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EDWARD WISSER
MINING GEOLOGIST

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BRYAN, WISSER AND PAYNE
CONSULTING ENGINEERS
432 REGINA BUILDING
MANILA, P. I.

June 28th, 1939.

Messrs. Peter Michelson,
Francis Upton,
San Francisco, Calif.

Gentlemen:

In accordance with your request I submit herewith my report on the Stockton Hill mine, Nevada Co., California. I spent the afternoon of Monday, June 12th, on the property, looking over the surface workings and the mine maps andreports. Tuesday and Wednesday were spent in the mine. I mapped the 415 level by Brunton compass and pacing, the 265 and 165 by Brunton compass and tape. No attempt was made to survey the shaft, so that the relative locations of these levels may be somewhat in error, and the vertical distances between them also. The geology was mapped in a hurried manner on Tuesday and part of Wednesday, and 5 check samples were cut on Wednesday. Thursday morning was devoted to office work and on Thursday afternoon I returned to San Francisco with Mr. Michelson.

I found the vein fracture not very strong and the mineralization to have the form of narrow quartz stringers with sulphides and in a number of places free gold. Inspection of the sampling done by the company showed correctly cut channels, and conversation with the assayer developed confidence. My check samples conformed to nearby company samples fairly well. The result was that I decided to accept tentatively the company sampling.

Accepting this sampling led to an estimate of probable and possible ore in the mine, and presumed ore on the dump, having a total net value (assay value minus cost of mining and milling) of about $237,000. I came to the conclusion that provided this amount could be proved up above the present lowest level (415) an investment of $50,000 for a 20% interest in the property, and for the purpose of providing a mill etc. to place the mine in production would be a legitimate venture. Since I do not recommend this expenditure if the net contained value mentioned is not so proved up, I advise the investment of an initial $10,000 to try to prove it up, with investment of the balance of $40,000 to follow should the work recommended give satisfactory results.

Yours very truly,

Edward Wisser

Edward Wisser
Mining Geologist.

REPORT ON THE STOCKTON HILL MINE,
NEVADA COUNTY, CALIF.

INTRODUCTION.

The writer spent three days at the Stockton Hill mine, from June 12th to June 15th, 1939. This time permitted little in the way of sampling, but served to give a fairly clear picture of geological conditions. The mine has been thoroughly sampled by the present company; the writer's five check samples agreed well enough with the company sampling to justify tentative acceptance of the company sampling. This sampling forms therefore the basis for the ore calculations in this report; it should be plainly understood, however, that while in the opinion of the writer the sampling at the Stockton Hill mine has been correctly done, he takes no responsibility for it. Thorough check sampling on the part of a prospective investor should precede investment of money in the property.

LOCATION. HOLDINGS.

The Stockton Hill mine is reached from Auburn, California, via the Auburn-Grass Valley highway (State Highway No.49). A private road turns west from the highway at a point about 16 miles north of Auburn and opposite a road house known as the "Dew Drop Inn". The mine lies approximately one mile west of the highway.

The accompanying Property Map shows the position and extent of the holdings. The map was copied from one on file in the company office; no attempt was made to verify boundaries or titles. The major holdings appear to consist of about 880 acres of patented ground other than mining claims; mining may be conducted within such claims inside the downward vertical projection of the boundaries.

The explored vein outcrops, however, within the Stockton lode mining claim, said to be patented, so that extralateral rights are enjoyed in exploiting this vein at depth.

A ditch of the Nevada County Irrigation District passes close to the shaft, and ample water for milling is said to be available at very moderate cost. Pacific Gas and Electric Power is at present about five miles distant from the mine, and the estimated cost of bringing power in is $10,500.

GEOLOGY.

The Stockton Hill mine lies on the gentle western slope of the Sierra Nevada mountains, and about five miles south of the south end of the Grass Valley district proper. The mineralogy and structure of the Stockton Hill vein shows a much closer analogy to the Grass Valley veins than to those of the Mother Lode; the latter is generally considered to end going northwest about twenty miles south of Grass Valley.

At Grass Valley an intrusion of granodiorite five miles long from north to south and from a half to two miles wide has invaded a complex of sedimentary, metamorphic and igneous rocks. The Grass Valley gold-quartz veins are found both in the granodiorite and in the invaded complex. The Stockton Hill mine lies a short distance south of the south tip of the granodiorite, and the rocks at the mine appear to belong to the complex. No attempt was made to work out the determination and distribution of the rock formations in detail. A broad belt of what appears to be serpentine outcrops a few hundred feet north of the Stockton Hill shaft. The belt trends northwest.

The Stockton Hill vein fracture strikes northwest and dips 29°-54°northeast. (See Assay Plan of Workings). A basic, coarse-

grained igneous rock that appears to correspond to what Lindgren[1]

1. W.Lindgren: Gold-quartz veins of Nevada City and Grass Valley districts. U.S.Geological Survey, Annual Report 17, Part 2, 1-262, 1896.

calls "gabbro-diorite" forms the footwall rock of the Stockton Hill vein at a number of places underground, on several levels. Since it never appears in the hangingwall, the gabbro-diorite mass probably strikes northwest and dips northeast, like the vein. This strike parallels that of the serpentine belt seen on the surface, and conforms to the regional trend of the rock formations of the complex in this area as shown on the Smartsville Folio (No.18, Geologic Atlas of the U.S.,1895).

The gabbro-diorite is a massive, hard granitic rock. In sharp contrast is the rock that lies in the hangingwall of the Stockton Hill vein: greenish to nearly black, soft, in places schistose. Casual inspection suggested that this rock belongs among the meta-volcanics of the complex; most of it is probably an altered, fine-porphyritic andesite flow or sill. Undoubted serpentine and even asbestos were noted underground, apparently as minor masses and in some cases lying between the meta-volcanic rock (?) and the gabbro-diorite. For the purpose of this discussion it is sufficient to deal with the massive, fresh gabbro-diorite on the one hand, and the soft, altered supposedly volcanic rock on the other. The latter will be referred to as porphyrite, since it seems to correspond to Lindgren's description of that rock.

The Stockton Hill vein-fracture follows, in a general way, the contact between the gabbro-diorite and the porphyrite. The contact is not, however, except perhaps locally, a fault contact, for the

vein-fracture wanders away in places from the gabbro-diorite contact, out into the porphyrite, so that in such places both hanging and foot are porphyrite. Crosscuts show, however, that the gabbro-diorite is never far away. It is significant that while the vein-fracture wanders into the porphyrite locally, it never enters the gabbro-diorite: the footwall is often gabbro-diorite, but the hanging-wall never.

Assuming the above observations to be correct, the origin of the vein-fracture is clear. The contact between the gabbro-diorite and the soft porphyrite strikes northwest and dips northeast. Owing to the sharply contrasting physical characteristics of the two rocks, their contact forms a plane of weakness, of least resistance. Fracturing in the area was localized along or close to this plane; such fracturing never entered the gabbro-diorite because of the strength and rigidity of that rock.

Since the contact may extend to unknown depths, there is no reason why even a comparatively weak fracture along that contact may not do likewise. It would not be surprising, therefore, to see mineralization characteristic of deep-seated, persistent veins along weak fracturing. The vein does show precisely this feature.

The fracture is only moderately strong, in general, and in places it is decidedly weak. Over most exposed stretches it is marked by a single persistent wall. Little or no gouge is seen; on the contrary, the drifts and stopes break to this wall, which stands perfectly, like the wall of a house. Multiple walls occur in places, either formed by walls parallel to the mains slip and dying out shortly at either end, or by leaving and returning loop branches off the main wall. The ground is in places moderately shattered along the fracture, and the porphyrite is in places schistose. This schistosity seems more

likely to be local, connected with slight fault movements and stress along the vein-fracture than to be a regional feature of the porphyrite, for the schistosity seems mostly to die out away from the vein.

Shape of the Vein-Fracture. Mineralization.- The vein-fracture is markedly bent. (See Assay Plan of Workings). In the levels above the 415 the strike approaches east-west in the neighbourhood of the shaft, and for some distance west of the shaft. Southeast of the shaft the strike gradually veers toward the southeast, and well to the southeast the fracture strikes S 23°E and locally even north-south. Where the strike is nearly east-west, the dip is in general flat, and the dip increases as the strike approaches north-south. The east-striking, flat-dipping segment near and west of the shaft is nearly barren of quartz, although a number of rich, small gold pockets are said to have been found here; quartz comes in along the fracture, going southeast from the shaft, as soon as the strike has veered around well to the southeast and the dip increased from around 40° to 50° and more. The gold, instead of occurring in isolated rich pockets in the schistose porphyrite along the vein, as in the segment northwest of the shaft, occurs much more evenly distributed in the quartz segment southeast of the shaft. (See Assay Plan of Workings). The quartz is in the form of one or more stringers, along or close to the main wall. Such stringers vary from a fraction of an inch up to eight inches or more in thickness, but they average perhaps four to five inches thick.

The quartz appears to be of the deep-seated, persistent type. It has a massive texture and is light gray to milky white, with vitreous to greasy lustre. It is on the whole even-grained; marked variations in grain size are lacking, and so are well-developed drusy cavities and any delicate crustified banding. The quartz, even as small stringers,

almost everywhere carry sulphides, mainly pyrite and arsenopyrite; galena is sparse but widely distributed.

Thin "leaves" of talcy or gougy material are found within the quartz stringers, arranged parallel to the walls. The quartz frequently shows sheeting parallel to the walls. The sulphides appear as thin bands next a "leaf" or next a wall; in places they form irregular bands made up of contiguous blebs filling small interstices between quartz prisms that lie perpendicular to the stringer wall and are closely interlocked except for the very small interstices.

The point in this detailed description of the quartz stringers is this: the mineralization seems to be more or less typical of that of the main Grass Valley veins, except on a smaller scale. Persistence in depth may therefore be hoped for, although to a less degree, perhaps, than would be expected of a stronger vein.

In places (for instance, 265 level SE drift, near the face) the vein seems confined to a single quartz stringer. Such a stringer may run next the wall, either in the foot or the hanging, for some distance; it may locally separate itself from the wall by several feet, only to return to the wall. In other places several stringers are seen, separated perhaps by three or four feet of schistose or sheeted, slightly mineralized rock. In general the stringers lens out along the strike and probably along the dip as well; but within the mineralized segments a stringer lensing out is soon replaced by a new one coming in. Within the best mineralized stretches, therefore, while individual stringers are not persistent, the vein does as a whole carry fairly persistent quartz. The aggregate of quartz in the stringers rarely reaches one foot in thickness.

Free gold is visible in a number of places, usually in the quartz but often in the altered, especially the schistose wall rock as

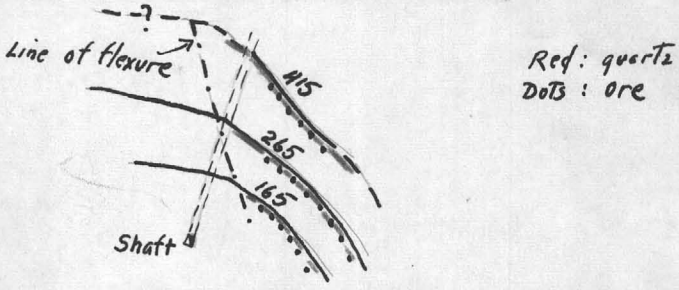
well. Under the lens tiny veinlets of gold may be seen cementing fractures in arsenopyrite. There is no question, so far as the 265 and the levels below it are concerned, that the gold in the quartz is primary. A falling off in grade below those levels is not, therefore, necessarily to be expected.

That the gold is chiefly confined to the quartz is suggested by the writer's sampling. (All of the present discussion refers, of course, to the quartzy segments of the vein). In Sample S-2 the quartz stringer assayed $90.30 in gold per ton. The remainder of the sample (about three feet of altered, slightly schistose rock) assayed $2.10. Inspection of all the samples before assay showed that where quartz with sulphides was present the gold content was appreciable; where quartz-sulphides were lacking the sample was correspondingly low-grade.

On the 415 level the east-west-striking segment is not exposed. (See Assay Plan of Workings). The vein everywhere strikes well to the south, and except at the shaft itself, dips around 60°. It carries persistent quartz ; there is some free gold in the vein at the shaft, but gold content appears to be spotty for about 110' south-east of the shaft. At that point there starts a stretch of ore 65' long, averaging about $10 per ton. At the time of my visit the high-grade quartz stringer had lensed out near the face; the latter assayed about $5.00 per ton only and the fracture continued fairly strong. Since my visit and partly perhaps at my suggestion, the drift has been extended some 12 feet. Quartz started coming in almost at once and gold content increased until at the present face the vein is said to assay about $218 over a width of 25 inches.

These facts, especially study of the Assay Plan of Workings, suggest strongly a rake of the ore down to the northwest. ~~It is probable~~

It is probable that the line of rake bounding the ore on the northwest is not very far from coincident with the line of flexure separating the segment of the vein with nearly east-west strike from the segment that turns very markedly southeast. The apparent relations of this line of flexure, the distribution of quartz, and that of ore are shown in the sketch below.



The direction of rake suggested would coincide with the rule given by Lindgren for Grass Valley, in the paper already cited, namely that the rake of the ore shoots is down to the left to an observer looking down the dip. Doubtless development since Lindgren's time has partly invalidated this rule, but it represents a tendency, in all probability, and the possible application at Stockton Hill is suggestive.

Where the vein makes its turn from east-west to southeast it tends to split and be multiple. There are apparently a number of loop branches here; but in the writer's opinion there is but one vein in the segment of quartz and marked southeast strike southeast of the shaft. The 265 and 415 levels are thought to follow the same vein in this area.

A series of hangingwall branches leave the main fracture; they strike nearly east and dip 45°-60°N, and are slightly mineralized. They suggest "lacer veins" leading to a possible vein parallel to the main vein and in its hangingwall.

ORE ESTIMATES.

It must be plain at this point that ordinary sampling is totally inadequate as a method to determine the average gold content of any portion of this vein. With the values so strongly concentrated in narrow stringers, and with such a large proportion of free gold, a given sample channel, or any number of them, might give an entirely erroneous figure for the average gold content of that portion of the vein the samples are supposed to represent. On the other hand, the breaking down of 20 or 30 tons for mill tests, while the average value of the tons involved may be ascertained exactly, gives information on material that is mined and gone at the end of the test. With a vein of this character, it is impossible to predict the average value with any confidence. The average value will be known only when the ore bodies have been mined.

Sampling should, nevertheless, indicate in a general way what stretches of the vein are probably ore and what waste. Especially if the samples run consistently ore or waste one may delimit ore and waste shoots with some confidence. It follows that tonnage estimates should be much more reliable than estimates of grade.

With such a narrow vein, the fear is natural in an outsider that the grade indicated by cut samples in the drifts will fall down utterly in the stopes. If one accepts the mill tests made, and the sampling of the stopes (see Vertical Longitudinal Projection), together with the opinion of Mr. R.C. Uren, consulting engineer of Grass Valley, who examined the mine in the summer of 1937, one is forced to conclude that the grade will stand up quite well, provided the stopes are kept as narrow as possible. The assumption that it will is therefore made, subject to the reservation already mentioned, namely that none of the samples used in these estimates were taken by the writer.

With the gold in the quartzy segment of the vein so nearly confined, as it seems, to one or more quarts stringers, sorting might raise the grade considerably; such sorting would preferably be done in the stopes to save the cost of handling waste. It is hard to predict, however, the efficacy of sorting; it must be tried. I have therefore ignored this possibility and assumed that the stopes are carried three feet wide and that all material is removed for milling. It is hard to carry a stope that narrow, especially where the vein is rather flat; but it is done in Grass Valley. Since most of the samples/cuts are less than three feet long, the average value of the vein segments considered has been recalculated on the basis of a three foot vein width and on the assumption that the portion of the vein figured in with the sampled width to make up three feet runs $2.00 per ton in gold. Isolated high assays have been cut down to various values depending on the judgment of the writer.

The ore estimates have been arbitrarily divided into "Probable" and "Possible" ore. Such classifications are unsatisfactory, but in view of the uncertainties of grade with such a narrow vein, it seemed safest to call that ore most nearly "in sight" probable, while ore, the existence of which seemed still more speculative has been dubbed "possible".

For convenience, the "net value" of the ore has been shown. This is simply the assay value minus an assumed $6.00 mining and milling cost for ore in place underground, and minus a $2.50 similar charge for ore on the dump.

Probable Ore.- See Vertical Longitudinal Projection for location and estimates of tonnage and grade. A few remarks on some of the blocks follow.

Block 1 lies southeast of the shaft, between the 265 and old 140 levels. The grade was derived by averaging the drift samples and those of the two sampled stopes, weighting each group by the length and average vein width of the vein segments they represent. The underhand stopes that provided ore for the mill tests were not considered. The tonnage estimate is uncertain because both the elevation of the 140 level and the tonnage already mined from this block were guessed at.

Block 2, also above the 265 level and adjoining Block 1 on the northwest, represents marginal ore, of a grade to furnish very scant profit. With a mill built on the basis of better ore, such material would however probably be fed to it, so that the tonnage should be figured in with the rest in arriving at an estimate of the probable time a mill could be kept running. See below.

Block 3 lies below Block 1. It has been drawn conformably with the idea that the ore rakes down to the northwest; but the tonnage is the same as that of a block having of the same length as those shown horizontal sides/but whose end boundaries extend straight down the dip. Since the ore stretch in the 265 level drift along the upper side of this block shows consistent ore assays with the grade suprisingly uniform considering the appearance of the vein, it seems a fair assumption that the ore will extend 60' down the dip, or about half way to the 415 level elevation. The average net value per ton has been raised $2.00 over that of Block 1 above because of the good results obtained in the small underhand stopes.

Block 4 is the extension of Block 2 below the 265; the assumed extension is the same as that of Block 3. The supposed net profit per ton has been taken as $1.00 on the theory that the 55' of $10 ore on

the 415 level is the downward extension of this fringe ore shoot.

Block 5, near the shaft, looks a bit dubious because the vein is so nearly barren of quartz here. Nevertheless, there seems to be a short stretch on the 165, 100 and above the 100 that consistently runs ore. Chances for finding pockets of free gold would also appear to exist. This supposed shoot is probably too close to the shaft to mine safely but has been included to complete the picture of probable ore.

Block 6, the ore stretch on the 415 level, assuming this ore goes 35' up the dip, and down the dip, from the drift.

Summary-Probable Ore.-

BLOCK	TONS	NET CONTAINED VALUE
1	3400	$40,800
2	1425	712
3	4500	63,000
4	1340	1,340
5	625	1,560
6	780	1,560
	12,070	$108,872

Of this probable ore, only Blocks 1, 2 and 5 lie above the 265 level; these total 5450 tons, or only 3.6 months mill run at 50 tons per day. Evidently the decision to build a mill should await results on the 415 level.

Possible Ore.-

Block 7 assumes that the ore of the southeast half of Block 1 extends from the horizon of the old 140' level half way to the surface, i.e. about 70' on the dip. The back of the stope below this block averages $15.25 calculated on a basis of 3' width. As the surface is approached, mechanical enrichment usually increases the gold content somewhat above the original or primary figure, so that it may be safe to assume a $15.00 assay value, or $9.00 net value for this block, if ore does occur here.

Block 8 is figured on the assumption that the ore shoot of blocks 1 and 3 goes the rest of the way to the 415. Ore now exposed in the southeast face of the 415 makes this possibility very attractive, but

until more drifting is done on the 415,this block must remain as "possible ore".

Block 9 connects Blocks 4 and 8.

Some possibilities for ore exist northwest of the shaft,but it is impossible to evaluate them owing to the extremely erratic nature of the gold distribution there. At least $35,000 was extracted from pockets in this area, according to report;very likely a good deal more. Free gold was panned from vein specimens taken from the pump station just above the 415. Between this place and the 200 would seem like a good place to hunt for a pocket. But such possibilities do not enter calculations of tonnage and grade.

It is also entirely possible that some ore,either virgin or fill or both,may remain above the old 140' level. No information is available.

Finally,the main ore shoot has been drawn on the assumption that the strike length on the 415 will be the same as that on the 265 (Blocks 5, 8). Naturally increased strike length on the 415 will add greatly to the tonnage estimated.

Summary-Possible Ore.-

BLOCK	TONS	NET CONTAINED VALUE
7	2100	$18,900
8	4500	63,000
9	667	1,300
	7267	$83,200

Dump Ore.- Uren estimated 8182 tons of ore on the dump,having an assay value of about $6.50 per ton, or a net value of $4.00. From measuring the extent of the workings driven since Uren's examination (September,1937) it seems unlikely that more than 3000 tons have been added. Since high-grade was sorted out, and considerable work was done in waste,the grade of this additional material is hard to guess at. Fair-grade rejects from the stoping may have compensated

for the waste, so that the same grade is taken for the 3000 tons as for the 8182 estimated by Uren.

Summary, Dunn Ore.-

	TONS
Uren Estimate..	8182
Drifting, raising & stoping since 1937....	3050
	11272 @ $4.00 net = $45,000 net contained value.

Grand Total to 415 Level, approximately.-

	TONS	NET CONTAINED VALUE
Probable Ore	12,070	$108,972
Possible "	7,287	83,200
Dump "	11,272	45,000
	30,609	$237,172

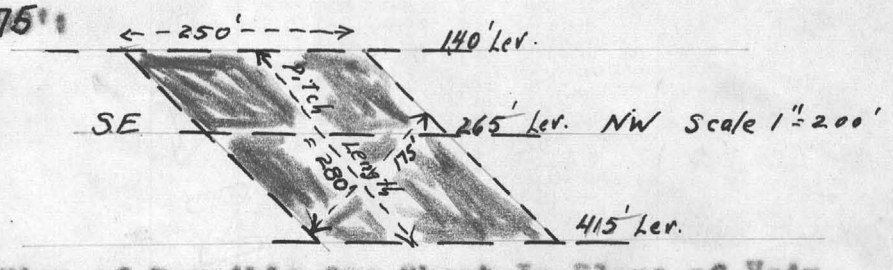
Remarks.- The above is a wild-eyed guess. For instance, if the ore in the present southeast face, 415 level, continues at anything like the present reported grade ($218 per ton) the net contained value of ore in the mine might jump several hundred percent. On the other hand, the vein is narrow, and the distribution of the quartz stringers uncertain. The appearance of the vein frightens an engineer accustomed to good widths of solid quartz. The blocks, therefore, may easily be disappointing in places when stoping is attempted. A measure of confidence is derived from the fact that the Norumbaga vein, about five miles north of Stockton Hill, averaged only about four or five inches wide. This seam ran from $40 to $100 per ton; according to Lindgren in the paper cited, the Norumbaga had produced about a million dollars by 1896. I am told that veins averaging not over six inches wide are being mined successfully in Grass Valley today.

FUTURE OF THE MINE.

The vein looks weak at the northwest and southeast ends of the 265, the chief exploration level, although the fracture persists The known strike length is 650 feet. The fracture is not very strong, and ordinarily no great persistence in depth of the vein

matter would be expected. At Stockton Hill, however, the vein fracture was localized by the contact between the gabbro-diorite and the soft porphyrite and serpentine. There seems no reason why this contact may not extend down indefinitely. The vein filling closely resembles that of the Grass Valley district proper, and the persistence in depth of the ore shoots of that region is well known. A specimen in the mine office at Stockton Hill shows a post-mineral basic dike cutting across vein quartz at an acute angle, and the suggestion is that the dike ascended along the vein fracture. If so, it is likely that the fracture descends to considerable depths; if it did so after the mineralization it probably did likewise before. Finally, the strength of the fracturing and of the mineralization on the 415 seems at least as great as on the upper levels; there is in fact a decided suggestion of improvement there.

If the main ore shoot extends with the rake assumed to the 415 level, and with a constant drift length of 250 feet, then the pitch length (center line of the shoot measured parallel to the rake) would be 280 feet, assuming the top of the shoot was at the old 140' level, and the width of the shoot measured perpendicular to the pitch length would be 175':



View of Possible Ore Shoot, In Plane of Vein.

It might be questioned whether such a shoot would be expected to go very far below the 415. Many Grass Valley shoots have had a much more ribbon like shape, however; and if the control of ore and quartz is structural, and depends on the flexure in the fracture surface, then this ore shoot might well persist downwards for some distance. For every 100' down the dip that it does continue, $84,000 is added to

the net value contained in the ore reserves, assuming a constant strike length of 250' and a net value per ton of $14.00.

Such chances for ore down the dip look better than do those along the strike. The vein fracture is weak at the northwest end of the 265 level, and entirely barren. At the southeast end of that level the fracture is still fairly strong and somewhat mineralized. It has changed attitude very suddenly to a strike nearly east and a flat dip. (See Assay Plan of Workings). The change is so sudden it may mean merely a local roll in the vein. If so, the favorable southeast-striking, steep-dipping attitude may shortly be resumed, with corresponding chances for more ore. Because of the suggested increase in strength of fracturing and mineralization on the 415 level, lateral exploration should preferably be conducted on that level rather than on the 265.

SUMMARY AND CONCLUSIONS.

The situation at Stockton Hill may be summed up as follows: A narrow but in places high-grade gold vein has been developed where probably some 12,000 tons with a net contained value of $109,000 could be made available for mining at an expense included in the mining cost assumed. (Mining and milling: $6.00). In addition, some 12,000 tons of dump ore may be on hand, with a net contained value of say $45,000. Here are some 15 months run for a 50 tons per day mill, with total net value of $153,900. The Stockton Hill Corporation, a Nevada company, has an agreement to purchase the property from the old California company for $100,000 on a 10% royalty basis, presumably on gross production. If so, some $25,000 must be taken from the above $153,900, leaving an actual net of $128,900. From the standpoint of the owner of the Stockton Hill Corporation having $50,000 to invest in a mill and other necessary improvements, there seems little risk,

provided the sampling is reliable, in going ahead with the expenditure.

The situation has a different meaning, however, for an outside party with $50,000 to invest in exchange for an interest in the property. Assume he is offered a 20% interest for his $50,000. Of the $128,900 received after royalty, the investor receives 20%, or $25,780. Thus the present probable ore in the mine indicates a return of only half the capital to be invested. Considering the narrowness of the vein and possibly spottiness of mineralization, the risk seems too great.

Suppose, however, that the 415 level is run out below the main ore shoot, and that all ore, probable and possible, mentioned in this report, is proven up. This would add some 7300 tons of ore now listed as "possible" to the reserves. The actual net returns on this, after royalty, would be $70,000, making a total actual net value after royalty of $198,900. 20% of this would be about $40,000. This sum would not quite return the capital; but with ore on the 415 the assumption is permitted that such ore should go below that level. The deal is now a fair one: return of capital by ore in sight, and expected profits to be derived from extensions of known ore shoots and the finding of new shoots.

I advise, therefore, that in case some such deal is considered, provision be made for a limited investment at the start (say $10,000) to develop the possible ore between the 415 and 265 levels, with an option to take up the remaining $40,000 provided results of the 415 drifting are favorable. The 415 must be driven about 350' further SE to prove up possible downward extension of the 265 level main ore shoot. Two months should suffice for this work. While the drifting is going on, a proper mill could be designed, and the sampling thoroughly checked throughout the mine; arrangements to secure the needed

equipment and power could be made; in short, no real time would be lost under the prudent procedure outlined above.

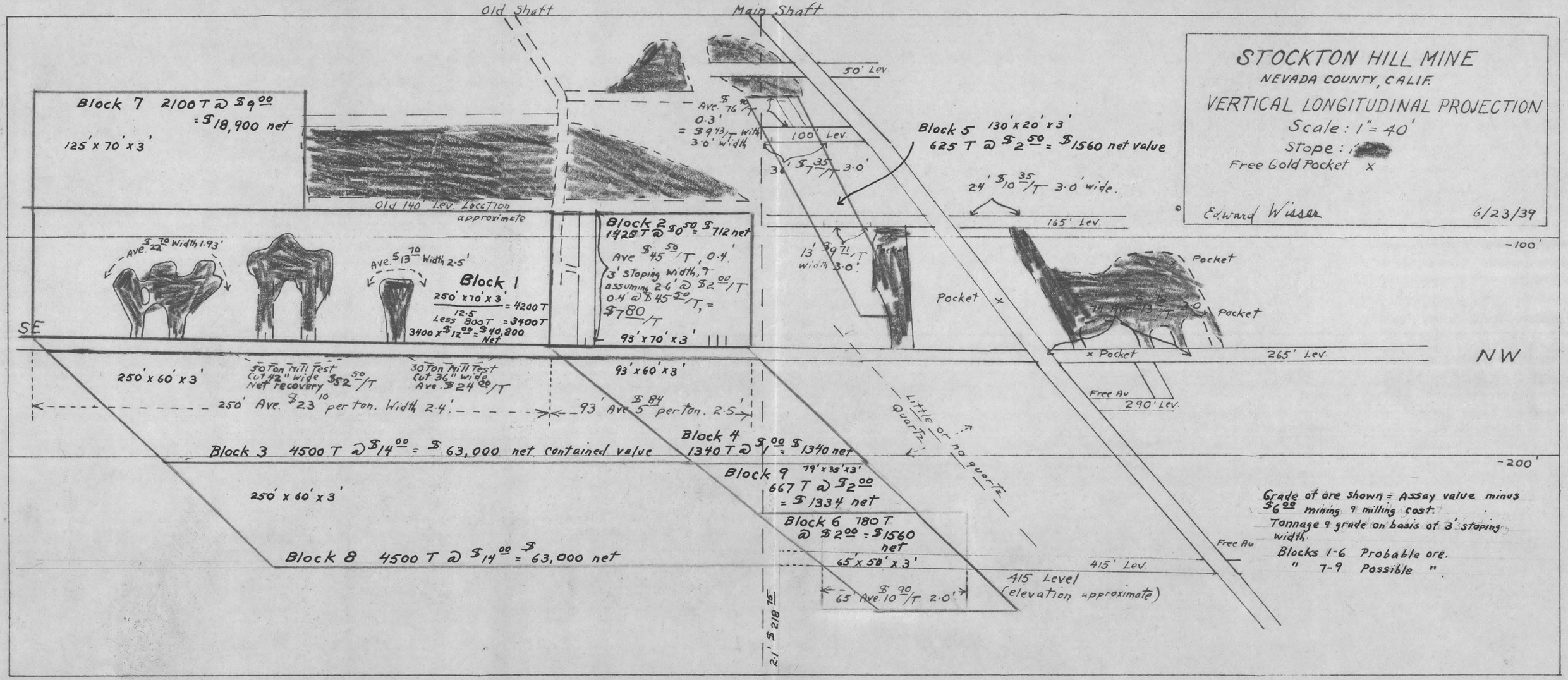
The present shaft is a compartment and a half, with a skip of possibly somewhat less than one ton capacity. A hoist built for a 30 H.P. electric motor has been geared to a Model A Ford engine. Two Chicago Pneumatic Hot-Head Diesel compressors deliver a total of 750 cubic feet of free air per minute. Since it is likely that a number of stopes will have to be kept going at one time, increased compressor capacity will be needed to produce 50 tons of ore per day from the mine. Electric power applied to the hoist should make the latter capable of handling the ore to be extracted. The shaft and skip look a little small for the job, but it is thought best to get along with them at the start, and until prospects warrant the sinking or raising of a new, better-located shaft.

Under the right terms, and subject to the qualifications concerning check-sampling and mode of development outlined above, the undersigned recommends the investment in this property, for the purpose of putting it into production and sharing in the resulting hoped-for profits, of a sum not exceeding $50,000. The mine is of the type that should be made to pay its way as soon as possible; capital investment should be kept at a minimum at all times, because of the impossibility of predicting tonnage and grade in advance of stoping.

Edward Wisser

Edward Wisser
Mining Geologist.

San Francisco,
June 26th, 1939.


Old Shaft
Main Shaft
STOCKTON HILL MINE
NEVADA COUNTY, CALIF.
VERTICAL LONGITUDINAL PROJECTION
Scale: 1" = 40'
Stope:
Free Gold Pocket x
© Edward Wisser 6/23/39
Block 7 2100 T @ $9.00 = $18,900 net
125' x 70' x 3'
Old 140' Lev. Location approximate
Block 1
250' x 70' x 3' = 4200 T
12.5
Less 800 T = 3400 T
3400 x $12.00 = $40,800 Net
Ave. $22.70 Width 1.93'
Ave. $13.70 Width 2.5'
Block 2
1425 T @ $0.50 = $712 net
Ave $45.50/T, 0.4'
3' Stoping Width, T assuming 2.6' @ $2.00/T
0.4' @ $45.50/T, = $780/T
93' x 70' x 3'
Ave. $76.40/T 0.3' = $9.43/T with 3.0' width
50' Lev.
100' Lev.
Block 5 130' x 20' x 3'
625 T @ $2.50 = $1560 net value
36' $7.35/T 3.0'
24' $10.35/T 3.0' wide.
165' Lev.
13' $9.71/T Width 3.0'
Pocket
Pocket x
74' Ave. $13/T 3.0' x Pocket
x Pocket
265' Lev.
290' Lev.
Free Au
SE
NW
250' x 60' x 3'
50 Ton Mill Test Cut 42" Wide $52.50/T Net recovery
30 Ton Mill Test Cut 36" Wide Ave. $24.00/T
250' Ave. $23.10 per ton. Width 2.4'
93' Ave $5.84 per ton. 2.5'
93' x 60' x 3'
Block 3 4500 T @ $14.00 = $63,000 net contained value
Block 4 1340 T @ $1.00 = $1340 net
Block 9 79' x 35' x 3' 667 T @ $2.00 = $1334 net
Block 6 780 T @ $2.00 = $1560 net
65' x 58' x 3'
65' Ave. $10.90/T 2.0'
Little or no quartz
250' x 60' x 3'
Block 8 4500 T @ $14.00 = $63,000 net
2.1' $218.75
415' Lev.
415 Level (elevation approximate)
-100'
-200'
Grade of ore shown = Assay value minus $6.00 mining & milling cost.
Tonnage & grade on basis of 3' stoping width.
Blocks 1-6 Probable ore.
" 7-9 Possible "

Longitudinal Vertical Projection

Wolf Creek

15.9 Acres

Sec. 5 | Sec. 4

Sec. 8 | Sec. 9

5 ½ of SW Quarter, Sec. 4
87.8 Acres

NE ¼ of NE Quarter, Sec. 9
41.6 Acres ±

Sec. 4 | Sec. 3

Sec. 9 | Sec. 10

N

℄ Section 9

265' Lev.

Stockton Patented Mining Claim

W ½ of NE Quarter
Sec. 9
83.5 Acres ±

℄ Section 9

Auburn - Grass Valley Highway

STOCKTON HILL MINE

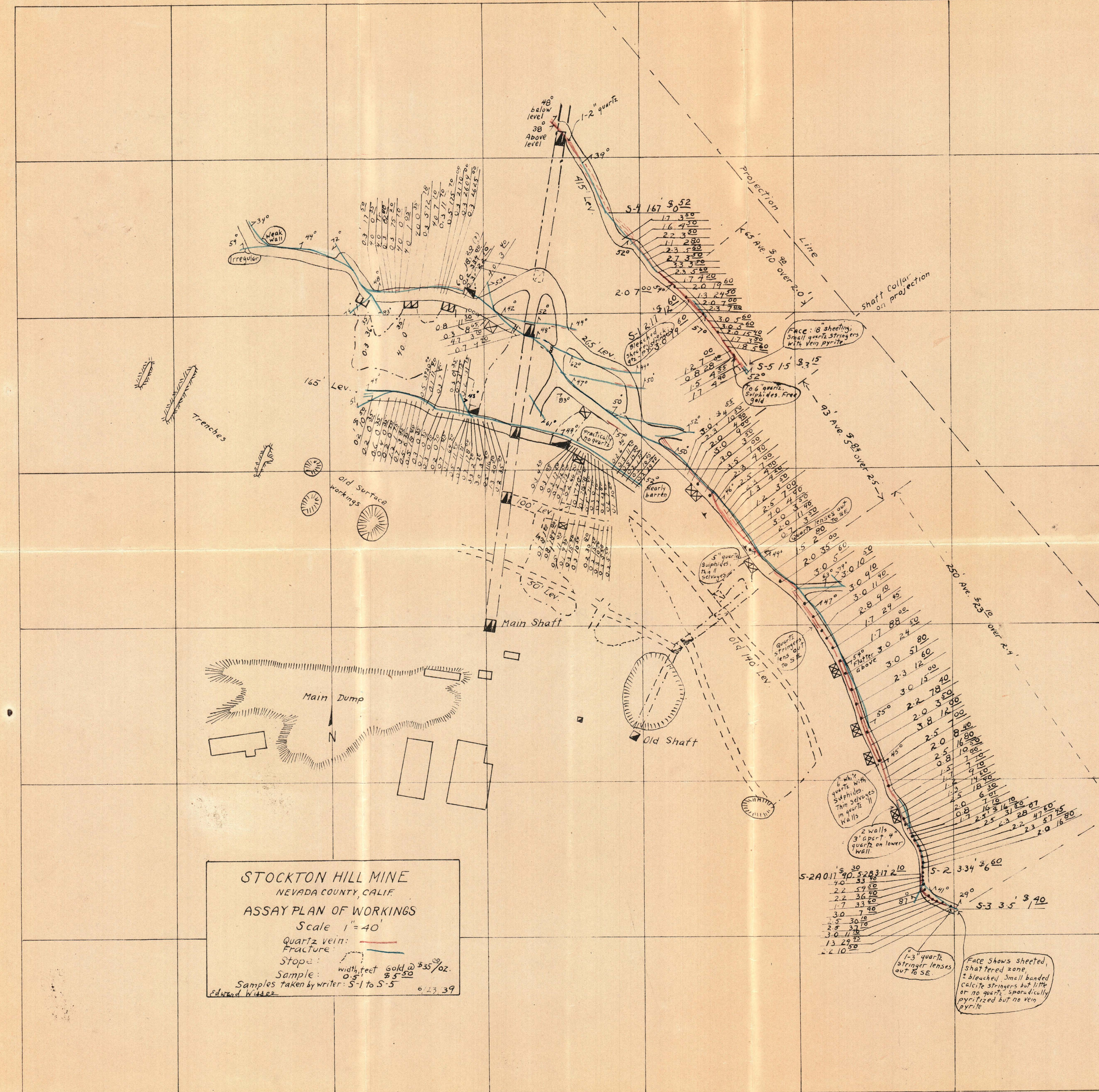
NEVADA COUNTY, CALIF.

PROPERTY MAP

Scale 1"=400'

Property located in Township 14 N,
Range 8E, Mt. Diablo Base & Meridian.

Property Map



STOCKTON HILL MINE
NEVADA COUNTY, CALIF.
ASSAY PLAN OF WORKINGS
Scale 1" = 40'
Quartz vein:
Fracture:
Stope:
Sample: width, feet 0.5' Gold @ $35.00/oz. $5.50
Samples taken by writer: S-1 to S-5
Edward Wisser
6/23/39
Main Shaft
Old Shaft
Main Dump
Trenches
Old Surface workings
415' Lev.
265' Lev.
165' Lev.
100' Lev.
50' Lev.
Old 140' Lev.
Projection Line
Shaft Collar on projection
1-2" quartz
Weak wall
Irregular
Nearly barren
Practically no quartz
Face: 8" sheeting, Small quartz stringers with vein pyrite
2 to 6" quartz. Sulphides. Free gold
1-3" quartz stringer lenses out to SE.
Face shows sheeted, shattered zone, ± bleached. Small banded calcite stringers but little or no quartz. Sporadically pyritized but no vein pyrite

Assay Plan of Workings