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ORO RICO MINE  
MARIPOSA COUNTY  
CALIFORNIA

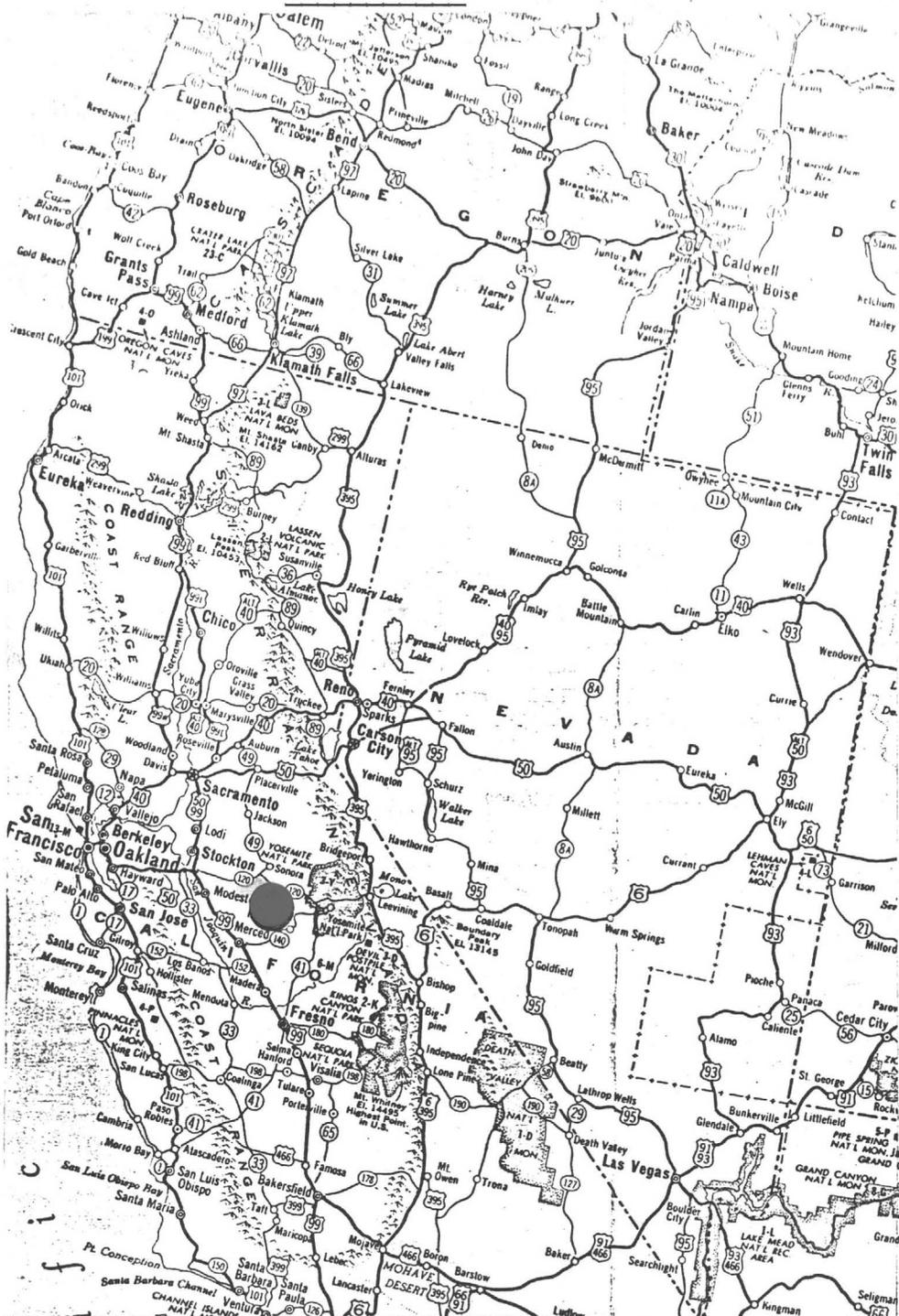
PRESENTED BY  
F. H. BUCHELLA, JR.  
&  
RAMON P. SHANNON

MAY 1980

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# INDEX MAP



One inch equals approximately 112 miles.

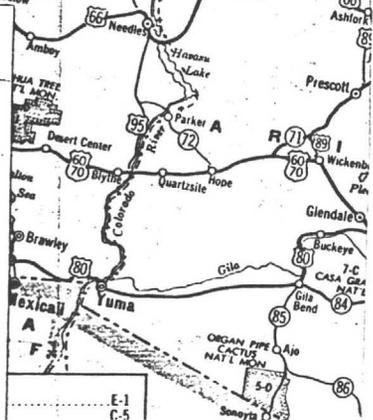
Principal Through Highways		U.S. Numbered Highways Abbreviations in shields indicate. ALT. = Alternate; BYP. = Bypass TEMP. = Temporary
Other Principal Highways		State and Provincial Highways
National Parks, Monuments, Cemeteries, Recreational Areas and Historic Sites (with index numbers)		Mexican Federal Highways
		State Capitals

ROAD SURFACING NOT INDICATED

POPULATION OF CITIES AND TOWNS

○ 0-5,000	● 10,000-50,000	● 250,000 and over
○ 5,000-10,000	● 50,000-100,000	

Time Zone Boundaries



## SECTION 1

### INTRODUCTION

#### 1.1 LOCATION

The Oro Rico Mine is on Highway 49, three miles north of Coulterville, California, in the northern part of Mariposa County. The mine is in the foothill area of the Sierra Nevada Range on the south end of the "Mother Lode", at an elevation between 2000 and 2585 feet above sea level.

#### 1.2 DESCRIPTION

The property is owned by Herbert R. Lawson, Jr. of Walnut Creek, California, and consists of two patented mining claims, and two patented millsite claims, totaling 88.5 acres and covering a 6,540-foot strike length of the "Mother Lode". The title to the property is clear and unencumbered, as evidenced from a check of the public records on file in the Mariposa County Courthouse at Mariposa, California.

#### 1.3 HISTORY

The "Mother Lode" is the most extensive mineralized zone in California, and extends from the southern part of Mariposa County to the northern part of Ed Dorado County, a distance of 90 miles. Within these 90 miles are some of the most celebrated gold mines of California, among them being the Princeton, the Pine Tree, the Josephine, the Mary Harrison, the Crown Lead, the Melvina and the Oro Rico in Mariposa County. The McAlpine, the Shawmut, the Jumper, the App, the Harvard and the Rawhide in Tuolumne Co. The Utica, the Malones, the Stickles, the Madison, and the Angels in Calaveras Co. The Zeile, the Argonaut, the Kennedy, the Eureka, the Grover, the Keystone and the Plymouth in Amador County. The Church, the Union and the Gentle Annie in El Dorado County. There are a number of other mines on the "Mother Lode" that have been a source of profit, and it can be shown by investigation that this great mineral zone has been quite profitable wherever systematic and judicious efforts have been made to develop it. Many of the old mines had been closed down, due to metallurgical problems. Since the perfection of the oil flotation process, however, many of the above mentioned properties had resumed profitable operation prior to World War II.

## SECTION 2

### GEOLOGY AND ORE RESERVES

#### 2.1 REGIONAL GEOLOGY

The occurrence of the "Mother Lode" may be described as follows:

At the close of the Jurassic geological period, the elevation of the Sierra Nevada Mountains caused a great crushing of the rock masses for a length of 90 miles. Subsequent movements of the earth's crust along that crushed zone produced fissures of great magnitude, which have been filled by lateral secretions from the adjacent rocks. The vein matter is quartz, its valuable constituents being gold and silver associated with iron, copper, and sulphides. The entire vein matter and mineral contents have been produced by slow depositions from solutions. The principal characteristics of this class of veins are their size, their continuity for great distance and occurrence in given parallel systems. They go to great depth and to date no mine on the "Mother Lode" has been bottomed.

The general strike or course of this Lode is approximately northwest and southeast; its angle of inclination varies from 50 to 70 degrees to the northeast.

#### 2.2 GEOLOGY OF THE MINE AREA

The enclosing rocks on the "Mother Lode" at the Oro Rico Mine consist of serpentine on the west and schist on the east.

The parallel vein system can be readily traced on the surface for the entire length of this property, the outcrop of the veins at places assuming great proportions. The highest elevation is at Penon Blanco (White Point), which is 2585 feet above sea level.

#### 2.3 WORK TO DATE

Considering the size of the property, it must be regarded at the present time as having undergone a preliminary stage of development only, even though a considerable amount of superficial exploration work in the form of adits, pits and trenches has been excavated along the vein.

### 2.3 WORK TO DATE (CONT'D)

During the early period of mining activity, a number of pits and tunnels were driven into the mineralized zone. The only systematic development consists of the Stevens Tunnel, which is an adit-tunnel driven in from the east side of the mountain for a distance of 564 feet. This tunnel cuts the east vein 489 feet from the portal, at which point laterals (drifts) have been driven both ways on the vein. The development work underground represents 4700 feet of exploration. Approximately 2000 feet of drifting and crosscuts were completed to the north of the adit. This work encountered two ore shoots, of which only one was developed for a short distance. The remaining 2700 feet of development work is confined to a 400-foot ore shoot to the south of the adit in the east vein. In this area a winze was sunk on the hanging wall for 450 feet with stations cut at the 150-foot, 250-foot and 350-foot levels. Laterals have been run north and south to develop the ore blocks.

The area to the south of the adit is blocked by a cave-in but work is currently underway to reopen this area so that access can be obtained to the developed ore. The winze and workings below the adit level are full of water.

Several small adit workings have been developed along the east side of the ridge that cut the vein system. The Morris Tunnel 400 feet to the north and near the outcrop 250 feet above the Stevens Tunnel, was driven 51 feet along the vein. Several good ore areas were encountered. The Saddle Tunnel was driven 1000 feet south of the Morris Tunnel on the outcrop of the east vein. This adit encountered good mineralization.

### 2.4 ORE RESERVES

Using the Church Report that was prepared in 1935, the indicated blocked out and available reserves would equal 131,924 tons at a grade of .19 ounces of gold and 4.75 ounces of silver. From the present mine workings there is an additional possible reserve of 150,000 tons that could be developed south of the proven reserves and in the Morris Tunnel. Additionally, there is a potential ore tonnage below the bottom of the winze. This is based upon an ore sample taken at the shaft bottom and noting that most "Mother Lode" mines had ore from 3,000 to 5,000 feet in depth.

## SECTION 3

### DEVELOPMENT PLAN

#### 3.1 MINE

There are two ways to develop the mine. One is to widen the present main adit and reopen the existing workings. The second way would be to drive a new adit at a lower level on the mill site claim and drift north to the blocked out ore.

Reopening the present workings would be less costly than developing a new adit, but after mining was completed on the adit level, mining costs would substantially increase as all the ore would have to be hoisted from the winze. By driving a new adit at the elevation of the 150-foot level in the winze and approximately 1000 feet to the south of present adit, the potential ore to the south could be evaluated and developed along with the blocked out ore. The ore could be mined at a lower cost as it is less costly to drop the ore by gravity to the haulage level than to lift the ore by means of a hoist.

By placing the adit at the mill site, the ore can be fed directly into the mill.

Development work would be accomplished by use of light pusher-leg rock drills and Eimco 21-B air-operated mucking machines. Haulage will be done with 1.6-ton rocker dump cars pulled by a 4-ton battery-powered locomotive. Thirty-pound rail will be laid on 4" x 6" wood ties spaced on 24" centers. The ore car will dump directly into the jaw crusher. Ore above the adit level would be mined by shrink-stoping methods. The ore would be drilled and blasted into a draw point to the haulage level, where it would be loaded from the draw-chute into the mine cars for haulage to the crusher.

Two two-man crews will be used for ore extraction, and one two-man crew will be used for developing new ore.

#### 3.2 MILL

A representative bulk sample is currently being obtained from the mine. Laboratory tests will be run on this ore prior to developing a flowsheet and mill design.

### 3.2 MILL (CONT'D)

The initial mill was a 20-stamp mill similar to others on the "Mother Lode", but the ore previously would not respond to amalgamation and gravity concentration due to the values being finely divided in the ore.

Flotation tests were run on the ore in the early 1930's and produced a 96% recovery on both the gold and silver. These results were obtained by reducing the ore in a ball mill to 12.5% minus 100 plus 200 mesh and 87.5% minus 200 mesh.

A tentative plant layout would be a jaw crusher, roll crusher, ball mill, flotation cells, amalgamation and furnace. The plan would be to make ingot bars at the project site.

The mill capacity has tentatively been set at 100 tons per day for developing the preliminary economics. However, actual operating capacity will be determined following completion of laboratory testing. This is necessary due to a possibility of requiring larger crushers and mill because of the hardness of the rock. The total mill capacity might be increased to 150 or 200 tons per day at a very little additional cost.

### 3.3 AUXILIARY FACILITIES

The road from Coulterville to the mine is the "Mother Lode" Highway 49 for two and one-half miles; the remainder being one-half mile of unpaved, one-way road which passes through the Haigh Ranch. This road will have to be improved to a two-way all-weather road with surfacing to control dust.

A power line will have to be built from Coulterville to the project (3 miles) with a substation at the property.

The telephone line runs just west of the property. A line can be extended over the hill for a distance of only one-half mile.

Some water is available in Black Creek, but this supply is only available part of the year. Two wells will have to be drilled on the upper mill site near Tiger Gulch to produce enough water to run the mill. Some water is available from the mine.

No housing will be provided for employees, as housing is available within a thirty-mile radius of the property. Company offices will be provided in an office trailer located on the property.

## SECTION 4

### FINANCIAL SUMMARY

#### 4.1 MINING LEASE

An agreement has been consummated between Herbert R. Lawson, Jr. and Frank H. Buchella, Jr. for a ten-year mining lease on the Oro Rico Mine property. The terms of the agreement are for a \$10,000 per year advanced royalty payment each year until the mill goes into production. The first payment will be due on about August 15, 1980.

Commencing with the mill start-up a 5% production royalty will be paid to the lessee on the net smelter returns. This royalty will be paid as long as the property is in operation.

The terms of the lease include all the usual and normal legal clauses necessary to protect the lessee and lessor.

#### 4.2 CAPITAL COSTS

Mine Equipment	\$ 75,000
Mine Development	325,000
Mill Construction	650,000
Auxiliary Facilities	50,000
Working Capital	<u>173,000</u>
	\$1,273,000
10% Contingency	<u>127,000</u>
Total Capital Cost	\$1,400,000

Mine equipment includes a locomotive, 3 mine cars, an extra battery, drills, compressor, pump, pipe, rail, backhoe-dozer and two trucks.

Mine development includes driving an adit to the vein, drifting north on the vein to ore area and developing ore raises.

Mill construction includes design and construction of mill facilities and tailings.

Auxiliary facilities include the access road, power line and transformer, telephones, water system and office trailer.

Working capital as stated herein are the operating costs for two months of the mill operation.

Nine people will be employed during the development and construction phase.

#### 4.3 OPERATING COSTS

Mine Labor	\$ 195,000
Mill Labor	260,000
Supervision	117,000
Materials & Supplies	286,000
Administrative Expense	86,000
	<u>\$ 944,000</u>
10% Contingency	<u>94,000</u>
 Total Annual Operating Cost	 \$1,038,000

Mine labor includes six miners wages plus 30% for fringe benefits.

Mill labor includes eight operators wages plus 30% for fringe benefits.

Supervision includes a manager-superintendent, a geologist-engineer and an office person.

Materials and supplies include timber, explosives, drill steel and bits, ware parts, balls, reagents and repair items.

Administrative expenses include taxes, insurance and office expenses.

#### 4.4 EVALUATION

The property evaluation is based on a 90% mill recovery, \$500 per ounce gold, \$13 per ounce silver, and proven ore reserves.

Ore Reserves = 131,924 tons

131,924 tons x 90% x .19 oz/ton Au = 22,559 oz Au

131,924 tons x 90% x 4.75 oz/ton Ag = 563,975 oz Ag

22,559 x \$500 + 563,975 x \$13 = \$18,611,175 <sup>12,407,450</sup> <sup>9,023,600</sup>  
\$400                      \$6                      3,383,850

Gross Property Revenue	\$18,611,175	12,407,450
5% Royalty	930,559	670,373
Value after Royalty Payment	\$17,680,616	11,787,077
Capital	(1,400,000)	(1,400,000)
Operating Costs (5 yrs.)	<u>(5,190,000)</u>	<u>(5,190,000)</u>
Net Profit	\$11,090,616	5,197,077
Net Profit per year	\$ 2,218,123	1,039,415

#### 4.5 PRODUCTION STATISTICS

Project Life	5 Years*
Mine Production	140 Tons/Day
Work Schedule - Mine	5 Days/Week - 1 Shift/Day
Work Schedule - Mill	7 Days/Week - 3 Shifts/Day
Mill Production	100 Tons/Day
Investment Payout	7 Months
Total Manpower	17 People
Construction Period	1 Year

\* Based on proven reserves

## SECTION 5

### BUSINESS ARRANGEMENT

#### 5.1 PROPOSED AGREEMENT

A joint venture or a general partnership would be formed between the financial consortium and the operating consortium. The financial consortium would put up the money for the capital investment (\$1,400,000) and would retain all of the profits until they have recouped their investment plus twenty-five percent.

The financial consortium would pay the operating consortium \$12,000 per month to handle the operations of the property until their capital investment is recovered.

From the point in time when the capital investment is recovered, and as long as the property is in operation, the profits from the operation will be split 50% to the financial consortium and 50% to the operating consortium.