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Mrs. Fred B. Hofheinz,  
30 Borica Street,  
Ingleside Terraces,  
San Francisco, Calif.

To Edward Wisser, Dr.,

To professional services, examination of Stephens Ranch,  
Nevada Co., Calif.,

1 day field examination @ \$50.00.....	\$50.00
1-1/2 days office investigation @ \$25.00.....	37.50
Gas, oil for trip.....	4.02
Hotel, meals, myself and assistant.....	9.35
Assistant.....	15.00
	<u>\$115.87</u>

April 1st, 1941.

Mrs. Fred B. Hofheinz,  
30 Borica Street,  
Ingleside Terraces,  
San Francisco, Calif.

Dear Madam:

Pursuant to your request to investigate the possibilities of the Stephens Ranch, Nevada Co., Calif. as a mining property, I submit the enclosed memorandum, based on study of available maps and reports covering the south portion of the Grass Valley gold mining district, and upon a personal examination of the ranch made March 30th, 1941.

Yours very truly,

Edward Wisser

MEMORANDUM ON STEPHENS RANCH, NEVADA COUNTY, CALIFORNIA.

Introduction.- The following brief report is based on a study of available maps and publications of the southeast portion of the Grass Valley gold mining district, south of which the Stephens Ranch lies, and upon an examination of the ranch and adjoining area made by the writer on March 30th, 1941. The purpose of the investigation was to determine whether the property had any possibilities as mineral land.

Location, Extent of Holdings.- The Stephens Ranch lies about four miles south and a little east of the town of Grass Valley. It is quickly reached from there by ear, by means of a fair road that branches southeast from State Highway 49, not far south of the Bullion mine. The ranch contains 235 acres, and consists of the southeast 1/4 of Section 12 and the east 1/2 of the northeast 1/4 of Section 13, in Township 15 North, Range 8 East, Mount Diablo Base and Meridian, excepting 5 acres in the southeast 1/4 of Section 12 as shown on the accompanying map and as set forth in the detailed description of the property in possession of the owners.

Possible Value as Mineral Land.- The northern portion of the ranch supports a stand of pine timber, and is nearly everywhere covered by soil, so that exposures of bedrock, where any veins present might be seen, are extremely scarce. The south 80 acres, in Section 13, were not examined, but a rather careful examination of the rest of the property failed to show any signs of prospecting (trenches, cuts, shafts etc.) or any quartz float whatever. No placer ground (gold-bearing gravel) exists in the portion of the ranch examined; while small placer diggings are abundant along Rattlesnake Creek, that stream and its canyon lie entirely outside the Stephens Ranch.

In view of the deep soil cover over most of the Stephens Ranch, the absence of vein outcrops, quartz float, and workings was not considered conclusive proof that the property had no speculative value as mining ground. The ranch lies on the southward prolongation of the extensive series of north-south gold veins exposed on Osborne Hill, about a mile and more north of the ranch; this series is in turn the southward extension of the highly productive Empire mine veins. Further, the Bullion veins, worked by the Idaho-Maryland Co., head in the general direction of the Stephens Ranch. Some of these veins appear on the accompanying map. Even without quartz showings on the ranch, if strong veins could be found heading in that direction and disappearing under soil instead of petering out to the south, the ranch might still have some speculative value from a mining standpoint.

Accordingly, the ground between the ranch and the Osborne Hill veins to the north was carefully examined. The country between the northwest corner of the ranch and the Northern Belle mining claim (see map) shows good exposures of the greenstone bedrock of this area, and veins ought to show up here. None were seen. The Northern Belle vein is exposed in the wall of the aqueduct, north of Rattlesnake Creek in the Northern Belle claim. It is extremely weak here, and gives out completely just south of this point. Going north, on the other hand,

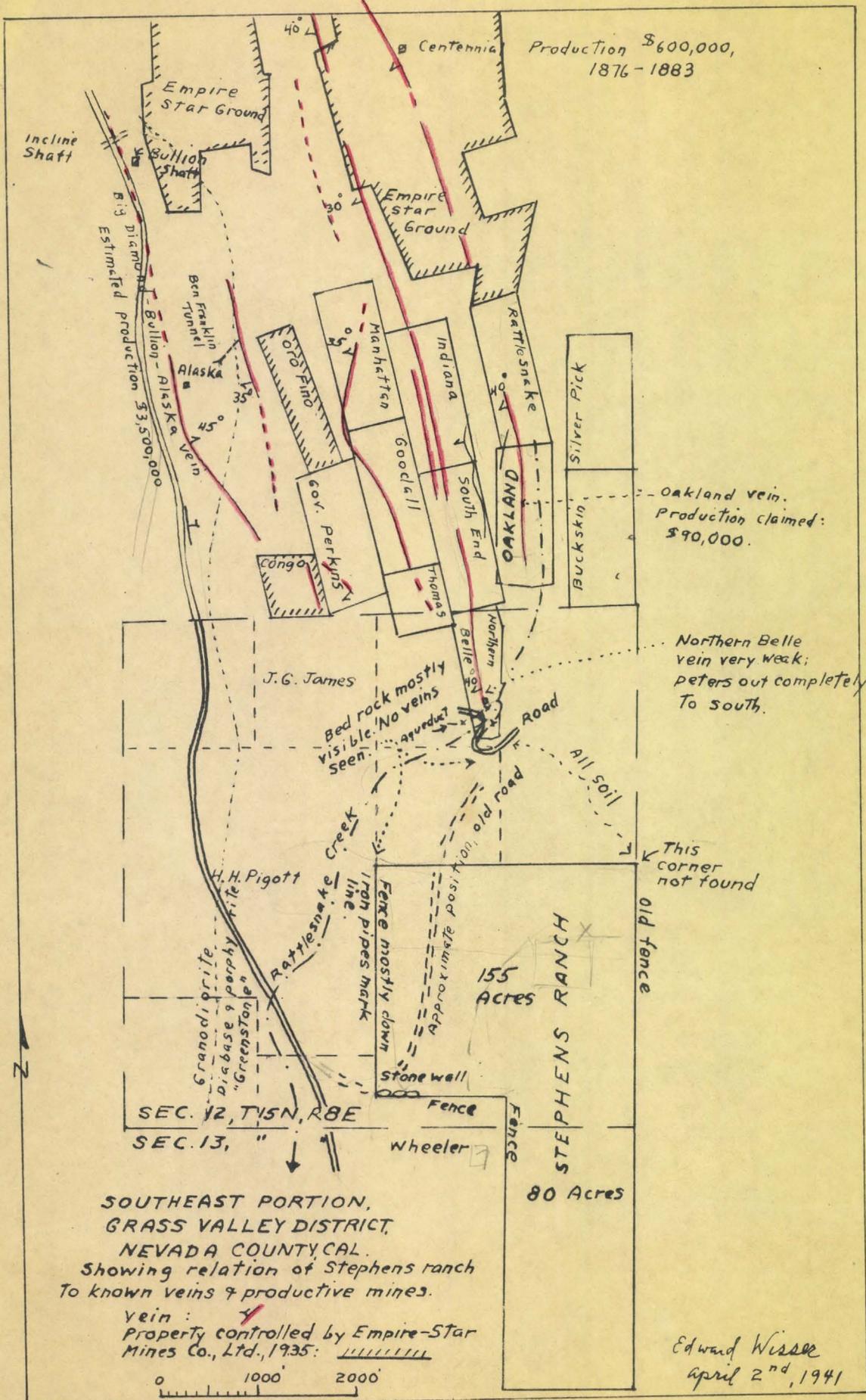
the vein gets gradually stronger, and mine workings increase in number. The Northern Belle vein, as shown on the map, is the continuation of one of the principal veins of Osborne Hill. There is no doubt that it gives out completely before reaching the Stephens Ranch.

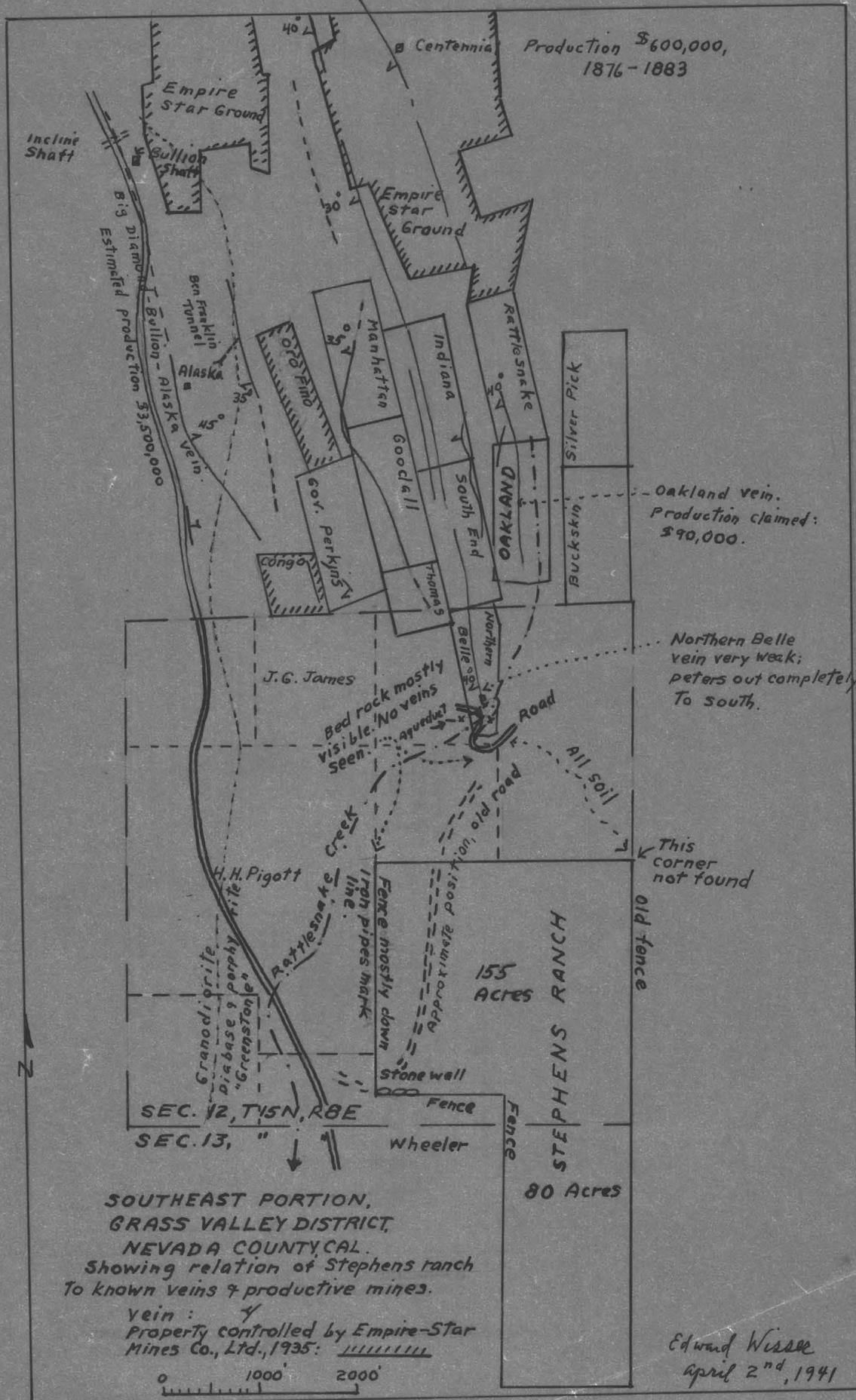
This work seems to eliminate the possibility of any important veins entering the western half of the Stephens Ranch. There remains to consider the eastern half. An attempt was made to visit the Oakland claim, in order to examine the south end of the Oakland vein, to see whether it peters out to the south, and if not, to try and trace it toward the ranch. This attempt was unsuccessful owing to thick brush and the lateness of the hour. However, a map by Edw.C. Uren, M.E., 1935, shows the Oakland vein giving out before reaching the south endline of the claim. This suggestion, with the fact that no mining claim was ever staked south of the Oakland claim, leads me to believe that the Oakland vein quits going south, at a point at least half a mile north of the north boundary of the Stephens Ranch.

All available evidence, then, suggests that the Osborne Hill veins give out to the south before reaching the Stephens Ranch. In support of mineral possibilities for the ranch, the claim might be advanced that the country rock found there, diabase and porphyrite, ("greenstone") is the same as that of the productive veins to the north. This fact has in reality little or no significance. Veins, not country rock, make a mine; since no veins or quartz float were found on the ranch, and strong evidence was found that the veins to the north give out before reaching the property, it is the writer's opinion that the Stephens Ranch is without value as a mining property.

San Francisco, Calif.  
April 1st, 1941.

Edward Wisser.  
Mining Geologist.





Mrs. F. B. Hopkins  
30 Bond St - R.A.  
Slr. 448

REPORT ON THE OSBORN HILL MINES

Edw. C. Uren, M. E.,  
1935.

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This property consists of eight claims: The Rattlesnake or Wolford, Oakland, South End, Thomas, Northern Bell, Manhattan, Goodall and Governor Perkins. All claims, with the exception of the Rattlesnake, are covered by U.S. Patent. They are situated in Sections 1 and 12 of Township 15 North, Range 8 East, Mount Diablo Base and Meridian, about three miles south of Grass Valley, California.

The claims comprise a total area of 145 acres lying on the southerly portion of Osborn Hill and are contiguous to the property of the Empire-Star, owned by Newmont Mining Company, on the north, and Newmont, Bullion and Ben Franklin on the west.

The property lies altogether in the same porphyrite and diabase area in which both the North Star and Empire mines are situated. These two properties have been worked continuously for the past 80 years and have a combined production of over \$110,000,000. The North Star is at present operating at a depth of 8800 feet on their vein system.

That the mines of Osborn Hill were in production at an early date is shown by the following extract from Beans History of Nevada County, 1867, on page 225:

--- OSBORN HILL ---

"Osborn Hill, which lies about two miles southeast of Grass Valley, may be described as an immense spur or mountain ridge running north and south, being parallel with Wolf Creek, and covering an area of about one mile square.

"Through it run a number of quartz veins, the principal one of which is the Osborn Hill, located in 1851. The lode has been traced further, perhaps, than any other in this District, preserving its characteristics for a distance of over two miles in length.

"The Osborn Hill Mine proper has turned out as much money in proportion to explorations made on it as any quartz mines -- paying almost fabulously for years when the quartz interest of this section was considered on the wane -- but we have been unable to obtain any reliable figures as to its gross yield.

"It was tolerably well opened in 1852, from which period up to 1857 it annually brought its owners large returns. But bad management ran the company into debt, there was a want of harmony among the managers, costly machinery had been erected, the mine became mortgaged, and in June 1864 it was sold to Joseph Woodworth.

"The new proprietors erected a splendid mill on the mine in 1865, which, together with other improvements, cost \$34,000. The ground has been extensively tunneled, shafts have been sunk on the lode, but the mine has not, even to this day, been well opened.

"The lowest perpendicular depth reached on the vein by an inclined shaft has been 400 feet, giving a vertical depth of about 200 feet, at which depth a drift was run 175 feet, showing a lode of an average width of two feet, and of a good quality of quartz.

"The Osborn Hill Company own two thousand feet, according to the locations of 1852, on the lode, which runs northerly and southerly, with an average inclination westerly of 40 degrees.

"North of the Osborn Hill mine is the Wheal Betsy, being on the Osborn Hill vein and consisting of 500 feet. The mine was purchased about six years since for \$9,000. Several thousand tons of ore have been extracted at a comparatively superficial depth, showing an average yield of \$40 per ton, some of the quartz reaching the high figure of \$90 per ton.

"On the summit of Osborn Hill are the claims of the Wide Awake Company, embracing 400 feet. Four hundred tons of ore from this mine have yielded \$26,000. On the mine there is an engine, also a pump, as well as an inclined shaft 275 feet in depth, running with the ledge at an angle of 45 degrees. The ore is of a bluish color and is rich in sulphurets and galena. The vein has varied in width from four inches to four feet, and at the bottom of the incline it is five feet in width."

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THE VEIN SYSTEM.

There are five known veins on the property, as the accompanying map indicates. For the purpose of this report I have just completed a survey of the visible outcrops and surface workings on the Manhattan, Indiana, Rattlesnake, Oakland, South End and Northern Bell.

Mr. Michael S. White, an old resident and mine owner of this section, assisted me on this survey and gave me much information on the early history of the old workings.

The MANHATTAN has been partially developed by two tunnels called the "Dugan" and "Captain Day" tunnels. The former never reached the vein, it is said, but the Day tunnel was driven along the vein for a short distance. The Daniel's shaft, north of the Day tunnel, is 50 feet vertically to the vein. Some quartz left on the dump indicates that the vein was about 12 inches in width. A quantity of ore from this shaft was hauled to custom mills, but the yield is unknown.

The vein can be traced intermittently into the Goodall claim where considerable work has been done upon it through the Goodall tunnel. Here again, the yield is not known.

On the INDIANA CLAIM the surface workings, which consist principally of small vertical shafts from 25 to 80 feet in depth, are quite extensive.

There can be no doubt but what the Indiana is a continuation southward of the Comet-Lafayette vein. It dips about 30 degrees westerly and is from 1 to 3 feet in width.

Speaking of this vein, Waldemar Lindgren, well known government geologist for many years, in his "Gold Quartz Veins of Nevada City and Grass Valley" says, on page 256:

"Extending diagonally across Osborn Hill, with a strike a little east of north, this strong vein can be traced for a distance of  $1\frac{1}{4}$  miles. Comparatively little work has been done on it. At its northern end the Conlan shaft was sunk 190 feet on the incline in 1892, disclosing a vein of 26 inches and some good ore. The vein dips 42 degrees West and is enclosed in porphyrite breccia. Between the Conlan and Lafayette tunnels the outcrops are not very distinct, but south of the latter mine they can be traced easily. In the Conlan there are said to be two ore shoots pitching southwest. The Lafayette tunnel strikes the vein 450 feet from the mouth and drifts are extended on the vein 80 feet north and 500 feet south. The vein dips 25 degrees West. The ore is ribboned quartz with pyrite and galena and contains \$20 to \$50 per ton.

"The Comet tunnel, further south, cuts the ledge 600 feet from the mouth and a considerable amount of ore has been stoped at various times.

"At the southern end there are two strong veins on the Indiana Claim. On the more westerly of these a perpendicular shaft has been sunk 80 feet deep.

"From 1852 to 1857 the Osborn Hill mine yielded large returns from the surface ore, the stopes extending 100 to 180 feet on the incline for 200 feet south of the shaft and 800 feet north. Between 1865 and 1870 the main shaft was sunk to 400 feet and much ore was extracted. The mine was idle from 1870 to 1894, when it was opened again, the shaft sunk to 600 feet on the incline, the drifts extended and a twenty-stamp mill erected.

"The character of the wall rock varies somewhat; it is in part a very fine grained uralite diabase, in part a fine grained hornblend porphyrite or a breccia of porphyrite and brownish argillite. The vein strikes northwest with many local curves and variations and the dip varies from 29 degrees in the upper levels to 44 degrees in depth.

"The main ore body was exposed on the fifth level north, which shows excellent ore 3 to 4 feet wide and said to average \$30 to \$40. The footwall is well defined, the hanging less so. The ore contains arsenopyrite, with some pyrite and a little zinc blende, galena and occasionally chalcopyrite, in all 1 3/4% sulphurets. The brown blende occasionally contains coarser gold. The gold is 767 fine; the sulphurets contain very little silver.

"South of the Osborn Hill mine is the Centennial, worked between 1876 and 1883, producing a reputed total of \$600,000. There are two shafts; the old one is several hundred feet deep and the extensive dumps indicate that a great amount of work has been done from it. The new shaft, 300 feet further south, is 650 feet deep on the incline. The vein dips west 30 degrees and is contained chiefly in porphyrite breccia, with many brownish fragments of sedimentary, flinty rocks. The quartz, which averages 1 foot in width, contains finely divided gold and a considerable amount of sulphurets, chiefly arsenopyrite, with much pyrite and a little galena. The pay shoot is said to be 250 feet long, rapidly trending south on the plane of the vein."

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Surface workings on the Indiana indicate a pay shoot commencing at a point 450 feet south of the north end line and extending southerly for 300 feet.

As some of the vertical hanging wall shafts are 80 feet in depth it is apparent that the pay shoot has been worked to an approximate depth of 150 feet. The yield from this small portion of the shoot is said to have been in excess of \$10,000.

The Joyce incline, sunk on a hanging wall branch of the Indiana vein, developed a shoot about 140 feet in length, but there is no record of the yield either from this or from the Johnson or Stevens shafts which are sunk on this same vein near the south end line.

Extending southeast for 250 feet from a point on the east side line of the Indiana, the Odges and the Eudy tunnels are said to have produced well over \$3,000 in gold from their shallow depth on a foot-wall vein passing through the south end line of the Indiana about 50 feet from the southeast corner.

On this same vein the Indiana Tunnel was driven from a point 320 feet south of the Indiana south end line and on the South End Claim. Mr. White states that this shoot, which was about 300 feet in length, yielded about \$5,000.

On the RATTLESNAKE or WOLFORD claim, extending from the south end line northward on the vein for 250 feet, five or more vertical shafts from 40 to 80 feet in depth have yielded several thousand dollars in gold, and on this same vein, in the OAKLAND CLAIM, from a point 300 feet south of the north end line has been worked along a shoot of ore of excellent value to a depth of 150 feet, and for 200 feet in length.

The Huff shaft, 100 feet south of the north end line of the Thomas Claim, is 125 feet deep on the pitch of the vein and is connected with the upper Thomas tunnel. Here, a shoot of ore 100 feet in length is said to have yielded several thousand dollars in rich ore.

The Huff shaft is undoubtedly on the main Indiana vein and the dump indicates that the wall rocks are porphyrite.

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Our survey and map indicates that there are at least four well defined veins on the holdings with two well developed pay shoots apparently about 700 feet in extent; one we might call the Odges, on account of the Odges tunnel being upon it, and the other the Oakland.

It is evident that the proper location for a working shaft to develop the property to the best advantage is upon the Odges, or Central vein.

The workings of the Osborn Hill, the Centennial and Conlan mines show that the veins on this portion of Osborn Hill have a rake of about 45 degrees to the left, or southwest, on the plane of the vein. That a shaft sunk on this vein would have the advantage of being upon a shoot of pay ore as soon as it had passed the Indiana tunnel in depth.

This shaft would encounter the Oakland shoot in depth, in approximately the same relative position with a cross cut driven easterly about 500 feet, and it is apparent that even the most northerly pay shoot on the Indiana should be intercepted at an approximate depth of 1000 feet, provided it maintains the rake of other known shoots.

A hanging wall cross cut of from 200 to 300 feet should encounter the main Indiana vein and its indicated hanging wall splice. We have previously spoken of the similarity of the geology of the area embraced within this property and that of the North Star and Empire, but not all of the veins of those famous properties reach an apex at the surface, for many of them dome over in their upper reaches and do not reach the surface at all.

In the extensive workings underground in the Grass Valley District it has been found that the deeper pay ore and mineralization is outlined, as it were, by the shallow rich workings at different points on the surface.

I believe the Osborn Hill Mining Company have a group of claims so favorably situated and of such proven mineral value that with intensive development they are assured of success. In my opinion there is just as favorable an opportunity to develop a productive mine in this area as anywhere in the Grass Valley District for the reason that the near-surface pay shoots with the masses of porphyry forming the wall rock of these veins are strong indications of the permanency and value of these veins in depth.

Nor am I alone in this belief, for I have discussed the area with Charles A. Brockington, veteran mine operator who formerly had charge of the W. Y. O. D. and the Sultana mines on Osborn Hill, and also with B. A. Eastman, who has examined the Oakland underground workings when they were accessible, and they are both enthusiastic as to the outcome of development in these claims.

It would of course be desirable for the company to secure both the Indiana and the McCabe properties -- more particularly, the Indiana, on account of its pay shoots shown in surface workings. It should be understood however that, with the prevailing rake of the shoots of ore, the Indiana shoots will be encountered within the end lines of the South End Claim in depth.

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C O N C L U S I O N .

In the development of this property it would be advisable to sink an incline shaft on the east, or Odges vein of the Indiana, about 250 or 300 feet south of the north end line of the South End Claim.

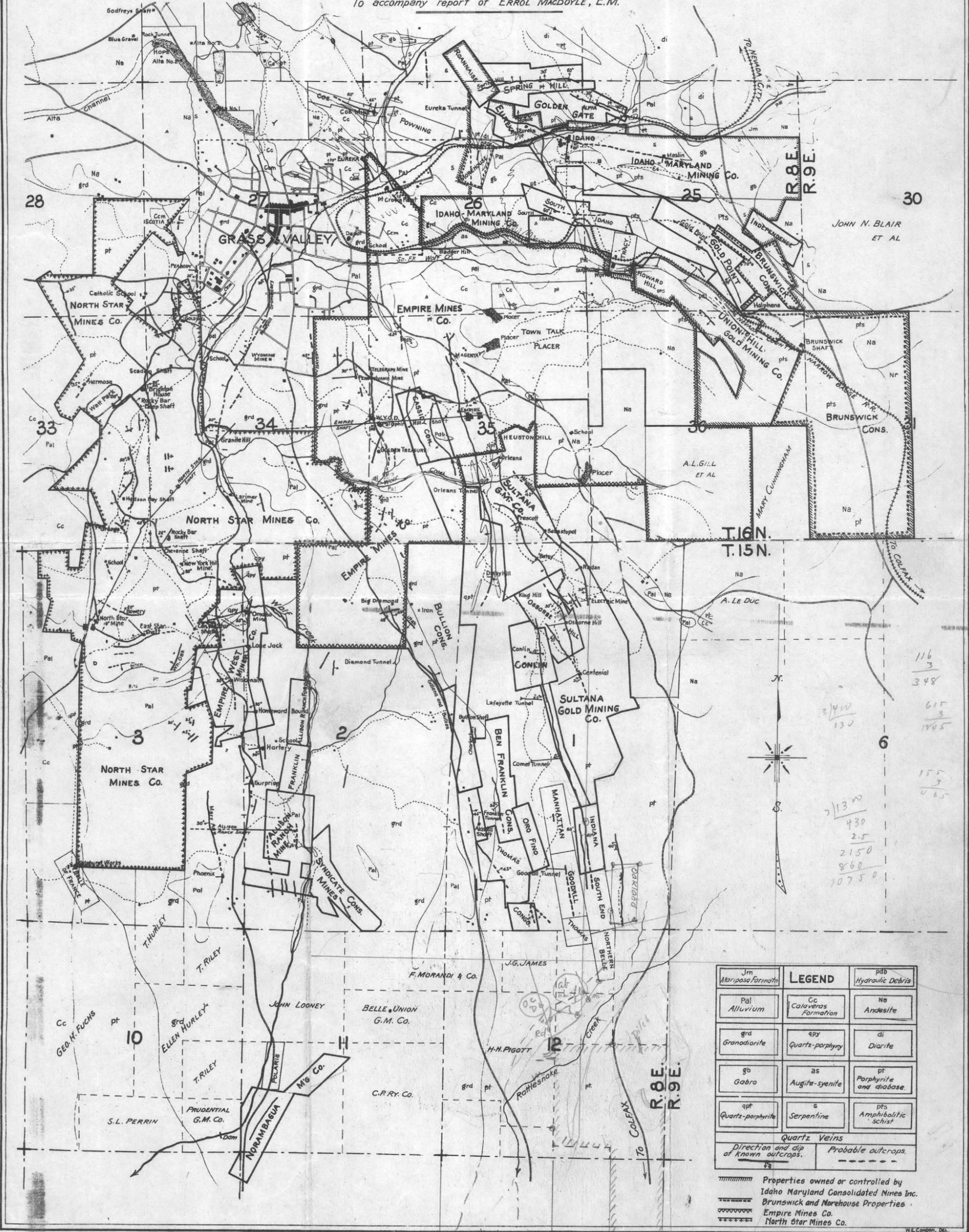
Such a shaft should be a three compartment and carried to a depth of at least 500 feet before cross cutting to the foot and hanging wall veins.

This shaft can be sunk by contract -- the Company furnishing power, supplies and equipment -- for \$20 per foot. The completed shaft, however, with rails, timbering, pump and air lines, with overhead, will cost from \$45 to \$50 per running foot. Nine hundred feet of cross cutting will cost \$9,000; complete equipment about \$25,000. So that, with a capital of \$60,000 judiciously managed, the property can be placed on a paying basis with a strong probability of having at least two strong pay shoots and a possible third.

Respectfully submitted,  
(Signed) EDW.C.UREN,  
Mining Engineer.  
Nevada City, Cal., (Seal: Registered Civil Engineer, No. 4167,  
August 10th, 1935. Edw.C. Uren, Nevada City, California.)  
7.

# A MAP SHOWING THE MINING PROPERTIES AND ECONOMIC GEOLOGY OF THE GRASS VALLEY MINING DISTRICT, NEVADA COUNTY CALIFORNIA.

Scale  
To accompany report of ERROL MacBoyle, E.M.



LEGEND		pad
Jm	Mariposa Formation	Hydraulic Debris
Pal	Alluvium	Na
Cc	Calaveras Formation	Andesite
grd	Granodiorite	qpy
gb	Gabro	Quartz-porphry
as	Augite-syenite	di
pt	Porphyrite and diabase	pts
pts	Amphibolitic schist	S
S	Serpentine	Quartz Veins
Direction and dip of known outcrops.		Probable outcrops.

Properties owned or controlled by Idaho Maryland Consolidated Mines Inc.  
 Brunswick and Warehouse Properties  
 Empire Mines Co.  
 North Star Mines Co.

See C.A. Logan  
Dep't. Nat'l Resources  
State Bldg.  
NW cor.

F.H. Cushman  
Highway Dep't.  
Forside of capital  
SE cor.

116  
 3  
 348  
 615  
 3  
 1945  
 155  
 3  
 465  
 3130  
 430  
 2.5  
 2150  
 860  
 10750