer recommendation?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None</p> <p><i>[Signature]</i> State Liaison Officer Signature JAN 2 1975</p> <p>In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Liaison Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The recommended level of significance is <input type="checkbox"/> National <input type="checkbox"/> State <input checked="" type="checkbox"/> Local</p> <p><i>[Signature]</i> <u>2/4/75</u> Acting Federal Representative Signature Date Director of Recreation Title</p>	<p>NATIONAL REGISTER VERIFICATION</p> <p>I hereby certify that this property is included in the National Register.</p> <p><i>[Signature]</i> Director, Office of Archeology and Historic Preservation</p> <p>Date <u>5/12/75</u></p> <p>ATTEST:</p> <p><i>[Signature]</i> Keeper of The National Register Date <u>5/19/75</u></p>
--	---

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE California	
COUNTY Mariposa	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
	MAY 12 1975

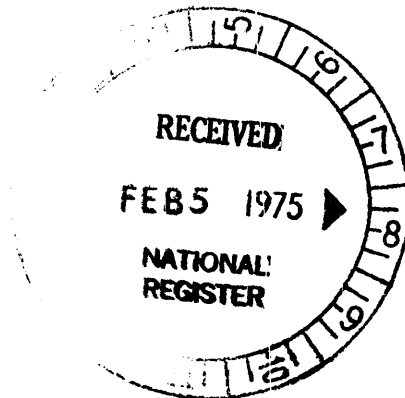
(Number all entries)

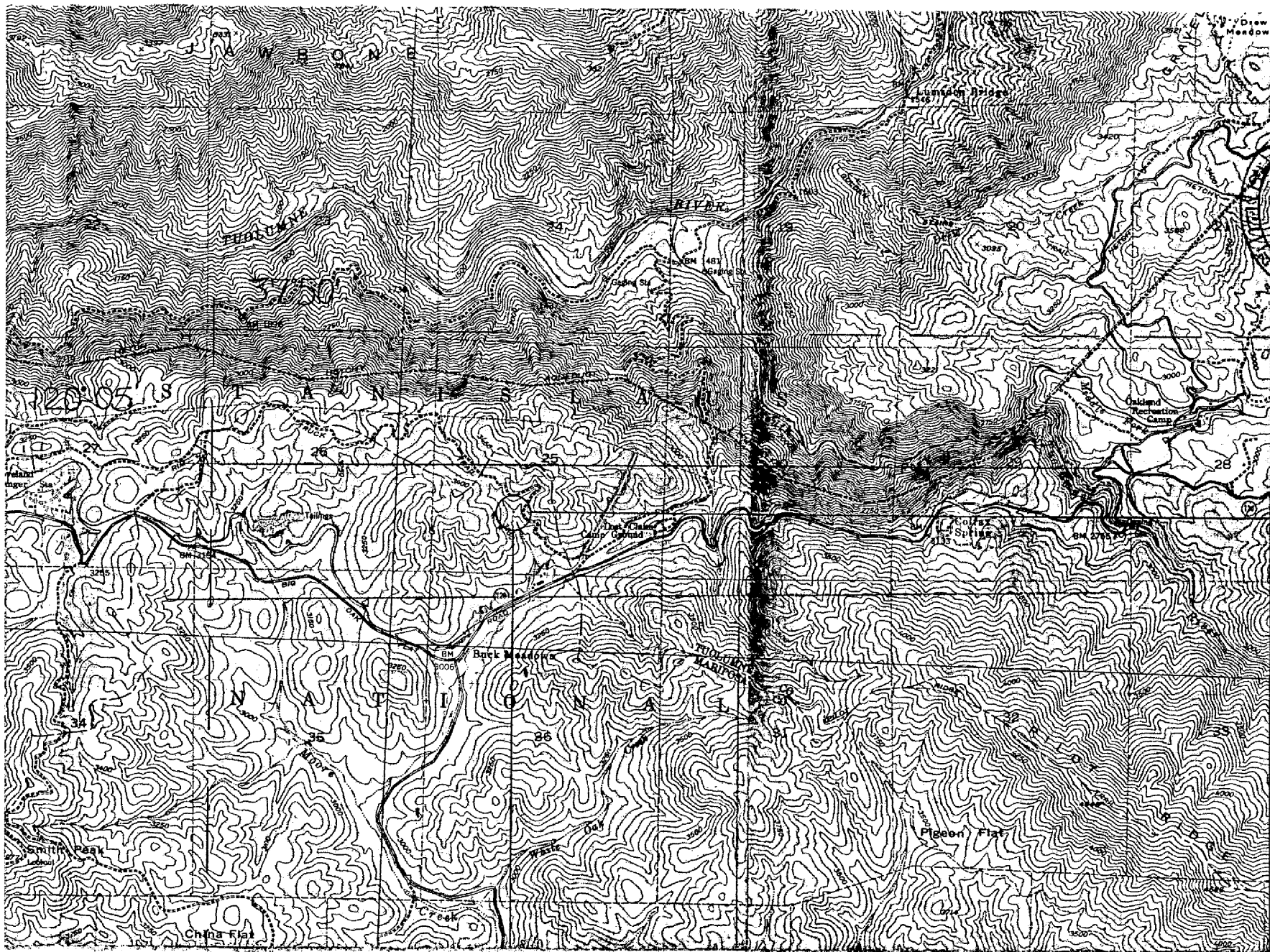
2. LOCATION

NE and SW is the site; TWN. 1S, R. 17E, NE, NW, SE, SW of Sec. 25.
on the Stanislaus National Forest.

8. SIGNIFICANCE

and the pipe. The wooden flume was an extraordinary and an almost unbelievable feat, taking into consideration: The equipment they had to construct the huge towers, the height of the flume, and the strength the flume box needed to support itself 200 feet between towers. As is common for this era, Chinese laborers built over 40 miles of the ditch with picks and shovels. The ditch allowed the mining industry to flourish in Mariposa and Tuolumne Counties, and with it their populations.





RECEIVED
FEB 5 1975
NATIONAL
REGISTER

37°49'20"

U1M
10.75820. 1189940

LAKE ELEANOR
1:62,500
4'23"