

ENGINEER'S REPORT

BROKEN HILLS MINE,
MINERAL COUNTY,
NEVADA.

Donald C. Finlayson,
Mining Engineer.

REPORT
BROKEN HILLS MINE,
MINERAL COUNTY,
NEVADA.

The Broken Hills Mine, made up of four unpatented lode mining claims, is located in the extreme north east corner of Mineral County, State of Nevada in what was once known as the Quartz Mountain Mining District.

A good all-weather oiled highway passes the property two and one half miles to the west, connecting U.S. Highways Nos. 95 and 50. The nearest town is Gabbs, on said highway, sixteen miles to the southeast from the property. Gabbs is the site of the U.S. Government Basic Magnesium Mines which were large producers of vital magnesium metal during World War II. The two and one half miles of road from the paved highway to the mine is of graded earth construction and is maintained by Mineral County, being serviceable the year around. The nearest railroad point is Luning some forty-eight miles to the south on the Hazen-Mina branch line of the Southern Pacific.

The mining property lies one quarter mile to the northwest of the old mining town and precinct of Broken Hills. The country is typical Nevada desert, the mine being situated in low rolling hills where the mountains to the north and east break down into the flat, sloping terrain of the Gabbs Valley. and at an elevation above sea level of approximately 5300 feet. What little vegetation there is is made up of sage brush, salt bush and other low desert growth.

There is no surface water supply on or near the property; all water in the past, used for domestic or mining purposes. having been hauled from the Gabbs section to the mine and town.

The chief geological feature of this section is the large flows of early andesites. These appear to cover earlier formations to a depth of several hundred feet. To the northwest of the mine, and in one instance to the south, beds of limestone crop through the andesite. Basalt and tuff beds. in places, overlaying the formations are evidence of eruptive action in the neighborhood.

An important geological feature of the property, and one that signifies much as to the formation of the Broken Hills ore bodies, is the presence of a hard rhyolitic intrusive that breaks up through the andesites in close proximity to said ore bodies. In its raw state, this rock is a gray, fenocrystine material which would probably be classified as rhyolitic porphyry or verging into a quartz porphyry.

The extrusion of this deep seated structure may well have been

the agent of the force that broke the solid flow of andesite, allowing the ascending flow of mineralizing solutions that formed the ore bodies by their deposition and replacement in the andesitic rock. It may even have been, in some places, the mineralizing agent itself. It is not to be considered that this silicious mass breaks through the andesites alone, but that it would also intrude the underlying limestones in the same manner.

In view of this fact, it would seem apparent that any mineralization caused by this intrusive mass would be very deep seated and probably of magnitude in the limestones and along their contact with the overlaying andesite. Such an hypothesis can only be substantiated by deeper development or exploratory drilling.

The principal vein structure on the property is known as the Broken Hills Vein. It strikes at approximately North 30 degrees West and has a dip to the west of from 80 to 70 degrees. It was in this vein that the original discovery work was done and it has proven the source of most of the ore produced by the mine so far. It appears that the greatest quantity of ore, and that of the highest values, has been found in the footwall of this vein, a small and persistent horse separating the two zones of mineralization. However, it may be considered as one body and of the same general origin. In all the upper levels of the mine, from the surface to the 350 foot level, this vein has been found and explored.

At a point approximately 125 feet south of the shaft, on the 100 foot level, a branch vein is found with a strike of South 14 degrees West and a dip of 65 degrees to the Northwest. This is known as the Fidelity Vein. There is some indication on the 350 foot level that this vein crosses the Broken Hills Vein; however, on other levels such a condition is not apparent. This vein contains the same general mineralization as is found in the Broken Hills Vein.

To the east of the main workings, a number of small veins are found in the andesite. These appear to radiate out from the main zone of fracture. However, except at the south end of the fracture zone, it is doubtful if they penetrate the rhyolitic intrusive. It is rather to be supposed that they have been formed by the same intrusive agent that was responsible for the main fracture. To the south of the shaft one or two of these small veins enter the main vein structure at approximately right angles. As the intrusive does not surface in this section such an occurrence may be considered normal.

Of these veins, forming what may be termed a stockwork in the andesite to the east, the two most important are the Belmont and Donnelly Veins. The former has been developed through two shafts to a depth of 140 feet. This vein was small but all ore produced from it was very high grade in silver and lead.

The Donnelly Vein, opened to a depth of only some 35 feet, shows good values and, if developed, would probably produce a considerable quantity of high grade ore.

Some 1800 feet to the South west of the Broken Hills main workings and on the general strike of the Broken Hills Vein, some fine ore has lately been opened up by other parties off the Broken Hills ground. It is believed that this may logically be considered a shute in the southward extension of the Broken Hills Vein as the formation and mineralization are identical.

In all working levels above the 250 foot level faulting seems to be of a minor character with little displacement in the ore zones. On the 250 foot level a broken condition of the ore bodies and formation becomes apparent, while on the 350 foot level large crushed and broken zones indicate heavy displacement of the whole upper zone of the mine.

In the shaft, which is bottomed on the 600 foot level, this slabby, broken condition is evident between 300 and 400 feet of depth. A large flat thrust fault, dipping to the east or north east, has moved the whole surface block- on the hanging wall of said fault- some hundreds of feet to the east of its original position. In the shaft, which was continued to a depth of 600 feet on approximately the same dip as on the ore zone above, there is no indication of any ore structure below the 350 foot level. However, the operators of this mine, who sank the shaft from the 350 to the 600 foot level in 1929 and 1930, cross cut some 800 feet westerly and, from all reports, again contacted the ore body in two separate headings some 300 feet apart on the strike of the vein. This ore was considered too high in zinc content for commercial extraction at that time. The market prices of silver and lead were also very low, so the development program was abandoned. There is every evidence on the dump of the mine to support this information- typical primary silver, lead and zinc ore of a different character than found in any of the upper workings of the mine.

Due to the presence of bad air an examination of these lower workings has been made impossible in these later years and it is unfortunate that, if there were any maps of this deeper work, they are not available.

The ores of the Broken Hills Mine contain gold, silver, lead, zinc, arsenic and antimony. In the surface or oxidized zone, the minerals of silver and lead predominated--argentite, cerargyrite, cerrusite, anglesite, galena and traces of pyrargyrite and proustite, the ruby silvers. These minerals were closely associated with quartz, hematite and pyrite. At approximately the 135 foot horizon, throughout the mine, the ores suddenly become primary in character and in all ores found below this level may

be found a predominance of zinc minerals together with some arsenic and antimony minerals.

It appears that the silver values found in these ores are very closely associated with the lead minerals. Both cerussite and galena, in their pure or mixed state, always carry high values in silver, while the zinc may or may not contain such silver content.

The antimony minerals found associated with the other base minerals in the ore contain high silver values. These are the minerals stibnite and pyrargyrite. A combination of silver with arsenic is found in the mineral proustite. However, it appears that the greater part of the silver is found as a sulphide and mixed with the sulphides of lead and zinc, especially the former.

Where the zinc ores have been exposed to the air, but where no circulation of air has been present to disturb the process, zinc sulphate crystals have leached from the walls and backs of openings forming long, white, hairlike crystals. These break up into a powder when exposed for any length of time to fresh air. On the 250 foot level and 350 foot level this condition is especially prevalent. Here large crystals have formed in the cracks and crevices of the rock, expanding and forcing slabs of rock from the walls.

It may here be said that the primary ores of this property are silvery, basic and refractory nature. This has been the chief drawback to their exploitation before the development of modern selective metallurgy and the better prices prevailing for such minerals at the present time.

The Broken Hills Mine was discovered in the spring of 1913 by two partners whose names were Arthur and Stratford. They detected argentite particles and horn silver in the sands of a small wash on the side of a hill. By panning the sands of this wash they were able to trace the source of these silver minerals to the mother vein.

These two men operated the property for a period of ten years, sorting and selecting their ore for shipment. This operation was on a small scale, the ore being hauled to either Luning or Fallon for shipment to the smelter. It necessarily had to be of very good value to pay a profit.

All the work done by these owners was above the 100 foot level and it is reported that they produced between \$50,000.00 and \$60,000.00 net smelter returns. This was all oxidized ore.

In 1923 Arthur and Stratford sold out their holdings to

George Graham Rice who operated the property under the name of the Broken Hills Silver Corporation. Under this management the Belmont Vein was developed and produced \$36,00.00 to \$40,000.00. The main shaft was sunk to the 350 foot level and workings run out from the 150, 250 and 350 foot levels. Ore was mined between the 100 and 150 foot levels. The ore below the 150 foot level was found too refractory to handle. There is no record of the total production from the main workings during this period.

In 1926 a Mr. Kinner leased the property from the Broken Hills Silver Corporation and milled ore for some two years at the old Bruner mill a number of miles east of the property. Considerable ore was mined from the 150 foot level to the surface, some of the dumps on the surface were sorted. It is estimated by old residents of the section that a production of \$25,000.00 to \$30,000.00 was obtained from this operation. No records are to be had. It is known that the mine was paying well when the Bruner mill burned down in late 1926.

In 1927, the Red Hills Mining Corporation took over the property with deep development in view. They sank the shaft, in the main workings, from the 350 to the 600 foot level. They had originally intended to go to the 700 foot level where their geologist contended they would find the andesite-lime stone contact. However, on arriving at the 600 foot level a seepage of water was encountered, so it was decided to crosscut from that level to the west in order to contact the ore body which their geologist claimed was there.. This ore was supposedly the stub segment of that ore found on the upper levels, below the flat fault. Under the supervision of a Mr. Bevis, this ore is reported to have been opened up in two headings 300 feet apart at a distance of 800 feet from the shaft. It has been reported by miners who worked in the mine at the time, that several veins were cut in the 800 foot crosscut before reaching the main vein. The dump also shows a raw, deep seated rhyolitic porphyry that evidently came from these later operations.

Due to the high content of "blackjack" zinc in the ore and the very low prevailing prices for silver and lead in the year of 1930. the development of the deeper ore bodies was abandoned.

The property was idle and the title lapsed until 1932, when it was located by Messers George Lurchin, John Berlin and Fred Ross. These parties held the property until July 1947 when a bond and lease was granted to Mr. B.H. Donnelly. During their period of ownership some leasing was done by various parties in the mine, but as Mr. Lurchin and Mr. Ross are both dead there is no record of how much the mine produced during the period.

The present operators have been working in a small way since they took over the property last July. They have shipped two carloads of good grade ore and are now working on their third. They find they must keep the value of their ore moderately high in order to realize a profit under a shipping basis. The last

carload cost them \$19.60- haulage, freight, taxes and smelter charges, not counting the mining costs. Also they have only been paid for the silver and lead, the zinc and antimony not being paid for by the smelter. They estimate the loss of values due to the latter condition of over \$ 30.00 per ton in zinc alone.

Most of their work has been done at the extreme north end of the 150 foot level. Here they have opened up a small but rich body of primary ore. An assay of all ore to the bin since the second car was shipped shows a value of 189 oz. silver and 6.7% lead. No zinc assay was made. It appears that the rhyolitic intrusive is being contacted also in this section forming the permanent foot wall of the ore.

The condition of the mine down to and including the 150 foot level is excellent. There is no loose ground and where timbers have been used for bins and chutes, they are found in a fine state of preservation. The formation is ideal for development, drilling easily and breaking nicely under action of powder. Ground stands beautifully where no broken.

From the 150 foot level to the 600 foot level, the shaft is completely timbered and lagged. The timber looks as if it had been put in yesterday.

Considerable rock has slabbed from the walls on the 250 and 350 foot levels. This is due to the looseness of the country and the crystal forming pressures spoken of above.

Although the 600 foot level has not been examined due to foul air, it should be in solid ground and a condition of such slabiness should not prevail.

For a property that has laid idle for a number of years, this mine is fairly well equipped for small operation. Haulage through the shaft is by a 15 H.P. Fairbanks-Morse gasoline hoist. There are mine buckets, mine cars, rail, pipe, blacksmith tools and equipment, an ore bin of 45 tons capacity, mucking sheets and hand tools. The operators have leased a 210 cu.ft portable air compressor which they are using to power pneumatin drills and stopers.

Living quarters for a small force could temporarily be available at Broken Hills. It might, however, prove advantageous to rent living quarters in Gabbs and commute, hiring labor from that town.

It is estimated that the following listed ore would be available for a mill if one were installed at or near the Mine:

	DUMPS	12,000 tons	@ \$12.00	\$144,000.00
150-100		B.H.Vein 500 tons	@ \$14.00	7,000.00
do		Fid.Vein 1000 tons	@ \$22.00	22,000.00
250-150		B.H.Vein 4000 tons	@ \$15.00	60,000.00
17,000.00 Tons				\$233,000.00

This is ore that may be measured and known to be available. The new ore discovered by the present operators in the north 150 foot level must at this time be considered problematical. It does however show indications of making into a good body of high grade mill ore. Any ore on the 600 foot level must at this time be considered as prospective.

In arriving at a conclusion from the data presented above, it must be stressed that this property will furnish a good quantity of ore under development, probably much more than is now available. However, it is definitely a milling and not a shipping proposition in that costs of marketing gross ores are out of all reason from this location and under present conditions.

The selective flotation system of metallurgy should be used in the concentration of this ore. By this method two and probably three classes of concentrates may be produced--a silver-lead, a zinc and possibly an antimony concentrate. These concentrates would then be marketed separately and payment forthcoming from all valuable contents of the ore.

There is an ideal location for a mill about 5 miles in a southerly direction from the mine. Inquiry of one of the local well drillers brings the information that the water table at this point is approximately 270 feet deep. A well could be drilled and water pumped for mill operation.

A short and inexpensively constructed road directly south from the mine would cut off some two and a half miles of the present road and it would all be in gravel. This shortcut would all be downhill and only about three miles to the paved road. The mill would be on the main highway.

In the final analysis, it appears from considered investigation that the opening up and the equipping of this property would prove a profitable venture for investment and if such were done, the following recommendations as to the modus operandi may be applicable:

Set a surface blower and install ventillating pipe to

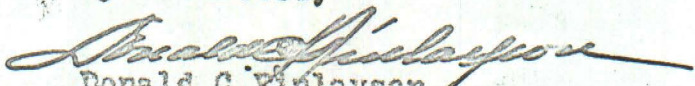
and on the 600 foot level in order to determine the amount and value of the ores discovered on that level.

Mine ore immediately from those locations mentioned above. This ore could be placed on the dump for milling later.

Construct a 50 ton mill, the flowsheet of which will be determined by a systematic series of laboratory tests on this ore.

After the operation is on a paying basis, a program of diamond drilling from the lower level would be advisable to determine, if, when and where the limestone underlies the andesite and also its relationship to the ore body.

Respectfully submitted,


Donald C. Finlayson,
Mining Engineer.

May 13, 1948.

Excerpts taken from Broken Hills, The story of Joe Arthur

The Broken Hills Silver Corporation group of seven lode claims, consisting of Broken Hills, black Dog, Cracker Jack, Grand Price, Crown Point, Belmont, and Go-Between, lies in the unorganized Broken Hills Mining District, Churchill County, Nevada. the group is 48 miles northeast of Luning, a small town, and sixty miles southeast of Fallon. The claims lie among a cluster of low hills rising along with several other groups, from the broad valley between the Ellsworth and Fairview ranges of western Nevada. The desolate aridity and isolation of this portion of Nevada has discouraged prospectors in their search for gold and silver veins, and it was not until 1913 that the almost concealed outcrop of the Broken Hills silver vein was discovered by two prospectors, Joseph Arthur and James Stratford. from that time to the present, mining by the sole endeavors of these two men, has more than repaid its discoverers for all expenses and their industry, total silver and gold extracted having a value of approximately \$60,000. None but the highest-grade silver ore, ranging from 100 ounces to 250 ounces per ton, has been shipped from the property, the lower grade vein matter being saved in the dumps and as filling in the stopes until a milling plant is erected on the property for the concentration of the ore.

The Broken Hills mine has been developed along a silver vein striking north 27 degrees west, outcropping on the eastern slope of a low north-westerly series of hills. Paralling the vein and the series of hills and with its several branches distributed between the vein and the summit of the hills, strikes northwesterly a fault of large proportions, the

most prominent structural feature of the vicinity, Ore Zones in such cases would be identical with fault zones, a deduction which carries great promise for the future of the Broken Hills mine. Two types of ore deposits occur on the Broken Hills group; The first type is exemplified by the mine's vein surface trenching and underground workings to a depth of 200 feet on this vein, through the mine shaft, and the three other fifty-foot shafts have exposed the vein over an area containing persistent ore bodies. There seems to be little doubt that the occurrence of the ore vein is influenced by intersecting northwest faults, which enter both the footwall and hanging wall of the main vein structure.

ORE RESERVES

Dump	\$ 25.000
Above 50-foot level	12.500
Between 100-and 50-foot levels	29.885
Between 150-and 100-foot levels	33.990
Total value ore blocked out in time	\$ 101.375

Values of ore blocked out in the mine approximate \$ 15.00 per ton without any sorting whatsoever underground.

The further possibilities of blind veins being found parallel to the Broken Hills vein beneath the capping of tufa to the west also mark the property as one of unusual merit, fully deserving of thorough development.

Respectfully submitted
(Signed) A.P. THOMPSON

These are excerpts from the report made by Thompson for Graham Rice on the strength of this report all fifteen claims, or about 290 acres, so we sold the mine.

Governor Emmet D. Boyle stated over his own signature, after personal examination of the Broken Hills property, that the showind was the best he had seen in any new territory in Nevada for many years.

The chief executive of Nevada was a well known mining engineer of highest standing, and his endorsement of a mining project in its early stage was unusual.

Finally in 1918 we sold the Broken Hills Mine to Graham Rice. Who paid us Seventy-five thousand dollars for it. Rice took out one shipment of ore worth about six or seven thousand dollars, and all of his force bought stock in the mine.

The above was taken from the book "BROKEN HILLS"
By JOE ARTHUR

Two Soil Sample Traverses
Broken Hills Mine
Mineral County
Nevada

M. Tippet-E. Flood
April, 1966

RESULTS

On April 2, 1966, two soil sample traverses were made at the Broken Hills Mine, Mineral County, Nevada (see Plate 3). The results of the sampling indicates a very close correlation of anomalous Pb values with the position of projected vein systems in the area. The sampling also indicated several possibilities for exploration on veins that do not crop out.

PURPOSE

Because of the lack of outcrops and flat terrain, it was thought that soil sampling for Pb at the Pb-Zn-Ag Broken Hills Mine was the best method for locating the strike extensions of known vein systems and the exploration for buried vein systems.

The project was conducted for a geochemical prospecting course at the University of Nevada, Mackay School of Mines under Dr. Anthony Payne.

METHOD

Soil samples 8" deep were taken at 25' intervals along two separate lines. Line 1 (see Plate 2) was 600' long and Line 2, 800' long. The lines were run perpendicular to the known structural trend of the district.

Much of the ground that was traversed consisted of poorly developed soil, probably mostly the C horizon. Soil in the area appeared to range from 8" to 12" deep. The soil comes from a very weathered tuff.

Vegetation is sage. There is no surface water in the area.

The samples were taken to a laboratory and screened to -80 mesh. The fine fraction was run in accordance with the method described in USGS Bulletin 1152, pages 19-25.

Geology of the Deposit (see Plate 1)

The Broken Hills Mine occurs in Tertiary andesite tuffs that have been intruded by a rhyolite plug and diorite dikes. The andesite tuffs are capped in places by andesite flows about 30' thick. Covering portions of the tuffaceous rock is gravel composed of basalt and andesite flow boulders. There are few outcrops of the tuffaceous rock.

The area has been tectonically active since the latest flow rock was deposited as evidenced by the uplift of the andesite flows on the west side of the mine area. There is sketchy evidence that the gravel has also been uplifted.

These faults are postulated to be post-ore.

The tuffaceous rock is generally a grey, partially consolidated rock which has not been welded. In the vicinity of the veins the rock is strongly argillized and permeated by micro-veinlets of quartz and FeOx. There is no evidence that the intrusive rhyolite actually crops out. The rhyolite may have been the mineralizer of the district.

The mineralization is confined to the veins. The major vein trend is northerly with steep dips to the west. Minor veins intersect these veins at sharp angles. The veins are persistent, but only average 3" in width. There is no outcrop to the veins and the only clue to their existence are trenches and shafts.

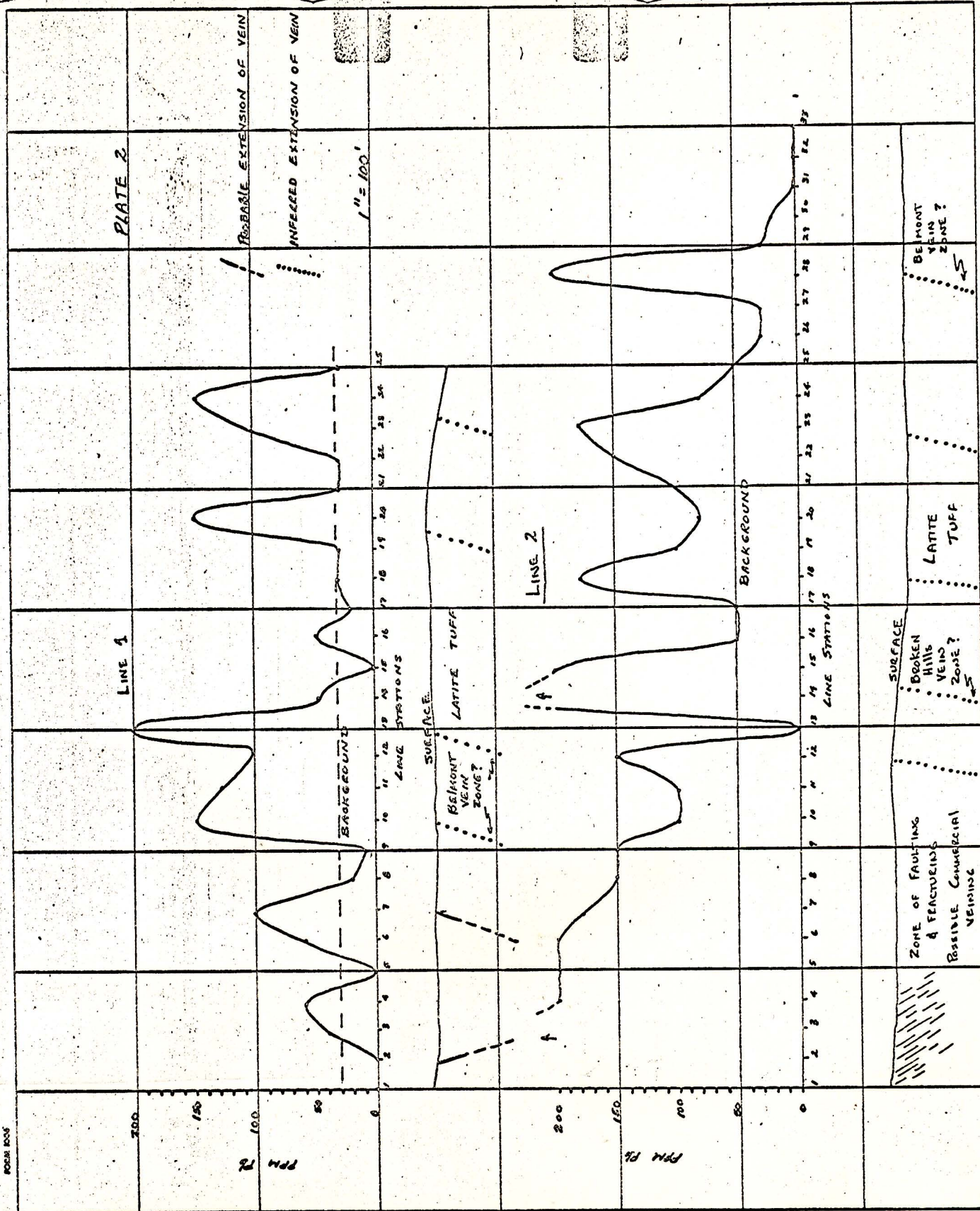
Oxidation occurs to a depth of 135' and much of the production from the mine came from the oxidized zone. The sulfide zone carries a high proportion of sphalerite and proved too refractory for past leasors. The main sulfide minerals present are sphalerite, pyrite, jamesonite, arsenopyrite, and galena. The average ratio of Pb:Ag is 1:15. The principal gangue minerals are quartz and calcite.

Surface sampling of the vein has indicated a leaching of silver, but a careful use of the Pb:Ag ratio will give a rough estimation of the potential silver assay for the sulfide zone. The micro-veinlets do not carry sufficient mineral to carry the barren host.

The Broken Hills shaft follows the vein to the 350' level, at which point the vein is faulted off by a flat fault. No visual confirmation of the workings below the 250' level was possible because of bad air. The shaft continued to 600' where a drift was driven to the west for 800' and intersected high grade ore. An old report indicates that limestone should occur at 700', but no limestone was found in the district and the nearest outcrop of limestone is at Quartz Mountain, 3 miles to the east.

It is postulated that the vein will be continuous and persistent as long as it continues in the tuffaceous rock. Faulting has disrupted the vein and there is good indications that the other veins will be similarly offset. Because of faulting, no point of intersection of the Belmont Vein and the Broken Hills Vein is postulated.

The average grade of the vein is difficult to determine without a well equipped sampling program. A dollar average for all vein samples in the Broken Hills mine was \$150/ton.



BROKEN HILLS MINE
 MINERAL COUNTY, NEVADA
 1" = 200'

PLATE 1

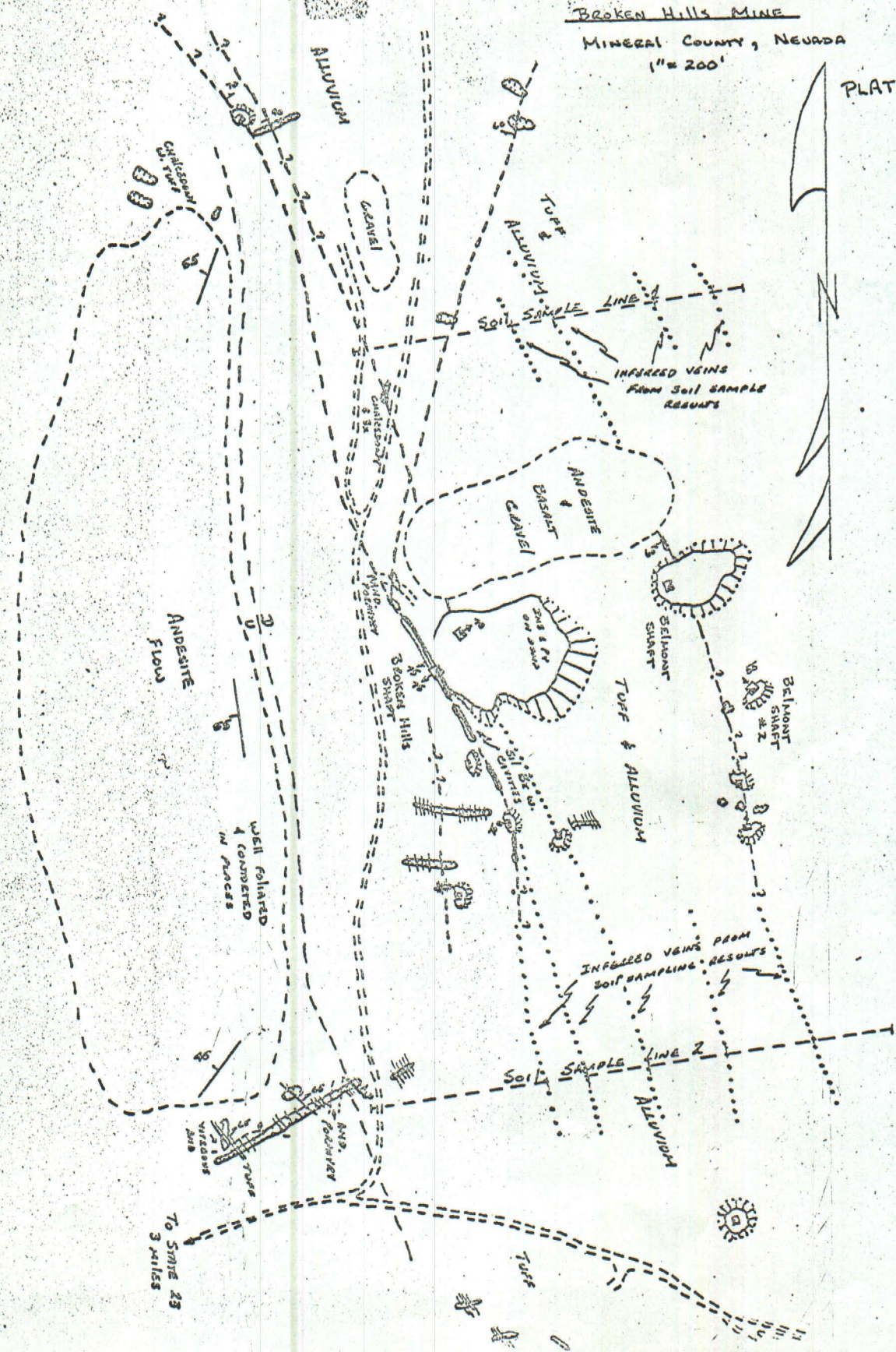


PLATE 3

SAND SPRINGS RANGE

VALLEY

FAIRVIEW
39°15'
118°15'

FALLON
60 mi

MIDDLE GATE
US 89
AUSTIN
62 mi

DESAToya RANGE

BROKEN
HILLS
MINE

39°00'
118°15'

39°00' 118°00'
CARDS
14 mi

BROKEN HILLS MINE

MINERAL COUNTY, NEVADA

1 1/2 miles

Two Soil Sample Traverses
Broken Hills Mine
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M. Tippet-E. Flood
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ASSAY REPORT FOR March 7, 1969.
Broken Hills. MINE

Gold at \$ _____ Oz.

Silver at _____ Oz.

Assay No.	Description of Sample	Oz. Au.	Oz. Ag.	Total Value			
#1.	150' Level. Vein opposite #16 at X. Cut.	.04	35.89				
2.	No. Face, underhan Stope 7'. 150' Level.	Trace	0.57				
3.	Between 150 + 200' Levels 200' So. end of small stope. 4' wide.	.005	7.64				
4.	± 200' Level. So Face 6' wide	.005	4.94				
5	250' Level. 10' from face, across back 3' wide.	Trace	3.72				
#6	Green mineral Secondary. 250' Level.	Trace	0.22				
#7	150' Level. So. end drift 1½' Face	Trace	2.86				

Dated _____, 1969

G. H. McFarland
 Signature of Assayer

ASSAY REPORT FOR March 7, 1967 Broken Hills. MINE

Gold at \$ _____ Oz.

Silver at _____ Oz.

Assay No.	Description of Sample	Oz. Au.	Oz. Ag.	Total Value			
# 8.	150' Level. Between old sample (C39 + C40) Cave back. 3' wide	Trace	0.50				
# 9.	150' Level. Along side old C11. 2½' wide.	Trace	0.67				
#10	150' Level, 52' No. of shaft 2½' Floor sample.	Trace	0.88				
#11	So. Drift 200' 2' Back	.005	4.28				
#12	250' No. Drift. 150' from shaft.	Trace	1.82				
#13.	Muck, small Raise No 250' Level.	Trace	1.64				
Composite #1 Thru #13.							
						20	
						1.75%	

Dated _____, 196 _____

G. H. McFarland

Signature of Assayer

ASSAY REPORT FOR March 7, 1969
Belmont MINE

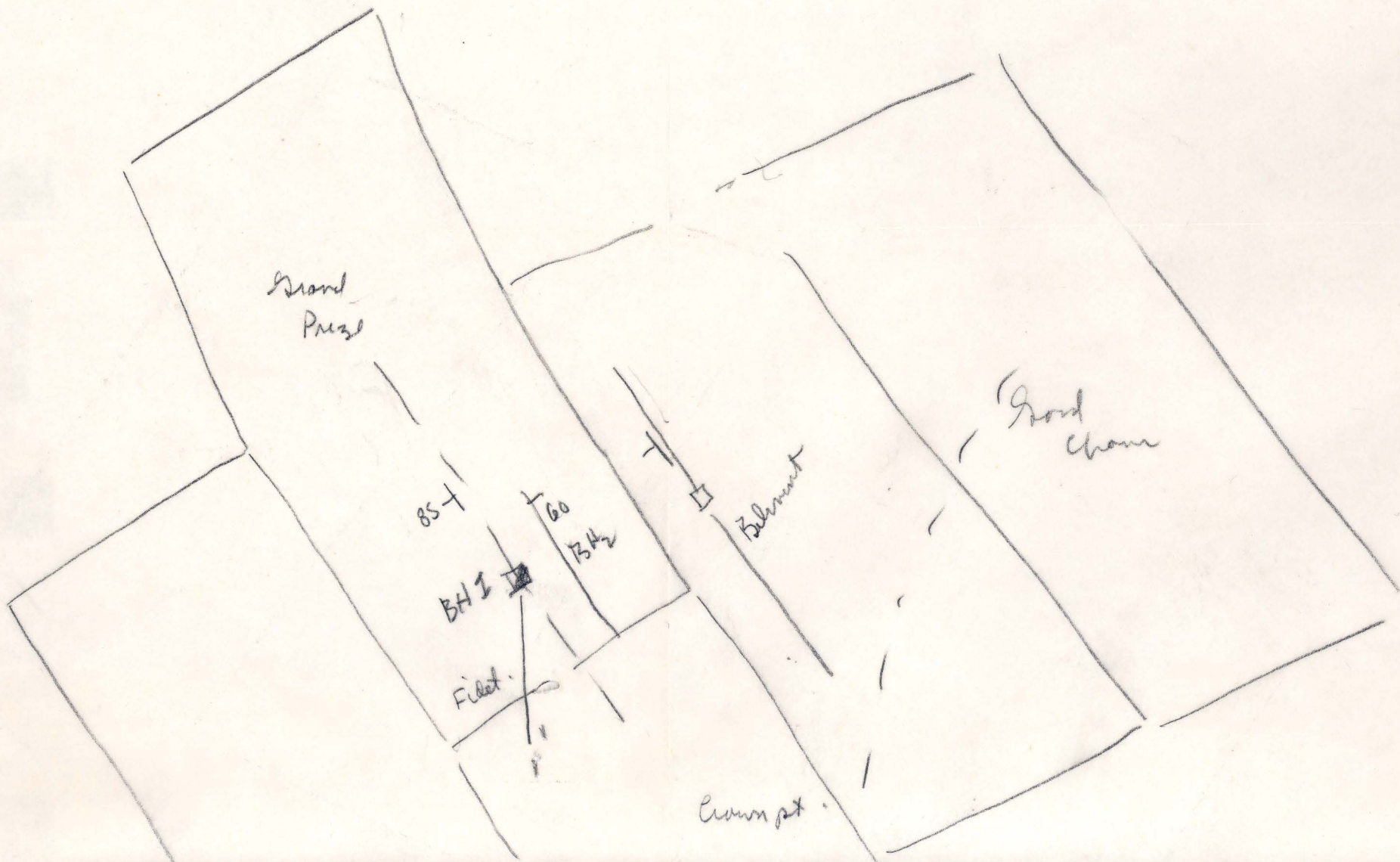
Gold at \$_____Oz. *C. Lovestadt.*

Silver at _____ Oz.

[illegible]

Dated _____, 196_____

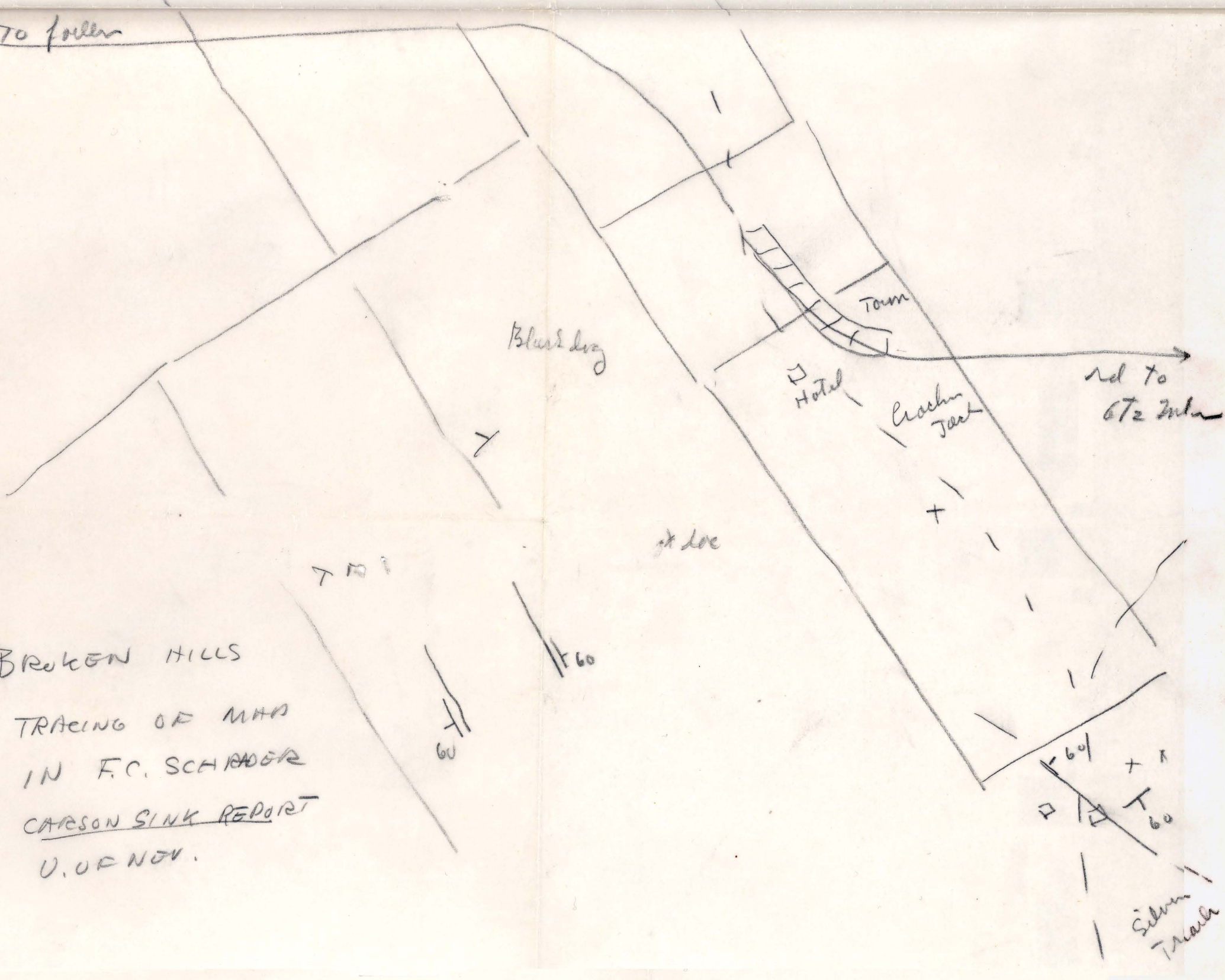
Signature of Assayer



TO follow

N
↑

1:300



BROKEN HILLS

TRACING OF MAP
IN F.C. SCHARROE
CARSON SINK REPORT
U. OF NEV.

SAMPLE 2

71

SAMPLE 10

SAMPLE 1

Andesite

64

12' STOE

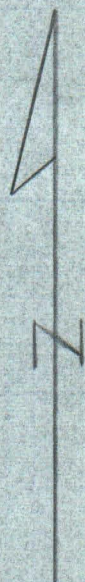
Andesite



BROKEN HILLS
1" = 40'

150 LEVEL

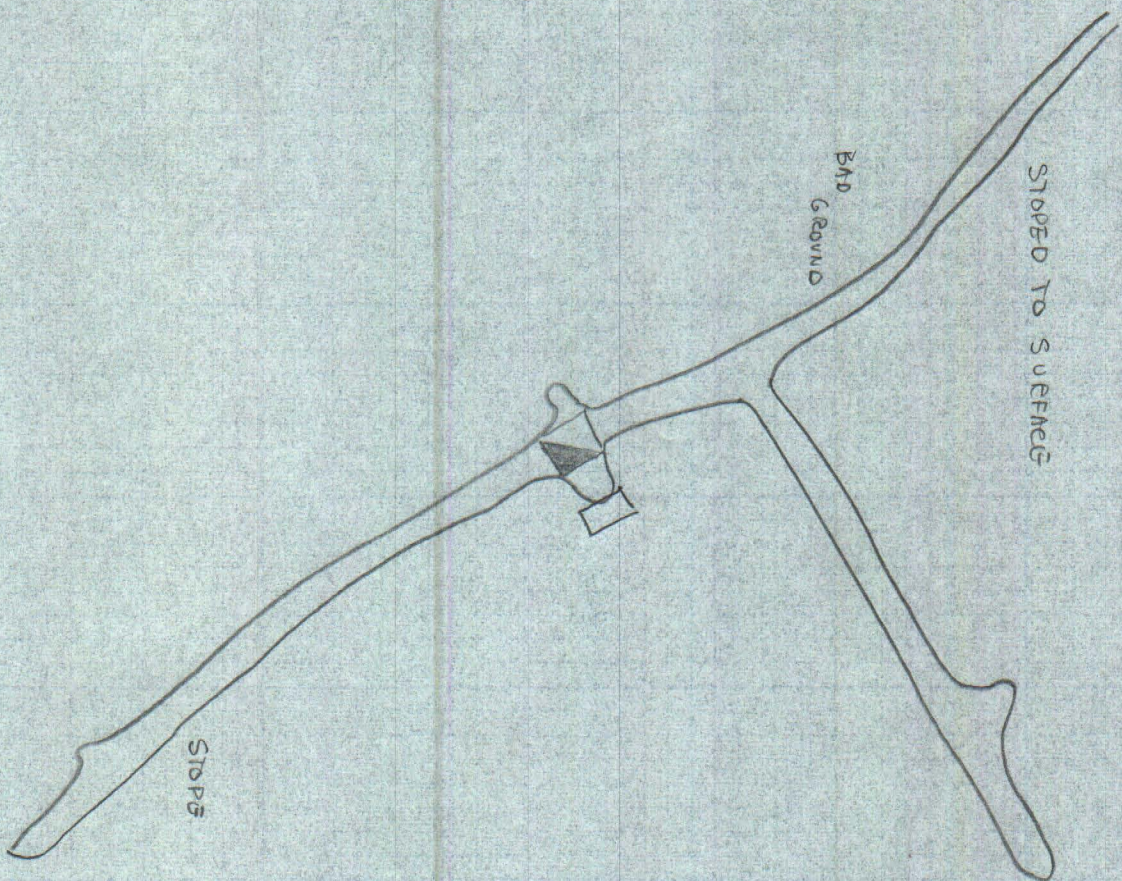
SAMPLE 12



SAMPLE 6

BROKEN HILLS
1" = 40'
250 LEVEL

SAMPLE 5



BROKEN HILLS
1" = 40'
100' LEVEL


$$1'' = 40'$$

350 LEVEL

SIERRA SILVER MINING COMPANY

3661 MARYLAND PARKWAY - SUITE 108

LAS VEGAS, NEVADA 89109

CODE 702/735-6186

30 April 1970

Dear Leland:

Enclosed please find the maps of the Broken Hills mine you ~~sent~~ let me use. I went to the 150 foot level to check on possibilities of getting out high grade and took three samples at what appeared to be likely locations. They are marked as 1, 2, and 3 on the Duval map. The assays are as follows:

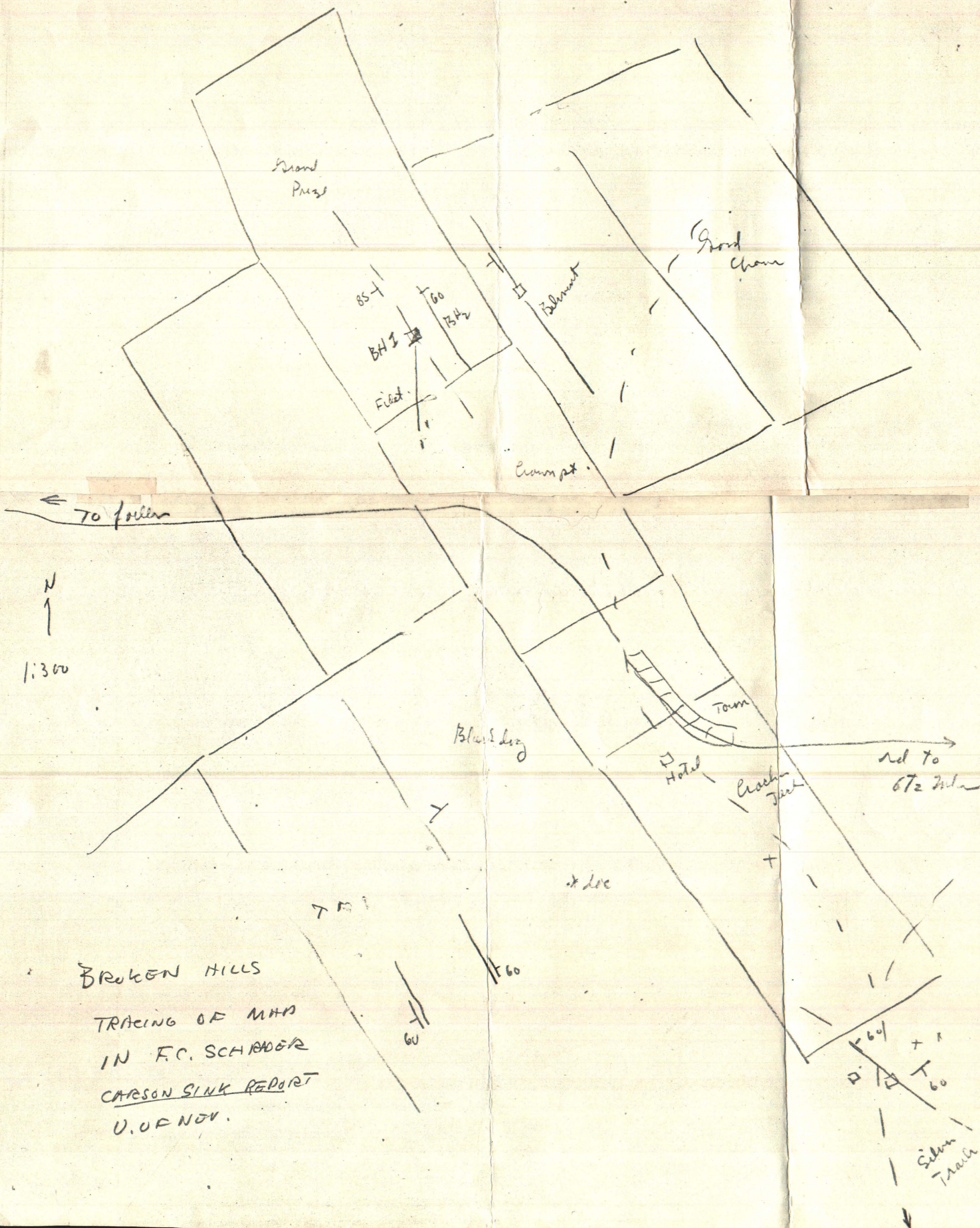
Sample No.	Silver oz/ton	% Lead	% Zinc	Width
1	11.70	1.06	5.30	1.5'
2	1.80	0.42	2.60	1.0'
3	1.20	0.32	0.60	3.0'

I also took a sample of the ore on the dump at the 125' incline shaft at the southerly end of the property with the following results

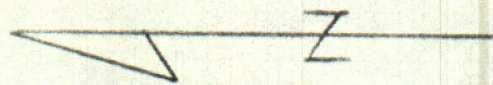
Silver oz/ton	% Lead	% Zinc
17.80	3.07	1.10

This past weekend I went back and went down the incline. The bottom of the shaft is barely at the top of the sulfide zone. There is some galena showing (which I did not sample) as well as disseminated sulfides (pyrite?) and some copper stain for a visible width of 6 to 8 feet. Three samples taken at the bottom assayed in silver 0.54, 1.48, and 0.64 oz/Ton. It is my personal feeling that this shaft has to be deepened another 50 feet or better to have a drill hole drilled at 50 to 100 feet below it.

Yours very truly
Don Gardine



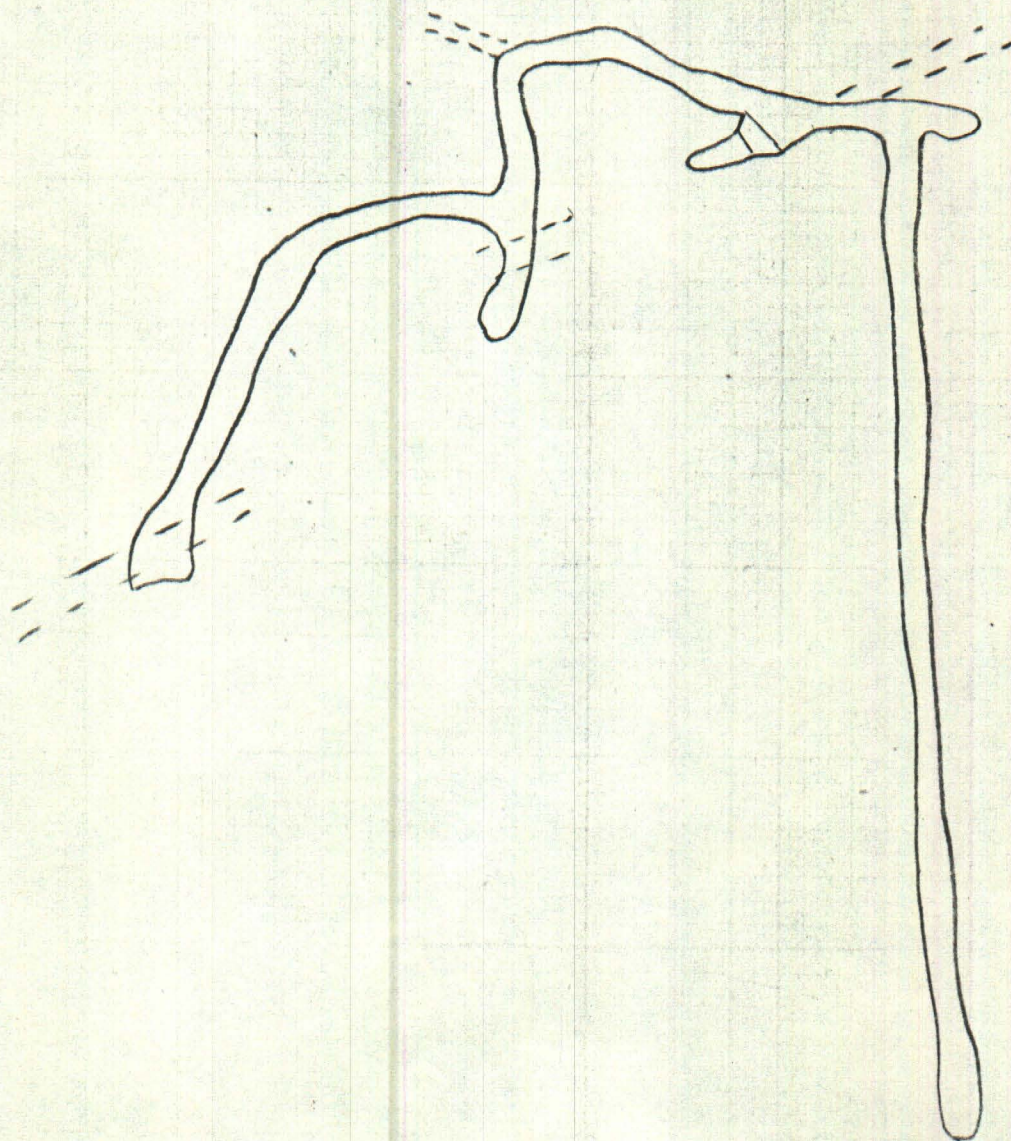
BROKEN HILLS
TRACING OF MAP
IN F.C. SCHROEDER
CARSON SINK REPORT
U. OF N. D.



BROKEN HILLS

1" = 40'

350 LEVEL



SAMPLE 2

71

SAMPLE 10

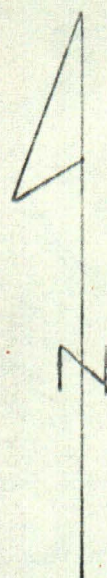
SAMPLE 1

Andesite

64

12' STOPS

Andesite



BROKEN HILLS

1" = 40'

150 LEVEL

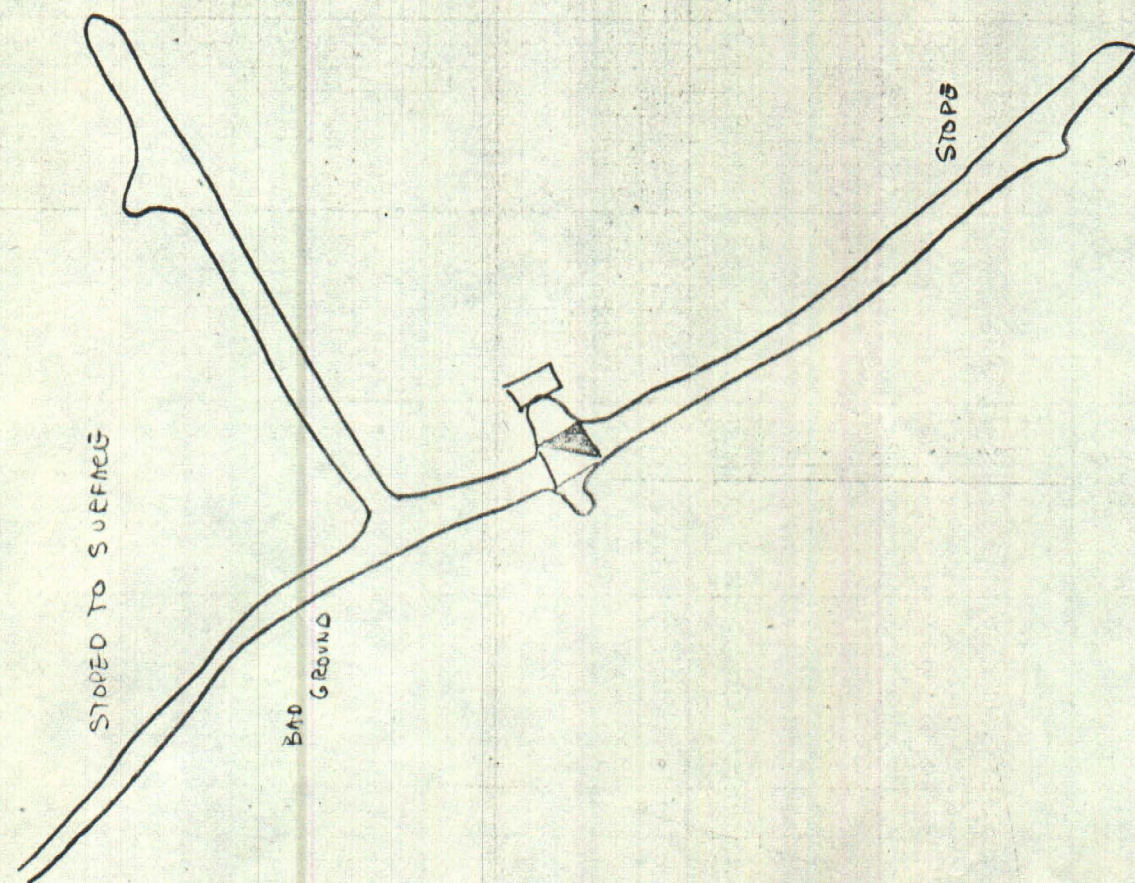
SAMPLE 12



SAMPLE 6

BROKEN HILLS
1" = 40'
250 LEVEL

SAMPLE 5



BROKEN HILLS

1" = 40'

100' LEVEL



McGregor Travel Co. Ltd.

3 PLACE VILLE MARIE

MONTREAL 113, P.Q., CANADA



292 2930

2

2000
= \$800.⁰⁰