United States Department of the Interior Heritage Conservation and Recreation Service

National Register of Historic Placestional **Inventory**—Nomination Form

See instructions in How to Complete National Register Forms Type all entries--complete applicable sections

1. Name

historic Marlette Lake Water System

and/or common Virginia City Gold Hill Water Company Water System

code

32

Location 2.

street & number

not for publication

code 031

025, 029,

congressional district Virginia City-at-large

Carson City, Storey,

city,	, tow	n

state Nevada

Classification 3.

Category	Ownership	Status	Present Use	
X_district	public	X_ occupied	agriculture	museum
building(s)	private	unoccupied	commercial	park
structure	X both	work in progress	educational	_X private residence
site	Public Acquisition	Accessible	entertainment	religious
object	in process	yes: restricted	<u>X</u> government	scientific
•	being considered	yes: unrestricted	_X industrial	transportation
	-	no	military	other:

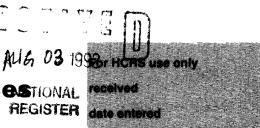
county Washoe

4. Owner of Property

name	State of	Nevada.	Department	of	Administration
	Juuce 01	nevuuu	Deput unent		Administration

street & number Capitol Complex

city, t	own	Carson City	vicinity of	state Nevada
5.	Loc	cation of Lega	al Description	
5. Location of Legal Description courthouse, registry of deeds, etc. street & number city, town Virginia City state Nevada 6. Representation in Existing Surveys National Historic Civil title Engineering Landmark has this property been determined elegible? yes X no date 1975 x private federal state county				
street	& numb	er		
city, t	own	Virginia City		state Nevada
6.	Re	presentation	in Existing Surveys	S
title			has this property been dete	ermined elegible?yes _X_no
date	1975		x privatefederal	state county local
depos	sitory for	survey records American	Society of Civil Engineers, 34	45 East 47th Street
city, t	own _{Ne}	ew York		state New York



1162

7. Description

Condition		Check one	Check one	
excellent	deteriorated	unaltered	X original s	ite
X good	ruins	_X altered	moved	date
fair	unexposed			

Describe the present and original (if known) physical appearance

The Marlette Lake Water System, although altered several times since its origin in 1873, retains its original configuration. It carries a large volume of water from the Sierra Nevada down 2,700 feet in elevation to the Washoe Valley then across the valley and back up 1400 feet in elevation to Virginia City. To bring water down, then back up, a unique system of flumes and pipelines was created. From a diversion dam in Hobart Creek a covered wooden box flume 18 inches deep and 20 inches wide carried water 29,403 feet (4.62 miles) to a tank (The Tanks) at the inlet to the pressure pipe which consisted of double-rivetted sections 26 feet 2 inches long. The entire pipeline, 11.5 inches in diameter and 7 miles 140 feet long, created an inverted siphon which conveyed the water from the pipe inlet at 7,140 feet elevation down to a low point of 5,143 feet then back up to the outlet at 6,669 feet. At the outlet from the pressure pipe a covered wooden box flume 16 inches deep and 18 inches wide carried the rushing water 21,370 feet (4.04 miles) to a saddle-shaped ridge on a hill where Five Mile Reservoir was later added. From this point another covered wooden box flume carried the water 29,970 feet (5.66 miles) to two large wooden holding tanks above Gold Hill and Virginia City. This was an incredible engineering feat especially because the pipeline, with the lowest point 1,997 feet below the intake and outlet 471 feet below the intake, had to withstand a pressure of 819 pounds per square inch. This made the Marlette Lake Water System one of the highest pressure water lines in the world at the time.

Although this water system was successful, its 2 million gallons per day delivery was inadequate for the industrial needs of Virginia City. It was thus decided in 1875 to build a second system parallel to the first.

This second water system, which greatly expanded the overall capacity consisted of a new box flume from Hobart Creek to the new pipe inlet at The Tanks, a distance of 25,005 feet (4.72 miles). This flume closely paralleled the first flume from Hobart Creek. From the new inlet at The Tanks the second pipeline, 10 in. in diameter, ran along the route of the first pipe for 7 miles 2,040 feet (7.32 miles). The new pipeline was lap-welded with screw joints. From the outlet of the new pipe a second box flume carried the water 21,050 feet (3.98 miles) to the newly built Five Mile Reservoir. From this 15 acre-feet reservoir a box flume carried water 38,670 feet (7.31 miles) to Gold Hill and Virginia City. Also, a 2,500,000 gallon reservoir was placed on the dividing ridge between Gold Hill and Virginia City. By the fall of 1875 the second system was working, but not finished.

To guarantee a drought-safe water supply the water company decided to tap the water of Marlette Lake on the Lake Tahoe side of the divide. A small dam on Marlette Lake was purchased from the Carson and Tahoe Lumber and Fluming Company. After being enlarged into a dry rubble masonry and earth fill dam 213 feet long and 37 feet high it created a reservoir of 6,154 acre-feet. From Marlette Lake a 14-inch by 30-inch covered wooden box flume carried water 4.38 miles to the water company's newly excavated Incline Tunnel. This timbered tunnel, 3,994 feet long, pierced the ridge which separates the Lake Tahoe drainage (Marlette Lake) from the Hobart Creek drainage. The Tunnel was completed in May, 1877.

From the eastern portal of the Incline, or Divide, Tunnel, a box flume 14,610 feet long (2.77 miles) carried water to Hobart Creek, from whence it could enter both the first and the second systems. Although the new system doubled the daily delivery of water to 4,000,000 gallons, demand slowly outgrew supply. By 1887, a third system was needed.

Continued

8. Significance

Period	Areas of Significance—C	heck and justify below		
prehistoric	archeology-prehistoric	community planning	landscape architecture	e religion
1400–1499	archeology-historic	conservation	law	science
1500–1599	agriculture	economics	literature	sculpture
1600–1699	architecture	education	military	social/
1700–1799	art	<u>X_</u> engineering	music	humanitarian
<u> X 1800–1899</u>	commerce	exploration/settlement	t philosophy	theater
<u> </u>	communications	industry	politics/government	transportation
$(1, \dots, n_{n-1}) \in \mathcal{O}_{n}$		invention		other (specify)

Specific dates 1872, 1873, 1875, 1887Builder/Architect Hermann Schussler, Engineer

Statement of Significance (in one paragraph)

The Marlette Lake Water System is one of the most important engineering feats accomplished in the American West during the 19th Century. When its unique inverted siphon began operation in 1873, its working head of over 1,700 feet was more than twice that of any other pipeline. The size and cost of the system plus the ingenuity and engineering skill of the builders make it a major engineering triumph.

From its birth, Virginia City put an inordinate demand on its water supply. Thousands of residents and dozens of mines and mills consumed large quanitities of water. Between 1859 and 1862, two companies the Virginia Water Company and the Gold Hill Water Company engaged in the collection and distribution of water. In May of 1862 the two companies merged to become the Virginia and Gold Hill Water Company. These companies bought or leased streams of water coming from several mining tunnels, transfered it via flumes and ditches into cisterns, then distributed it to Virginia City and Gold Hill in wooden mains placed on or near the surface of the ground. By the early 1870's, the system was rapidly being outgrown.

The possibility of tapping the immense water reserves of the Sierra Nevada 30 miles to the west had been discussed on the Comstock as early as 1864. Ideas began to move toward reality in 1869 when the combination of Mackay, Flood, Fair, and O'Brien bought the Virginia and Gold Hill Water Co. from William Sharon. Following the Crown Point-Belcher bonanza of 1870, the new owners of the water company needed more water than the old water system could provide - and they decided to go to the Sierra Nevada for it.

In October, 1871, Mr. Hermann Schussler, a consulting engineer from San Francisco, submitted a favorable report to the company for a water system from the Sierra Nevada to Virginia City. By May, 1872, Schussler had drawn up the specifications and ordered the pipe for a seven-mile-long inverted siphon. The pipe alone weighed 700 tons and required 952,000 rivets. Pipe laying began on June 11, 1873, and was completed by July 25th. Part of the pipe was buried, while some remained exposed. By the time the piplines was laid, the 14.32 miles of wooden flumes had been completed and on August 2, 1873, the system was in operation. The cost was approximately \$750,000.

As the demands of the Comstock grew, so did the Marlette Lake Water System. A second pipeline and flume system was built parallel to the first one in 1875, and Marlette Lake was tapped via flume and tunnel by mid-1877. A third pipeline and flume system was added in 1887, bring the value of the system at this time to \$2.2 million.

From 1872 to 1887 a system which could match the huge demand for water on the Comstock was built. By 1887 the system could produce 10,000,000 gallons of water per day. From 1887 to 1941 the system received normal maintenance and that was about all. The major alterations to the system have occurred since 1941, with most of these occuring since the mid-1950's. Since purchase of the system by the state in 1963, it has undergone many changes, but the basic plan established in 1872 is still being used, as are parts of the original pipelines of 1873, 1875, and 1887. A testimonial to the greatness Continued

9. Major Bibliographical References

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Baker, M.N. <u>Manual of American Water Works</u>, <u>Marlette-Hobart Management Plan</u>. Nevada Department of Conservation and Natural Resources, Nevada Division of Forestry, 1978.

continued

10. Geographica	I Data		
Acreage of nominated property Quadrangle name <u>Marlette Lake</u> , JMT References Virginia City,	New Empire,	_ Carson City and Qua	ndrangle scale <u>1:24,000 (7.5</u> Minute)
Zone Easting Northin	19 7 16 10	B 111 241891 Zone Easting	010 413 319 71810 Northing
	11 11 14 10 14 8 12 10	□ [1,1] [2 4,18 3] F [1,1] [2 4,19 1] H 1,1] [2 5,0 2]	
/erbal boundary description and			continued
See continuation sheet.			
ist all states and counties for pr	operties overlap	pping state or county bound	laries
tate _{Nevada}	code 032	county Storey County	code 029
tate Nevada	code 032	county Lyon County	code 019
rganization History of Enginee Texas Tech Unive reet & number P.O. Box 4089		date 9-11-79 telephone (80	06) 742-3591
treet & number P.O. Box 4089		telephone (80	06) 742-3591
ty or town Lubbock		state Texas	
2. State Histori	c Prese	rvation Office	r Certification
he evaluated significance of this prop	/	te is:	
national s the designated State Historic Prese 55), I hereby nominate this property for coording to the criteria and procedure tate Historic Preservation Officer sign	or inclusion in the is set forth by the	National Register and certify th	nat it has been evaluated
State Helene Preca		ar	late 7/27/92
For HCRS use only	<i>valions</i> 011	<u> </u>	late 1121192
I hereby certify that this property	is included in the		
Keeper of the National Register		d	ate 9/16/92
Attest:			late

FHR-8-300A (11/78) UNITED STATES DEPARTMENT OF THE INTERIOR HERITAGE CONSERVATION AND RECREATION SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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CONTINUATION SHEET Description ITEM NUMBER 7 PAGE 1

The third water system built from the Sierra Nevada to Virginia City closely paralleled the first and second systems. It even replaced parts of the old system. A new box flume was built from Hobart Creek to the inlet of the new pipe at The Tanks. Also, the 1875 flume from Incline Tunnel to Hobart was replaced by a much larger flume, and a new flume was extended 43,523 feet (8.25 miles) north from the west portal of Incline Tunnel to tap streams in the Third Creek region. The new (third) pipeline was in essentially the same location as the first two. It consisted of 37,685 feet (7.15 miles) of lap-welded pipe 11.5 inches in diameter. From the outlet of this pipe a new third flume was built to Five Mile Reservoir. Also in 1887, the original diversion dam on Hobart Creek was enlarged to 350 feet long and 20 feet high to create a small reservoir of 100 acre-feet capacity. Thus, by 1887, the Marlette Lake Water System contained 21.47 miles of pipelines, 45.73 miles of flumes, a 3,994-foot tunnel, and three reservoirs with a total capacity of 6,269 acre-feet.

Between 1887 and 1940, the Marlette Lake Water System remained intact and received only routine maintenance. Between 1941 and 1979, various owners of the system replaced all flumes with pipes of various sizes. The first (1873) and third (1887) pipelines were dismantled with much of the pipe being used to replace the flumes. No flumes are now used in this system although scattered remnants of the flumes and dam were razed in 1959 while portions of the Incline Tunnel caved in during the 1960's. In June, 1963, the State of Nevada purchased the entire system, except for the pipeline from Five Mile Reservoir to Virginia City, which is now owned by Virginia City. **United States Department of the Interior** National Park Service

National Register of Historic Places Continuation Sheet

Section number ____7 Page ___2

Photo List

Photographer: Mark Kimbrough Date: January 1992 Location of Negatives: Lake Tahoe Nevada State Park P.O. Box 8867 Incline Village, Nevada 89452

- 1. Marlette Lake Looking east
- 2. Marlette Lake Looking west
- 3. Marlette Lake Looking north
- 4. Flume Line Looking east
- 5. Tunnel West Portal Looking east
- 6. Red House Looking east
- 7. Hobart Dam and Reservoir Looking east
- 8. Lakeview House Looking west
- 9. Lakeview House Looking northwest
- 10. 5 Mile Reservoir Looking west
- 11. 5 Mile Reservoir Looking east

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NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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CONTINUATION SHEET Significance	ITEM NUMBER o	PAGE 2	
SIGNITICANCE	0		

of the idea is that the system still provides all of Virginia City's water and it also supplies a minimum of 3,000,000 gallons a day to Carson City. Although construction materials have changed, the basic plan and structure of the system is still functioning over a century after the initial system was completed.

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CONTINUATION SHEET Bibliography ITEM NUMBER 9 PAGE 3

- Galloway, John Debo. "Early Engineering Works Contributory to the Comstock." University of Nevada Bulletin, Vol. LXI, No. 5. <u>Geology and Mining Series</u> No. 45. Reno, Nevada: Nevada State Bureau of Mines, 1947.
- Marlette Lake Water System: A Report on the Feasibility and Desirability of <u>It Retention</u>. Legislative Commission of the Nevada Legislative Counsel Bureau. Bulletin No. 79, February, 1969.
- Project Engineering Report for the State of Nevada Department of Administration In Connection with the Marlette Lake Water System. November, 1974.
- Shamberger, Hugh A. <u>Water Supply for the Comstock, Geological Survey Professional</u> <u>Paper 779</u>. Washington: Government Printing Office, 1972.
- Whetstone, George A. "Water for Thirsty Cities." <u>Ex Libris</u> Vol. 8, No. 2, October, 1976.

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Q.	11 251770	4344320	R. 11	252840 4344660
S.	11 253360	4343480	T. 11	254200 4342750
U.	11 254870	4342670	V. 11	255190 4342420
Ψ.	11 255740	4342730	X. 11	256145 4343220
Υ.	11 256900	4343410	Z. 11	258970 4344320
AA.	11 261620	4345310	BB. 11	262420 4345960
CC.	11 262860	4346490	DD. 11	262830 4346780
EE.	11 263420	4347050	FF. 11	263880 4347180
GG.	11 264000	4347320	HH. 11	264420 4347600
II.	11 264560	4347860	JJ. 11	264640 4347860
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MM.	11 265120 4	4348830	NN. 11	264965 4348730
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AAA.	11	268940	4352	2020			BBB.	11	269920	4351930		
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Geographical Data: CONTINUATION SHEET Verbal Boundary ITEM NUMBER 10 PAGE 6

The nominated boundary of the Marlette Lake Water System shall consist of the various segments of the system described below. Although the entire system is being nominated, it is being described one portion at a time to avoid confusion.

- 1. <u>Marlette Lake Dam</u> the area between and 50 feet either side of a line from Points A and B on the Marlette Lake Quadrangle Map.
- 2. Flume which runs northward from Marlette Dam to Tunnel Creek Station the boundary of this portion of the system shall extend 50 feet on either side of the flume which runs northward from the Marlette Lake Dam (Point B) to Tunnel Creek Station (Point F) via Points B,C,D, and E.
- 3. <u>Tunnel Creek Station</u> the Tunnel Creek Station, Point G, shall be included in the nominated boundaries of the system. The area 100 feet from the external walls of the Tunnel Creek Station structures shall be included in the nomination.
- Marlette Lake Water System Tunnel (Incline Tunnel, Divide Tunnel) this 3,994 foot tunnel, between Points F and H, and the area 50 feet on either side of the tunnel shall be included within the boundaries of the nomination.
- 5. Flume which runs south, then east, from Incline Tunnel to Red House the nominated boundary for this portion of the system shall extend 50 feet on either side of the flume which runs from the east end of the tunnel (Point H) through Points I,J, and K to the Hobart Creek Diversion Dam, commonly called the Red House Diversion Dam (Point L).
- 6. <u>Red House and Red House Diversion Dam (Hobart Creek Diversion Dam)</u> these structures, Points L and M, shall be included within the nominated boundary. The area within 100 feet of the external walls of the house and the dam shall be included in the nominated boundary.
- 7. <u>Hobart Creek Reservoir Dam</u> the nominated boundary of this structure shall be the area within a 200 foot radius of Point N, which is located in the center of the crest of the dam.
- 8. Upper and Lower Flumes from Red House to The Tanks the nominated boundary for this portion of the system shall extend 500 feet on either side of a line from Red House Diversion Dam (Point L) to The Tanks (Point V). The route of the boundary will roughly follow the present pipe-line system or aquaduct as it is labeled on the USGS Quadrangle Map. The route will go via Points 0,P,Q,R,S,T, and U to The Tanks (Point V). This rather wide boundary following the modern aquaduct will include nearly all portions of the original Upper and Lower Flumes.

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Geographical Data: CONTINUATION SHEET Verbal Boundary ConモNUMBER 10 PAGE 7

- 9. <u>The Tanks</u> the nominated boundary for this portion of the system shall be all the area within a 400 foot radius of the western end of the Siphon pipes, which is marked as Point V. This will put all the structures at The Tanks within the nominated boundaries of the system.
- 10. The Siphon the nominated boundaries for this portion of the system included the area from and 200 feet on either side of a line from the west end of the siphon (Point V) to the east end of the siphon pipeline (Point HH). The route of the pipeline and the boundary line shall run northerly and easterly via Points W,X,Y,Z,AA,BB,CC,DD,EE,FF,GG, and HH. This rather wide boundary will insure the inclusion of all remnants of all three pipelines which were part of the Marlette Lake Siphon.
- 11. <u>Lakeview House</u> this structure, already on the National Register of Historic Places, is within 200 feet of the siphon pipeline, at Point Y, and will thus fall within the nominated boundaries of this system.
- 12. Flume which runs eastward from the east end of the sipon to Five-Mile Reservoir - the nominated boundary for this portion of the system shall include a line from, and 150 feet on either side of the line from, Point HH (east end of sipon) to Point UU (Five-Mile Reservoir). The route of the boundary shall run northerly and easterly via Points II,JJ,KK,LL,MM,NN,00,PP, QQ,RR,SS,TT, and UU. Point UU is where the flume enters Five-Mile Reservoir.
- 13. <u>Five-Mile Reservoir and Caretaker's House</u> the nominated boundary of this portion of the system shall extend outward 300 feet from the banks of the reservoir, Point UU, encompassing all the associated structures built around the reservoir, including the caretaker's house.
- 14. Flume which runs from Five-Mile Reservoir to the water tanks above Virgina <u>City</u> - the nominated boundary for this portion of the system shall extend from Point VV, at Five-Mile Reservoir, to Point HHH, at the water tanks above Virginia City. The boundary shall run along and 100 ft. on either side of a line from Point VV to Point HHH via Points WW,XX,YY,ZZ,AAA,BBB,CCC, DDD,EEE,FFF,GGG, and HHH. The flume roughly follows the route of the Ophir Grade from Five-Mile Reservoir to Bullion Ravine, where the grade ends. Then the flume turns north, following the contour of the hills above Virginia City to a set of wooden and concrete water tanks. This entire section of the system, from Five-Mile Reservoir to Virginia City lies within the Virginia City Historic District, a National Register of Historic Places district.

United States Department of the Interior National Park Service

National Register of Historic Places Continuation Sheet

Section number _____ Page ____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 92001162 Date Listed: 9/16/92

<u>Marlette Lake Water System</u> Property Name

StoreyNVCountyState

<u>N/A</u> Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

autourette	-Ale	le		
<u>lutourelt</u> fr Signature	of	the	Keeper	

12/2/92 Date of Action

Amended Items in Nomination:

Geographical Data: The acreage of nominated property is 135.4 acres.

This information is confirmed with Michelle McFadden of the Nevada State historic preservation office.

DISTRIBUTION: National Register property file Nominating Authority (without nomination attachment)

United States Department of the Interior National Park Service

National Register of Historic Places Continuation Sheet

Section number _____ Page _____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 92001162 Date Listed: 9/16/92

<u>Marlette Lake Water System</u> Property Name

<u>Storey</u><u>NV</u> CountyState

<u>N/A</u> Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

wSignature of the Keeper

<u>9/16/92</u> Date of Action

Amended Items in Nomination:

Classification: The number of contributing resources is 2 buildings and 12 structures. There are no non-contributing resources.

This information was confirmed with Michelle McFadden of the Nevada State historic preservation office.

DISTRIBUTION: National Register property file Nominating Authority (without nomination attachment)