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REPORT ON GRACE & COLVIN MINES

TOMBSTONE

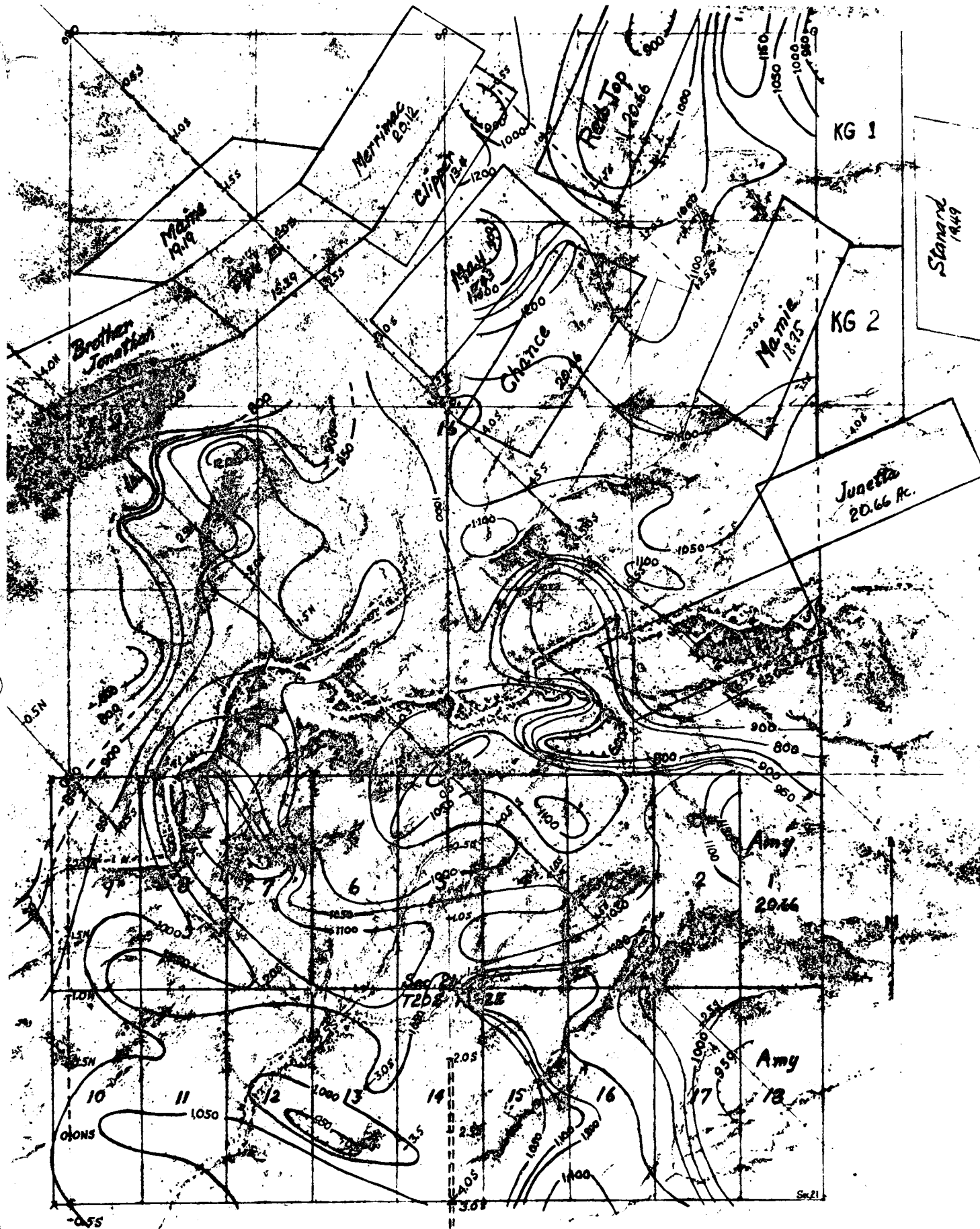
MINING DISTRICT

COCHISE COUNTY
ARIZONA

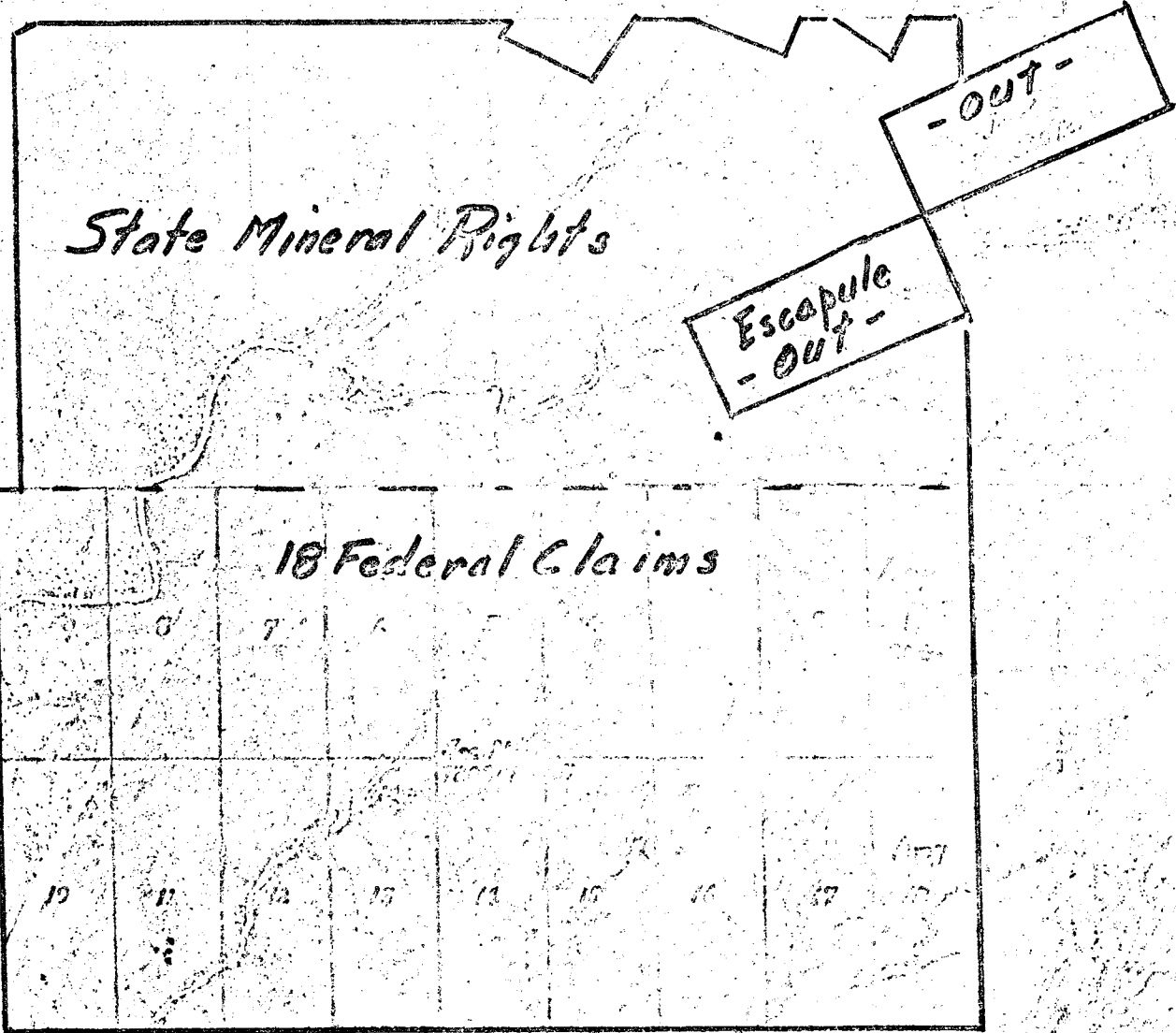
by

W. W. Grace

APRIL 20, 1970



Rich Santa Ana Mine
 ← Cynide Plant operation
 2 Mi. Tombstone →



□ ← Tombstone Mineral Reserves Mill now being constructed.
 □ ← Approx. location new ore shaft now being dug. T.M.R.

Escapule's
© Santa Anna Mine

CHANCE
PAT.
CLAIM
20.66
acres

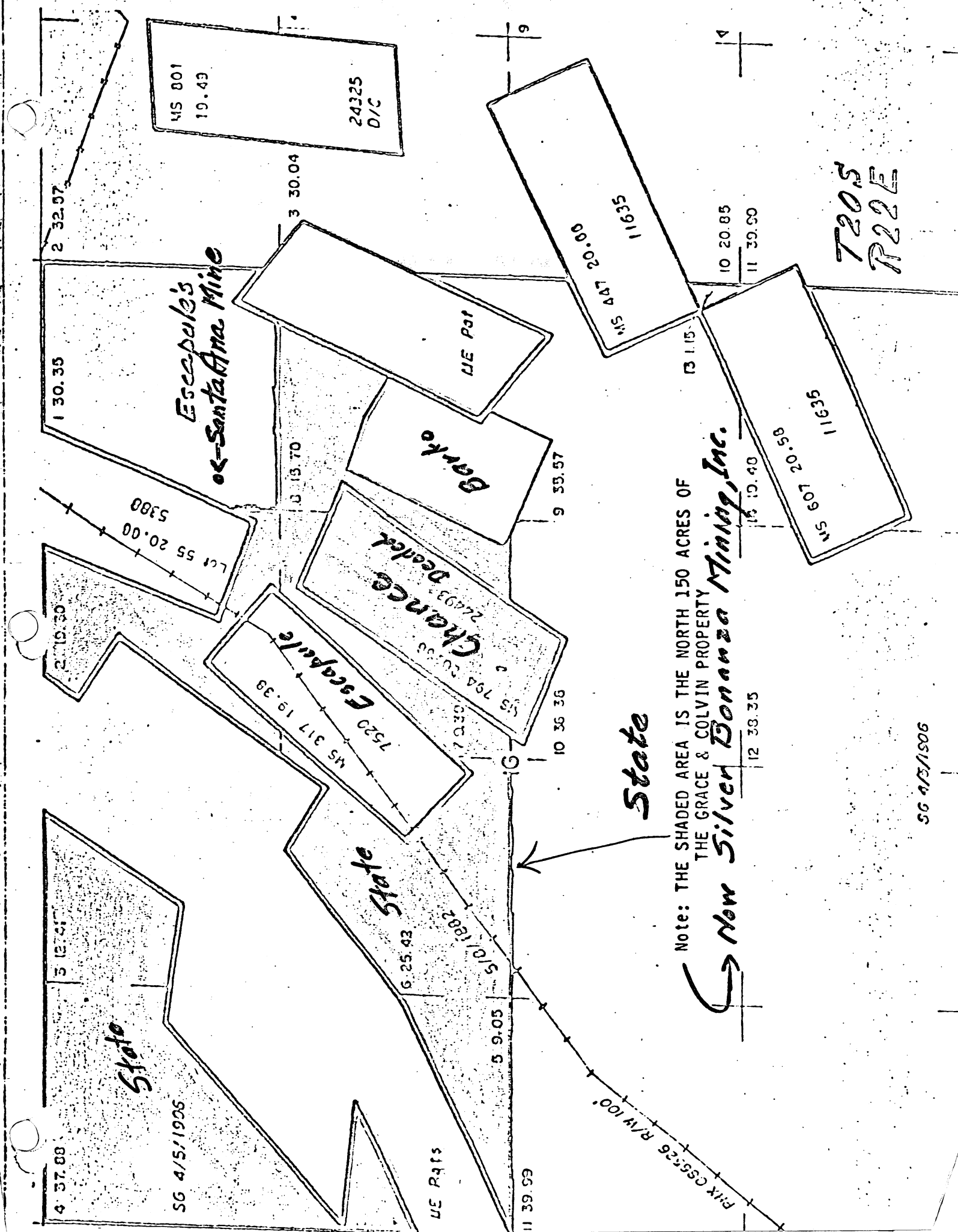
Section 16
T20S; R22E
STATE MINERAL RIGHTS

18 FEDERAL LODE MINING CLAIMS KNOWN AS "AMY CLAIMS"
Located in north part of Section 21, T20S; R22E.

0 ← MILE SITE
Now under construction

TOMBSTONE MINERAL REASERVE PROPERTY

4-20-70

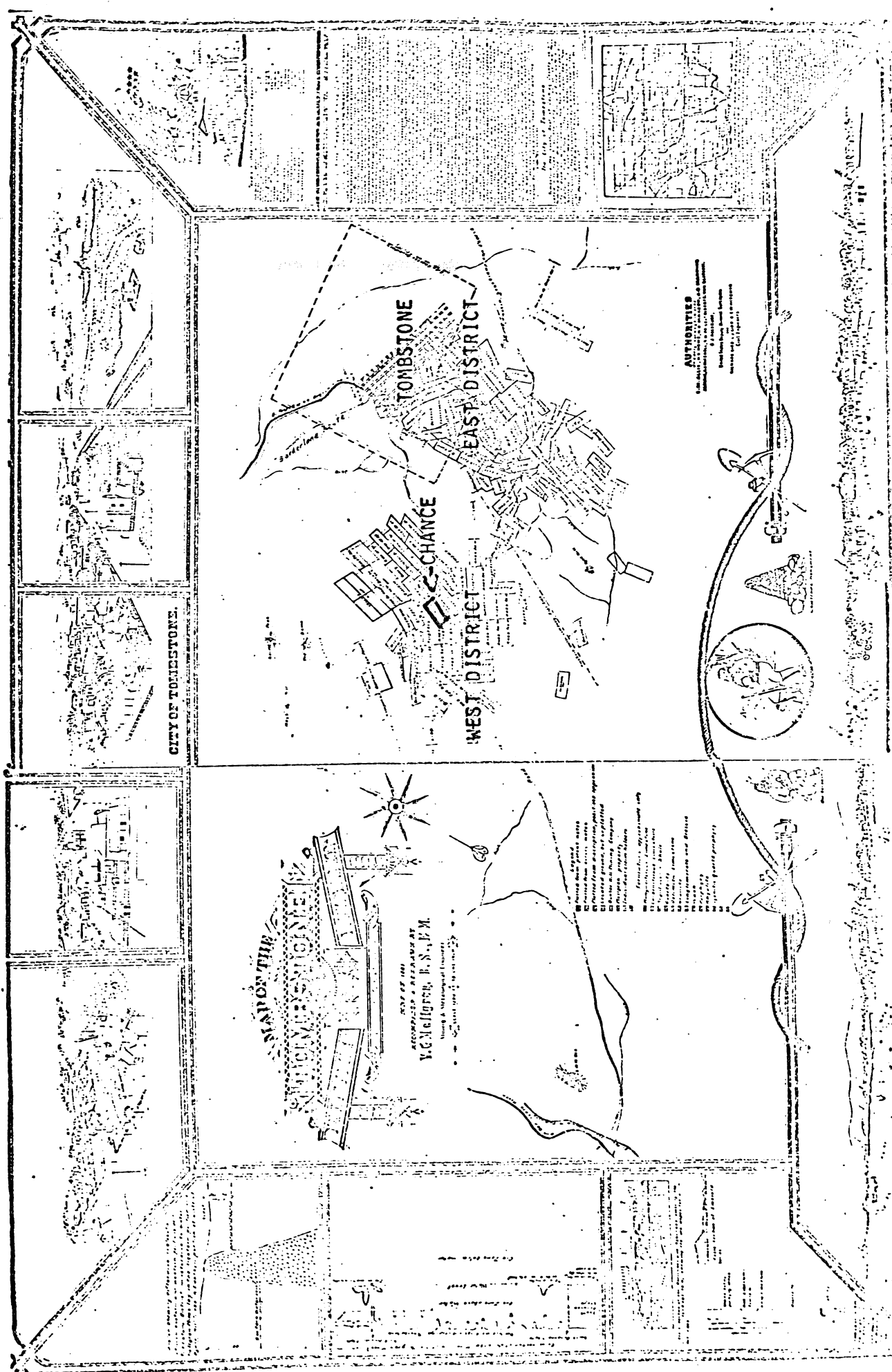


Note: THE SHADED AREA IS THE NORTH 150 ACRES OF THE GRACE & COLVIN PROPERTY
→ New Silver Bonanza Mining, Inc.

State

T20S
R22E

SG 4/5/1906



CITY OF TOMBSTONE.

TOMBSTONE

EAST DISTRICT

D-C-CHANCE

WEST DISTRICT

AUTHORITIES
The map is based on the following authorities:
1. The City of Tombstone, Arizona.
2. The City of Tombstone, Arizona.
3. The City of Tombstone, Arizona.
4. The City of Tombstone, Arizona.
5. The City of Tombstone, Arizona.
6. The City of Tombstone, Arizona.
7. The City of Tombstone, Arizona.
8. The City of Tombstone, Arizona.
9. The City of Tombstone, Arizona.
10. The City of Tombstone, Arizona.

MAP OF THE
CITY OF TOMBSTONE, ARIZONA

RECORDED & RETURNED AT
TOMBSTONE, ARIZONA
JAN 10 1901

- 1. The City of Tombstone, Arizona.
- 2. The City of Tombstone, Arizona.
- 3. The City of Tombstone, Arizona.
- 4. The City of Tombstone, Arizona.
- 5. The City of Tombstone, Arizona.
- 6. The City of Tombstone, Arizona.
- 7. The City of Tombstone, Arizona.
- 8. The City of Tombstone, Arizona.
- 9. The City of Tombstone, Arizona.
- 10. The City of Tombstone, Arizona.

SUMMARY OF GRACE & COLVIN MINING PROPERTY

The Grace & Colvin Mining Property consist of 800 acres; eighteen unpatented lode claims; 420 acres of State Mineral Rights and one patented claim known as the "CHANCE". The property is located in sections 16 & 21, T20S; R22E, Cochise County, Arizona. A paved road and electric power line runs through the property which is located two miles southwest of Tombstone.

The Grace & Colvin property, plus the Escapule properties, comprise what is locally known as the West District of the Tombstone Mining District.

The Tombstone Mining District is coextensive with the Tombstone Hills. The Tombstone Hills are deeply eroded and subdued, being the northerly end of a northwest-southeast trending mountain structure, some thirty odd miles in length, which has for its southerly end, the higher and broader Mule Mountains, and for its intermediate portion, the Little Mule Mountains. Bisbee is located on the southeast end of the range.

In the Tombstone area, the ores thus far developed occur principally in the Mesozic (Bisbee Series) strata, but there are numerous occurrences in all of the underlying Paleozoic limestones.

The ores of the West District are not confined to the sedimentary rocks, but occur also in a widespread monzonite porphyry. Although there are many exceptions, the greater number of the fissure veins in both the Eastern and West District areas have a roughly north-south strike and dip steeply to the west. Where folds occur in the Eastern area, they have been found in many cases to be the loci of interbedded deposits, or saddle reefs, and this may well prove to be the case in the West District. This seems to indicate the same in the recently completed Lundby and Brown reports, attached hereto.

The ores throughout the Tombstone District appear to have the same general source and are essentially the same.

6
It is my opinion, as well as others, along with the present activity, that the mining of ore deposits in the Tombstone District has scarcely begun. The reserves of milling and high grade ore deposits in the area, as indicated, are very large. This applies not only to the ores below water level, which are yet practically untouched, but there is a very large tonnage remaining above. Moreover there is much virgin ground in the area, which when explored and developed, will greatly extend the activity.

8
To-date, mining in the district has been largely, a selection of the high grade portions of the ore bodies, leaving the lower grade milling ores, and these operations have been limited almost wholly to that portion of the secondary or oxidized ores, above the water level. The depth of the permanent water varies, being relatively greater at points of greatest relief. The water level in the West District ranges from 200 to 400 feet. The water in the West District can easily be handled, the volume being about ample for milling purposes. On the Chance claim there is well with the pump set at 265 feet. It had to be set that deep in a 500 foot hole to make 20 gallons per minute.

In 1922 a leaseholder sank a winze, from the north drift on the 200 foot level in the Chance claim to a depth of 22 feet below permanent water and drifted 18 feet and stripped the ore for this distance to the 200 foot level above. Before the ore could be removed however, the upper part of the shaft caved in. Assays showed the ore to run from 100 to 1,200 ounces of silver per ton. This ore is still there, ready to be taken out by installation of equipment and a small amount of shaft work, plus some drifting on the vein from the south shaft on the Bonanza vein. This ore deposit was confirmed to me by V. G. Mellgren, Jim Giacomini and Ernest Escapule, Sr., all of whom personally viewed the ore.

8
The average width of the veins mined in the West District, so far, has been about 4 feet, tho, sometimes in places, widening to as much as 10 to 12 feet.

The ores as deep as mined, or to the water level, and to a proven depth of 34 feet below, are oxidized or secondary silver-gold ores. The silver occurs in the ore as a chloride, iodide, bromide and occasionally a small amount of sulphide, usually 40% as a chloride.

The average silica content of the ores shipped has been about 72%.

Many of the shallow gulches, or washes, of the area appear to owe their rectilinear courses to lines of weakness determined by the position of such structure as fault, shear and breccia zones and to interformational contacts. The formations and structures in such positions are usually more or less obscured by alluvium and they should be prospected carefully as likely places for veins, chutes, or less regular ore bodies.

The West District is largely undeveloped. There has been no systematic development of the ore bodies and no deep mining: No centralized workings for large scale operations, such as, cross-cutting the country at depth, from a main working shaft, to transect the parallel north-south vein system and the development of these veins along their strike. There is little doubt, that blind veins, will be encountered, when cross-cutting at depth is done. There is a parallel vein only approximately 100 feet east of the important Bonanza vein and there has never been a cross-cut made to it, however a cross-cut was started on the 181 foot level from a South Bonanza shaft that should be extended to the east vein, being an additional 50 feet. (See attached map of underground workings). Also note assays B-1 to B-5, in the cross-cut all carry values. This indicates the possibility of open pit mining in the proper area.

Mining in the West District has always been handicapped by lack of capital, having been operated by leaseholders for the main part, and paying high royalty with a low price of silver.

Mellgren mined from the Bonanza vein, 920 tons of ore by the fill-stope method, which ore was cyanided and gave a bullion value of \$44,000.00 at a low price of silver.

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Handicapped by primitive and inadequate equipment, it is natural, that with veins known to contain lenses and pockets of high grade, that mining in the West District, has always been in the nature of chloriding or go- phering, as the miners would express it, and that whenever ores too pre- sistently low to ship were encountered, work was abandoned at that point and started elsewhere. Usually in these cases it was said the ore "Pinched Out". This is far from being true, for in practically all cases, ore of a milling grade may be found in the faces of these workings and ore indications are still there.

9
In the Bonanza-Chance vein, opened up in places for a distance of 1,200 feet, ore to the value of \$1,000,000 was produced, principally in high grade, about 2/3 of the vein above the water level still remaining to be mined. How- ever, the north 500 feet of this area is now located on the Escapule property. An area on the north end of the "Chance" for a distance of 200 feet down to the water level, produced \$600,000 in ore. Directly below this area is the ore, previously mentioned, waiting to be mined.

There also remains the possibility of unexplored Paleozoic limestone be- neath the Mesozoic series, which have been productive horizons in the Eastern area; and that arched structures, when encountered, will contain saddle reefs and breccia ores, as proved in the Eastern area. The new Vertical Intensity Magnetometer reports (attached hereto), indicate to me that we may very well have located several such areas. This remains to be proven by drilling. In the south part of "Amy #14 claim, a hole was drilled to the 300 foot level that started to pick up sulphides at 100 feet and increased in volume to the 300 foot level. The values were nil but the presence of a breccia ore body is indicated. This hole should be taken to greater depth or another hole in the area should be drilled.

9
If the ore faces were sampled today, on ore faces left in the past, which was mined solely for the high grade ores, they would give results wholly mis-

8
leading. Ores of exceptionally high grade have been encountered repeatedly and this fact must be taken into consideration in estimating the general average of the ore to be mined. One lot of 22 tons of silver-gold ore, shipped from the Bonanza vein brought \$40,000.00, which, allowing for present value of silver would have brought near \$100,000.00.

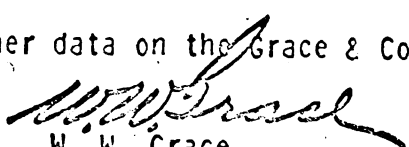
From the knowledge gained from working this property myself during the early thirties, I feel that silver from these veins should average at least \$60.00 per ton with silver at \$2.00 per ounce. Silver should go to \$3.00 per ounce by mid 1971.

The gold values will average about \$2.00 per ton for each 10 ounces in silver.

From the amount of development work done, few properties, under similar methods of operation, have yielded larger returns, or promise more, if adequately financed, developed, equipped and efficiently operated. Under these optimum conditions, in my opinion, the Grace & Colvin property may be worked for many decades with gratifying results. I further believe that the West District will become one of the major copper producing areas of the State of Arizona, as further development is made, but maybe not so great a depth on the "Amy" claims, the lower part of the Grace & Colvin property.

As of this date, there is unconfirmed reports, that a major discovery has been made on the Tombstone Mineral Reserve Property. Said property being directly south of the "Amy" claims. They are now constructing a mill just south of "Amy" number 10.

Attached hereto and made a part of this report are maps, assay results of ore on the surface of the "Chance" claim (Approx. 10,000 tons), I.P. lines, magnetometer maps, contour map and other data on the Grace & Colvin property.


W. W. Grace
8238 East Indian School Road
Scottsdale, Arizona 85251
Phone 946-9772

8840 Wrightstown Road
Tucson, Arizona
October 1, 1969

Mr. T. J. Colvin
Box 162
Tombstone, Arizona

Mr. W. W. Grace
Scottsdale, Arizona

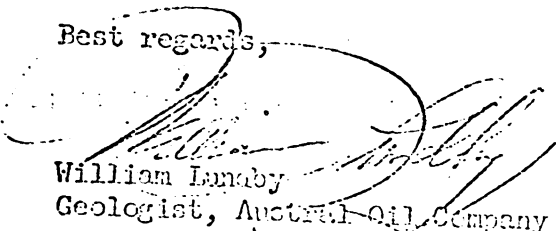
Dear Tom and Bill:

The magnetometer and geochemical surveys have been completed on the Amy group of claims near Tombstone, Arizona. As soon as I receive the recorded affidavit of labor from the county recorder's office I shall forward it to you.

The main feature of interest delineated by the magnetic survey is an area of low magnetic susceptibility generally coincident with an anomalous IP (induced polarization) zone as determined by Nick Carouso. Because the main rock type is igneous (Uncle Sam Porphyry), low magnetic susceptibilities may indicate zones of alteration accompanying mineralization; in this case, this is probably a valid assumption, as proven by the sulphides encountered in the validation hole put down by Austral Oil Company. Of course only pyrite was drilled, but deepening of this hole would certainly be of prime importance to determine whether or not substantial silver values might occur along with the pyrite at depth. The area to be tested extends from the southeast corner of Amy #14 to the southwest corner of Amy #9, which would represent the approximate centerline of the anomalous zone; the zone appears to vary from 1,500 feet to 2,000 feet in width. Since the apparent dip of the IP anomaly (line #3) is to the north, initial drilling should be somewhere along line A-A' on the enclosed map, and preferably along the most pronounced portion of the low (Amy #12, #13, or #14).

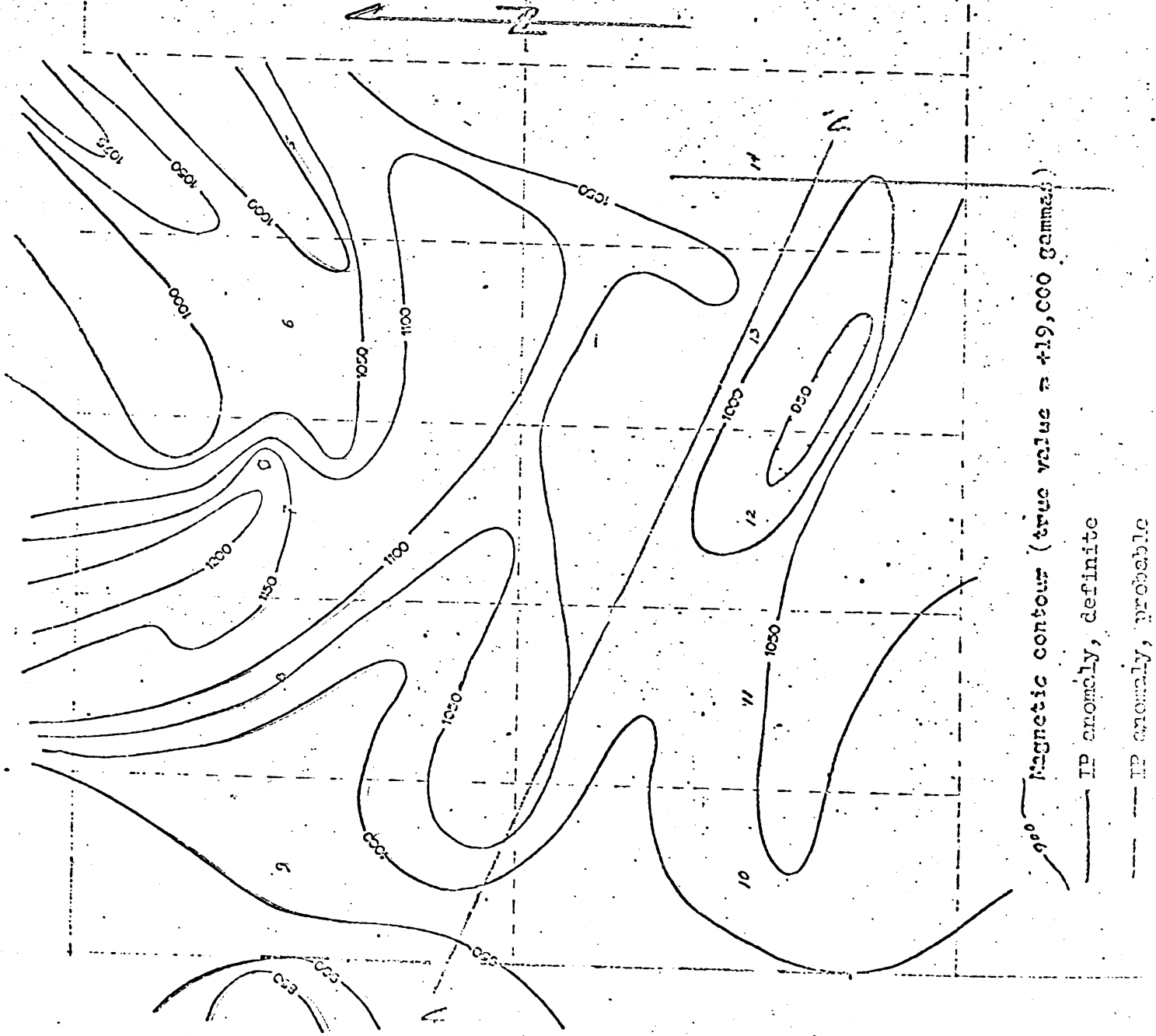
The geochemical survey indicated extremely weak values in both silver and molybdenum. This does not detract from the property, however, because similar low values were obtained on the ground to the north and good ore was mined from the Chance-Bonanza and State of Maine mines.

Best regards,


William Lunaby
Geologist, Austral Oil Company Incorporated

VERTICAL INTENSITY MAGNETOMETER
SURVEY
 (Askania 4661, 372)

AMY GROUP
 Cochise County, Arizona
 Section 21, T-20-S, R-22-E
 1" = 533'
 9-30-63 W. Luraby



REPORT ON THE
GRACE & COLVIN MINING
PROPERTY

MAY 1, 1970

By: RICHARD D. BROWN
Consultant
Tucson, Arizona

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APPENDED MATERIAL

LOCATION AND STATUS MAP

GEOLOGICAL MAP

INDUCED POLARIZATION REPORT & MAP by Nicholas H. Carouso

MAGNETOMETER MAP

ASSAY & LAB REPORTS

GENERAL INFORMATION

W. W. Grace and T. J. Colvin are the owners of approximately 800 acres of mining property consisting of 18 Federal unpatented claims, 420 acres of State Mineral Rights and one patented claim known as the "CHANCE". The property is located in Sections 16 and 21 in Township 21 South and Range 22 East, Cochise County, Arizona. The property is easily accessible by paved road and is two miles Southwest of Tombstone, Arizona on the road to Charleston.

The history of Tombstone mining is as exciting and colorful as the town itself, the reason for the town was because of the mines. Many books have been written about Tombstone, so I will leave that to the experts.

The region defined as the Tombstone Mining District is one of relatively moderate relief, the elevation at the San Pedro river, approximately nine miles to the south, is 3,900 feet. The country rises rapidly over a partially developed erosional sedimentary slope. Among the highest of the hills in the area is the Uncle Sam Hill with a summit of 4,831 feet, Mays Hill 5,727 feet, Military Hill 5,301 feet. The country is traversed by a system of washes and open passes which makes the ground easily accessible and all drainage is to the San Pedro River. The climate of the area is ideal, being mild winters and nice summers.

MINING LAWS

The purpose of these short paragraphs is to introduce^{to} the reader a resume of the laws governing Federal as well as State Mineral Rights. Excerpts are taken from "Laws and Regulations Governing Mineral Rights in Arizona" by Victor H. Verity, 6th Addition, Revised June, 1965. Quote " the intent of of the mining laws and the leasing acts, both State and Federal, is the development of the mineral resources on public domain and State land. The law and the public sentiment are on the side of the bona fide mining locator

best way to demonstrate this good faith is to properly locate the claims and to maintain and work it in full accordance with all legal requirements."

WHO MAY LOCATE

"Any citizen of the United States, or anyone who has declared his intention to become a citizen, an association of citizens or a qualified corporation may locate a mining claim upon public domain of the United States." "The statutes of Arizona provide that a mining claim may be located upon State land by any citizen of the United States, partnership, association or corporation organized under the laws of the United States or any State or Territory thereof." "There is no limitation on the number of mining locations that can be made by a qualified locator on Federal or State lands within Arizona."

To carry the information further in this discussion would defeat the purpose for which these paragraphs are intended. It is therefore recommended that any further broadening of scope be carried on by consulting the applicable laws - both Federal and State. A simple field guide is published under the Department of Mineral Resources, State of Arizona, titled "Laws and Regulations Governing Mineral Rights in Arizona" by Victor H. Verity.

TOMBSTONE PAST PRODUCTION

Extracted from MELLGREN REPORT by C. J. Sarle, PhD.

"When an analysis of production is made, on the output of mines in the Western Area, where several millions of dollars has been produced in high grade ores, with no attention being paid to the low grade milling ores, and this taken in connection with the magnitude of the mineralization area, containing virgin and unblocked ore bodies, it becomes one of the most attractive commercial mining propositions possible."

"The Eastern Area which has had proper financing for development of mining has yielded \$79,000,000.00." The Western Area of which Grace & Colvin property covers a substantial part and without proper financing and

equipment, has yielded the past owners approximately \$6,000,000.00 bringing the total past production in the Tombstone District to about \$ 85,000,000.00 based on 1928 figures of \$1.00 per ounce for silver and \$20.67 per ounce for gold.

GEOLOGY

Geologically, Section 21 is fairly simple: A sill-like mass of intrusive Uncle Sam Porphyry (Tertiary quartz latite) has intruded the Cretaceous Bisbee formation which consist of mudstone and sandstone quartzite with a few thin beds of limestone.

Because the geophysical (IP) and Magnetic anomalies are probably caused by alteration and mineralization of the Uncle Sam Porphyry, it is probable that these features will be stronger in the underlying Bisbee formation and chances for an economic deposit are good.

A vertical intensity magnetometer survey of all State land in sections 16 & 21, T20S, R22E (held by Grace & Colvin) was made using a McPhar vertical intensity flux-gate magnetometer (No.6513). The vertical intensity at the base station was 19,950 gammas (absolute).

Three areas of interest can be seen on the magnetic map:

(1) The area of low magnetic intensity approximately centered in Federal claims, Amy #12 & #13. The relatively low readings (950 gammas, based on 1,000 gammas at base station) cover an area about 600 feet wide and 2,000 feet long. This area ties in with the previous work; an I.P. survey showed sulphides at depth and a hole at the east end of the anomaly encountered sulphides at depth. This evidence points toward a large disseminated mass of sulphides.

(2) The second area of interest is at the northwest corner of section 21 and the southwest corner of section 16. Here, the magnetic lows, which are elongate for 4,000 feet are definately along the north-north easterly trending lineament seen on aerial photos. Also visible on the photos are cross faulting

and shearing leading into this area. Previous I.P. work has delineated definite metallic anomalies along this strike and the area should not be overlooked.

(3) Another area of interest lies just north of Amy #3, in Section 16, and is an anomalous magnetic low also, apparently associated with a north-easterly trending fault; this fault (and vein) has been worked at the north end in past years.

All in all, there are two major anomalies which should be explored and a minor one along the fault zone north of Amy #3. Therefore, it is my recommendation that a drilling program should be initiated to check out the possibility of silver in the anomalous lineament and copper-silver in the broad, magnetically low zone.

SAMPLING

A comprehensive study of the ground held by Grace and Colvin was made. This work involved a chemical survey of the area, sampling and assaying of the dumps and drilling and assaying of the core and cuttings, the results of this study is as follows: (Metcon Report) (Appended Material)

Additional geo-chemical sampling was performed at a later date on the north 1/2 of Section 21, (Amy Claims), the results drawn there were inconclusive, and no additional work of this nature was made. The assay report is included in the Appended Material.

Underground sampling was performed in an area just north of the "Chance" claim on the Bonanza vein by the writer while employed for Austral Oil Co., the results of the sampling and a map are included in the Appended Material.

INDUCED POLARIZATION INFORMATION

Mr. Bill Lundby, geologist for Austral Oil Co. instructed Mr. Nicholas H. Carouso, Consultant, to undertake a study of the area, part of which is the Grace and Colvin property, the results of that study is included with

the Appended Material.

Mr. C. T. Henderson, a part owner of the ground to the south of the Amy (Grace & Colvin) claims, also requested Mr. Carouso to undertake an induced polarization survey of their ground, since the lines run, cover a portion of the ground held by Grace and Colvin, that report is also included in the Appended Material.

GEOPHYSICAL INFORMATION

The fundamental principals of magnetics and the background of the magnetics method of geophysical prospecting has much in common with that of the gravitation method. Both are "potential" methods, having their fundamentals in potential theory. Just as the gravitational force in a given direction is the derivative, or rate of change, in that direction of the gravitational potential, so also the magnetic force in a given direction is the derivative in that direction of the magnetic potential.

CONCLUSIONS AND RECOMMENDATIONS

Because of the vast store of information that has been collected, concerning the property of Grace and Colvin, I feel extremely justified in making a recommendation of one of "proceed with haste, but deligently". These are some of the conclusions I have drawn. Geologic speaking, it goes without saying the "Tombstone District" has been one of the best producers of silver in the nation and I know the wealth to be extracted yet from this area makes the Grace and Colvin holdings one of the most promising in the state.


From a Geophysical sense of the word, it has been demonstrated by Carouso in his I.P. surveys, definite anomalous zones of metalics. These metalics being mostly iron pyrites but never the less are indictive of a large disseminated sulphide body. (See magnetic report, attached) In the work carried out by the author (magnetics) it also has been demonstrated the magnetics and

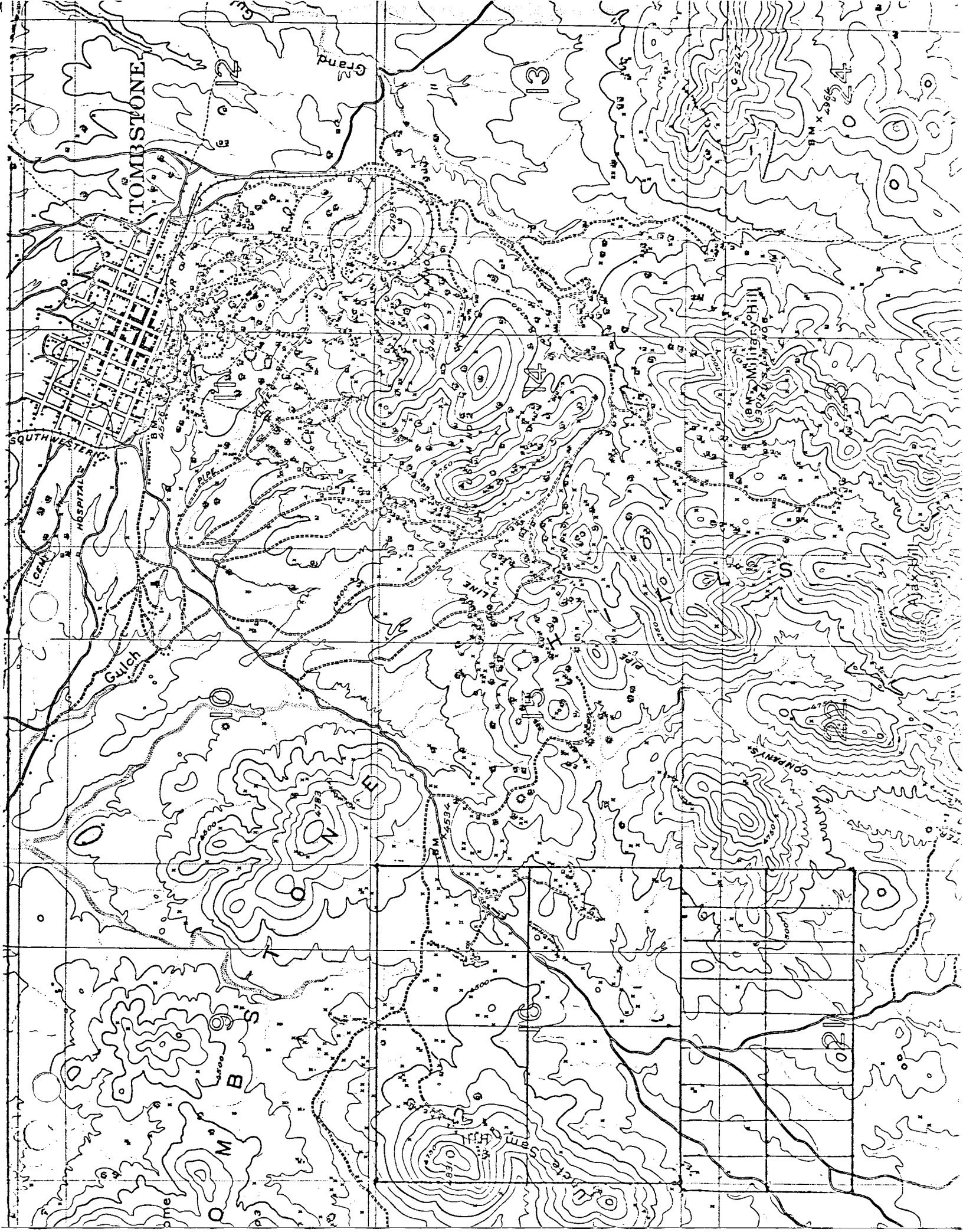
I.P. results are co-incident. This leads to the conclusion that both sets of results ie. (Magnetics & I.P.) are valid sense one has been checked against the other.

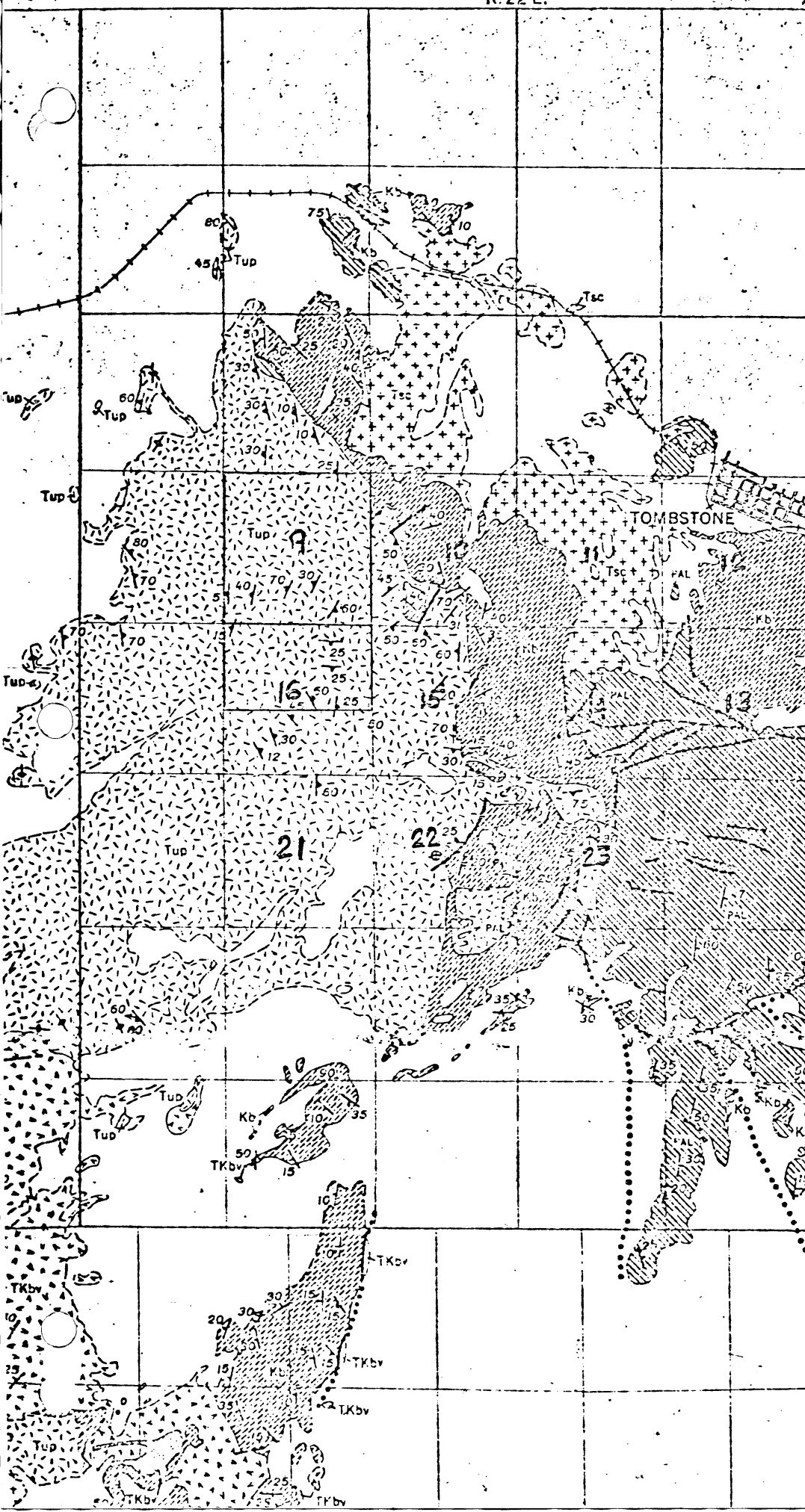
It is the writers professional opinion that the Grace & Colvin holdings offer excellent opportunities because of its combination of favorable features.

- (a) Past production with similar paragenesis
- (b) Magnetics and I.P. results delineate potential ore zones
- (c) Residual silver ore of mineable grades

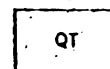
Respectfully submitted


Richard D. Brown
Consultant

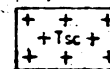




EXPLANATION



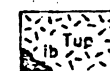
Alluvium



Schiefelin granodiorite



Andesite porphyry



Uncle Sam porphyry
ib, intrusive breccia



Bronco volcanics



Blisbee formation



Paleozoic and pre-Paleozoic
rocks undifferentiated

Contact
Dashed where approximately located

Fault
Dashed where approximately located

Concealed fault

Strike and dip of beds

Strike of vertical beds

nonconformity beds

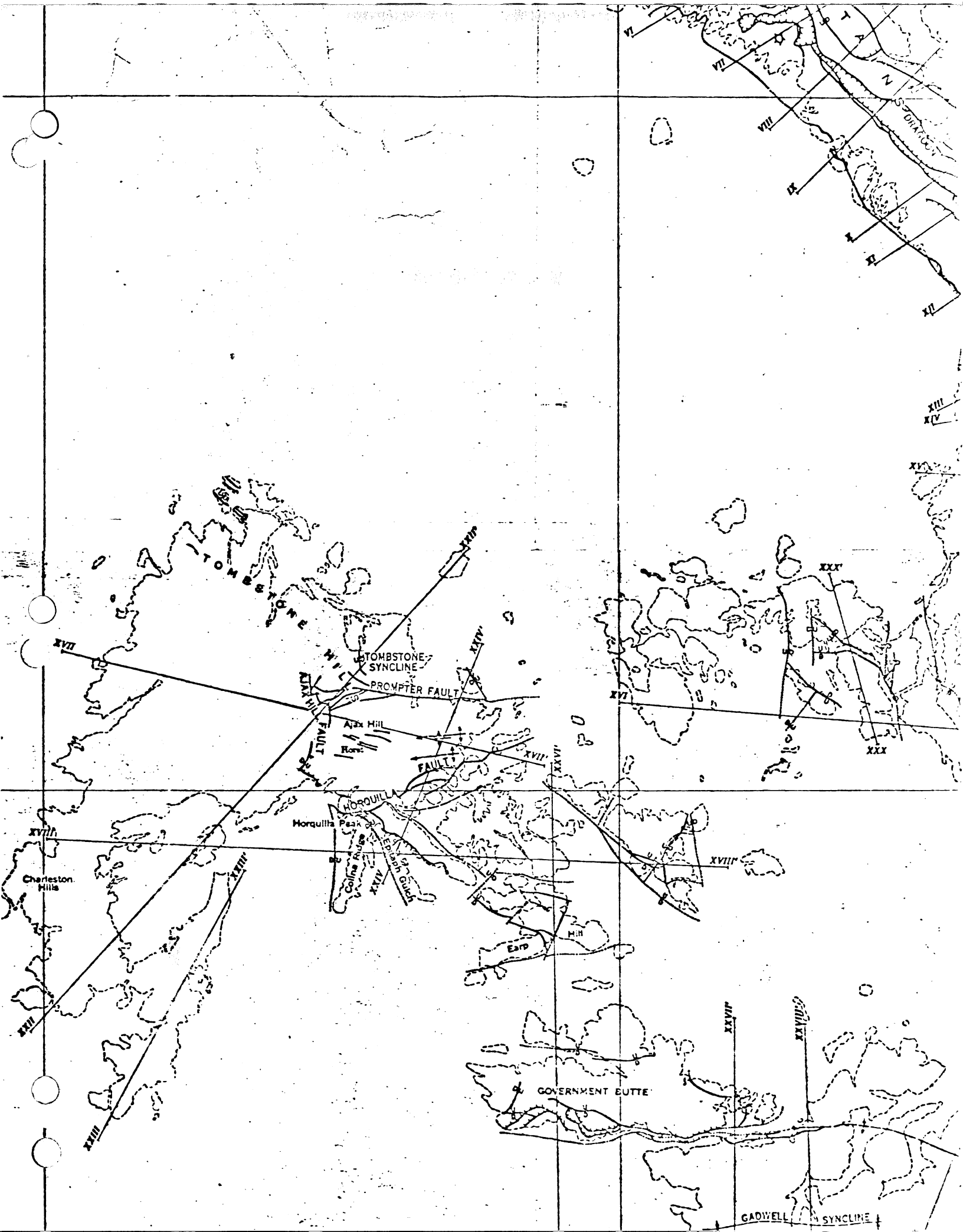
Strike and dip of foliation
or flow banding

Strike of vertical foliation
or flow banding

Strike and dip of foliation
and plunge of lineation

Bearing and plunge of lineation

TERTIARY AND QUATERNARY
TERTIARY
CRETACEOUS OR TERTIARY
CRETACEOUS
PRE-PALEOZOIC AND PALEOZOIC



SEC. 16

VERTICAL INTENSITY MAGNETOMETER SURVEY
CASKAMA 661,373
CHOPAR # 2515

AMY GROUP # SECTION 16

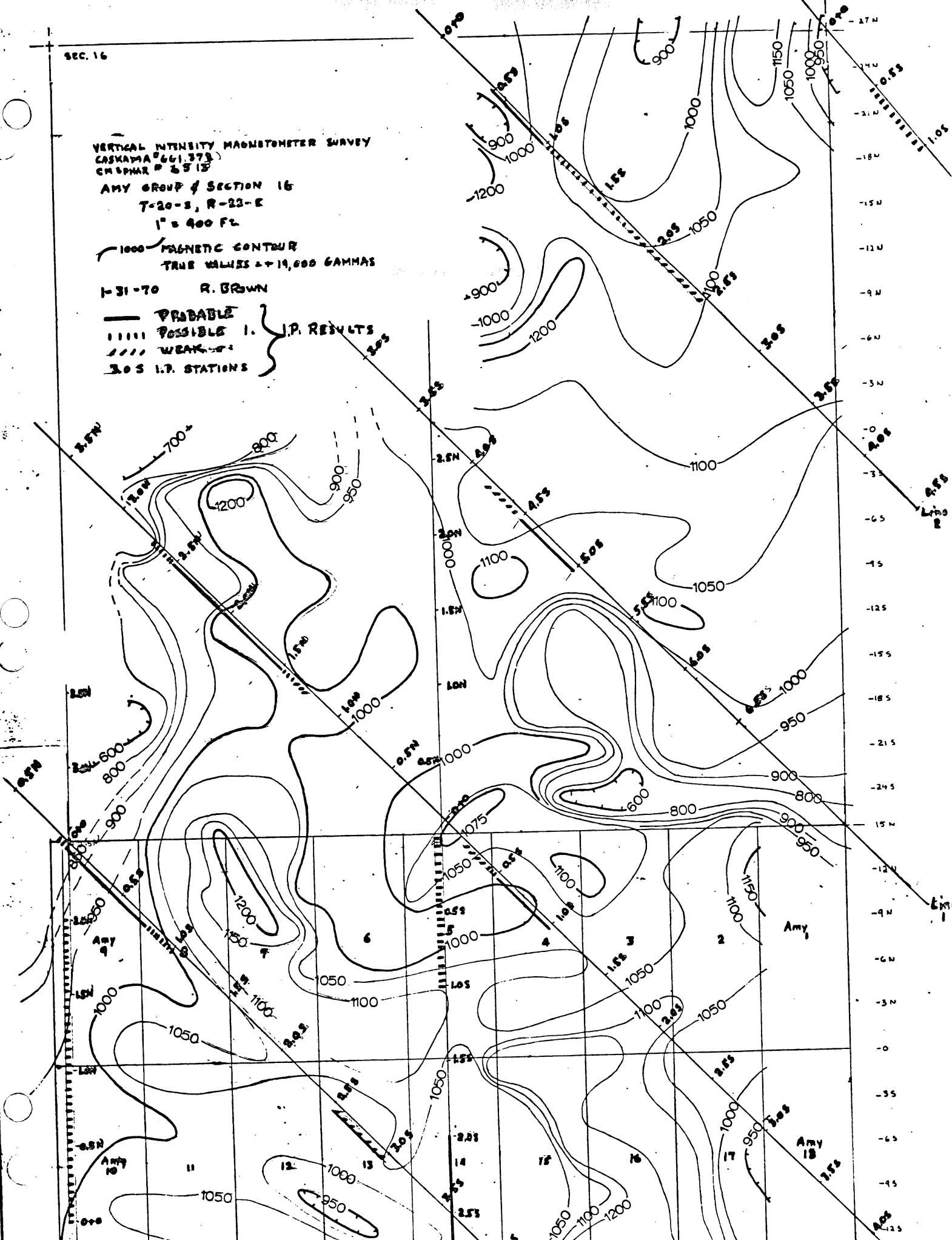
T-20-S, R-22-E

1" = 400 FT.

1000 MAGNETIC CONTOUR
TRUE VALUES $\pm 19,600$ GAMMAS

1-31-70 R. BROWN

— PROBABLE
|||| POSSIBLE I.P. RESULTS
---- WEAK
X X X I.P. STATIONS





9

SAMPLE NUMBER	GOLD OZ.	SILVER OZ.	LEAD %	COPPER %	ZINC %	MOLYBDENUM %
DB-1: 80-90	NIL	Trace				
Dump # 2	NIL	5.78				
THIS IS ASSAY REPORT ON DUMP OF CHANCE CLAIM 5.78 oz. per ton						

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 692-204-5011

Austral Oil
2700 Humble Building
Houston, Texas 77002

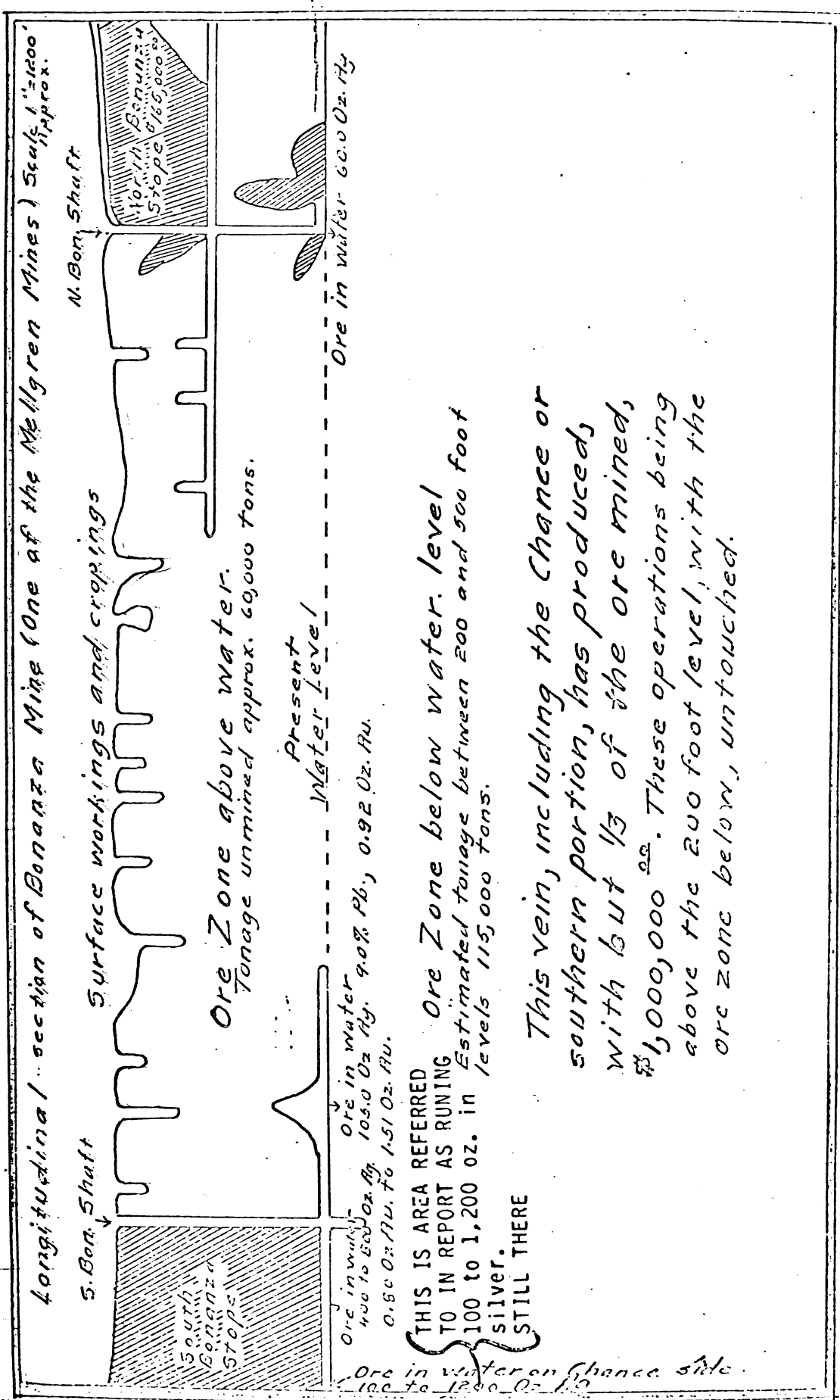
cc: landis

JOB# 002439
RECEIVED 5-2-63
REPORTED 5-2-63

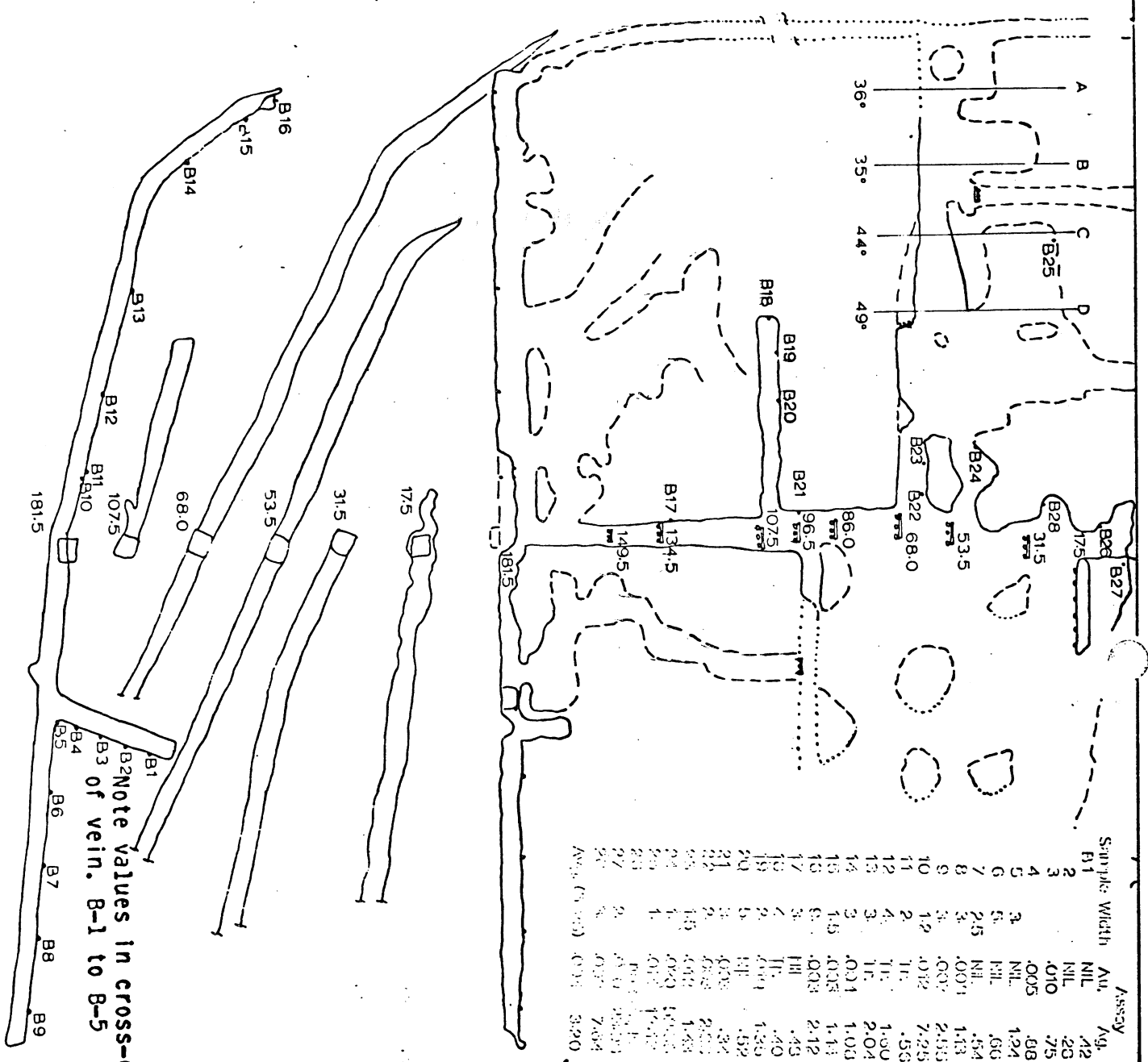
SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	MANZANOCO %	MOLYBDENUM %
D-1	.020	6.10				.20	
<p>THIS IS ASSAY REPORT ON DUMP OF CHANCE CLAIM SHOWING 6.10 oz. in silver (APPROXIMATELY 10,000 tons)</p>							

CHARGE \$ 6.75

INVOICE



This vein, including the Chance or southern portion, has produced, with but 1/3 of the ore mined, \$1,000,000⁰⁰. These operations being above the 200 foot level, with the ore zone below, untouched.



Note values in cross-cut, out of vein. B-1 to B-5

same

Sample	Width	Au	Ag
B1	1	NIL	.42
2	3	NIL	.23
3	3	.010	.75
4	4	.005	.08
5	3	NIL	1.24
6	6	NIL	.60
7	7	.001	.54
8	3	.001	1.13
9	3	.002	2.53
10	12	.012	7.25
11	2	Tr.	.56
12	4	Tr.	1.90
13	3	Tr.	2.04
14	3	.001	1.03
15	1.5	.003	1.13
16	6	.003	2.12
17	3	Tr.	.43
18	10	Tr.	.40
19	2	.001	1.30
20	5	Tr.	.52
21	3	.003	.34
22	2	.003	2.86
23	1.5	.012	1.43
24	1	.000	52.38
25	1	.014	12.13
26	2	.000	23.08
27	2	.014	7.64
28	3	.000	3.20
Av (5-28)			3.20

Sample	Width	Au	Ag
B1	1	NIL	.42
2	3	NIL	.28
3	3	.010	.75
4	4	.005	.88
5	3	NIL	1.24
6	6	NIL	.66
7	7	NIL	.54
8	3	.008	1.13
9	3	.007	2.55
10	12	.012	7.25
11	2	Tr.	.56
12	4	Tr.	1.60
13	3	Tr.	2.04
14	3	.004	1.08
15	1.5	.003	1.14
16	9	.003	2.12
17	3	NIL	.48
18	4	Tr.	.40
19	2	.010	1.35
20	5	NIL	.52
21	3	.003	.34
22	2	.003	2.86
23	1.5	.012	1.43
24	1	.000	52.38
25	1	.014	12.13
26	2	.000	23.08
27	2	.014	7.64
28	3	.000	3.20
Av (5-28)			3.20

SEC. 16

VERTICAL INTENSITY MAGNETOMETER SURVEY
CASKANIA #661,372
CM&PHAR #

AMY GROUP & SECTION 16

T-20-S, R-22-E

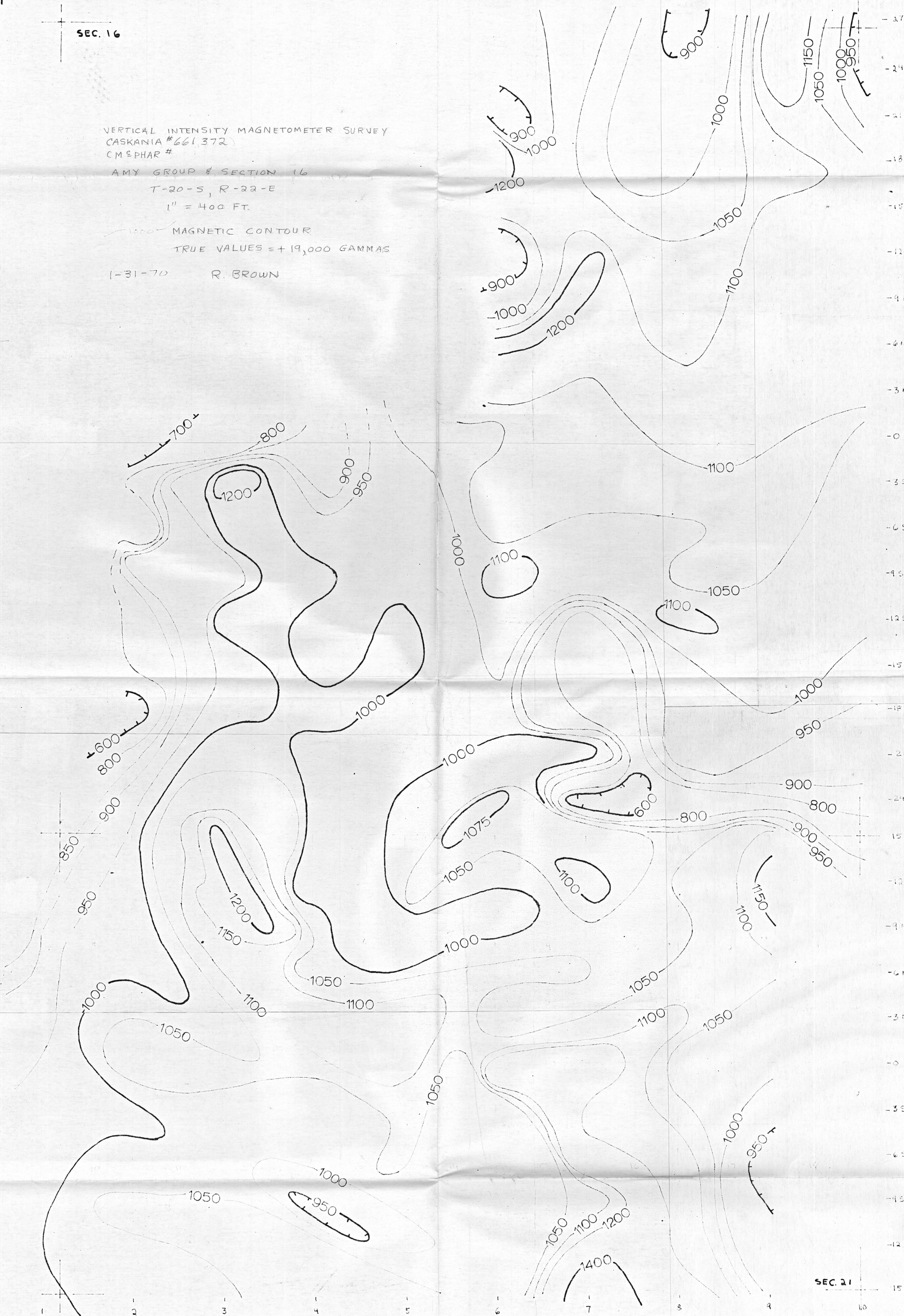
1" = 400 FT.

MAGNETIC CONTOUR

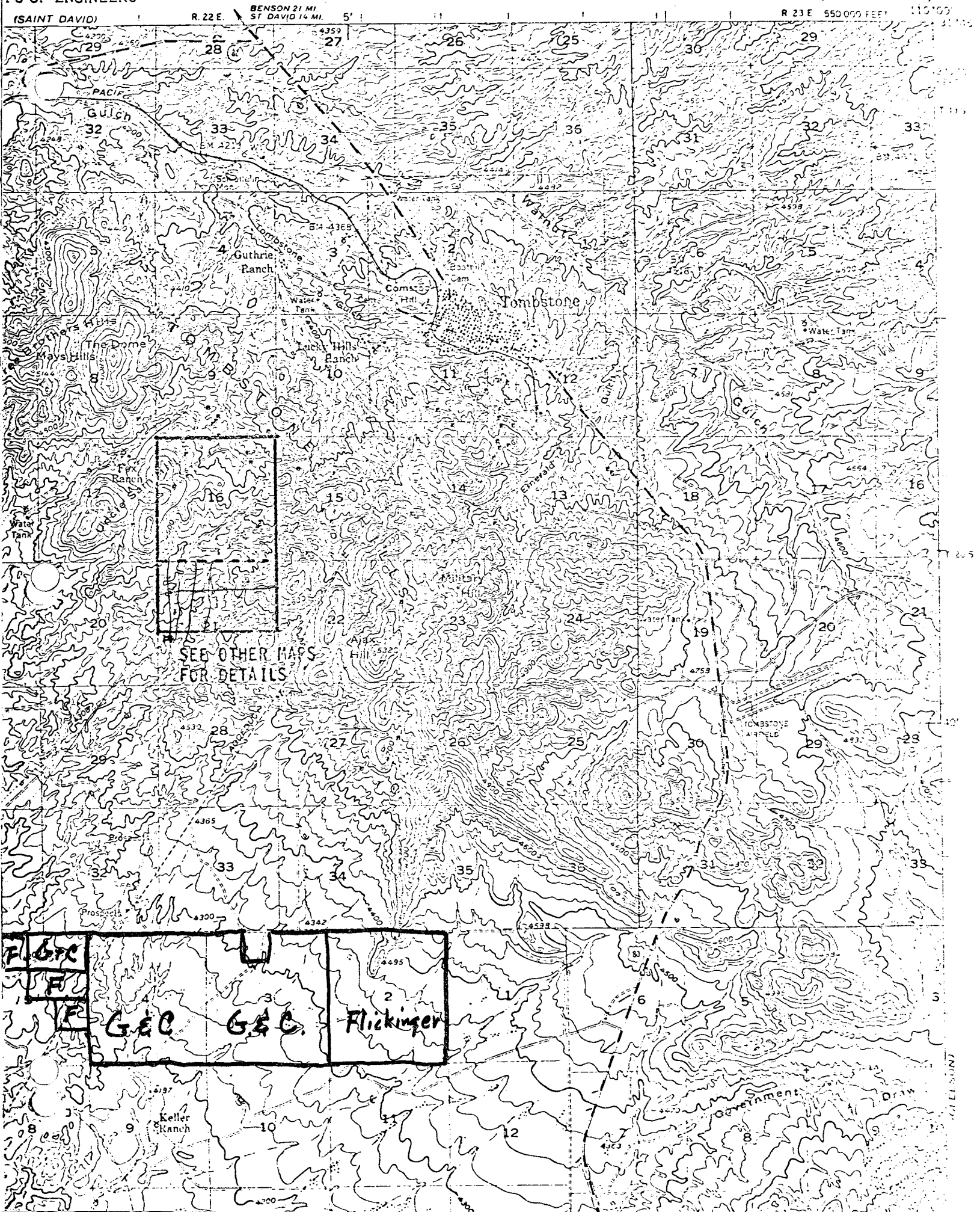
TRUE VALUES = +19,000 GAMMAS

1-31-70

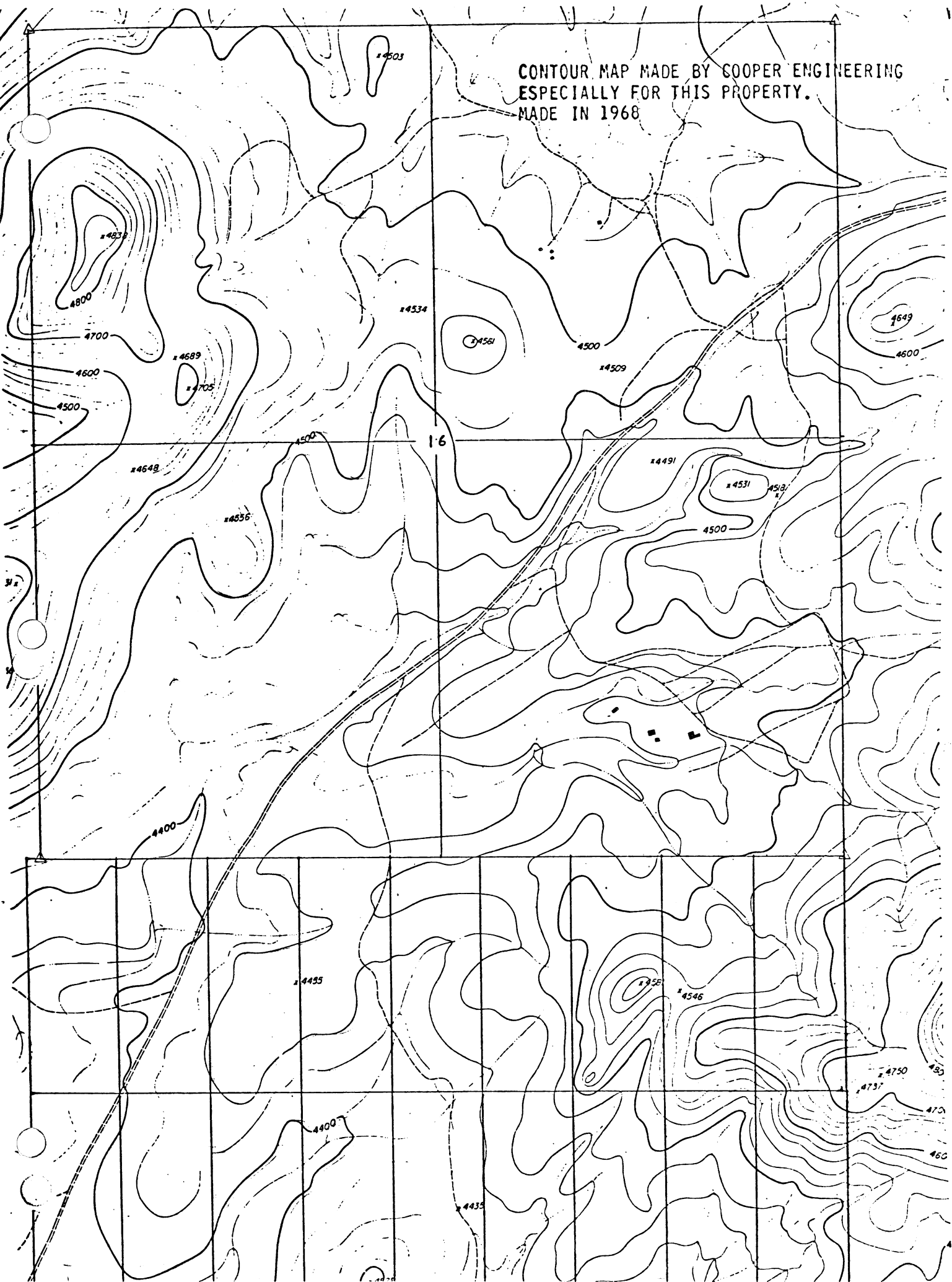
R. BROWN



SEC. 21



CONTOUR MAP MADE BY COOPER ENGINEERING
ESPECIALLY FOR THIS PROPERTY.
MADE IN 1968



SUPPLEMENT TO THE REPORT ON THE MELLGREN GROUP OF MINES, BY C. J. SARLE.

INTRODUCTION

In the following data covering the past history and development of the MELLGREN MINES, I wish at this point to set forth briefly my personal knowledge of these holdings.

In view of the fact that the "MELLGRENS", first commenced acquiring the present holdings in 1903 and having continuously operated same to date, my contact with them runs over a twenty-five year period. To obtain an insight into the past history of this property, I believe that a great deal of interesting data and information will be obtained by sketching briefly the MELLGREN history.

My father, the late J. L. Mellgren, first commenced mining in 1864, in California and from that date on until his death in 1920, at the age of eighty-six, he was actively associated with mining. Coming overland from Utah to Tombstone in 1880, he became actively associated with the early day operations of the Tombstone mines. My birth in Tombstone in 1885 and dating my active participation in my work in these mines from my graduation from Michigan College of Mines and Technology in 1908, gives an insight to my first hand personal knowledge of these mines.

In the working and development of the MELLGREN MINES, over a period of thirty years, operations were confined to and conformed with the mining ideas of my father. During his lifetime he was adverse to associating himself with partners or interesting capital for the commercial expansion of the mines. His entire method of operations, was the mining and search for high grade ores along the numerous fissure veins of these holdings. Working in this manner, with partial leasing and with no outside capital investment, he brought the mines to their present state of development. Over the twenty-five year period that he actively operated the property, all work was carried on from the proceeds of ores extracted, the mining itself being what I would term chloriding or gofering method of mining. Practically all operations were by hand mining, with the exception of some work with air drills at the Bonanza Mine.

Just prior to my fathers death, I had convinced him of the advantage of operating along a more systematic and expanded basis and plans were worked out for this expansion program. With this brief outline of personal history, showing a daily contact with the mines for a period of twenty-five years and without going into the geology but slightly, I will herewith set forth data and my personal ideas for commercial expansion of this property.

Being a co-owner in the property, I may appear over optimistic over the future of these mines; but from years of mining, studying the geology, structures and genesis of the ore and the personal assaying of nearly one hundred thousand samples from the TOMBSTONE MINING DISTRICT, I cannot but express my actual belief in the property as a whole. In view of the fact that the report by Dr. C. J. Sarle, on these mines, covers the geology and technical features in detail, I will endeavor to omit all technical discussions, confining my observations to the commercial aspects of the enterprise.

HOLDINGS

The The area embraced in the MELLGREN GROUP OF MINES, comprises fifty-six lode mining claims, containing approximately 1056 acres and takes in the greater portion of what is known as the Western Area, of the Tombstone Mining District.

PAST DEVELOPMENT HISTORY

Starting in 1879, the Bonanza Mine was first developed, the south shaft was sunk to the 200 foot level, following the vein down on its 65 degree dip to the present water level. From this shaft high grade ores were mined in the years that followed. Under the ownership of the late Col. Herring, I was shown settlement sheets on ores with values up to \$3,000.00 per ton. One shipment mined by P. Peterson, a lessee, showing one lot of twenty-two tons with an average value of \$2,273.00 per ton. Mr. Escapule, an early day lessee mined ore from 100 to 800 dollars per ton in value. From 1870 to date, on the CHANCE-BONANZA vein with a strike distance of about 1500 feet and from the 200 foot level to the surface, a production record of a little under \$1,000,000.00 has been obtained, the mining confined to the higher grade ores. Out of the south shaft, in 1918 while working on a lease with Pete Henderson, in a stope about 100 feet in depth and to the south of the shaft, ore with a silver content of 1,000 ounces and a gold content of 3.0 ounces per ton was encountered.

In 1919-21 period, the Gornge brothers, lessees at the south shaft mined on the 200 foot level on the north side of the shaft, during which period I did some cyanidation for them. At the bottom of the drift on the north side, they opened up a lens which is going down into the water, the ore at this point showing about 9.0 % lead, 105.0 ounces of silver and .4 ounces of gold per ton. On the south side of the shaft in the bottom of the 200 foot level and going down into the water, a high grade lens was encountered, running from 4.0 to 8.0 ounces in gold and 400.0 to 800.0 ounces in silver per ton. On the south extension of the Bonanza vein on the CHANCE side and about 150 feet south of the south Bonanza shaft, Emmitt Finerty a former superintendant of the COPPER QUEEN MINES at Bisbee, Arizona, obtained a lease and encountered ore below the 200 foot level running from 100.00 to 1,200 ounces of silver and 1.0 to 3.0 ounces in gold per ton.

About 1919 Pete Henderson obtained a lease on the Bonanza west cross-vein, starting in on new development thirty feet down from the surface. His initial work did not open up any high grade, the assay values being around 34.0 oz. silver and 0.20 oz. of gold per ton. He transferred his operations to the south shaft in search of high grade. No work was done on this cross vein until 1931 when Steve Balich, Sam Balich and D. Davidovich took a lease where Henderson left off. Sinking a few feet they encountered ore running up to 500 ounces silver and with a low gold content. Sinking is now going on in this shaft under a lease held by George Thome and LeFault, recent assays of last week showing values in excess of 100.0 ounces in silver and 0.22 ounces gold.

Continuing with the history along the Bonanza vein to the north. In 1912 Nigger Jim and Juan Valenzuela, lessees starting in at the surface, about 500 feet north of the cross-vein and main north-south vein intersection, encountered high grade, mining ore as high as \$400.00 per ton in value. The high grade lens at this point dropped in value to a milling grade and work was discontinued.

Continuing on north on the strike of the vein, my father, in 1910, started to sink the north Bonanza shaft, starting on exposed surface croppings. He sank the shaft on an incline to a depth of about 90 feet, at no point encountering high grade. Shipments of from \$20 to \$30 per ton being the average. In 1919 a lease was given to Lem Hilton, E. K. Springer and George Bixby. They sank the shaft to the 100 foot level and started drifting along the vein to the north. At a point about forty feet north of the shaft they encountered high grade and commenced stoping. The bulk of

the area shown by the longitudinal section of the Bonanza vein at the north shaft was mined under these lease operations, with a production of \$166,000. They sank the shaft to the 200 foot level as shown in the section plat. In 1924, C. J. Wynn, Arhtur Riley and Dan Benchoff obtained a lease at the north end of the Bonanza stope and extracted high grade, values running up to \$900.00 per ton. During mining operations in the north Bonanza workings I have personally taken and assayed samples running as high as 2700. ounces and 11.0 ounces in gold per ton.

Supplementing other experimental test on the milling of these ores; under the Gornge and Hilton lease period, I constructed a small experimental leaching plant and cyanided ores from these lease operations, working in this way a little over 1,000 tons, with good results which will be described more fully under milling.

At the present time lease operations are being carried on at the north Bonanza shaft workings. This briefly gives the development history of the Bonanza mine from 1879 to-date. All of this work was principally a search for the high grade lenses of the vein and usually where the vein dropped to a lower grade or milling ore it was left at this point. The entire production history of the Bonanza vein has been, that a continuation of work on the lower grade portions of the vein, has at some point led to the high grade lenses and it is my opinion that in extracting the vein enblock for milling purposes, that future mining and development will encounter additional high grade ores.

The continuity and mineralization of the veins will be discussed more in detail as a whole and will throw additional light on the Bonanza vein, in its relation to the true fissure vein system.

JOSEPH No. 2 MINE

The Joseph No. 2 Mine has a past history of a high grade producer. This I beleive to be a faulted position of the Joseph No. 1 vein, giving a combined strike distance of 2,000 feet. Joe Bignon a early day lessee on this property extracted ore of a value of as high as \$1.50 per pound. Photographic cuts of the working of this mine are shown in the report by Dr. Sarle. The past development history is similar to that of the Bonanza Mine, all of the work being done by hand drilling and hoisting with a horse whim.

JOSEPH No. 1 MINE

In 1904, my father started in sinking the north Joseph No. 1 shaft, about 600 feet north of the south shaft, from which shaft about \$60,000.00 was mined in high grade ore.

The shaft followed the westernly pitch of the vein and reached a depth of 220 feet, just above the water level. A drift was run south on the 100 foot level and a high grade lens was encountered with assays up to 5005.0 ounces silver and 5.0 ounces in gold per ton. The vein at the bottom of the shaft at the 220 foot level showed an assay value on the last sample that I personally took, of 94.0 ounces silver and 0.41 ounces gold per ton, associated with lead in the form of Galena, (lead sulphide). The lead content at this point in conjunction with other lead values at or near water level and correlated with the zonal arrangement of of the Tombstone ores, as shown by past development confirm my opinion that as depth development progresses that an associated lead value will be encountered with the gold and silver content. All of the work here described was done by hand steel, hoisting with a horse whim.

The workings as described in the Sarle report, covering the ANNEX No.40, ANNEX No. 41, PINTO, ANNEX No.16, etc, has a development history similar

to the above.

STATE OF MAINE MINE

Mention is here made of the STATE OF MAINE MINE lying north of the ANNEX No. 45 and ANNEX No. 46. From those workings approximately \$3,500,000 was produced in high grade ores. In 1920 the OLD PUEBLO LEASING COMPANY obtained a lease on the discarded dump material and installed a crude cyanide plant, working over the entire dump, which showed a nice profit to them from these operations.

Many other mines of this area have a past history on production of high grade, such as the SAN PEDRO, MERRIMAC, FREE COINAGE, MAMMIE, SOLSTICE, JUNETTA, etc., all on separate and distinct fissure veins, proving existence of higher grade values over a large area.

GEOLOGY

Touching briefly on the geology, which is covered in detail in the Sarle report, the structures and geological relationship of the Tombstone formations should be kept in mind. The geological horizon of the eastern or Bunker Hill Area and the western or Mellgren Area is worthy of note. While topographically the western area is lower, geographically it is about 400 feet higher, which means that there has been approximately 400 feet eroded in the eastern area, which has not occurred in the western area, in other words at an approximate distance of 400 feet in depth in the western area, it would coincide with the surface of the eastern area or geological horizon. Another point of great interest is the output of production from secondary ores. Of a total production estimated at \$85,000,000.00 for the Tombstone Mining District, practically this entire amount has been produced from the secondary ore column, mined to an approximate depth of 600 feet.

Based on an exhaustive study of the Tombstone ore bodies, it is my firm belief, that in addition to the untouched and undeveloped secondary ore zone, the primary ore below water have a mining life hard to estimate. From actual development the continuity and existence of the primary ore bodies has been fully demonstrated, notably in the SILVER THREAD MINE of the eastern area. The stopes on the 700 foot level and 800 foot levels of this mine ranging in widths of from 8 to 28 feet are in the primary sulphides and from a study of the zonal arrangement of the ore, taken in conjunction with a reconstructed series, the measurements being made possible by the enormous amount of development work of the eastern area, points to a definite zone of deposition or ore column in excess of 2,000 feet in depth.

In the ore of the master fissuring and vein system of the MALLGREN GROUP OF MINES, work to date has been entirely in the secondary ore zone above water and as is usual with secondary gold-silver ores, the vein matter as a whole is not uniform in value, which accounts for the high grade lenses occurring within the vein system, portions of the veins in the secondary ore column showing more leaching than other portions. It is reasonable to assume, and it is my opinion that as depth is obtained on the western area veins, that a zone of secondary enrichment will be encountered below the water level and at a point below this secondary enrichment the ores will become and maintain a more uniform value. As previously stated it is to be expected as development throughout the district has demonstrated the fact, that as below water development is reached, that lead values will be encountered, with the gold-silver content, the ores that have been mined to date in this area being above this horizon.

WATER

WATER

The water question in the Tombstone Mining District is discussed in detail, in the Sarle Report, pages 34 to 36 inclusive. I suggest that the map illustrating the eastern and western water levels, be studied for the information it throws on the water question of the western area. The monzonite batholith mentioned in the Sarle Report is important, cutting off as it does the eastern water from the western water area. By test made and other data collected. I can say that the water of the western area, will at no time to the 800 foot level, be any detriment to economical mining. This statement is based on pumping test at the south Bonanza shaft and on levels run at the Bronco Shaft, to the south, which was sunk to FIVE HUNDRED FOOT level with a No. 5 Cammeron sinker. The elevations obtained in running these levels, bears out this assertion. In view of the fact that expansion plans would include a milling plant for the treatment of the ores at the mines, the water would become a commercial asset.

MILLING

From numerous tests which I have conducted on the ores of the Tombstone Mining District, they are found to be adaptable to treatment. In 1922, I made one cyanide test of over 900 tons from a mine run from the north Bonanza stope and smaller lots from the south Bonanza workings. From these and subsequent tests it is demonstrated that the present ore horizon is ideally adapted to cyanidation. The values as a whole are not finely disseminated throughout the rock, but appears to be deposited through the fractures. Due to this form of deposition, cyanidation by straight leaching, ground to from 20 to 30 mesh frees the values and gives a good extraction. Extractions up to 96.0% were obtained by this method.

I would recommend that in mill plan designs that a flow sheet be prepared to later handle, a mixed gold-silver-lead ore in combination with cyanidation as I am firmly convinced that below water development will open up a gold-silver-lead zone. An initial mill capacity of not less than 100 tons per day is advisable, additional units to be added as expansion progresses.

SMELTER SHIPMENTS

From my twenty-five years operation of these mines and shipping direct to the smelter, my conclusion is that any expansion program, should and must, include the installation of a milling plant at the mines. Smelter charges, freight and trucking to the railroad in the past years has in some instances run the total cost per ton up to as high as \$25.00 per ton. Under such adverse conditions it was necessary to do selective mining, to realize a profit on other than the high grade ores.

In mining the ore for milling, mining enblock, mining cost are cheapened. Assuming a five foot mining width, the mining and milling cost on a 100 ton per day basis should not exceed \$4.00 per ton.

VALUES

In arriving at the value of the ore per ton, I feel that I have an insight on this phase that can hardly be obtained by present open face sampling. This data covers many thousands of samples, made as development progressed over a period of years.

The character of the ore, in view of the fact that it is not uniform grade throughout, makes me lean to the value estimate, based on past production. On these true fissure veins future development will undoubtedly, equal past production history.

Past production values are given in part in the Sarle report. My personal contact with the development and mining, in conjunction with the thousands of samples personally assayed by me and knowing of the working in high grade lenses, that have been mined in the past, it is safe to set \$15.00 per ton as a mill head average, with a probability of exceeding this by a considerable figure. The high grade must be considered in arriving at values as the entire past development history points to and bears out the assumption of future high grade lenses as a part of the milling ores. These mines being a part of the Tombstone mineral area, genetically connected with the eastern area, which has a production record of \$85,000,000.00, with a record of and being known as a high grade producer, bears out the results on thousands of samples made in these mines.

The average of the over 900 tons drawn from the north Bonanza stope for the cyanide test and mined on a average stope width of five feet, gave an average value of about \$44.00 per ton, net. The production record of the State of Maine Mine was in excess of \$100.00 per ton on a \$3,500,000.00 output. The CHANCE MINE to the south of the Bonanza shows about the same average value as the STATE OF MAINE mine.

It is my opinion from the physical conditions of the vein that the high grade lens is just beginning on the 200 foot level on the south side of the south Bonanza shaft, one about 40 feet north on this drift and at the cross-vein where work is now being carried on by lessees. Continuation of work on the 200 foot level of the north Bonanza will I believe pick up the north pitching bedding planes that carried the high grade lenses on and above the 100 foot level.

Continuation of the south drift on the north shaft of the Joseph No. 1, will I believe encounter another high grade lens in a short distance.

Typical of what is called a high grade ore are the lots from the JOSEPH No. 1, JOSEPH No. 2, BONANZA, ANNEX 40, etc., One lot from the south Bonanza shaft previously mentioned, consisting of 22 tons and averaging \$2273.00 per ton, with a gross value of about \$50,000.00 for the 22 ton lot.

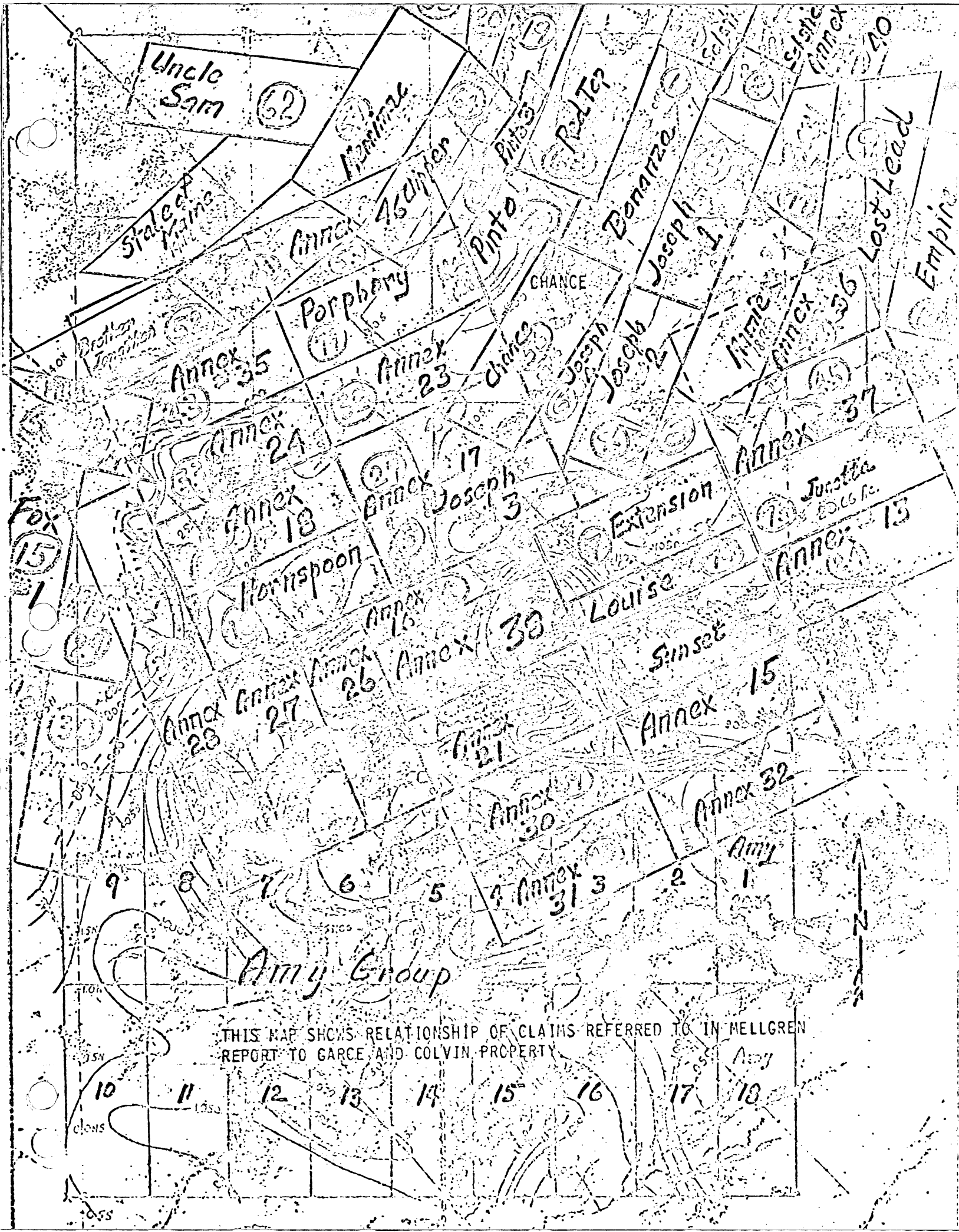
In basing my value on a mill head value, I have to some extent, discounted the production history on high grade, but the twenty-five years development which I have actively watched, leads me to most emphatically state, that I am firmly convinced that future mining will encounter additional tonnage of high grade ore.

CONCLUSION

From a personal contact with these mines dating back to 1908, covering all phases of the mining work, I can and do recommend this property most highly, having had occasion to make a life long study of the Tombstone Mining District as a whole, acting as engineer, assayer, mill experimental work and active mining operations throughout the District, gives me an accumulation of knowledge that could only be obtained in this manner. I have made a careful study of the geology and genesis of the ore deposits of this district and I am convinced that the mining of the ores of this district will run into many future decades with good results

Respectfully submitted.

/s/ V. G. Mellgren
V. G. Mellgren
Engineer July 5, 1933






THIS MAP OF CLAIMS SHOWS FORMER MELLGREN GROUP,
FOR REFERENCE ONLY. NOTE PROPOSED SHAFT AND CROSS-CUT

Vein Map of Western District

Scale 1"=2900 Feet. Vein positions approximate.

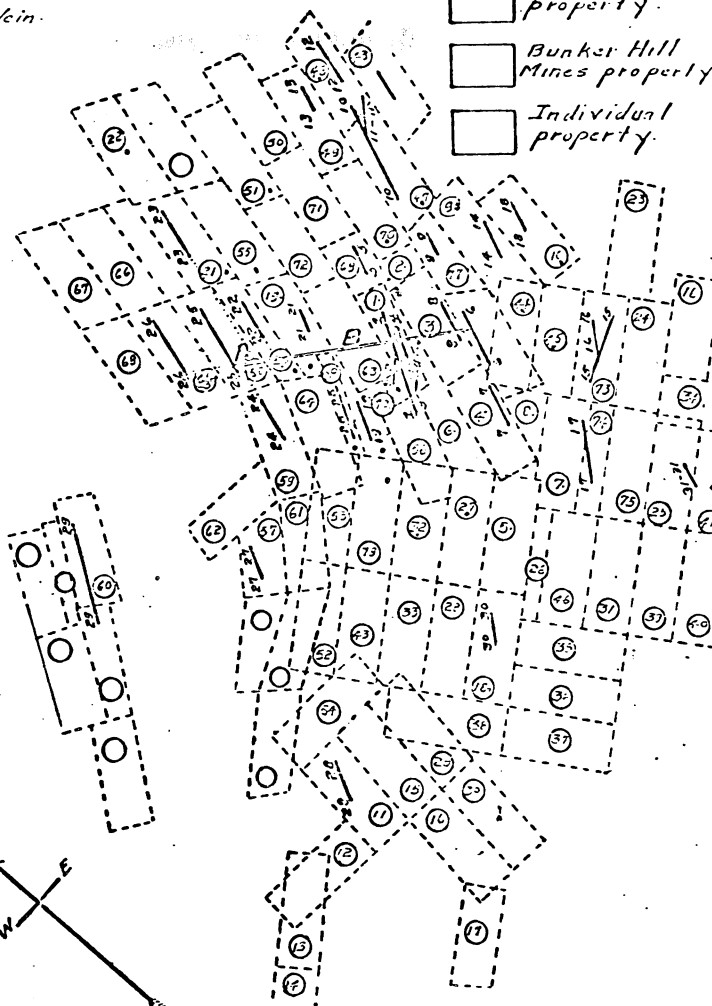
Key to Veins.

- 1-1 Bonanza-Chance Vein.
- 2-2 West Bonanza Cross Vein.
- 3-3 East Bonanza-Chance Cross Vein.
- 4-4 East Bonanza Vein.
- 5-5 Selstice Vein.
- 6-6 Muriel Vein.
- 7-7 Joseph No. 2 Vein.
- 8-8 Joseph No. 1 Vein.
- 9-9 Bay Vein.
- 10-10 Annex No. 50 Vein.
- 11-11 Annex No. 40 Cross Vein.
- 12-12 Annex No. 41 Vein.
- 13-13 Annex No. 42 Vein.
- 14-14 Lost Lead Vein.
- 15-15 Junella Vein.
- 16-16 Junella Cross Vein.
- 17-17 Louise-Extension Vein.
- 18-18 Empire Vein.
- 19-19 Pinto Vein.
- 20-20 Pinto No. 3 Vein.
- 21-21 Oversight Vein.
- 22-22 Oversight No. 1 Vein.
- 23-23 Ducota No. 5 Vein.
- 24-24 Merrimac Vein.
- 25-25 Free Coinage Vein.
- 26-26 Argenta Vein.
- 27-27 State of Maine Vein.
- 28-28 Bill-B Vein.
- 29-29 San Pedro Vein.
- 30-30 Hornspon Vein.
- 31-31 Annex No. 15 Vein.

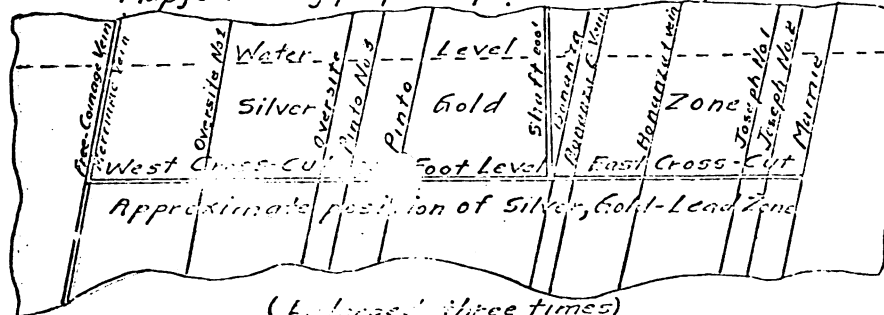
-  Mellgren property.
-  Bunker Hill Mines property.
-  Individual property.

Key to Claims.

- 1-1 Bonanza 47-Annex No. 4
- 2-2 Bonanza No. 1 48-Annex No. 4
- 3-3 Joseph No. 1 49-Annex No. 4
- 4-4 Joseph No. 2 50-Annex No. 4
- 5-5 Joseph No. 3 51-Annex No. 4
- 6-6 Joseph No. 4 52-Annex No. 4
- 7-7 Extension 53-Annex No. 4
- 8-8 Fraction 54-Annex No. 4
- 9-9 Lost Lead 55-Annex No. 4
- 10-10 Empire 56-Annex No. 4
- 11-11 Bill-B 57-Annex No. 4
- 12-12 Connection 58-Annex No. 4
- 13-13 Lion 59-Annex No. 4
- 14-14 Lion No. 1 60-Annex No. 4
- 15-15 Fox No. 1 61-Annex No. 4
- 16-16 Fox No. 2 62-Annex No. 4
- 17-17 Fox No. 3 63-Annex No. 4
- 18-18 Hornspon 64-Annex No. 4
- 19-19 Oversight 65-Annex No. 4
- 20-20 Oversight No. 1 66-Annex No. 4
- 21-21 Ducota No. 5 67-Annex No. 4
- 22-22 Ducota No. 10 68-Annex No. 4
- 23-23 Annex No. 12 69-Annex No. 4
- 24-24 Annex No. 13 70-Annex No. 4
- 25-25 Annex No. 15 71-Annex No. 4
- 26-26 Annex No. 16 72-Annex No. 4
- 27-27 Annex No. 17 73-Annex No. 4
- 28-28 Annex No. 18 74-Annex No. 4
- 29-29 Annex No. 19 75-Annex No. 4
- 30-30 Annex No. 20 76-Annex No. 4
- 31-31 Annex No. 21 77-Annex No. 4
- 32-32 Annex No. 23 78-Annex No. 4
- 33-33 Annex No. 24 79-Annex No. 4
- 34-34 Annex No. 25 80-Annex No. 4
- 35-35 Annex No. 26 81-Annex No. 4
- 36-36 Annex No. 27 82-Annex No. 4
- 37-37 Annex No. 28 83-Annex No. 4
- 38-38 Annex No. 29 84-Annex No. 4
- 39-39 Annex No. 30 85-Annex No. 4
- 40-40 Annex No. 31 86-Annex No. 4
- 41-41 Annex No. 32 87-Annex No. 4
- 42-42 Annex No. 33 88-Annex No. 4
- 43-43 Annex No. 35 89-Annex No. 4
- 44-44 Annex No. 36 90-Annex No. 4
- 45-45 Annex No. 37 91-Annex No. 4
- 46-46 Annex No. 38 92-Annex No. 4



Vertical Section along line A-B on Vein Map, showing proposed plan of development.

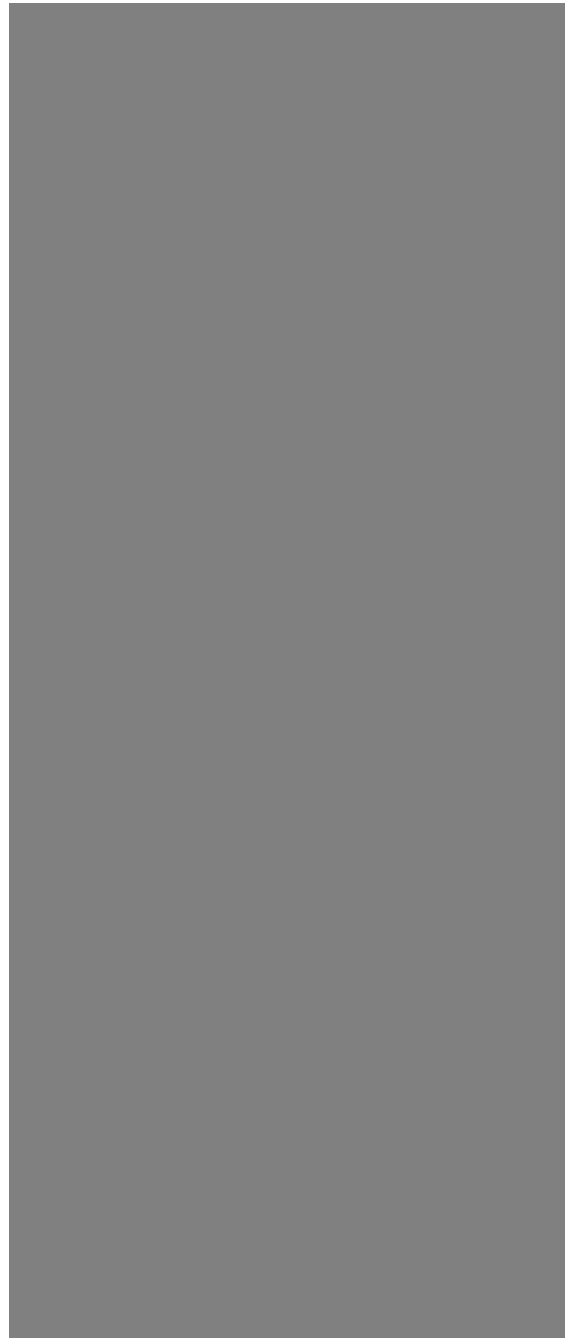
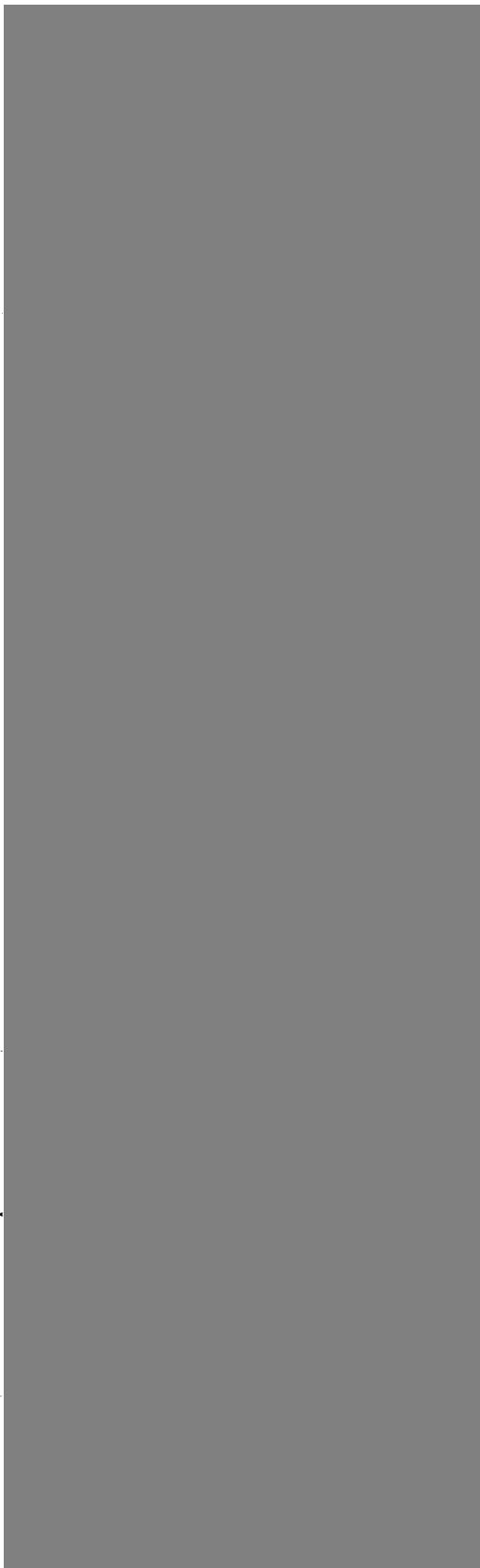


(Enlarged three times)

Drifts from the east and west cross-cuts should be run, not only on veins actually cut, but to lateral veins from points of intersection, of their projected lines of strike with this cross-cut. The cross-cut as thus delimited should in a distance of 3300 feet bring under development twelve veins, whose positions are indicated above, with a reasonable certainty of encountering other veins not exposed at the surface.



9-11-69



← Note Copper in area

WASHINGTON OBSERVER

NEWSLETTER

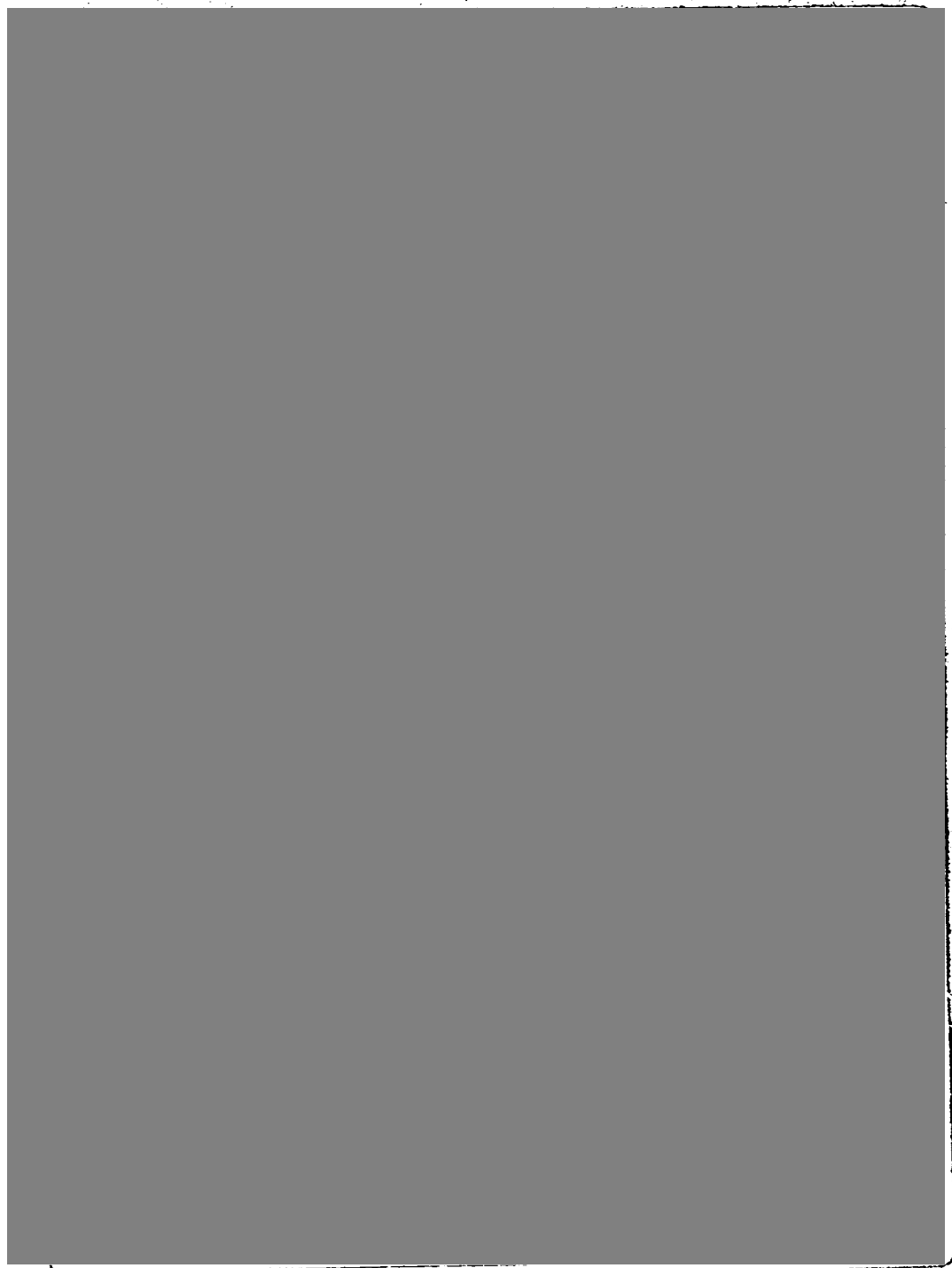
"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety"

BENJAMIN FRANKLIN

NUMBER 68

NOVEMBER 1, 1963

THE WALL STREET JOURNAL,
Monday, January 19, 1970



SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5875

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5311

Austral Oil Company
2700 Humble Building
Houston, Texas 77002

JOB # 002542
RECEIVED 5-21-63
REPORTED 5-24-63

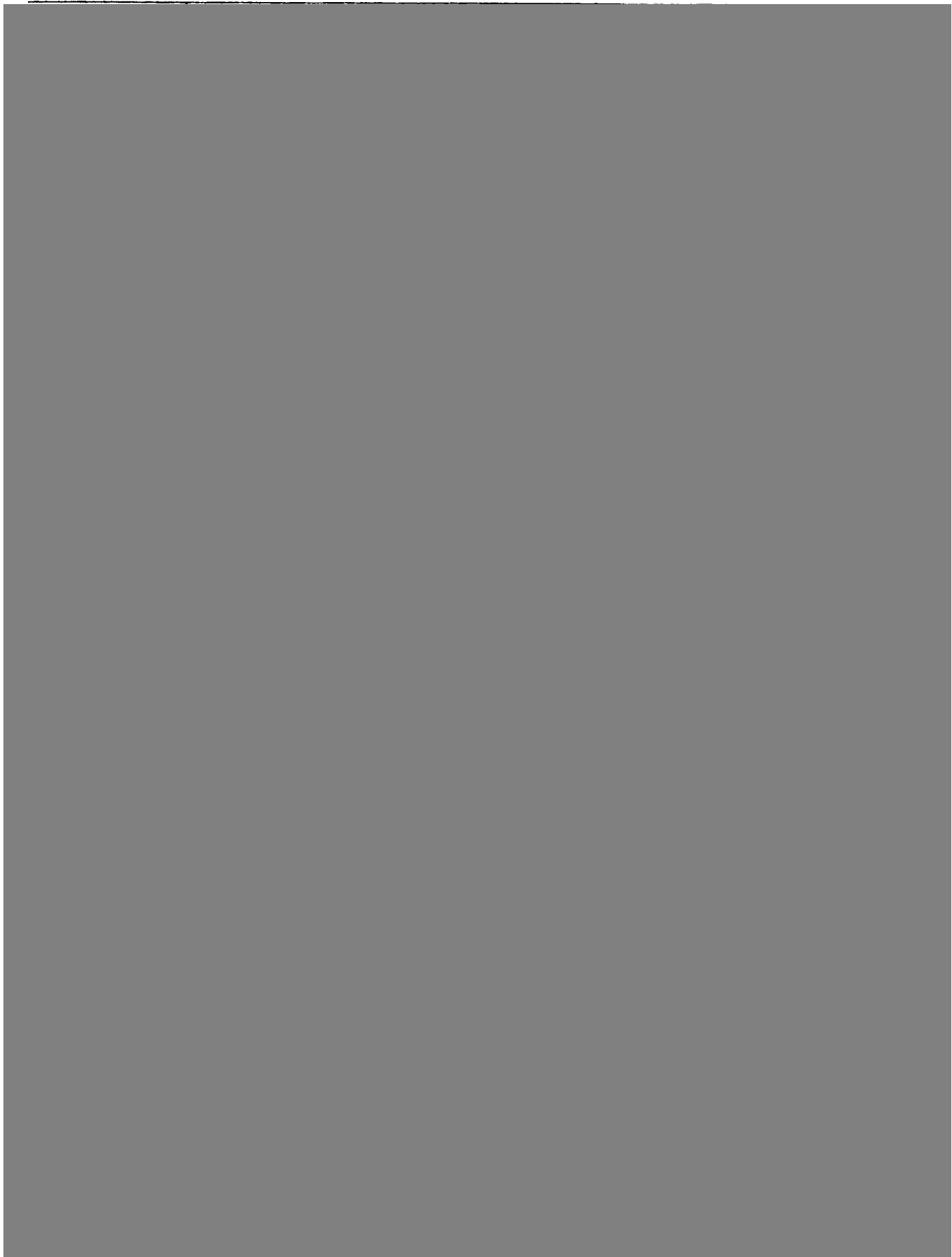
SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	MOLYBDENUM %
SA# 7	.200	838.80				
8	.080	210.92				
9	.040	32.96				

Santa Anna

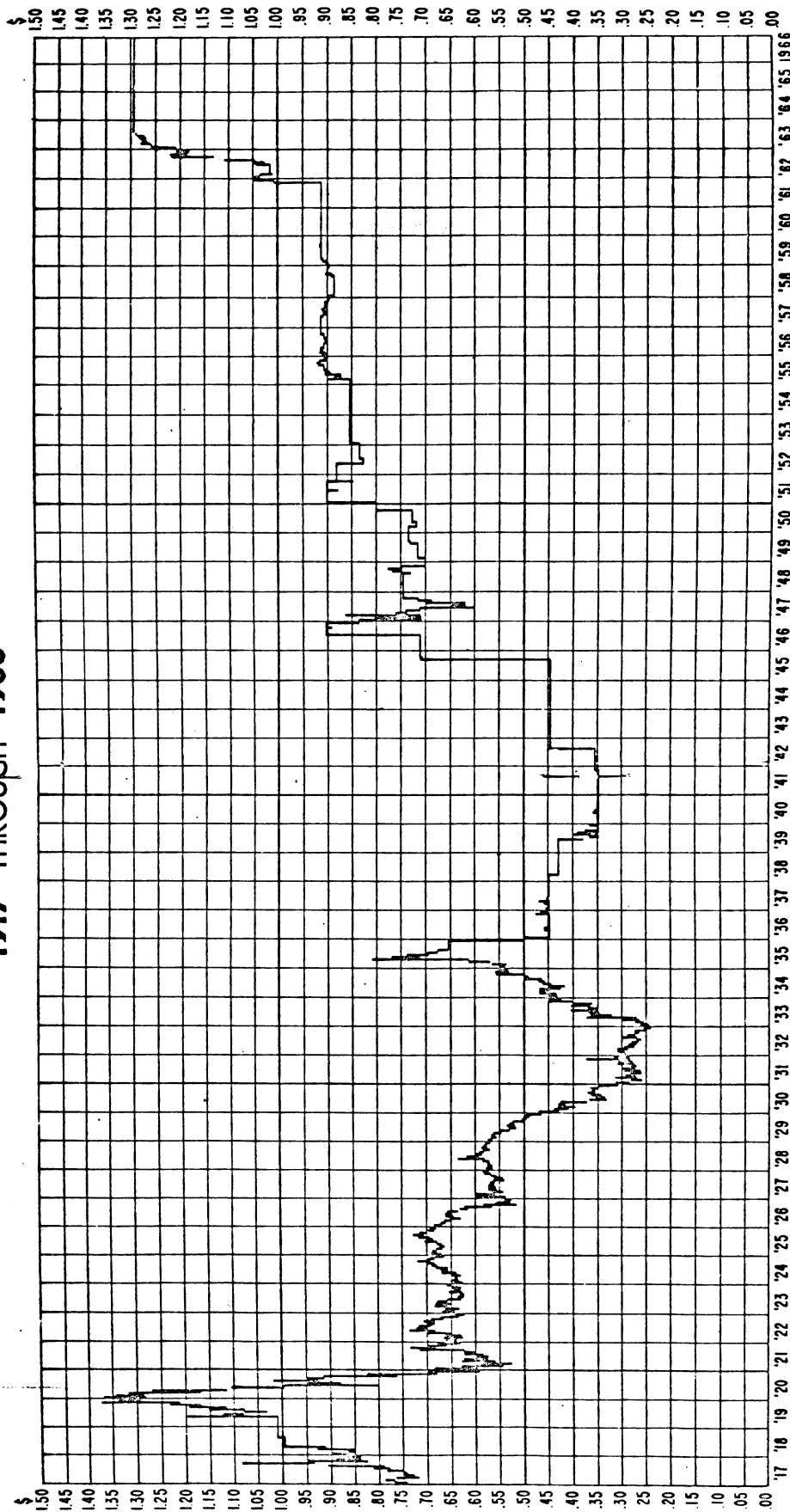
*Assays take from
Santa Anna Mine
Next to Silver Bonanza
Mines, Inc. - Same vein
extends into S.B.M. Inc.*

See map for location





THE NEW YORK SILVER PRICE 1917 THROUGH 1966



Source: Handy & Harman.

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