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TOMBSTONE
MINING DISTRICT
Cochise County, Arizona

State of Maine
Area of Interest

Tombstone Silver Mines
ERA Reports & Technical Data
Vol. 2 of 2

STATE OF MAINE
GRAVES 6/84

GEOLOGICAL AND PRELIMINARY

VALUATION REPORT ON THE

STATE OF MAINE AREA

COCHISE COUNTY, ARIZONA

FOR

TOMBSTONE SILVER MINES, INC

BY

Arthur J. Graves

June, 1984

PURPOSE

The management of Tombstone Silver Mines, Inc., P.O. Box 715, Tombstone AZ. 85630, requested a study of the State of Maine area.

The specific purpose of the study and subsequent report is to review the geology and production history of the area and to report on the potential for surface and underground mining of precious metals.

INTRODUCTION

This report is partly an abstract of papers by various authors on the subject of the geology of the Tombstone District and from personal experience in the district. Only three reports are mentioned in the reference. These reports in turn mention, many sources of detailed information concerning the subject.

Two weeks were spent sampling and examining the surface outcrops of mineralized structures in the State of Maine area located in the western part of the Tombstone District. This area was included in a larger area mapped by the author in 1970, at a scale of 1 in. to 1000 ft.

During recent years Bailey Escapule mapped the surface exposures and accessible underground workings in detail. Mr. Escapule's maps and reports were most useful.

LOCATION AND HISTORY

The Tombstone Mining District is located in Cochise County, Arizona, about 70 miles southeast of Tucson by highway. The hills in the district vary from 4500 ft. to 5300 ft. in elevation. The climate is semiarid with a mean annual temperature of 63 degrees F and an annual temperature of 63 degrees F and an annual precipitation of about 14.5 inches. Outdoor work is seldom curtailed due to inclement weather.

The known precious and base metal production was and is from mines in an area about two miles south of and three miles west of the town of Tombstone. From 1879 to 1970 the district produced about 30 million ounces of silver, 240,000 ounces of gold, 45 million pounds of lead, and 3 million pounds of copper. Also, about 9,000 tons of manganese was produced, mostly as a war effort during the 1940's.

About 50% of the precious metal production was prior to 1890. Only about 20% of the total production was below the water table.

Since 1970, about 2,000,000 ounces of silver and about 10,000 ounces of gold have been produced by cyanide leaching of oxide ores. The ore was produced mostly by open cut mining with the remainder from mine dumps.

The mines in the western part of the district, including the State of Maine, have produced about 80,000 ounces of silver and about 600 ounces of gold since 1970.

GEOLOGY

The Tombstone District is divided geologically into two areas. The eastern area is predominantely Paleozoic and Mesozoic Sediments with minor small intrusive masses and dikes. The western area, the area of interest for this study, is mostly intrusive and extrusive igneous rocks of Mesozoic and Tertiary age with remnants of Mesozoic Sediments.

Rock Types

The pre-Cambrian Pinal schist and an intrusive granite are overlaid by about 7000 feet of Paleozoic Limestones, Quartzites, and minor shales.

The Cretaceous Bisbee group is slightly more than 3000 ft. maximum thickness in the Tombstone hills. This group is predominantly shales and sandstones with a few thin beds of limestone.

In the western most area of the district, near the San Pedro River, the Bronco volcanic series, a lower andesite and an upper rhyolite overlay and intrude the Bisbee group.

An andesite porphyry plug and related dikes intrude the Bronco volcanics. In the western part of the district there are two extensive exposures of late Cretaceous igneous rocks. These units are the Schieffelin granodiorite and the closely related but slightly younger Uncle Sam quartz latite porphyry. The Uncle Sam is referred to as a tuff by some authors and there evidence that it is an extrusive with a maxium thickness of a few hundred feet.

Three other igneous rock types have been recognized in the Tombstone District. They are late Creaceous granophyre, rhyodacite, and hornblende andesite, all very limited in lateral extent.

The only tertiary unit that has been identified is a rhyolite porphyry in the southern portion of the district. The Quaternary units are the Gila conglomerate and the recent gravels and alluvial deposits. A small basalt dome intrudes the recent sediments near walnut gulch.

Structure

The Tombstone District is in the southern part of the Basin and Range Province. The oldest structures are the east-west Prompter-Horquilla fault system with dips at 60 to 80 degrees south. These structures pre-date Cretaceous time but have moved just before extrusion of the Uncle Sam and again in tertiary time, probably just after the rhyolite porphyry intrusive.

Following the deposition of the Bisbee Group in early Cretaceous, the district was subjected to compressive forces in a northeast-southwest direction. The compression resulted in folding and faulting of the Paleozoic and Mesozoic sediments.

Next, the Ajax north-south to north 15 degrees east were developed with dips usually steeply to the west. Andesite porphyry dikes intruded these faults during early Cretaceous.

Northeast fissures developed in late Cretaceous, after the Schieffelin granodiorite intrusive and the Uncle Sam extrusive. Some of these fissures are occupied by hornblende andesite dikes.

There are two late, post, mineralization fault systems. One is north 10 degrees west and dips 60 to 70 degrees to the west and appears to be prevalent in the large igneous rock outcrops. The other is north 50 degrees west dipping about 50 degrees west, and is prevalent in the sediments. These two systems may have developed at the same time.

Mineralization

Mineralization in the district occured after the hornblende andesite dikes were intruded along the northeast fissures near the end of the Mesozoic Era. The dikes and host rocks along the fissures were strongly altered. It is apparent that the northeast fissures were one of the main channels for mineralization.

The strongest mineralization in the district is where the northeast fissures intersect north-south dikes (fissures), anticlines and rolls on the flanks of anticlines, and other faults.

There are only a few local occurences of primary (hypogene) minerals above the water table. The typical hypogene minerals produced from below the water table were quartz, pyrite, argentiferous galena and tetrahedrite, hessite, spalerite, chalcopyrite, and altaite.

The significant ore bearing minerals in the oxidizes above the water table are anglesite, cerussite, smithsonite, hemimorphite, covellite, malachite, and the supergene minerals is bromyrite. Others are cerargyrite, embolite, argentite, and native silver.

STATE OF MAINE AREA

The early day producers in this area were the State of Maine with smaller production from the Brother Johnathan and the Merrimac.

The silver mineralization is along northeast fissures that dip 45 degrees northwest in the Uncle Sam porphyry host rock. The alteration is up to 50 feet wide along the veins. Rhyolite porphyry kikes parallel the vein structures but as usual not in contact with the mineralization.

Five veins that more or less parallel the length of the claims were examined and sampled. These are the State of Maine (S) Merrimac (M), Clipper (C), Triple X (T), and the Brother Johnathan (B). The symbol in parenthesis identifies the sample.

During recent years small surface pits have been excavated on these veins to develop and mine silver ores. The pits, are generally 15 to 20 feet in depth and up to 150 feet in length.

The silver values in the brecciated fissures have been leached downward near the surface. This is typical in the Tombstone District, except for siliceous veins. Normally, the breccias contain less than one ounce of silver for 15 to 20 feet in depth, just below the surface.

Sampling

A total of 176 samples were cut across the exposed faces in the open cuts. The samples were analyzed locally by Lindroos Laboratories, using a chemical technique. A few were checked by fire assay with good results.

Of the 176 samples submitted, 32 samples varied from 1.0 to 9.7 oz. silver, 12 samples were from 0.5 to 1.0 oz. silver, and the remainder were less than 0.5 oz. silver.

A tabulation is attached assigning the samples to the particular vein.

It should be noted that gob was sampled at three locations as noted. A gob is material not considered ore and it is used to backfill voids for ground support. In the Tombstone District high grade was shipped and the low grade that is ore to us, was used for backfill.

The first three samples of the Merrimac are within 150 ft. along strike and are very good since it is a very siliceous vein that resists leaching. The M-5 is about 500 feet to the southwest, just a few feet below surface, and requires additional excavation for exposure.

The Clipper samples appear to be disappointing but they are in very strongly brecciated material within ten feet of the surface, thus leached. Additional work will expose ore of higher grade along this vein.

The S-1 and S-7 sampling are 850 ft. apart on the same vein which is very encouraging. This is a prime target for additional exposure and sampling.

The Brother Johnathan vein walls appear to be leached to over 20 ft. depth. The vein gob has been mined in recent years with good returns but this sample is very low.

The Triple X samples are not high grade but impressive because of the widths.

Tonnage

An average vein width of five feet is used for tonnage calculations. A vertical pit depth of 50 feet is used resulting in a waste to ore ratio of 4.5 to 1.0 tons. This means that for every ton of ore removed a total of 5.5 tons of material will be moved. The above assumptions which are very conservative results in 20 tons or ore for each foot of strike length.

Sample results, experienced by present operators, and field examination result in the following vein strike length estimates:

Merrimac	200 ft.
Clipper	600
State of Maine	1200
Triple X	400
Brother Johnathan	600
Total	3000 ft.

At 20 tons per foot and 3000 foot strike length, the tonnage estimate is 60,000 tons. A conservative grade of 3.0 oz. silver is assigned to this tonnage. A 200 ton per day operation can be sustained for about 300 operating days with this tonnage.

The veins are generally the 1500 foot length of the claims, which means there is about 7000 feet of vein length on the five claims. We have a pretty good handle on the above 3000 feet but the other 4000 feet is unkown and a good exploration target.

Increases in vein width above 5.0 ft. and grade above 3.0 oz. silver will allow the strip ratio to increase. An increase in strip ratio allows more pit depth thus more ore tonnage.

CONCLUSIONS

The State of Maine area has about 3000 ft. of strike length of vein structures exposed. Mining in recent years and the present study have outlined a possible reserve of 60,000 tons at least 3.0 oz. of silver per ton for open cut mining.

The known economics of this mine indicate a surface mining direct cost of about $6.00 per ton. The processing is about $3.00 per ton. A short term, one year amortization of capital would add another $4.00 per ton. This adds up to an estimated cost of $13.00 per ton without overhead which should be less than $2.00 per ton.

Surface mining will expose portions of the veins that can be extracted by underground mining. Underground mining will have to be selective with respect to grade due to costs. That will be four to five times greater than open cut mining.

RECOMMENDATIONS

The known vein exposures should be excavated to at least to a 20 ft. depth and sampled at least every 100 feet in length.

A percussion drilling program should be tested for sample grade verification. This can be accomplished by a few shallow drill holes on the vein structure where excavation can expose the drill hole. The rock can then be channel sampled to verify the drill hole sample. This should be repeated whenever economically convienient.

With confidence in drill hole results a drilling program can be outlined along the veins.

At some point in time during the exploration program, probably three to six months, a reserve should be developed, that will justify initiation of production.

The amount of reserve will dictate the production tonnage and time frame which in turn will determine the economic factors. The economics can be fine tuned at this point.

Respectfully Submitted,

Arthur J. Graves

SAMPLE RESULTS

	WIDTH	OZ. AG	OZ. AU	REMARKS
M-1	2.0	9.70	0.030	VEIN
	1.5	1.20	0.005	FOOTWALL
Average	3.5	6.06	0.019	
M-2	7.5	6.18	Tr	VEIN
	5.0	0.72	0.005	HANGINGWALL
Average	12.5	4.00	0.005	
M-3	4.5	2.52	Tr	FOOTWALL
	1.6	0.14	Tr	
	0.5	1.26	Tr	
	2.0	0.62	Tr	
	1.7	0.06	Tr	
	1.0	0.62	0.003	
	4.2	4.86	0.010	VEIN
Average	15.5	2.23	0.003	
or	5.2	4.04	0.009	
		9.54	Tr	GOB BELOW VEIN
M-5	3.8	2.08	0.003	VEIN OUTCROP ABOUT 500 Ft EAST
C-1	8.0	0.66	Tr	VEIN STRUCTURE
C-2	4.3	0.56	Tr	VEIN STRUCTURE
C-5	5.0	2.12	0.008	SAME 210 Ft. SW
C-4&C-5		1.84	0.011	GRAB OF FOUR MUCK PILES
B-2	3.0	0.44	0.003	GOB
	2.5	1.26	0.003	HANGINGWALL OF VEIN
B-4		0.72	0.003	REMAINDER BROTHER JOHNATHAN DUMP
T-2	3.0	2.48	0.008	FOOTWALL
	2.7	1.84	0.008	
	1.2	0.96	0.005	
Average	6.9	1.96	0.007	
	5.0	0.35	Tr	WASTE
	7.0	1.06	Tr	
	4.2	2.12	Tr	GOB
Average	11.2	1.46	Tr	

	WIDTH	OZ. AG	OZ. AU	REMARKS
T-4	4.5	1.52	0.003	FOOTWALL
	1.1	3.12	0.005	VEINLET
	1.4	0.78	Tr	
	3.8	3.92	0.003	
	3.0	0.76	0.005	HANGING WALL
Average	13.8	2.07	0.003	
or	10.8	2.43	0.003	
S-1	4.5	3.64	0.008	FOOTWALL OF VEIN
S-3		3.76	0.003	GRAB OF TWO MUCK PILES
S-6	4.0	1.08	0.011	TRENCH EAST OF S-1
S-7	1.4	7.04	0.005	SURFACE VEIN AT DECLINE
	2.6	3.84	0.003	
Average	4.0	4.96	0.004	
S-8	1.4	2.74	0.005	SAME VEIN 18 Ft. BELOW
	2.6	2.48	Tr	
	2.5	6.72	0.003	
Average	6.5	4.17	0.002	
S-9	2.0	1.88	Tr	SMALL DRIFT FACE
	2.5	1.12	Tr	
Average	4.5	1.46	Tr	

REFERENCES

Butler, B. S., Wilson, E. D., and Rasor, C. A., Geology and Ore Deposits of the Tombstone District, Arizona, Arizona Bureau of Mines Bulletin 143, January 1938.

Newell, R. A., Ph. D., Exploration Geology and Geochemistry of the Tombstone-Charleston Area, Cochise County, Arizona, Stanford University Dissertation, December 1974.

Escapule, Bailey, Geological Report on the Grace Claim Group Cochise County, Arizona, June 1981.

RESUME

Gentlemen:

I am a U.S. citizen, age 58, in excellent health and happily married. My degree is in geological engineering mining option, from the Colorado School of Mines 1952. Since 1952 I have attended many courses and seminars related to the mineral industry.

During the past 32 years, I have 30 years experience in the mineral industry and two years in the U.S. Army. Exploration accounts for 11 years, production engineering, geology, and management 12 years, and technical service and sales 7 years. included is over two years as a consulant.

I am a registered professional engineer in the State of Colorado, Number #7994 .

Respectfully Submitted,

Arthur J. Graves
P.O. Box 277
Tombstone, AZ 85638

EXPERIENCE

May 1984 - Present

Consultant

December 1981 - May 1984

Mine Superintendent, Tombstone Exploration, Inc., a 2500 TPD Silver Mine. Responsible for mine production technical department and contractor.

August 1979 - December 1981

Senior Mine Engineer, Anaconda Copper Company, New Mexico Operations. Budgeted, planned, scheduled 1500 TPD underground uranium mine. Supervised engineering and planning of new mines.

March 1972 - August 1979

Technical Service Engineer, Apache Powder Company, Benson, Arizona. Explosives and chemicals service and sales to all mining and quarry operations in Southwest U.S.A.

January 1970 - March 1972

Consultant, mineral geology and engineering domestic and foreign.

February 1962 - January 1970

Geologic Engineer, Congdon and Carey, Denver, Colo. Mineral exploration coordinating geology, geophysics, geochemistry, and drilling programs.

October 1960 - February 1962

Chief Project and Mine Engineer, Goldfield Corp., Getchell Mine, Goldconda, Nevada start-up of 1500 TPD open pit gold mine and mill.

December 1956 - October 1960

Miner, Assistant Geologist and Engineer, Mine Foreman, Goldfield Corp., American Chrome Company, Nye, Mont. A 2000 TPD under ground chromite mine.

December 1954 - December 1956

Terrain analyst, Corp. of Engineers, U.S. Army, Far East Headquaters.

August 1952 - July 1954

Mine and production trainee, Anaconda Copper Company, Butte, Mont. four to six months training in each mine department.

STATE OF MAINE
GRAVES 10/84

REVIEW OF EXPLORATION OF STATE LAND AND HORN CLAIMS

October 29, 1984

SUMMARY OF EXPLORATION TO DATE

The state land under lease from Silver Venture Mining Company is a 220.79 acre prospecting permit in the SW¼ and S½, SE¼, both in section 16, and a 68.06 acre mineral lease in the N½, SE¼, section 16.

To date, 17 test holes, 4.5 inch diameter, with a total footage of 1109 feet were drilled (see attached illustration). The drill cuttings were sampled in five foot intervals.

The highest chemical assay on the drill holes was 0.24 oz. Ag per ton on SV-2 at the 22-27 ft. interval except for the holes listed:

Hole No.	Interval ft.	Ag oz.	Au oz.
SV-10	0-5	2.70	0.005
	5-10	2.92	0.003
	10-15	1.20	0.003
	15-20	0.48	0.005
SV-16	0-5	0.68	0.012
	5-10	0.48	0.008
	30-35	0.32	0.004
SV-17	0-5	0.44	0.008
	10-15	0.72	0.016
	15-20	4.72	0.016
	20-25	2.24	0.020
	35-40	3.20	0.012

A drill hole SV-15 was drilled two feet from the above SV-10 and the highest assay was 0.20 oz Ag. Hole numbers SV-9, 10, 15, 16, and 17 were drilled along a north-south line 90 feet in length. These drill holes indicated the only silver and gold values of interest on the prospecting permit. One surface sample in a pit next to hole SV-1 assayed 1.16 oz. Ag over a three foot interval.

The four mineral leases shown on the attached illustration cover two known mineralized northeast structures, the Randolph vein and the Ethel's Folly vein.

One day was spent examining the surface in this area. Part of this time was spent in the company of Jade Hummel a former employee of Resources of America. Mr. Hummel showed me the location of 20 angle sample holes, all about 300 foot depth, and three diamond drill holes. Ten of the sample holes and the diamond drill holes are on the Randolph Vein in the area of a decline that was driven by Resources of America. Only the location of the Randolph sample holes is known, not the numbering of the holes. The drill core and some of the sample pulps are in the area of the office and laboratory building.

Another company, B and C Mining LTD., the Ethel's Folly shaft under a lease agreement with Silver Ventures. No information is available for this project.

Five sample holes were drilled across a northeast trending structure that crosses the Horne group of claims, (see attached section). The only hole that showed Ag value was H-2 which has 0.04 oz. Ag from 5 to 10 feet depth.

CONCLUSIONS

About 1800 ft. of strike length has been tested by sample drilling the outcroups visibly most attractive. Only one surface sample contained 1.16 oz. Ag for a three foot interval and the drill holes were disappointing except for the values intersected in the $SE\frac{1}{4}$ of the permit.

No significant exploration work was performed on the Randolph or Ethel's Folly veins.

The drilling on the Horne group showed no values in the section tested.

RECOMMENDATIONS

The following recommendation's are not necessarily in chronological order.

1. Resources of America should be contacted by either Silver Venture or Tombstone Silver in an effort to acquire information gathered during their drill program and underground project. I was informed that this information is due to Silver Ventures under lease agreement.

   A plan of operation should be filled with the state for approval to trench and sample drill the Randolph and Ethel's Folly veins.

   Bewteen six and twelve trenches need to be excavated across the veins and ten or twenty shallow sample holes totaling about 1200 feet need to be drilled to test the veins about 100 ft vertical dept.

   While the above work is in progress the surface and underground can be surveyed, mapped, and sampled.

   A total of three weeks (15 shifts) is estimated to complete this program, with a few days extra for data valuation and reporting.

2. Expend about two shifts excavating near the drill holes that intersected values of interest in $SE\frac{1}{4}$ of section 16 on the prospecting permit.

   File an operating plan and receive permission to proceed from the state before performing the above work.

3. Sample drill the remaining 1200 ft. of the northeast zone on the prospecting permit. This is an extension to the northeast of the 1800 ft. that has been tested by drilling. A plan of operations will be filed with the state for approval said access roads construction will be required.

4. About eight or ten more holes should be drilled on the Horne group. These holes should be drilled along the strike of the northeast zone, extending to the northeast from the holes described above. This would test the structure for silver and gold values to the east side line of the group.

Respectfully submitted,

Arthur B. Graves

DRILLING
SV - HOLES

To: De Graff

TOMBSTONE SILVER MINES, INC.

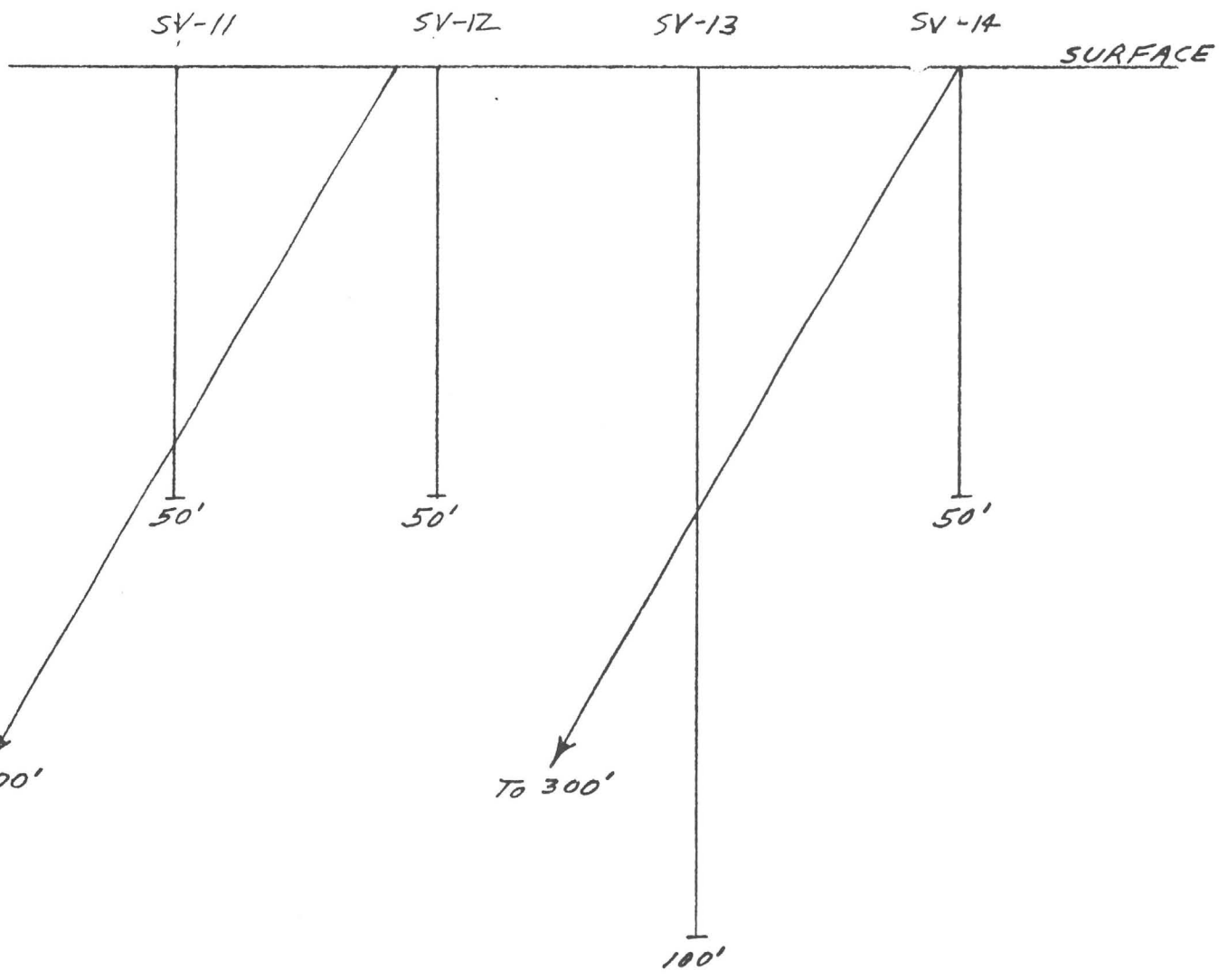
Laboratory Report

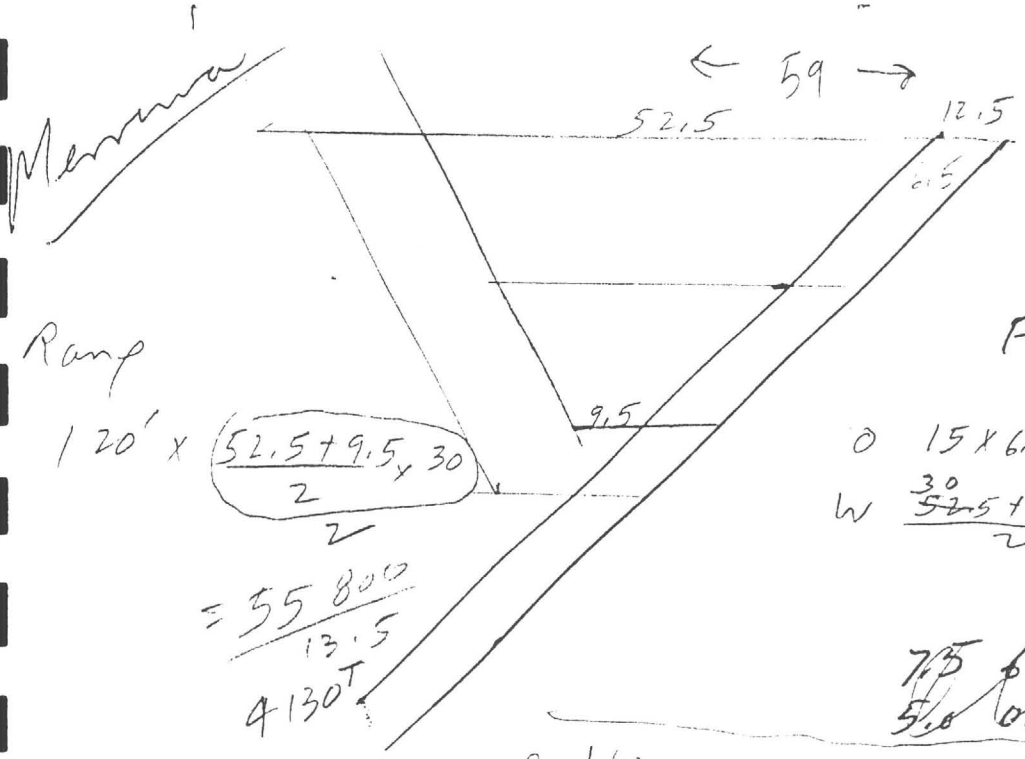
By: [illegible]

Date: 4-7-95

Note: All Ag and Au are Ounces per Ton

Sample Identification	Shaker		Acid		Fire		Remarks
	Ag	Au	Ag	Au	Ag	Au	Clipper
CM-C5 Grab			2.64	Tr			Pit muck piles


SV-11
SV-12
SV-13
SV-14
SURFACE
50'
50'
50'
To 300'
To 300'
100'



Total Area 1110

Ramp

$120' \times \frac{52.5 + 9.5}{2} \times 30$

$= 55\,800$

13.5

4130^{T}

14.49

Fence 1.5 9.66

5.0 .68 3.40

O 15×6.5 ~~95~~ 2.75

W $\frac{30}{52.5 + 9.2} \times 15$ ~~465~~ 275

~~7.5 6.02~~

~~5.0 0.72~~

Road (1)	7.5	6.02	45.150	3.90
	5.0	0.72	3.60	
	12.5	0	12.5×30	

Road (2)

Shaft	1.0	.62	0.620	3.85
	4.2	4.62	19.404	
	O	5.2×30	~~0~~ 155	

DENSITY New RENOMYL

PHASED FOR CONTROL

	1.0		
	15.5	4.2	
	16.7	1.2	
M3 Ew Grab			
M3 Grab		9.40	.003
M3 Grab		.04	
~~M~~			
M-1		1.20	.005
-2	7.5-12.5	2.88	.008
M-3A	2-3.0	1.92	.003
	-4.0		
M-5	0-3.0	2.08	.003

Clipper	80	70	60	60
	60	60	65	80
1.168 / 1.156	60	60	80	70
	30	80	73	30

1038

DEWBRE New TRENDING
PHASED FOR CONTROL

	-3.5			
	-10.5		0.35	.025
	12.0	1.5	9.66	.029
	17.0	5.0	0.28	.008
	25.0		0.50	.003
M-2	0-7.5	7.5	6.02	.005
	12.5	5.0	0.72	.005
	15.3			
	19.3			
M-3	0-4.5	4.5	1.42	.003
	6.1	1.6	0.14	.1
	6.6	0.5	1.18	.005
	8.6	2.0	1.50	.1
	12.3			
M-3A	0-3.0	3.0	1.92	.003
	-4.0	1.0	0.04	.1
~~M-5~~	~~0-3.5~~	~~3.5~~	~~2.05~~	~~.003~~
		4.8		
B-4	bed		3.92	.1

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

August 19, 1984

State of Maine Mining Co.
P. O. Box 453
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS

Sample Identification	Ag Oz/T	Au Oz/T	TSM Shaker			
SV-1 2-7	0.08	trace	.02			
7-13	0.04	trace	.04			
13-17	0.08	trace	.10			
17-22	0.08	trace	.06			
22-27	0.16	0.003	.10 .02	.01		
~~27-32~~ 47-52	0.20	0.006	.07			
32-37	0.08	0.003	.06			
SV-2 5-10	0.12	trace	.06			
22-24 Dark	0.24	0.003	.04			
25-30	0.04	trace	.12			
45-50	0.02	trace	.02			

Method of Analysis: _____

REGISTERED ASSAYER
14160
GARY ALVIN
LINDROOS

V

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

August 19, 1984

State of Maine Mining Co.
P. O. Box 453
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS

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Sample Identification	Ag Oz/T	Au Oz/T				
SV-1 2-7	0.08	trace	.02			
7-13	0.04	trace	.04			
13-17	0.08	trace	.10			
17-22	0.08	trace	.06			
22-27	0.16	0.003	.10 .02	.01		
~~27-37~~ 47-52	0.20	0.006	.02			
32-37	0.08	0.003	.06			
SV-2 5-10	0.12	trace	.06			
22-24 Dark	0.24	0.003	.04			
25-30	0.04	trace	.12			
45-50	0.02	trace	.02			

Method of Analysis: _____

14160
GARY ALVIN
LINDROOS

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

TOMBSTONE SILVER MINES
TOMBSTONE, AZ.
8/30/84

CERTIFICATE OF ANALYSIS

Sample Identification	Ag	Au				
C2 5-10	0.16	Tr				
C5 25-30	0.22	Tr				
C5 30-35	0.48	0.003				
SV-10 0-5	2.70	0.005				
SV-10 5-10 2.77 →	2.92	0.003				
SV-10 10-15	1.20	0.003				
SV-10 15-20	0.48	0.005	0.14			

Method of Analysis: Geochemical Analysis

REGISTERED ASSAYER
CERTIFICATE NO.
1450
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

AUG 30 1984

LINDROOS LABORATORIES

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TOMBSTONE, AZ 85638
Phone: 457-3132

September 2, 1984

Tombstone Silver Mines
Page 2

CERTIFICATE OF ANALYSIS

Geochemical SHAKER Fire Assay

Sample Identification	Ag	Au		Ag	Au	
C9 35-40	5.28	0.008	0.08			
C9 40-45	0.88	trace	0.44			
C9 45-50	0.88	0.003	0.76			
C9 50-55	0.16	0.003	0.16			
SV10 15-20	0.48	0.005	0.14	0.46	trace	

Method of Analysis: As Above

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

LINDROOS LABORATORIES

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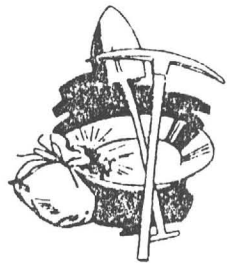

October 15, 1984

Tombstone Silver Mines
P. O. Box 715
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS

SHAKER

Sample Identification		Ag Oz/T	Au Oz/T				
H-2	5-10	0.04	trace	0.06			
T-2	0-5	0.12	trace	0.06			
	20-25	0.08	trace	0.02			
	25-30	0.04	trace	0.02			
	40-45	trace	trace	Nil			
	45-50	0.80	0.003	0.64			
	50-55	0.64	0.003	0.66			
	55-60	0.24	trace	0.14			
	60-65	0.12	trace	0.04			
	65-67	0.16	trace	0.12			
SV-15	0-5	0.20	trace	0.24			
	5-10	0.06	trace	0.12			
	10-15	0.08	trace	0.08			
	15-20	0.12	trace	0.10			
	20-25	0.12	trace	0.10			

Method of Analysis: Acid Digestion

REGISTERED ASSAYER
CERTIFICATE NO.
14160,
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
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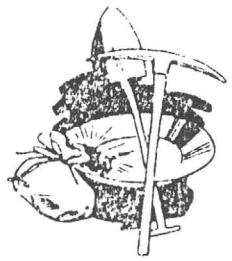
Phone: 457-3132



October 15, 1984

Tombstone Silver Mines
Page 2

CERTIFICATE OF ANALYSIS

Sample Identification		Ag Oz/T	Au Oz/T				
SV-15	25-30	0.08	trace	0.08			
	35-40	0.16	trace	0.04			
	50-55	0.08	trace	0.06			
Above Samples run by		Acid Digestion					
						Acid	
S-27	30-35	14.60	0.005	Fire Assay		16.04	0.008
S-42	20-25	2.30	trace	Fire Assay		1.68	0.018
S-43	5-10	1.14	trace	Fire Assay		1.12	0.005
T-1	30-35	0.18	trace	Fire Assay		0.20	Tr

Method of Analysis: As Above

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
10-15-84
Signed
ARIZONA, U.S.A.

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
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Phone: 457-3132

October 18, 1984

Tombstone Silver Mines
Page 2

CERTIFICATE OF ANALYSIS

SHAKER

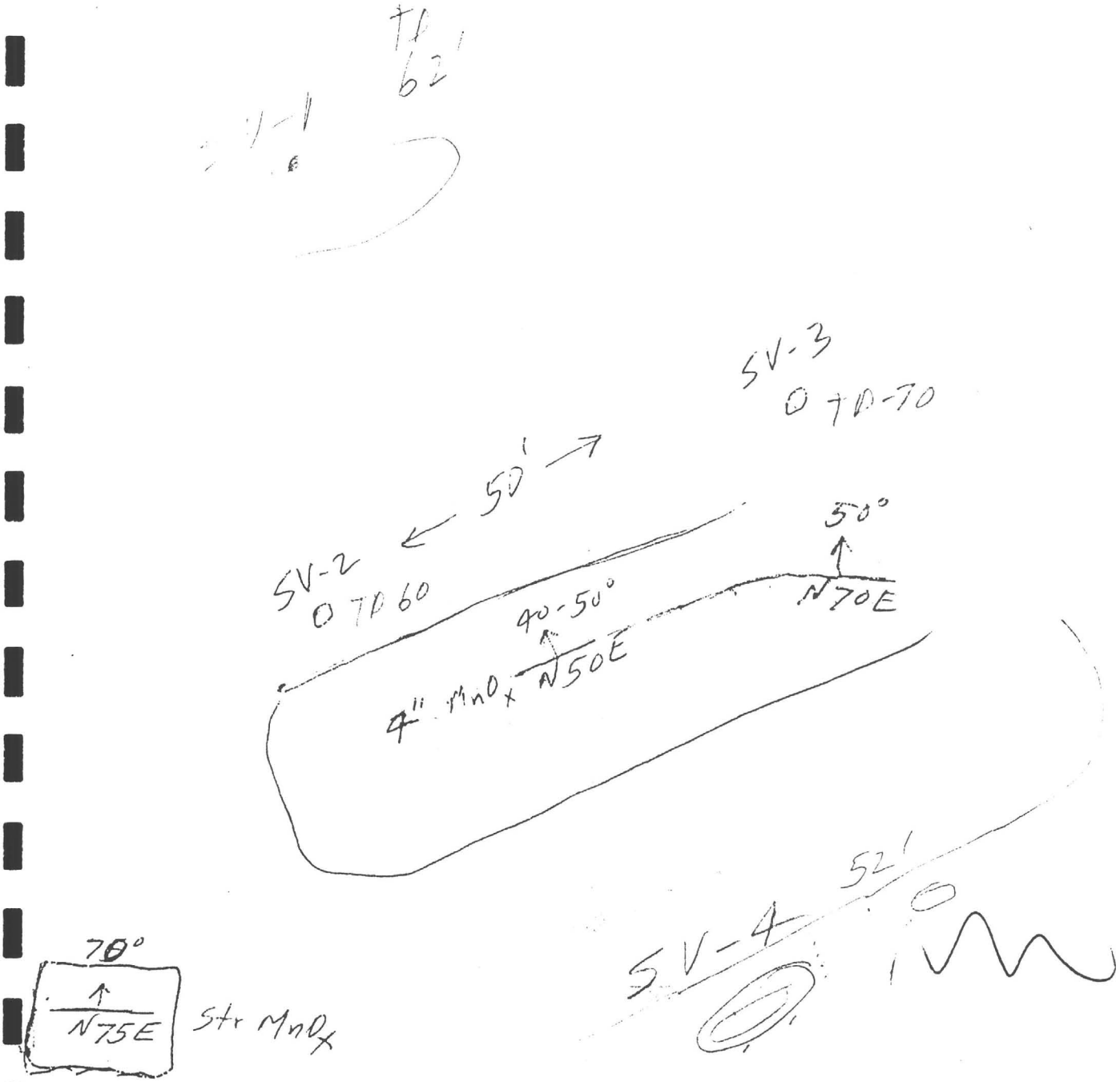
Sample Identification		Ag Oz/T	Au Oz/T				
S-47	5-10	0.44	0.008	0.16			
	10-15	0.12	0.004	0.04			
	45-50	0.04	trace	Nil			
SV-16	0-5	0.68	0.012	0.14			
	5-10	0.48	0.008	0.06			
	25-30	0.12	0.004	0.06			
	30-35	0.32	0.004	0.10			
SV-17	0-5	0.44	0.008	0.06			
	10-15	0.72	0.016	0.24			20'
	15-20	4.72	0.016	0.64	15'		2.72 0.016
	20-25	2.24	0.020	0.30	3.39 0.016		
	35-40	3.20	0.012	0.44			

Method of Analysis: _____

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
Date Signed 10-18-84
ARIZONA U.S.A.

Gary A. Lindroos

SV Holes



SV-3 PLI Vert face sample

0-3 Weak alt. Tup - MnO on fracts

3-5 Str alt Tup - silt. + FeOx & MnO

3" MnOx

8-15
SV-1 62'
2 60
3 70
4 60
5 70
6 70
7

392' @ $5 = $1960
12
100

20 hrs loader
@ $35 = $700
5 days 5 pers. @ $500

8-15 SV-1 62'
16 SV-2 60
SV-3 40
17 SV-3 30
SV-4 60
20 5 70
6 70
21 7

SV-3 TP 70

0-8 Wk alt. Surf ox.

8-11 Alt + MnO

11-20 [illegible]

30-35 Mod Mn & Fe

35-43 light gray

43-48 Tuf

48-62 Alt & fresh

62-70 Tuf

20-30 Lt gray Mod Fe wk Mn

SV-4 TD-60

0-8 Pink w/ MnO

8-18 Pink

18-20 Orange (FeO_x?)

20-25 white

25-35 Pink + Lav

35-52 Kb qtzite

SV-2 TD 60'

0-13 Alt Tuf

13-21 Dike

21-23 Lav Dk

23-35 Pink

35-37 Lavender

[illegible]

37-50 light w/ MnO

SV-55 Alt + MnO & FeO

55-60 Wk alt, weak Mn + Fe

SV-1 TD-62

0-2 O.B

2-13 PINK

13-30 Mottled Pink, Dk Pink & gray

30-55 Sand

55-62 Tuf Fresh

D.H 0-7 7-13 13-17 17-22

Simplesi Pit NISE 3' Vert 40° W

5E – 6.0 Pink & Tu
Fresh

10:30 1:45

2hr 7

E-15	SV-1	62'
	SV-2	60
E-16	SV-3	40
E-17	SV-3	30'
	SV-4	60
		252'

SV-4 TD 60

0-20 Kb Brn & Tan argill

20-25 Tan argill & ls

25-30 Lav to gray "

30-40 gray & green "

40-80 Tan & light gray mod FeOx (yell) argill.

TOTAL 59'

SV-10 TD 27'

0-10 Kl pink to gray argill.

10-20 gray "

20-27 dark gray " str. MnOx

Soft & uncons 25-27'

SV-6 Vert. TD 70

0-15 Kb qtzite & argill. Brn & yell

15-27 Tup gray & brn

27-40 Kb str. FeOx pink & red

40-45 Kb gray qtz. lt. mod. FeOx

45-50 Kb red qtzite

50-70 buff & red "

SV-7 TD 70

0-5 Tup mod alt.

5-8 Kap fresh

8-35 " alt. mod FeOx

35-50 " fresh

50-70 Tup mod alt.

SV-8 TD 80

0-15 Tup gray-tan

15-45 " mod-str alt " " weak FeOx

45-55 " " mod str FeOx

55-67 " Strong lavender

67-80 " " " Brn & yell.

SV-5 TD 70

S40E -65½°

2 hrs

0-10 Kb (all of hole) Qtzite str FeOx

10-20 " mod " "

20-32 Qtzite & argillite white & gray

32-70 " " gray to pink

SV-11

25' ↑ 9

5'

SV 12

30 Line

SV 13

Pwr

30

SV 14

±5' 10

SV-11 50' S3' from No. 9

0-15 Tup Fresh gray gy

15-20 Mod Brn & ~~lt~~ lt gray

20-35 str " "

35-40 Same wk MnO

40-45 Mod alt tan & lt gray "

45-50 " " " " wk MnO

SV-12 50'

0-5 Kb str alt gray & tan s.s. & sh

5-15 Tup " " lav pink tan lt gray

15-20 " " " lt gray

20-30 " " Brn " " Mod MnO

30-40 " " lt gray & tan

40-50 mod " " " Brn

SV-13 100' On Pwr Line

0-5 Tup Mod alt tan & lt gray

5-10 " pink " "

10-30 str " " " " " tan

30-40 Mod " " " " min pink

45-55 str pink lt gray

55-60 mod " " "

60-70 " Yell ~~lt~~ gray

70-90 " tan lt gray pink

90-100 str brick red min lt gray

SV-14 50' Next to Min No. 10

0-10	Tuy	Sltst & lt	pink & ~~tan~~ tan
10-30		" "	pink & lt gray
30-40			brn " " white pink
40-45			lt gray " "
45-50			pink & lt gray

SV-15 60' (2' east of SV-10)

0-10	Kb	gray siltstone	~~Fe~~ mod hematite
10-15		brn argillaceous ss	
15-20		tan argil. ls	Mod MnO
20-35		pink & gray calc. s.s.	
35-50		tan " " qtzite & ls	
50-60		green sil. ls.	

SV-16 60'

0-~~10~~	Kb	brn sh & siltstone	
10-30		brn & go ~~stained~~ fines	qtzite & sh
30-40		brn & gray sh & qtzite	Mod MnO
40-45		" " " "	
45-50		" " " "	wk MnO
50-60		" " " "	

Sand

~~SV-17~~

0-5	brn sh & ss	
5-15	pink sh & ss	
15-25	gray brn gtzite	
25-35	pink sh & ss	
35-40	brn + gray sh & gtzite	St + Mn O
40-50	" " " "	
50-55	" " " "	wk Mn O
55-65	" " " "	
65-70	brn sh & ss	
70-80	gry gtzite	

0?

SV-10 & SV 15

0 16

0 17

State Permit No. 08-84591
(South ½ Section 16) 220.79 acres

Chemical analysis of samples from drill holes. Holes drilled Aug. 15-23, 1964.
ISM Lab. Shaker Test

Hole No.	Interval	Ag	Au
SV-1	2-7	.02	N
	7-13	.04	
	13-17	.10	
	17-22	.06	
	22-27	.10	
	27-32	.02	
	32-37	.06	
	37-42	Tr	
	42-47	N	
	47-52	.02	
	52-62	Tr	
SV-2	0-5	N	N
	5-10	.06	N
	10-25	N	N
	25-30	.12	N
	30-35	N	Tr
	35-45	N	N
	45-50	.02	N
	50-60	N	N
	22-24 Parke Group	.04	
SV-3	8-15	N	N
	15-20	Tr	N
	20-25	N	
	25-30	.03	
	30-35	N	
	35-40	T	
	40-70	N	
SV-4	0-50	N	
	50-55	.01	
	55-60	N	
SV-5	0-5	.04 .24	
	5-10	.02	
	10-35	N	
	35-40	.02	
	40-45	N	
	45-50	Tr	
	50-70	.02	

Hole No.	Interval	Ag
SV-6	0-15	N
	15-20	.02
	20-25	.01
	25-30	.04
	30-35	Tr
	35-40	N
	40-45	Tr
	45-50	.01
	50-55	N
	55-60	Tr
	60-65	.01
	65-70	Tr
SV-7	0-5	.02
	5-10	Tr
	10-15	.02
	15-25	Tr
	25-30	.02
	30-35	N
	35-40	.02
	40-45	N
	45-50	Tr
	50-55	.02
	55-70	N
	70-75	Tr
	75-80	N
SV-8	0-10	N
	10-20	.02
	20-25	N
	25-30	Tr
	30-40	N
	40-50	Tr
	50-55	N
	55-60	Tr
	60-65	.02
	65-70	Tr
	70-80	N
SV-9	0-5	Tr
	5-10	N
	10-15	Tr
	15-45	N
	45-55	Tr
	55-80	N
SV-10	0-5	1.52
	5-10	1.30
	10-15	.28
	15-20	.14
	20-25	.08
	25-27	.08

LINDROOS LABORATORIES

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Phone: 457-3132

August 28, 1984

Tombstone Silver Mines
P. O. Box 715
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS

Ounces Per Ton Shaker

Sample Identification	Ag	Au	Ag			
C-1 0-5	0.56	0.005	0.28	0.52		
C-1 5-10	0.48	0.003	0.28			
C-1 10-15	1.68	0.018	1.32			
C-1 15-20	1.44	0.034	1.04			
C-1 20-25	0.60	0.011	0.30			
C-1 25-30	0.32	0.003	0.15			
C-1 30-35	0.64	0.008	0.32			

Method of Analysis: Acid Digestion (Ag) MIBK Extraction (Au)

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
Date Signed
ARIZONA, U.S.A.

AUG 2 8 1984

J

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

September 2, 1984

Tombstone Silver Mines
P. O. Box 715
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS TSM

Sample Identification	Geochemical Ag	Geochemical Au	SHAKER 0.16	Fire Assay Ag	Fire Assay Au	
C2 0-5	0.32	0.003		0.28	trace	
C6 45-50	0.12	trace	0.08			
C6 50-55	0.08	trace	0.06	0.10	trace	
C8 35-40	0.56	trace	0.10			
C8 55-60	0.12	trace	0.06			
C8 70-75	0.32	trace	0.14	0.76	trace	
C8 75-80	0.56	0.003	0.44			
C-1 35-40	0.16	0.005	0.05			
C-1 40-45	0.08	0.005	0.08			
C-1 45-50	0.04	trace	0.04			
C-1 50-55	0.24	trace	0.06			
C-1 60-65	0.16	0.003	0.02			
C-1 70-75	1.20	trace	0.06	1.16	trace	
C9 0-5	1.48	0.008	0.20			
C9 5-10	0.24	0.005	0.08			

Method of Analysis: As Above

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

V

LINDROOS LABORATORIES

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Phone: 457-3132

September 2, 1984

Tombstone Silver Mines
Page 2

CERTIFICATE OF ANALYSIS

Sample Identification	Geochemical Ag	Au	SHAKER	Fire Assay Ag	Au	
C9 35-40	5.28	0.008	0.08			
C9 40-45	0.88	trace	0.44			
C9 45-50	0.88	0.003	0.26			
C9 50-55	0.16	0.003	0.16			
SV10 15-20	0.48	0.005	0.14	0.46	trace	

Method of Analysis: As Above

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

LINDROOS LABORATORIES

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Phone: 457-3132

TOMBSTONE SILVER MINES
TOMBSTONE, AZ.
8/30/84

CERTIFICATE OF ANALYSIS

Sample Identification	Ag	Au				
C2 5-10	0.16	Tr				
C5 25-30	0.22	Tr				
C5 30-35	0.48	0.003				
SV-10 0-5	2.70	0.005				
SV-10 5-10 2.37 —	2.92	0.003				
SV-10 10-15	1.20	0.003				

Method of Analysis: Geochemical Analysis

REGISTERED ASSAYER
CERTIFICATE NO.
14760
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

AUG 30 1984

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

September 13, 1984

Tombstone Silver Mines
(Page 2)

CERTIFICATE OF ANALYSIS

Sample Identification		Geochemical Ag Oz/T	Geochemical Au Oz/T		Fire Assay Ag Oz/T	Fire Assay Au Oz/T	
M-3	40-45	0.08	trace	0.04			
	50-55	0.12	0.004	0.02			
M-6	10-15	trace	trace	0.02			
	15-20	0.12	0.004	0.06			
	20-25	1.40	0.012	0.82			
	25-30	1.16	0.008	0.72			
M-7	0-5	0.24	0.032	0.16			
	5-10	0.68	0.008	0.50			
	10-15	1.48	0.016	1.30	1.22	0.010	
	15-20	1.44	0.024	0.30			
	20-25	0.20	0.008	0.06			
M-8	0-5	0.12	0.004	0.06			
	20-25	0.08	0.008	0.06			
	25-30	0.12	0.004	0.06	0.08	trace	LINDROS
C-9A	35-40	1.16	0.004	0.08			5.28

Method of Analysis: As Above

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
U.S.A.

SEP 13 1984

LINDROOS LABORATORIES

GARY A. & NAOMI R. LINDROOS
P.O.BOX 672
TOMBSTONE, AZ 85638
Phone: 457-3132

September 5, 1984

Tombstone Silver Mines
P. O. Box 715
Tombstone, Arizona 85638

CERTIFICATE OF ANALYSIS

Ounces Per Ton

Sample Identification	Ag	Au				
C11 30-35	0.12	trace				
35-40	0.12	trace				
70-75	0.08	trace				
C12 60-65	0.08	trace				
C14 5-10	0.12	0.003				
10-15	0.08	trace				
15-20	0.16	0.003				
C15 10-15	0.20	0.003				
15-20	0.16	trace				
30-35	0.12	trace				

Method of Analysis: Acid Digestion (Ag) MIBK (Au)

REGISTERED ASSAYER
CERTIFICATE NO.
14160
GARY ALVIN
LINDROOS
ARIZONA, U.S.A.

SEP 5 1984

C-1

0-22 Tuf(?) Tap Lav tinged brn
22-27 Tuf Light gray
27-36 " Red brn
36-50 " Tan to light Lav.
50-55 " Tan
55-60 " Lav
60-65 " Brn
65-72 " Tan
72-75 " Black — MnO_x
75-80 " Brn

Str Alt.

Drilled hard
Mod. alt.

C-2 (S 60° E 30' from C-1) -1.1'

0-15 Tuf dk lav to pink — Mod Alt. (See C-1 27-36)
15-25 " lt. Gray
25-35 " Brn to gray
35-40 " Blk Vry Str MnO_x (chips) weak alt. (See C-1 72-75)
40-45 Same weak MnO_x
45-55 " Very weak alt - brn & black (Mn from cplx)
55-60 Tuf Fresh lavender

C-3

0-5 Tup weak alt lt. gray
5-20 " mod " lav to pink
20-32 " " " lt gray
32-40 " str " red brn (see C-1 27-36)
40-50 " mod " tan & pink
50-60 " " " " & brn

C-4 (40' S80E fr C-3) -3.3' elev
0-5 Tup str alt lav
5-20 " " tan & brn
20-25 " " lt. gray
25-35 " weak alt red brn
35-50 " fresh dark green

C-7 (30' N60W fr. C-1) + 6.4' 16' to toe
0-25 Tup v wk alt brn & gray
25-40 " mod " lt gray
40-50 " str " pink
50-55 " " " lt gray
55-60 " " " pink

NW Cor Clipper to Dit C-5 N58E 25.6'

C-5

0-5	Top	wk alt	lt gray
5-15	"	Str "	pink
15-25	"	mod "	lt gray
25-30	"	" "	brn
30-43	"	Str "	lt gray
43-50	"	" "	pink
50-60	"	Mod "	lt gray

C-6 (40' S60E fr C-5) -21.6'

0-5	Top	Str alt	pink
5-12	"	" "	dk lav
12-20	"	" "	lt gray
20-27	"	mod "	brn & dk gray
27-35	"	Fresh	dk green
35-40	"	Str alt	lt gray
40-45	"	" "	lt brn
45-52	"	" "	pink
52-60	"	Wk "	lt gray

C-8

0-38	Tup	very weak alt	gray & tan	" wk MnO
38-47	"	mod " alt	lt gray	
47-60	"	str "	pink	
60-65	"	" "	lt gray	
65-70	"	" "	pink	
70-80	"	very wk "	tan & gray	

C-9

0-30	Tup	fresh	gray-green	0-5 1.48	
30-35	"	weak alt	gray-tan	35-40 5.28	15'
35-50	"	mod "	pink & tan	-45 0.88	2.35
50-60	"	str "	lav & pink	-50 0.80	

C-10 65'

0-5	Tup	~~Fresh alt~~	green
-10	"	very wk alt	tan & green wk MnO
-15	"	" "	green — fresh to 15 w 20
-20	"	" "	tan
-28	"	weak "	lt gray
28-30	"	str	pink
30-45		mod "	lt gray
45-60		" "	lt pink
60-65		str "	~~pink~~ lav

C-11 (80') (40' S60E ft C-10) Jup 3' to N60W

0-5 Jup wk alt tan 10-20' (see C-10 50-60)
5-55 " str to mod alt mostly lav, some pink
53-60 " mod alt lt gray
60-75 " " " brn & tan
75-80 " " " tan

C-12 (73')

0-15 Jup v. wk alt brn & tan (0-15 fresh)
15-30 " weak " tan
30-55 " mod " tan & lt gray
55-60 " str " lav. (see C-10 60-65)
60-73 " " " lav & pink (moist @ bot)

C-13 (60') (30' S60E ft C-12)

0-5 Jup fresh dark green
5-15 Jup weak alt. gray & brn
15-30 " str alt lav.
30-40 " " " pink
40-47 " " " orange pink
47-55 " " " lt gray & tan
55-60 tan-lav-brn

50-60 moisture

C-14 80' (30' 530E ft. C-11)

0-22 Tup sty. silt. lav & pink
22-30 " " " light gray
30-35 " " " lav (dark)
35-50 " " " light gray & tan
50-55 " mod " pink & gray
53-65 " weak " gray & tan weak MnO
65-80 " fresh tan & pink chips

15

C-15 70' (30' 560E C-13)

0-20 Tup sty silt pink-orange-tan
20-30 " mod " lt gray-grn
30-42 " sty " gray & pink
42-70 " ~~mod~~ " tan-~~lt~~ brn-pink
~~50-70 mod~~
~~70-~~65 Very weak silt tan & gray
65-70 fresh brn-pink chips mod MnO

C-16 30'

0-15 Tup mod silt tan & brn
15-20 " sty " light gray
20-25 " " " lav
25-30 " " " pink & brn
} moist

melt from hole has water

AIME HEAP
LEARNING PREPRINT

FILE Tombstone NF

SOCIETY OF MINING ENGINEERS OF AIME

CALLER NO. D, LITTLETON, COLORADO 80123

PREPRINT NUMBER

81-341

HEAP LEACHING AND SILVER RECOVERY AT THE STATE OF MAINE

Charles B. Escapule

Louis W. Escapule

C. Bailey Escapule

State of Maine Mining Company
Tombstone, Arizona

David D. Rabb, P.E.

Tucson, Arizona

For presentation at the SME-AIME Fall Meeting and Exhibit
Denver, Colorado - November 18-20, 1981

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INTRODUCTION

The first successful heap leach of silver ores in the State of Arizona has been under continuous operation since early 1976 at the State of Maine Mine, two miles southwest of Tombstone, Arizona. The silver produced from leaching old mine dumps at this property was the first in the Tombstone mining district to achieve a 999+ purity.

While cyanide leaching of silver and gold ores is a time-proven accepted practice, a relatively new method of treatment called "heap" leaching was employed. Heap leaching is a comparatively inexpensive fast way to recover precious metals from low grade material.

SYSTEM DESCRIPTION

Using material from old mine dumps or from current open pit mining, the ore is stacked or heaped on a prepared base and sprayed with dilute cyanide solution. The solution percolates down through the ore dissolving the metal and is collected, filtered to remove all suspended particles and all or nearly all dissolved oxygen is removed before zinc dust is added to precipitate the silver and gold. A simple filter collects the metal precipitates which are then melted and refined and cast into anodes and further refined by electrolysis.

HISTORY

In 1878 John Escapule arrived in Tombstone to photograph the activity for the San Francisco Chronicle and stayed to locate the State of Maine Mine (S/MM). Heap leaching requires relatively few workers per ton of ore treated and economy of work force is one of the outstanding features of this method. Being entirely family owned and operated, paperwork and expenses at the State of Maine have been greatly reduced and a closely-knit, efficient work force is the result.

Detailed production figures from the S/MM prior to 1976 are not available but published estimates[1] range from two to three hundred thousand dollars, almost all in silver.

By mid 1981 there was an estimated 50,000 tons of ore under leach at three locations on the S/MM property.

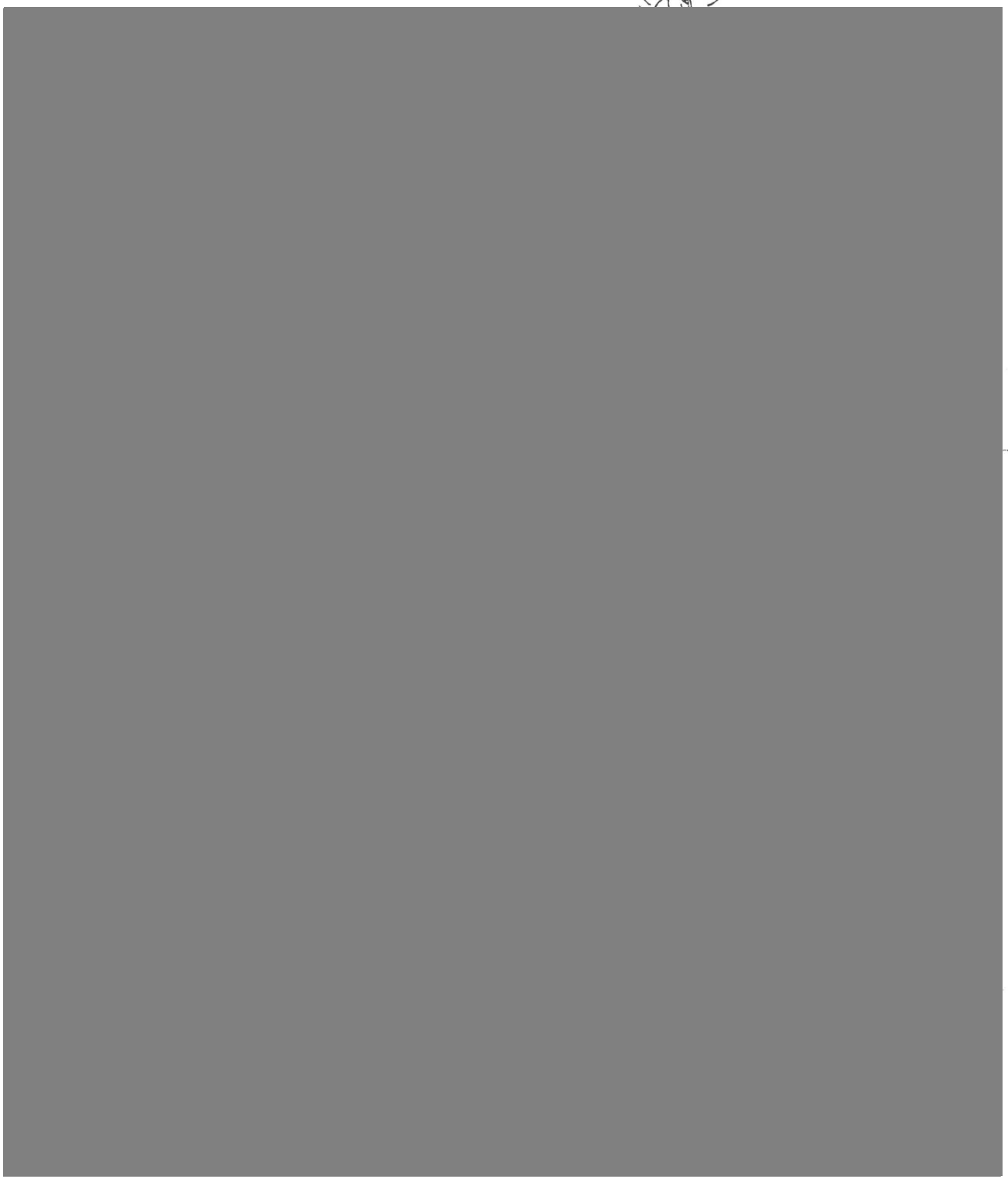
Elsewhere in the Tombstone area, there are three other major heap leach operations with a total of over one million (estimated) tons under leach. There are no flotation or gravity operations, but one company is considering the use of hyposulphite as a leaching agent.

GEOLOGY

The country rocks in the Tombstone district range from pre-Cambrian to Quaternary in age. At the S/MM in the western-southwestern part of the district, the important ore bodies, predominantly silver with very little gold (average ratio 200:1), occur in a quartz latite porphyry and in Mesozoic sediments. Geograph-

[redacted]

stamped 999 fine and the 3/MM logo added.



SOM LEVEL DATA

H-16 3 LEVEL (WATER VEIN)(S) (OPEN) (NOT DEEP ENOUGH FOR 4 LEVEL) + 1 AT ABOVE (UPPER VEIN) (7.69 Ag, .012 Au)

H-18 4 LEVEL (N) (CAVED AREA)

H-12 3 LEVEL (S) (CAVED AREA) (BOTTOM OF HOLE)

SURFACE - 4632 ELEVATION

LEVEL 1 - 4601 "

LEVEL 2 - 4566 "

LEVEL 3 - 4510 "

LEVEL 4 - 4461 "

LEVEL 5 - 4426 "

LEVEL 6 - 4366 "

LEVEL 7 - 4316 "

	ELEVATIONS	DEPTH
H-12	4724 → 4514	(210 FT)
H-16	4694 → 4524	(170 FT)
H-18	4676 → 4363	(313 FT)
H-19	4736 → 4246	(490 FT)
H-26	4796 → 4296	(500 FT)

LEVEL 5 [illegible] NORTH TO H-19

LEVEL 6 30 FT N.W. TO H-19
20 FT SOUTH TO H-26

LEVEL 7 90 FT WEST TO H-19
100 FT S.E. TO H-26

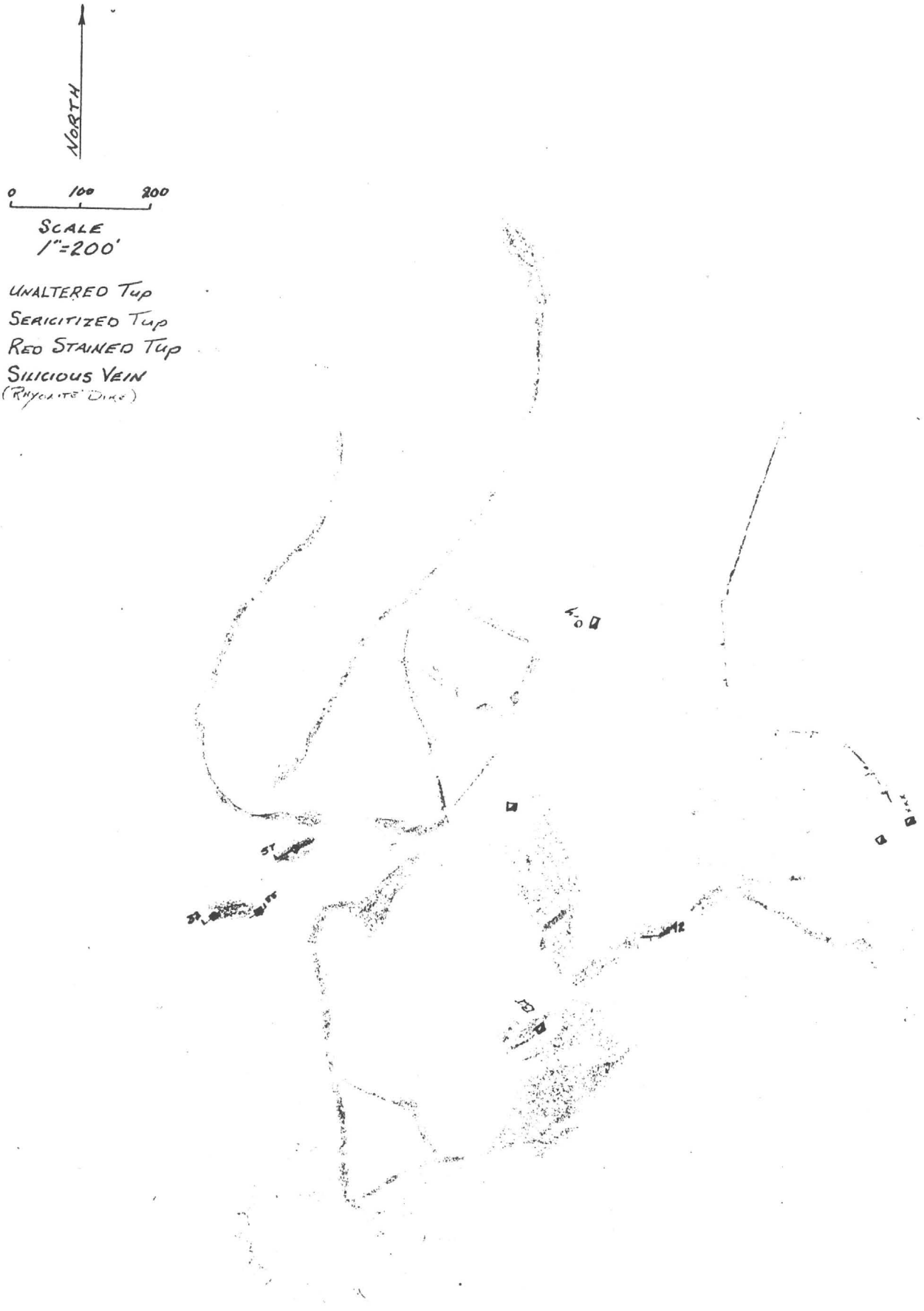
H-12 1534 → 1514 (20 FT @ .10)

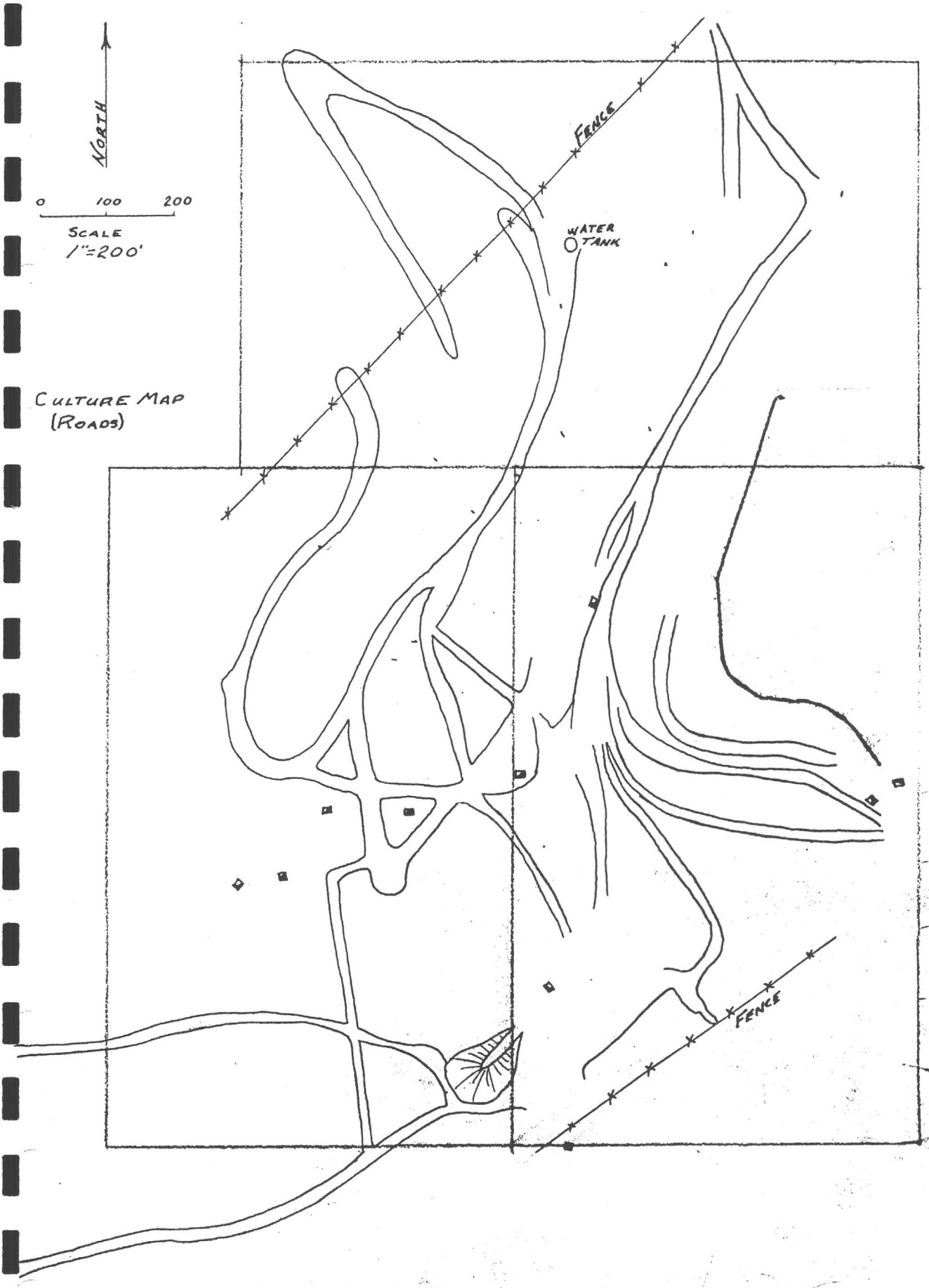
H-16 1554 → 1524 (30 FT @ 2.69) (LAST 10 FT. IS 7.69 AC.)

H-18 1546 → 1506 (40 FT @ .55) (LEVEL 3)

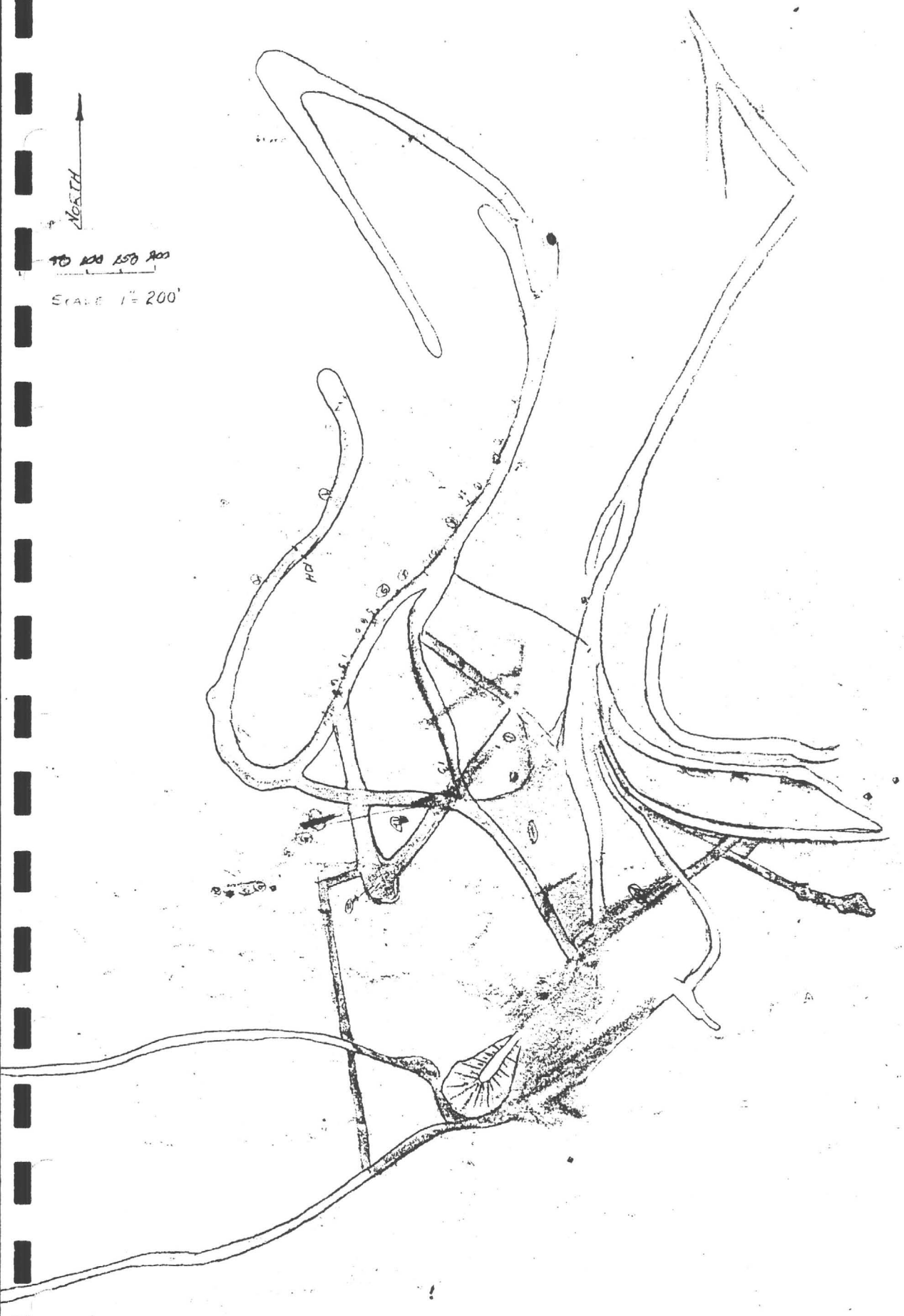
H-19 1396 → 1246 (150 FT @ .14) 1346 → 1306 (40 FT @ .30)

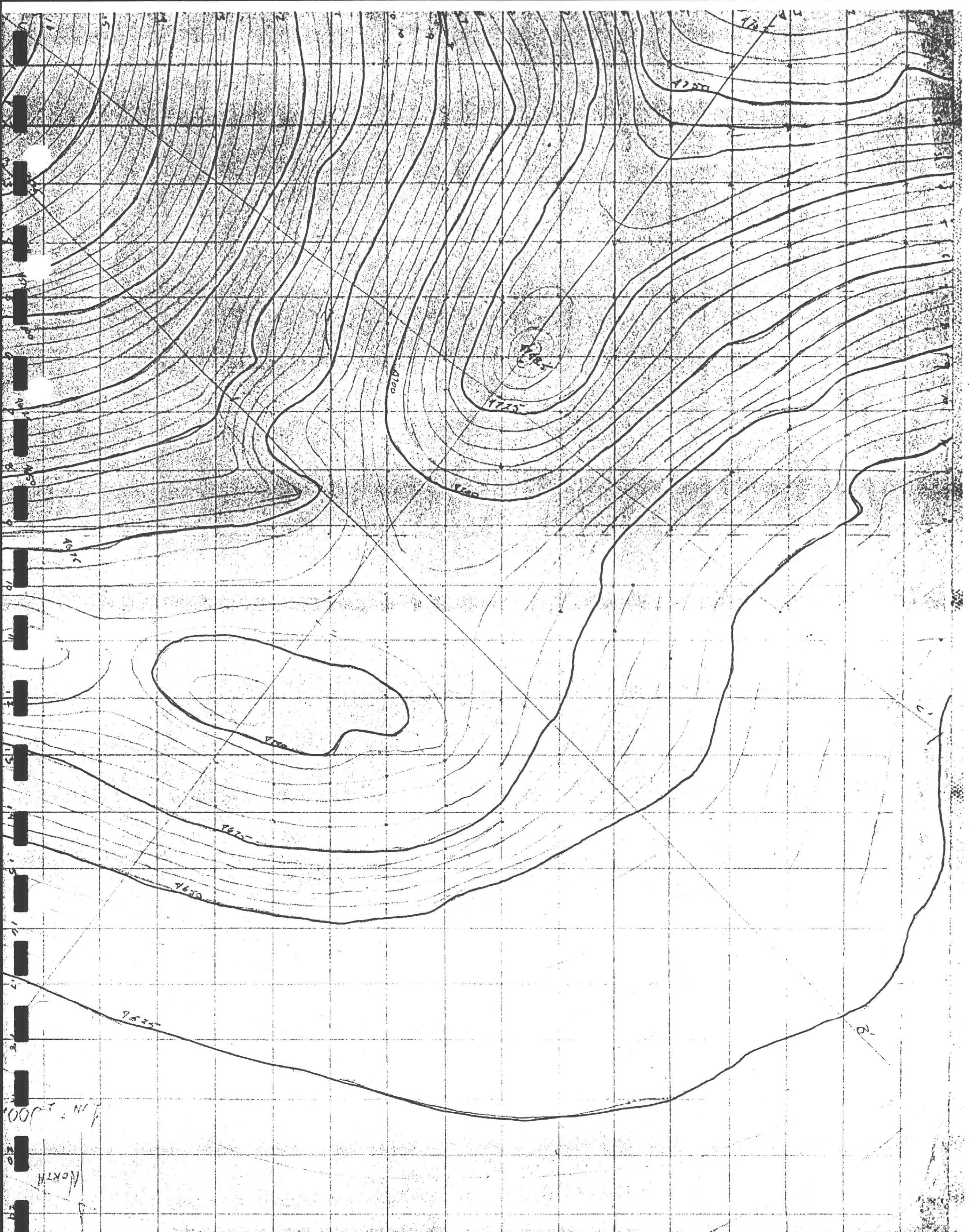
H-26 1426 → 1296 (130 FT @ .57) 1396 → 1356 (40 FT @ 1.58)
1396 → 1366 (30 FT @ 2.00)

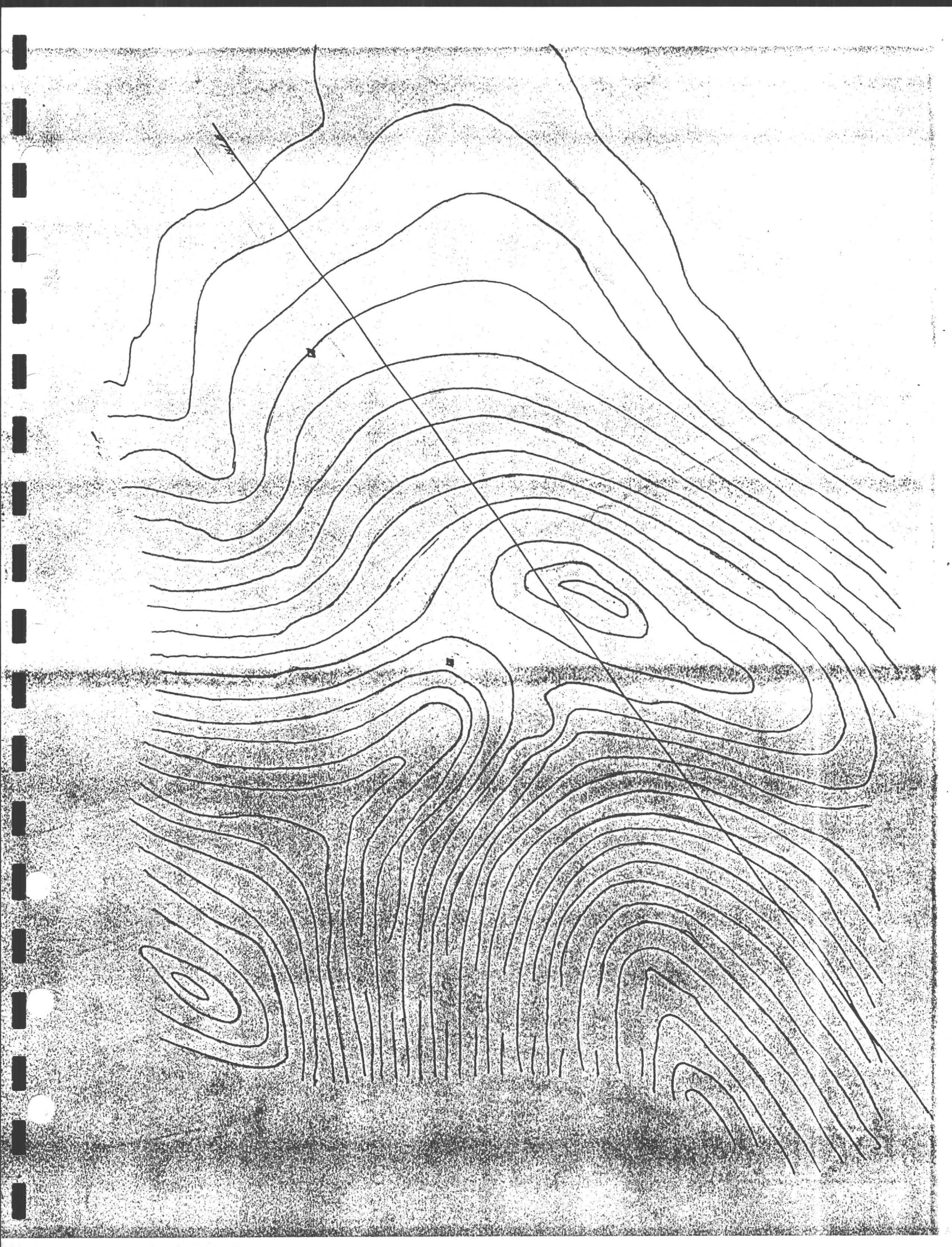

NORTH
0 100 200
SCALE
1"=200'
UNALTERED Tup
SERICITIZED Tup
RED STAINED Tup
SILICIOUS VEIN
(RHYOLITE DIKE)

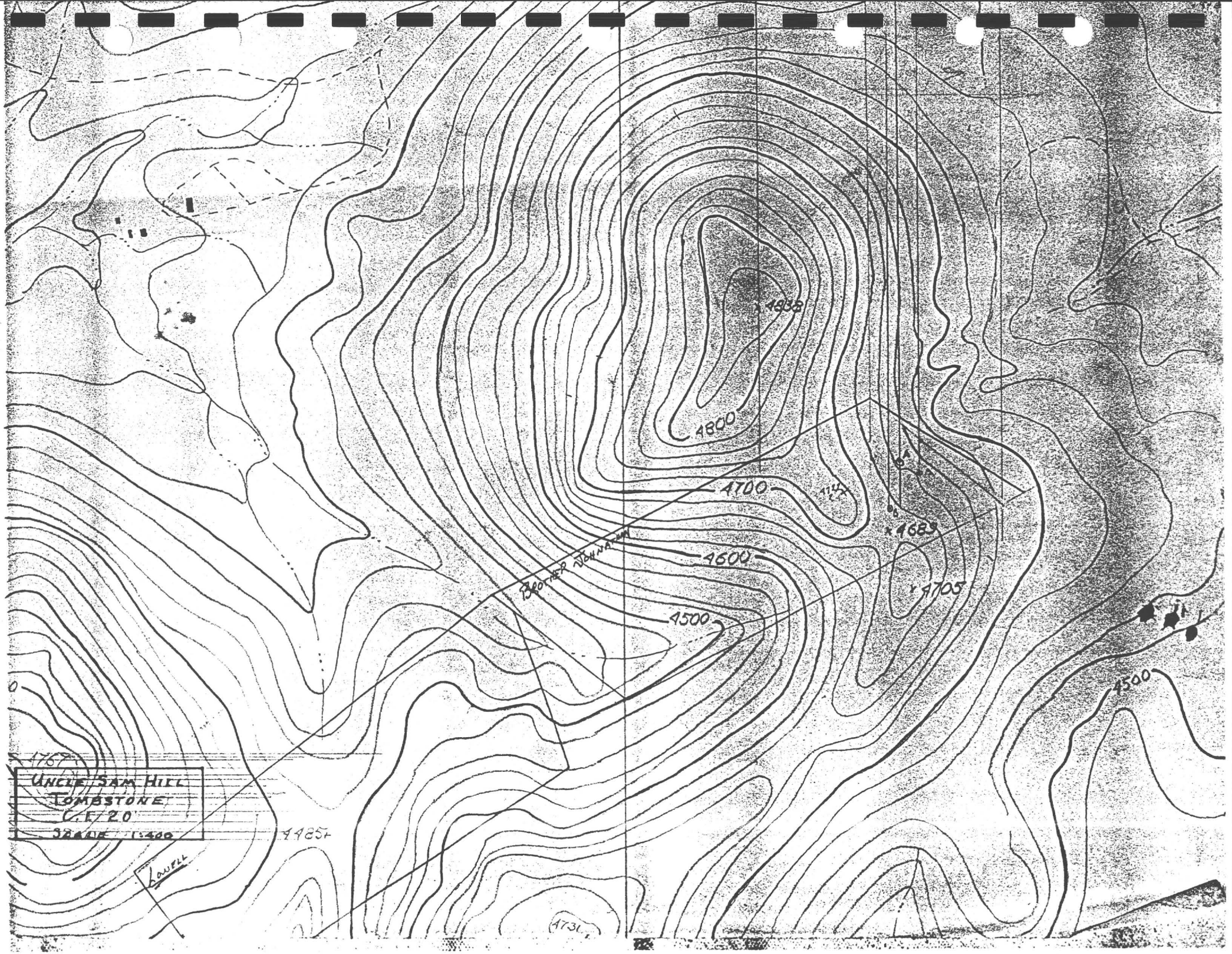


CULTURE MAP
(ROADS)


NORTH
0 100 200 400
SCALE 1" = 200'






UNCLE SAM HILL
TOMBSTONE
C.I. 20
4938
4800
4700
4600
4500
4705
4500
4425
4731

ST. of Main Shaft

Gob Samples by D.P. Akre

Fire Assays

#314 - 100' level North of shaft (in back of slusher) about 20 Tons left in stope above level Ag 11.61 Au 0.005

#315 - 100' level - North exploration drift. About 2' left in drift floor for 100' Ag 1.42 Au-Tr. Not considered

#316 - 100' level - First available gob on South side of shaft - Ag 0.23 (being Re-sampled)

#350 - 40' level in stope under South Raise Ag 11.85 Au 0.010

Note: All samples from 40' level taken below level - Rep of gob going to 40' level

#351 - 40' level gob about 60' N. of S. Raise below level Ag 7.6 Au 0.005

#352 40' level - First available gob Re-sampled going from 40' level to 100' level Ag 49 Au Tr

#354 - 100' level - Stacked Rocks Along Cross cut drift going From Ft. Wall Vein To Hanging Wall V. Ag. 0.18
(No consequence AT This Time)

#355 100' level Cross cut drift Muck AT Face where They Run past hanging Wall Contact - black MUCK - Ag. 0.14 ~~No Sample~~ NOT Considered in production

#356 - 100' level - walled Rock in Cross cut Ag. 0.21 - NOT considered.
" "

#357-A 140' level First 906 To Pull South of shaft (bounded up + Not Filling drift) Ag 15.25 - Au .015 Too good To be True - being Re-Sampled

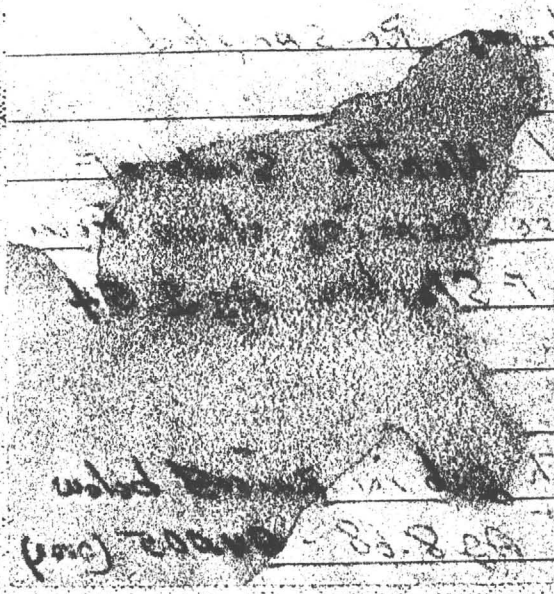
#357-B - 150' level North Side of shaft - Muck in Raise coming down From 100' level in back of Stope Ag 2.54 Au-Tr. - Re Sampled

#358 - 195' level North 906 in Raise below level - Can't get Too AT Present Ag 8.68 - Au .005 (over)

Gob Available For immediate production

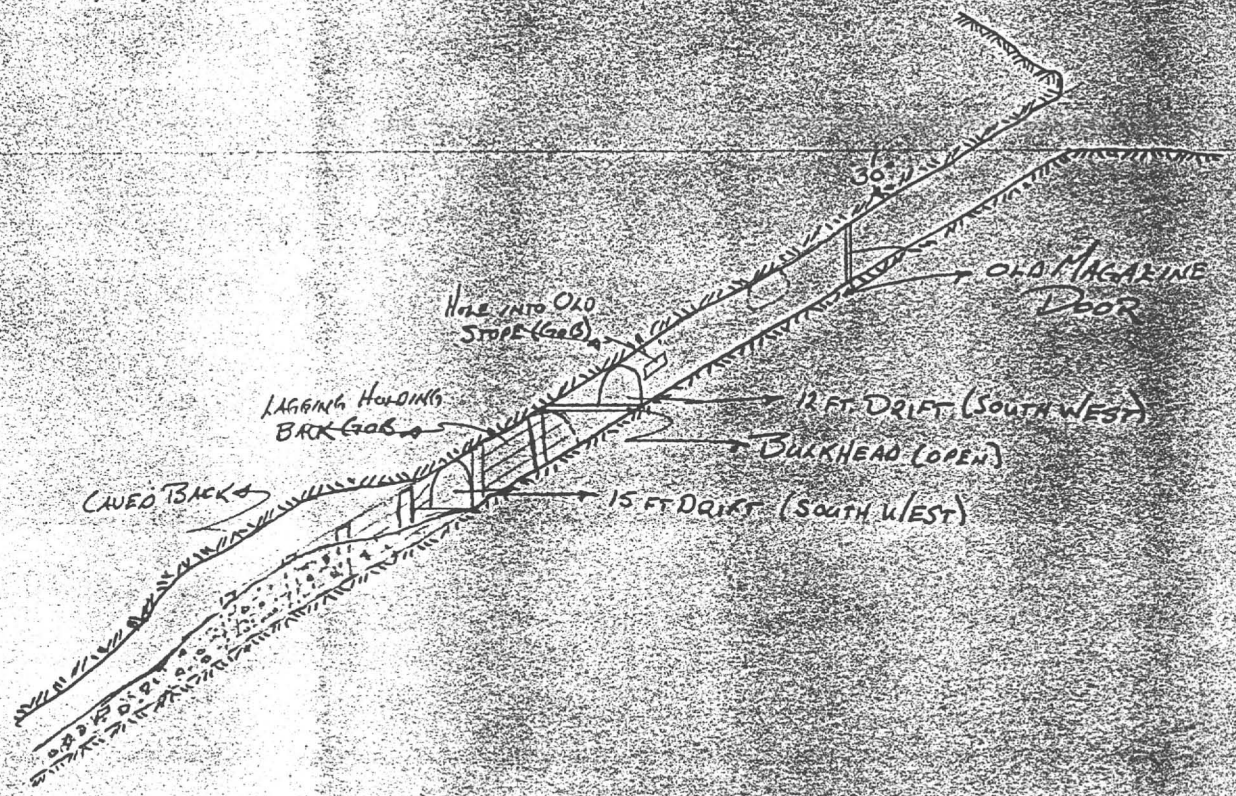
.23 — Re. Sampled
11.85
7.18
2.49
15.25 — Re Sampled
2.54 — Re Sampled
39.54 ÷ 6 = 6.59 Ag

#362 - 195' Level W Cave in Ag 4.79
#359 195 " Gob Draw South Ag. 3.61
Cave in Ag 3.97
#362 Hanging wall gob 195 Ag 5.54



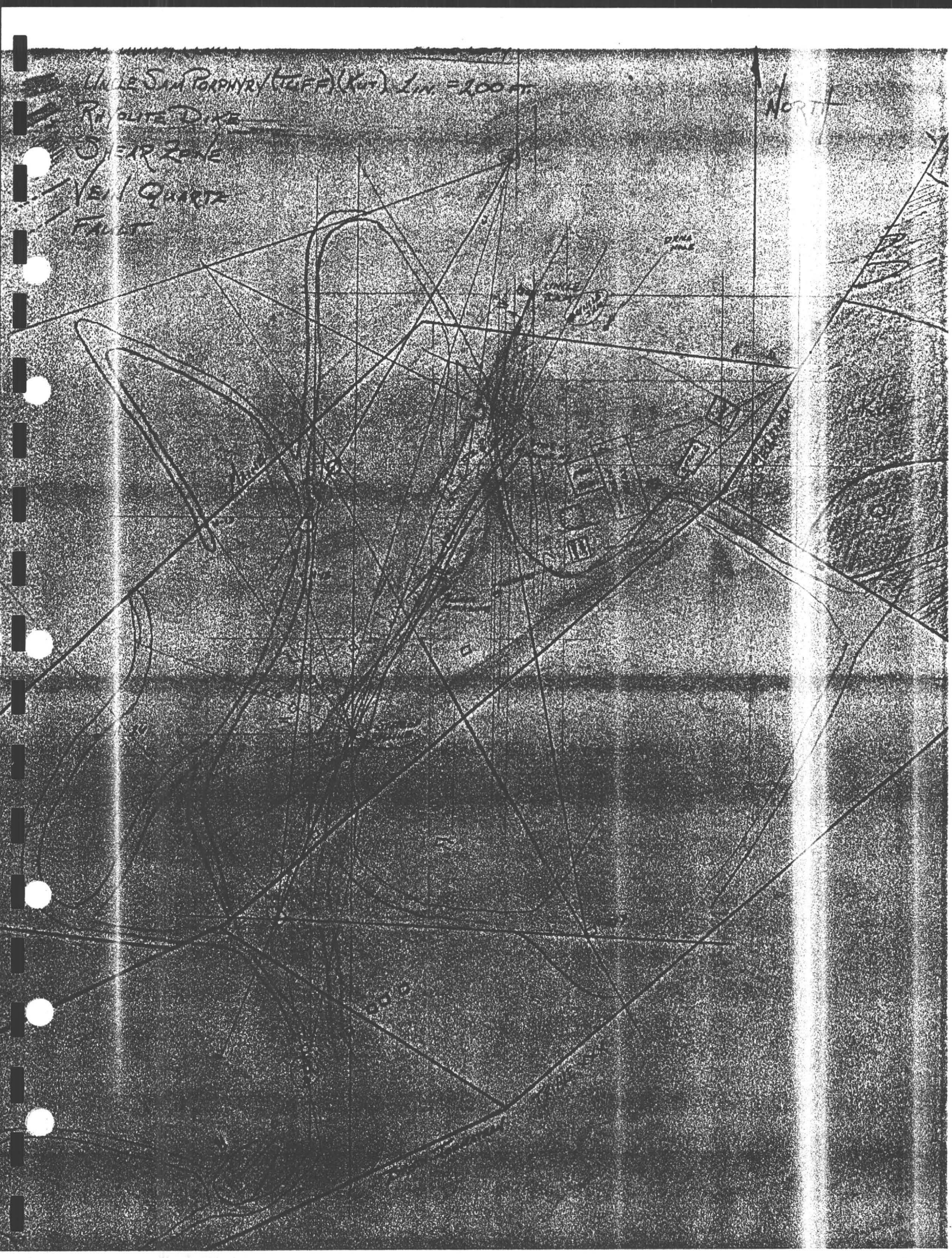
X-SECTION LOOK EAST

BROTHER JONATHAN MINE

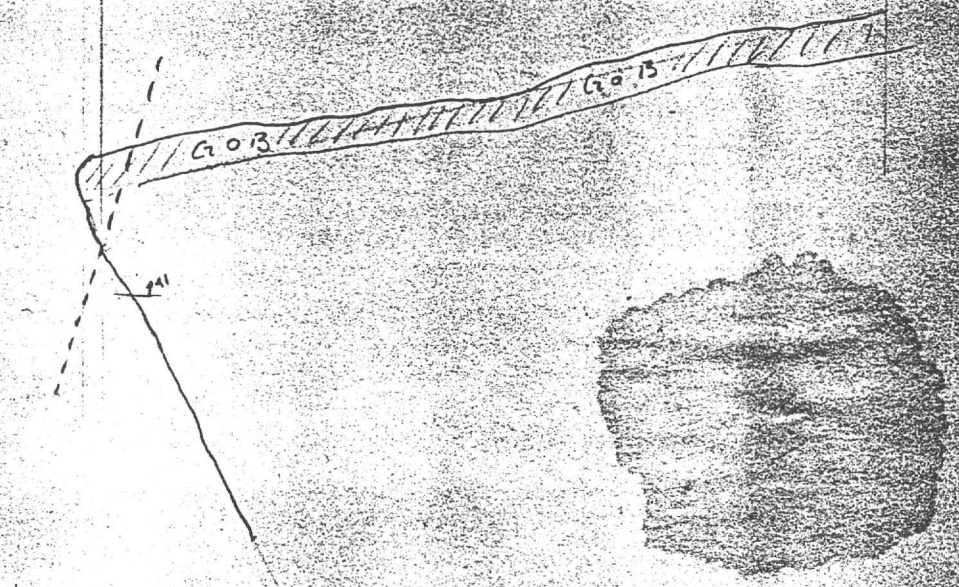


0 10 20

SCALE: 1 IN. = 10 FT.


LITTLE SAM PORPHYRY (TERTIARY) (Kqp) 1 in = 1,000 ft
RHYOLITE DIKE
SHEAR ZONE
VEIN / QUARTZ
FAULT
NORTH

TRIP 5



1-13-82

#1 - GOB - 2 FT WIDE

#2 - HI-GRADE VEINS - FOOTWALL - 6FT

#3 - WHITISH GREEN - 13FT

#4 - " " w/ HIGH GRADE - 9FT

#5 - BLACK LARGE QUARTZ VEIN - 4FT

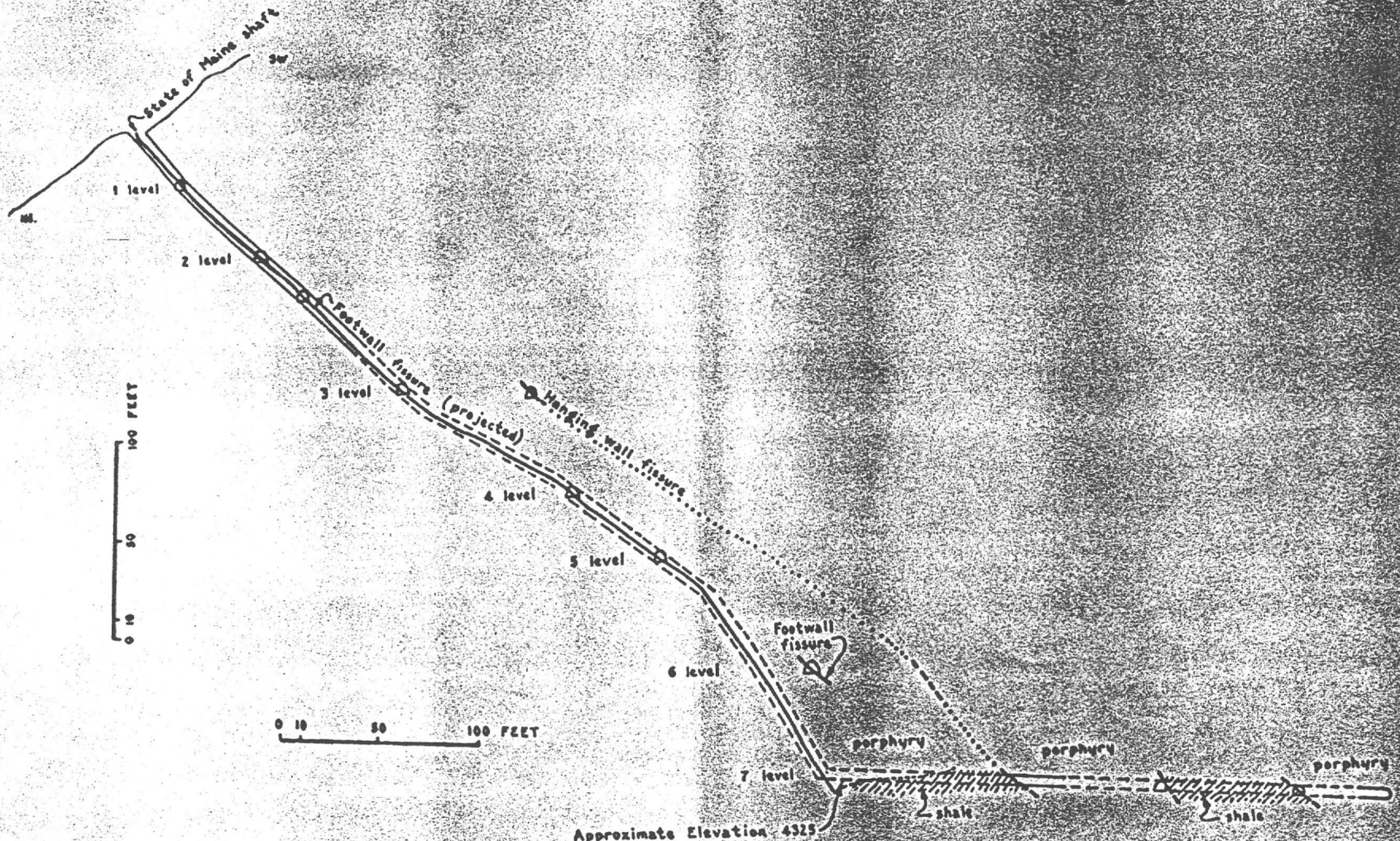


Plate XXVI.—Cross section through State of Maine Mine, looking southwest.

TRENCH D

13 6 X.02 = 0.12
14 6 X.09 = 0.09
4 X.06 = 0.24
16 7 X.20 = 1.40
17 7 X3.02 = 21.14
2 X.02 = 0.04
49 10 XTR = 0.00
10 X.02 = 0.20
51 3 X.11 = 0.33
8 X.07 = 0.56
53 5 XTR = 0.00
10 X1.26 = 12.60
55 7 X.34 = 2.38
9 X.03 = .27
15 X.21 = 3.15
58 6 X.18 = 1.08
10 XTR = 0.00
61 8 XTR = 0.00
A XTR = 0.00
63 8 X.05 = 0.40
30 X.36 = 10.8
175 ÷ 54.8

= 0.313

TRENCH "A"

20 1.5 XTR = 0.00
2 X TR = 0.00
22 5 X TR = 0.00
23 6 XTR = 0.00
24 A XTR = 0.00
25 6 X.02 = 0.12
A X.03 = 0.12
5.5 X.64 = 3.52
28 6 X 8.06 = 48.36
7 XTR = 0.00
6 X 2.91 = 17.46
31 2 X.20 = 0.40
6 X.36 = 2.16
1 X 19.91 = 19.64
64 ÷ = 91.76

= 1.134

TRENCH C

87 8 XTR = 0.00
86 8 X.20 = 1.60
85 12 X.06 = 0.72
84 10 X.03 = 0.30
83 15 XTR = 0.00
82 15 XTR = 0.00
81 10 X.03 = 0.30
80 10 XTR = 0.00
79 6 XTR = 0.00
78 12 XTR = 0.00
77 A XTR = 0.00
76 15 XTR = 0.00
75 12 X.02 = 0.24
74 15 XTR = 0.00
73 6 X.04 = 0.24
72 5 X TR = 0.00
71 8 XTR = 0.00
70 3 X.60 = 1.80
69 .25 X72.32 = 18.08
68 16 X4.52 = 72.32
67 7 X.02 = 0.14
66 6 XTR = 0.00
65 10 XTR = 0.00
218 ÷ 95.74

= 0.439

TRENCH D

88 8 X.02 = 0.16
89 8 XTR = 0.00
90 18 XTR = 0.00
91 10 XTR = 0.00
92 10 X2.57 = 2.57
93 12 X.50 = 6.00
94 15 X.02 = 0.30
95 14 XTR = 0.00
96 10 X.01 = 0.10
105 ÷ 9.13

= 0.087

TRENCH E

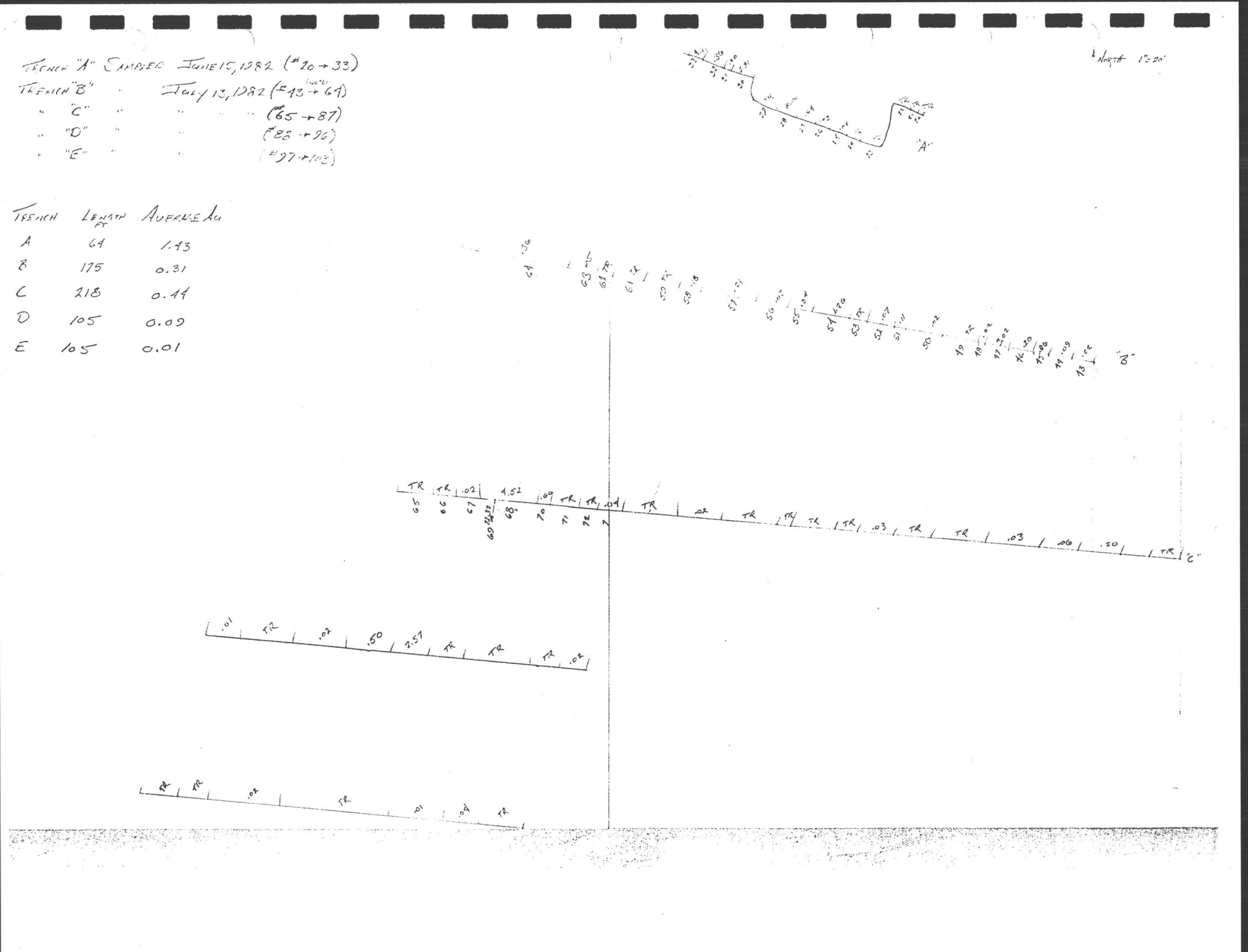
103 12 XTR = 0
102 10 X.04 = 0
101 15 X.01 = 0.1
100 30 X TR = 0.0
99 20 X.02 = 0.4
98 8 XTR = 0.00
97 10 XTR = 0.00
105 ÷ 0.05

= 0.00

CLIPPER VEIN

TRENCH "A" SAMPLED JUNE 15, 1982 (#20 → 33)
TRENCH "B" " JULY 13, 1982 (#13 → 64)
" "C" " " " (#65 → 87)
" "D" " " (#88 → 96)
" "E" " " (#97 → 103)

TRENCH	LENGTH FT	AVERAGE Au
A	64	1.43
B	175	0.31
C	218	0.44
D	105	0.09
E	105	0.01



45 Ft
Apart

" D N80°W

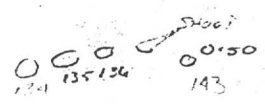
" C" N85°W

S2AE! 60 Ft From East End "B" to East End "C"

	Ag	Au	
1 -	64.68	.120	*
2 -	38.57	.075	
3 -	72.84	.090	
4 -	45.73	.045	
5 -	37.75	.015	
6 -	38.67	.050	

High Grade Buckets

#	Date	Location / Length	Comment	Ag	Au
3	9-23	BT	Upper West Face ①		
	"	"	" East " ②		
2	"	"	Lower " ①		
1	"	"	" ③		
			" ④		
	"	"	"		
1			Lower Cut Face ④		
	"	"	" "		
10-1	"	Right of Shoot			
	"	Left " "			
	"	Dump			
	"	Pile			
10-4	"	Right of Shoot			
	"	Left " "			
10/12	"	" Pile			
	"	Right of Shoot			

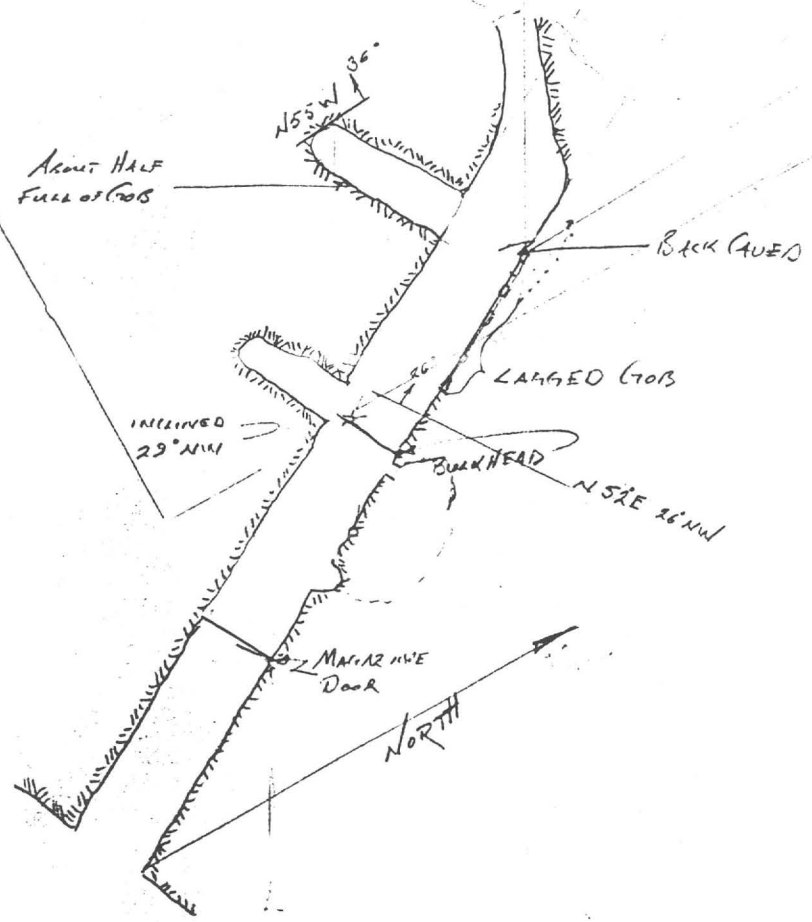


#	Date	Location / Length	Comment	Ag	Au
134	11/10	BT	Gob Pile #1	.68	.015
135	"	" " "	" #2	1.20	.011
136	"	" " "	" #3	.12	.008
137	"	Water Tank 2"	Qtz Veinlets	.10	.008
138	"	" " 8 Feet ~70 Ft	Red Oxides	.02	.011
139	"	" " 8 Feet ~70 Ft	White Gauge	.10	.026
140	"	N. XXX 25 Ft	Dozer Cut N. XXX	.18	.017
141	"	" 6 in	Mang. Qtz.	4.10	.04
142	"	BT	High Grade	220.62 Fa.	.023 Fa.
143	"	"	Pile	.40	.015
144	11/23	SMA #2	Pile	.10	.005
145	"	N. XXX	Dozer Pile	.32	.005
146	"	" 25 Ft	S → N Dike to Vein	.15	.005
147	"	" 5 Ft	Vein	.38	.017
148	"	" ~2 in	Vein	1.24	.04
149	"	BT	Waste?	.90	.011
150	"	"	Pile East of Shoot	1.02	.008

CLIPPER OPEN PIT VEIN

#	DATE	LOCATION	LENGTH	COMMENT	AG	AU
101	7-13-82	CLIPPER "E"	15 FT		.01	NIL
102	"	"	10 FT		.04	NIL
103	"	"	12 FT	E. END TREN	TR	NIL
104	7-20-82	CLIPPER VEIN	10 FT		.08	NIL
105	"	"	10 FT		.08	NIL
106	"	"	5 FT			
107	"	"	10 FT			
108	"	"	8 FT			
109	"	"	12 FT			
110	"	"	11 FT			
111	"	"	6 FT	SILICEOUS		
112	"	"	8 FT			
113						
114						
115						
116						
117						

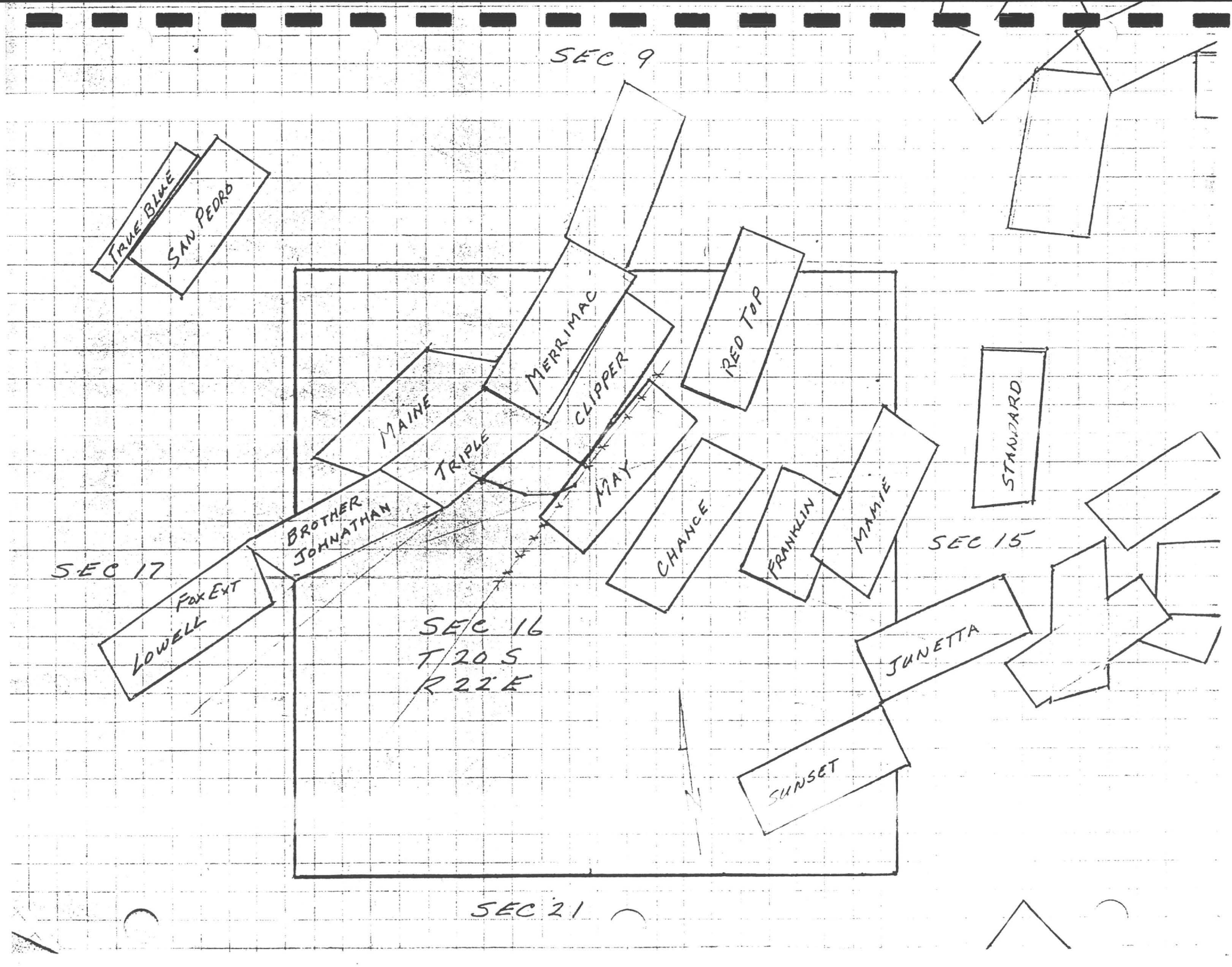
#	DATE	LOCATION	LENGTH	COMMENT	AG	AU
100	8/13	N. END	(RED FINES - NO HORNITOS)		0.76	TR
101	"	"	(HARD RED HEMATITE)		1.61	.010
102	"	W. WALL	(HIGH GRADE)		21.69	.032
103	"	S. END	(PANNED LOTS OF HORN)		1.96	.005
104	8/17	"	35"	WHITE		
105	"	"	88"	QUARTZ		
106	"	"	54"			
107	"	"	12"	HIGH GRADE FOR		
108	"	"	59"	WALL RAISING		
109	"	N. END	42"	" "		
110	"	"	92"	"		
111	"	"	73"	SIL. HEMATITE		
112	"	W. WALL	@ 25 FT	@ WALL		



BROTHER JONNATAN MINE

1" = 20'

Ap. 1, 1991 B.E.


SEC 9
TRUE BLUE
SAN PEDRO
MERRIMAC
CLIPPER
RED TOP
MAINE
TRIPLE
MAY
BROTHER JONATHAN
CHANCE
FRANKLIN
MAMIE
STANDARD
SEC 15
SEC 17
FAX EXT
LOWELL
SEC 16
T 20 S
R 22 E
JUNETTA
SUNSET
SEC 21

PROPOSED LOWELL
CLAIM DRILLING

State of Maine Mining Company

P. O. BOX 453 TOMBSTONE, ARIZONA 85638 PHONE 457-3601
CHARLES ESCAPULE LOUIS ESCAPULE

Dec. 10, 1980

Proposed Drilling Program at Lowell Area

Tombstone, Arizona

On November 18 and 19, 1980, a total of eight wagon drill holes were drilled on the Lowell Patented Claim by the owners Charles and Louis Escapule. From these holes, mineable silver ore was hoped to be found. A description of the holes and the assay results are on the attached table.

From these results it was decided to drill more holes and prove enough ore for a small open pit (to be developed later for under ground production).

We propose that a total of ten more holes be drilled on the Lowell property. Since, favorable indications were found for 150 feet on the Lowell claim from the north sideline, a drilling program that would prove more ore along the strike of the vein is needed.

This program would include two lines of five holes each, approximately 200 feet either side of the line of wagon drill holes, and 50 feet deep.

A total of five more holes should also be drilled on the adjacent six lode claims to find more indications of ore and also, to find an area for waste disposal that is not over ore.

The wagon drill rig used to drill the first eight holes is no longer available to us, but Connors Drilling in Tucson, Arizona, has a diamond drill rig available for around $9,000.00. Because the holes are shallow the price is based on a $75.00

State of Maine Mining Company

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CHARLES ESCAPULE LOUIS ESCAPULE

per hour rate. There will be an additional cost of $600.00 for dozer work to prepare the drill sites. It will take an estimated three weeks to complete this program.

Bobby Escapule

State of Maine Mining Company

P. O. BOX 453 TOMBSTONE, ARIZONA 85638 PHONE 457-3601
CHARLES ESCAPULE LOUIS ESCAPULE

Wagon Drill Holes at Lowell

Nov. 18 & 19, 1980

Hole	Bearing	Incl.	Dist. Between	Bearing Between
L-1	S50E	35		
			41 ft.	S39E
L-2	S48E	37		
			42	S39E
L-3	S38E	32		
			45	S46E
L-4	S51E	36		
			45	S59E
L-5	S55E	34		
			36	S58E
L-6	S60E	33		
			35	S63E
L-7	S48E	37		
			41	S39E
L-8	S44E	36		

Sample Assays

L-1	A_{Ag}	A. Assay Au	Fire Assay Ag	Fire Assay Au
0-10	.06	Nil		
10-16	.06	"		
16-22	.06	"		
22-28	.05	"		
28-34	.05	"		
34-40	.19	"	.86	Nil
40-46	.06	"		
46-52	.06	"		
52-58	.03	"	.40	Nil

L-2	A_{Ag}	A. Assay Au	Fire Assay Ag	Fire Assay Au
0-10	.07	Nil	.3[illegible]	Nil
10-16	.03	"		
16-22	.06	"		
22-28	.19	"	[illegible]	Nil
28-34	.78	"	2.2[illegible]	Nil
34-40	.10	"		
40-46	.30	"	1.[illegible]	Nil
46-52	.08	"		
52-58	.06	"		

State of Maine Mining Company

P. O. BOX 453 TOMBSTONE ARIZONA 85638 PHONE 457-3601
CHARLES ESCAPULE LOUIS ESCAPULE

Sample Assays

L-3	A. Ag	A. Assay Au	Fire Assay Ag	Fire Assay Au	L-4	A. Ag	A. Assay Au	Fire Assay Ag	Fire Assay Au
0-10	.23	Nil	1.00		0-10	.18	Nil	.90	
10-16	.58	"	2.04		10-16	.04	"		
16-22	.09	"			16-22	.02	"		
22-28	.18	"	.90		22-28	.04	"		
28-34	.06	"			28-34	.02	"		
34-40	.04	"			34-40	.02	"		
40-46	.03	"			40-46	Tr	"		
46-52	.03	"			46-52	.02	"		
52-58	.-3	"			52-58	.02	"		
L-5					L-6				
0-10	.02	"			0-10	.02	"		
10-16	.01	"			10-16	.02	"		
16-22	.02	"			16-22	.01	"		
22-28	.01	"			22-28	.04	"		
28-34	.02	"			28-34	.02	"		
34-40	Tr	"			34-40	Tr	"		
40-46	Tr	"			40-46	.01	"		
46-52	.01	"			46-52	.01	"		
52-58	Nil	"			52-58	.01	"		

State of Maine Mining Company

P. O. BOX 453 TOMBSTONE ARIZONA 85638 PHONE 457-3601

CHARLES ESCAPULE LOUIS ESCAPULE

Sample Assays

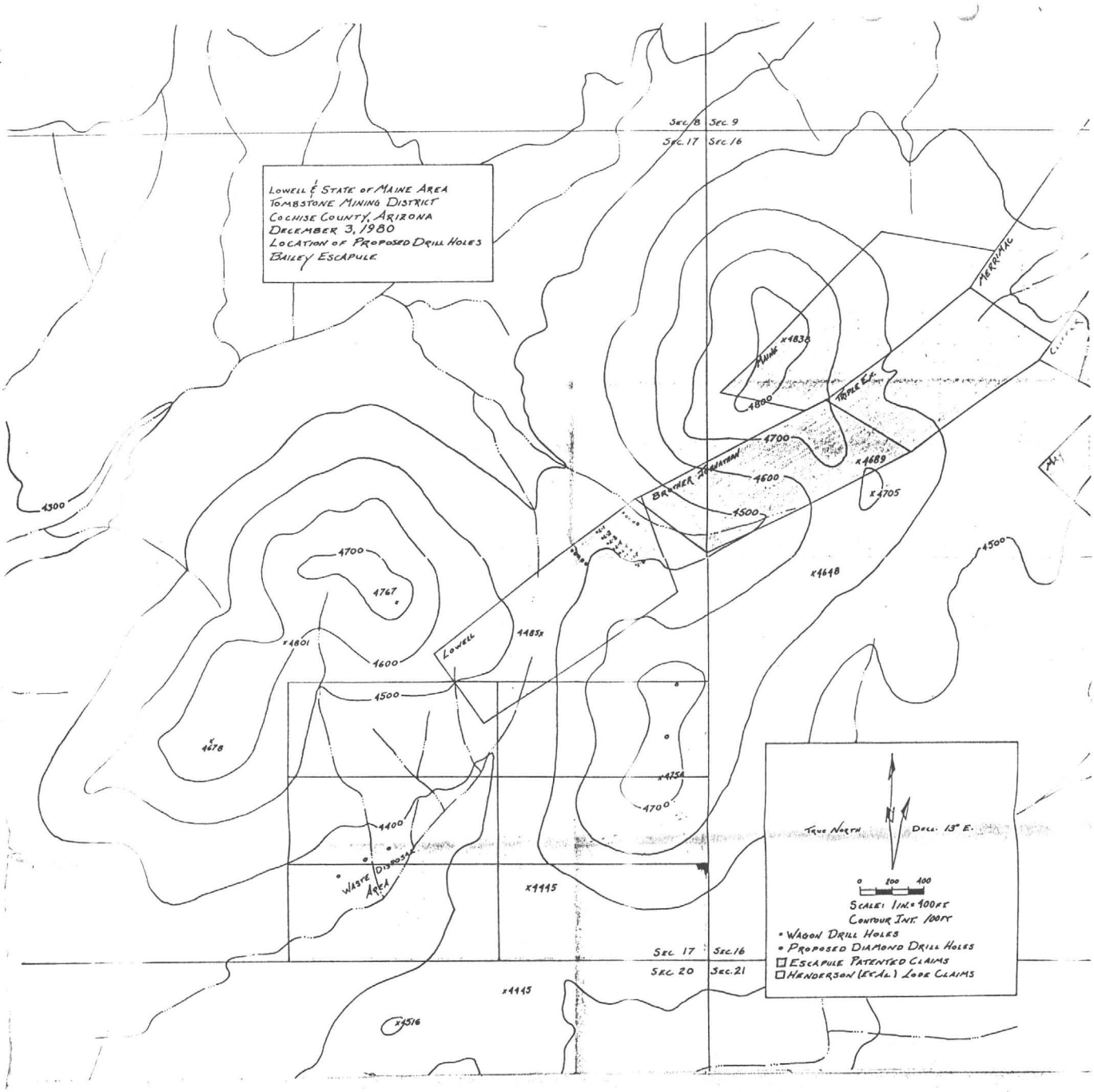
L-7	A_{Ag} A. Assay Au	Fire Assay Ag Au	L-8	A_{Ag} A. Assay Au	Fire Assay Ag Au
0-10	.12	Nil	0-10	.01	Nil
10-16	.01	"	10-16	Tr	"
16-22	Tr	"	16-22	Tr	"
22-28	.01	"	22-28	Tr	"
28-34	.01	"	28-34	.01	"
34-40	Tr	"	34-40	Nil	"
40-46	Nil	"	40-46	Nil	"
46-52	"	"	46-52	Tr	"
52-58	"	"	52-54	"	"

Note: A. A. Assay = "Shaker Test" for 1 hour on unpulverized Drill cuttings.

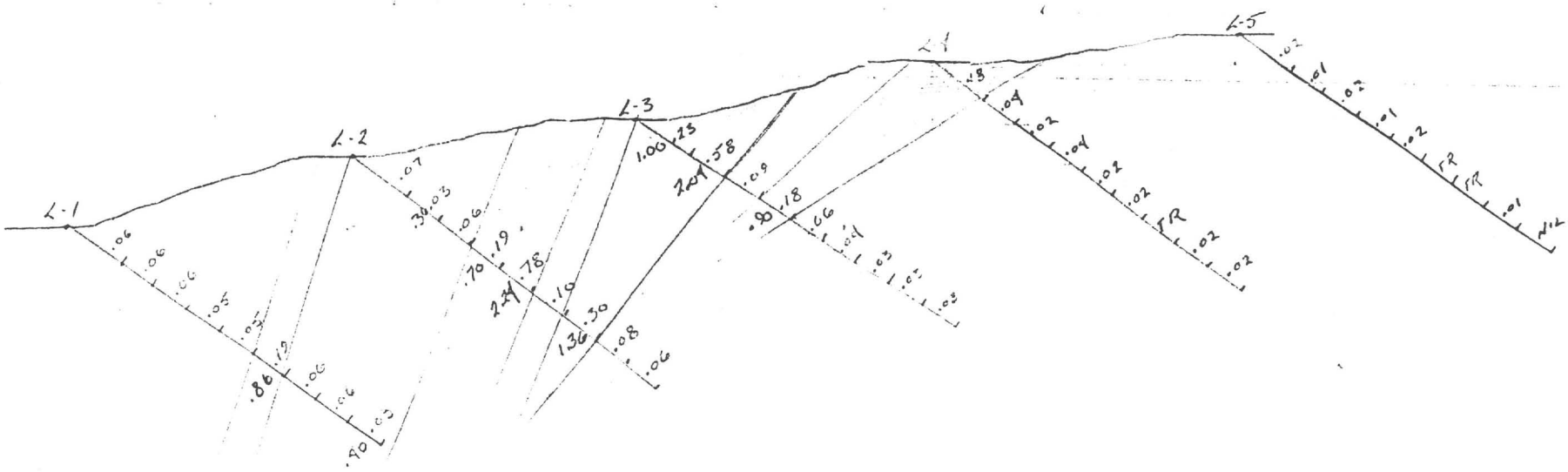
Fire Assays were done on samples showing some silver values and on lower value samples for comparason.

FIRE ASSAYS DONE TO CHECK PREVIOUS FIRE ASSAYS

		Au	Ag	PREVIOUS ASSAYS
L-2	28-34	TR	2.00	2.24
L-3	10-16	TR	2.64	2.04


LOWELL & STATE OF MAINE AREA
TOMBSTONE MINING DISTRICT
COCHISE COUNTY, ARIZONA
DECEMBER 3, 1980
LOCATION OF PROPOSED DRILL HOLES
BAILEY ESCAPULE
SEC. 8
SEC. 9
SEC. 17
SEC. 16
SEC. 20
SEC. 21
MERRIMAC
MAINE
TRIPLE E.
BROTHER JONATHAN
LOWELL
WASTE DISPOSAL AREA
4300
4400
4500
4600
4700
4800
x4838
x4689
x4705
x4618
x4801
4767
x4678
x4758
x4995
x4516
TRUE NORTH
DECL. 13° E.
0 100 400
SCALE: 1 IN. = 100 FT
CONTOUR INT. 100 FT
• WAGON DRILL HOLES
• PROPOSED DIAMOND DRILL HOLES
ESCAPULE PATENTED CLAIMS
HENDERSON (ET AL.) LODE CLAIMS

Cross Section of Lowell
Looking East
Scale: 1 cm = 10 ft.



STILL & STILL
CONSULTING MINING ENGINEERS & GEOLOGISTS
TUCSON, ARIZONA 85718

J. W. STILL, MINING ENGINEER
6310 CAMINO DE SANTA VALERA
602.299-0268

ARTHUR R. STILL, GEOLOGIST
6840 CAMINO DE FRAY MARCOS
602-[illegible]-2307

December 18, 1980

Mr. Bailey Escapule
P. O. Box 453
Tombstone, Arizona 85638

Dear Bailey:

Enclosed, as Plate 1, is a 1"=20' scale plot of the Lowell area wagon drill holes as based on data in your memo of December 10th. You will note I have posted all the assays available.

Since we have 9 samples with both fire assays and "shaker test" results, I plotted this data into a graph as Plate 2. Using this graph, I then "filled in" where fire assays were lacking to make Plate 3, of the best part of the zone. Using this "approximation" for some of the grades, I put in a rough pit outline on Plate 3. The three holes in the pit have weighted averages as follows:

Hole No.	Length	Oz. Ag/ton
2	46 ft	0.77
3	34 ft	1.02
4	10 ft	0.90
	90 ft	0.88

This little pit would make 212 tons per linear foot, or 21,200 tons in 100 ft.

The 0.88 grade, in my opinion, simply wouldn't make it at current silver prices. However, it is starting to approach an "ore" grade and thus "upgrades" the prospect.

I have written a report to Mr. Arndt and you should hear directly from him in the not too distant future.

Very truly yours,

Arthur R. Still

ARS/sb
xc: Doug Arndt

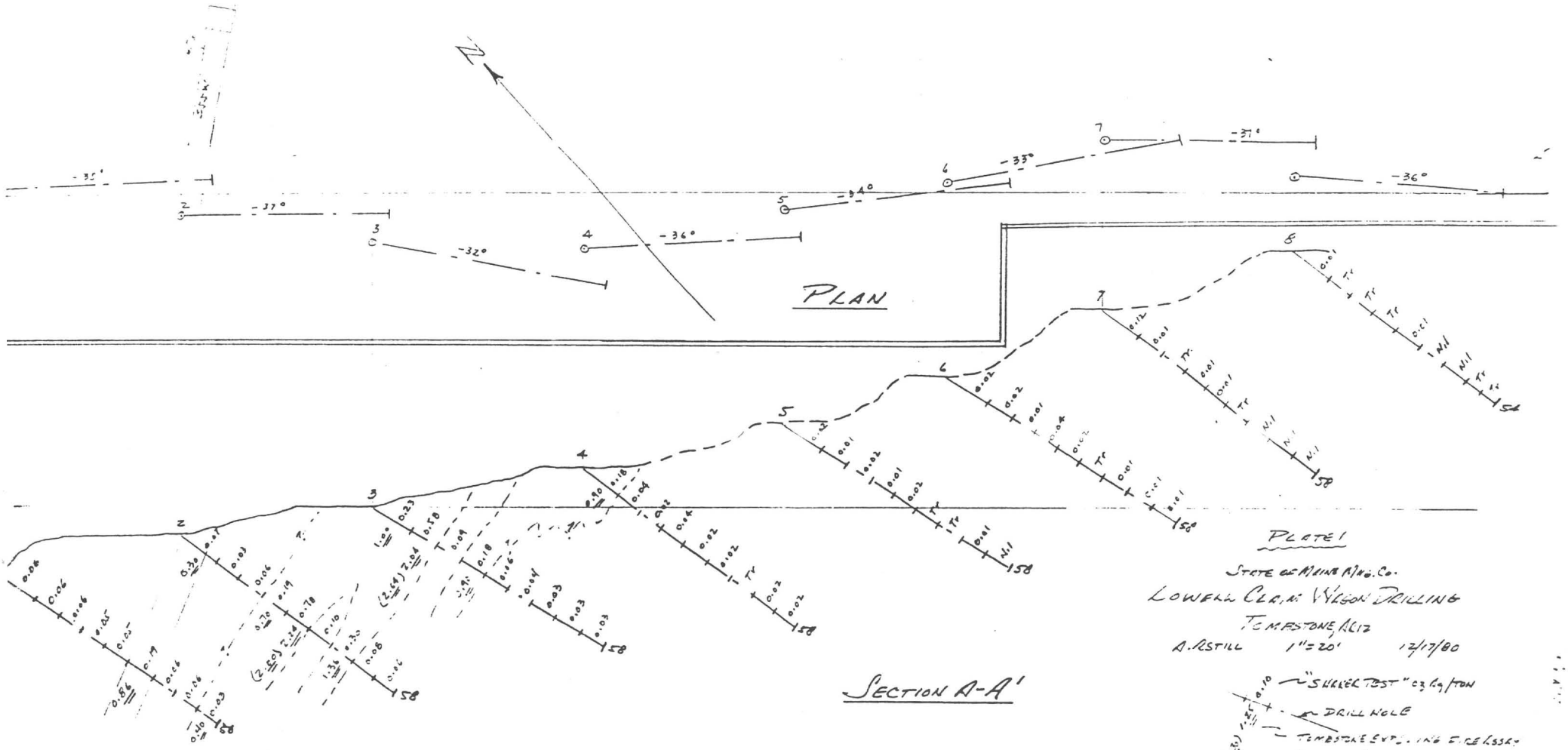


PLATE I

STATE OF MAINE MIN. CO.

LOWELL CLAIM VILSON DRILLING

TOMBSTONE, ARIZ

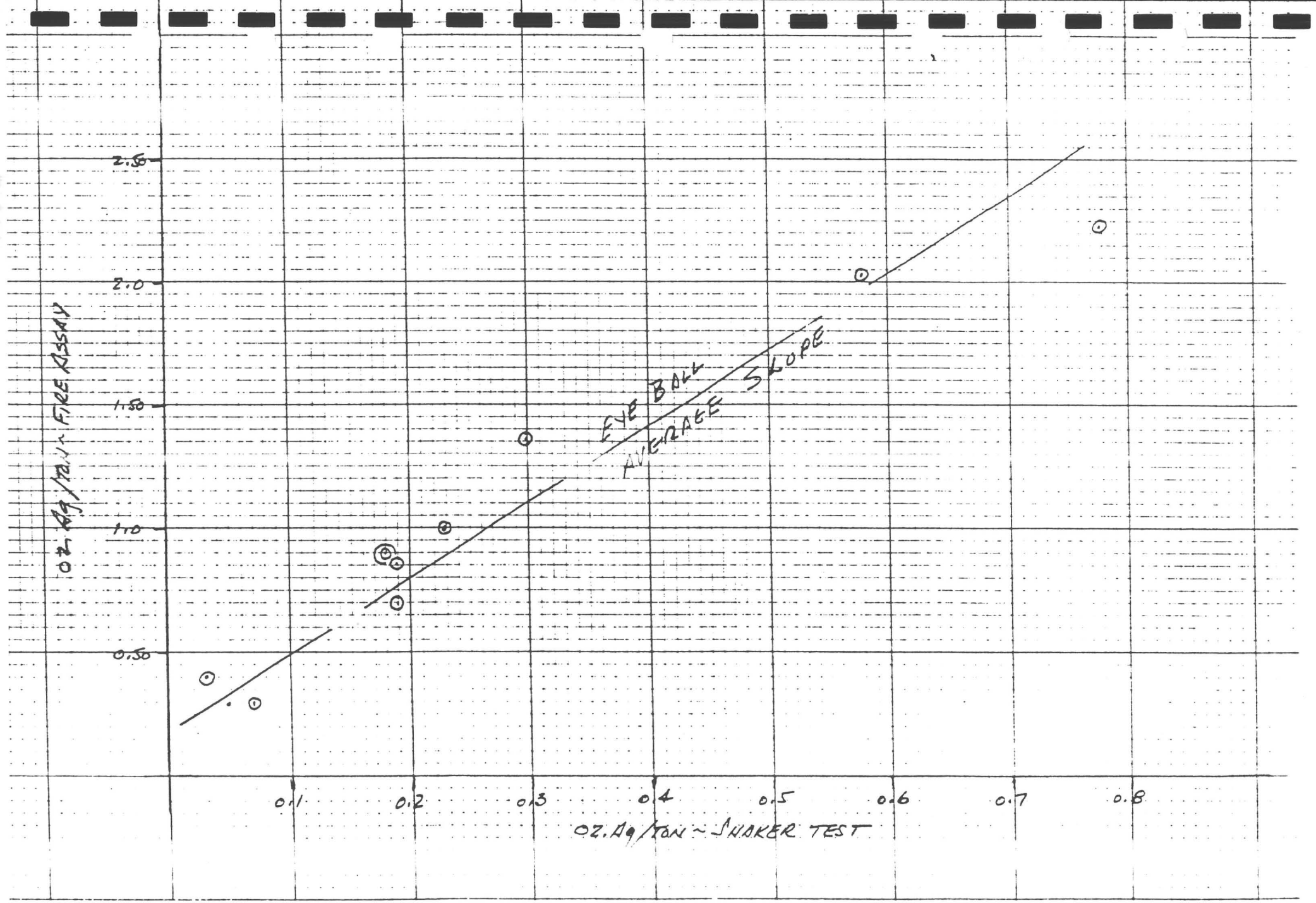
A. ASTILL 1"=20' 12/17/80

0.10 — "SHELLEY TEST" 03 Kg/TON

— DRILL HOLE

— TOMBSTONE EXPLORING FIRE ASSAY

— ROCKLINE (DOUGLAS) FIRE ASSAY

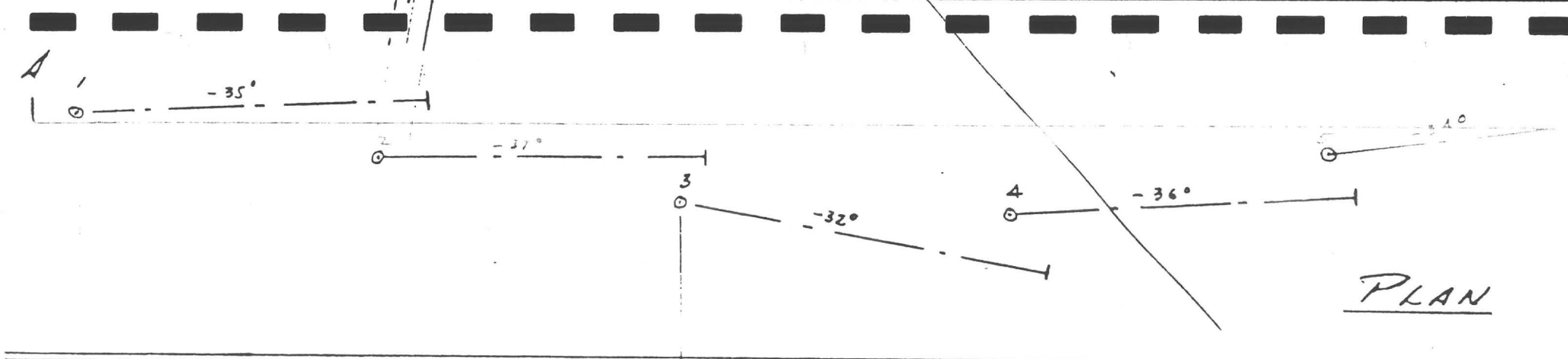


Lowell Prospect ~ Graph of Shaker vs Fire Assay

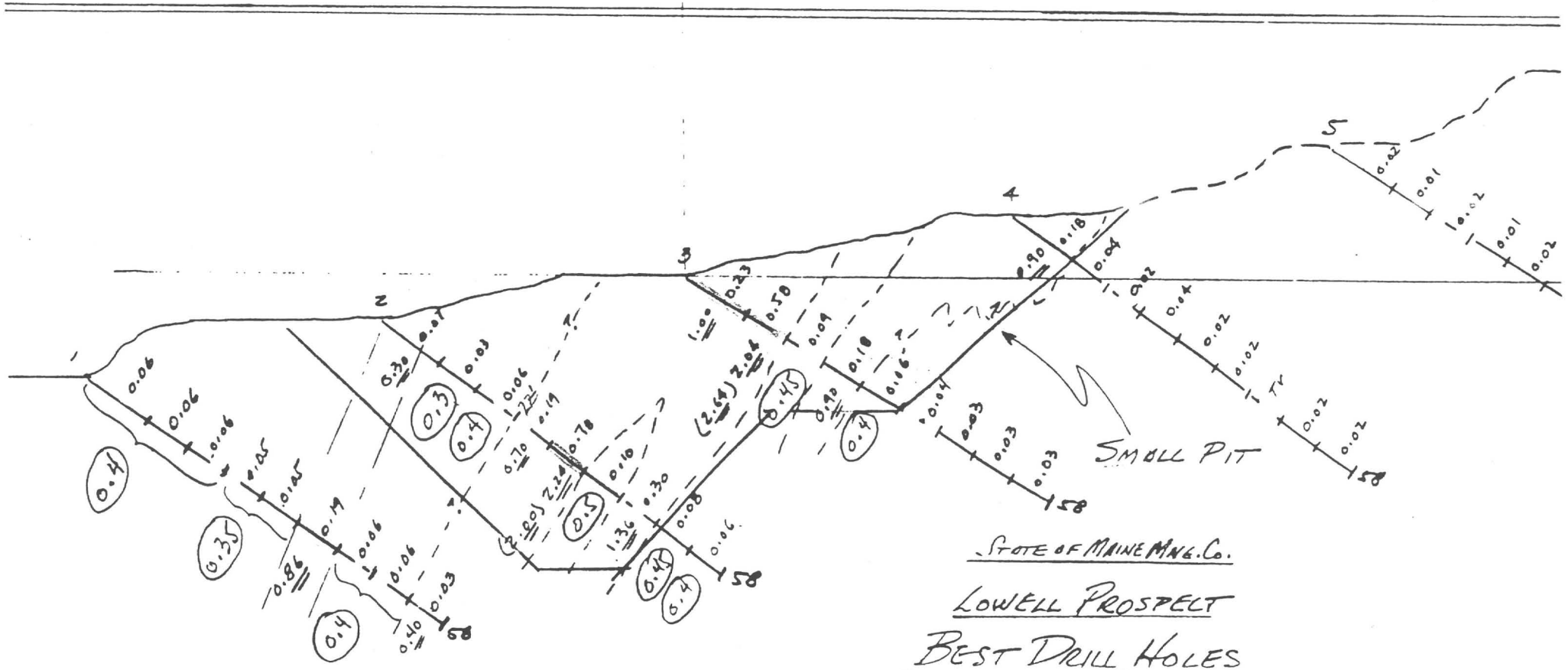
A. K. Still

12/17/80

Plate E



PLAN



SECTION

STATE OF MAINE MNG. CO.

LOWELL PROSPECT

BEST DRILL HOLES

A.E. STILL 1" = 20' 10/17/80

— + 1.0 oz Ag

— 0.5 - 0.99 oz Ag

— 0.25 - 0.49 oz Ag

(0.4) SILVER INTERPRETED FROM GRAPH

PLATE 3

STILL & STILL
CONSULTING MINING ENGINEERS & GEOLOGISTS
TUCSON, ARIZONA 85718

J. W. STILL, MINING ENGINEER
6310 CAMINO DE SANTA VALERA
602-299-9268

ARTHUR R. STILL, GEOLOGIST
6840 CAMINO DE FRAY MARCOS
602-[illegible]-2507

November 20, 1980

Mr. Bailey Escapule
State of Maine Mining Co.
P. O. Box 453
Tombstone, Arizona 85638

Dear Bailey:

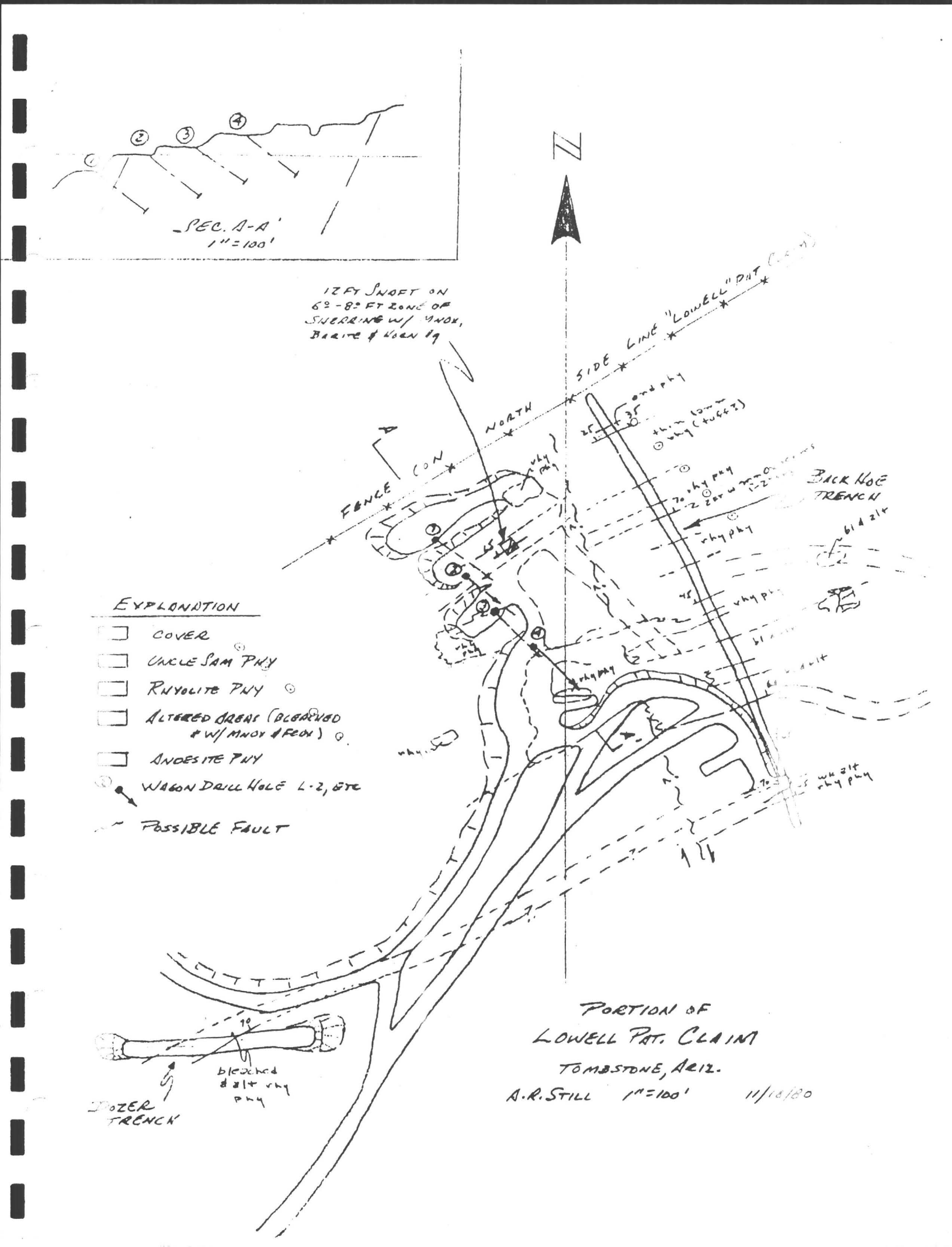
Enclosed is a copy of the "geologic sketch map" of part of the Lowell claim.

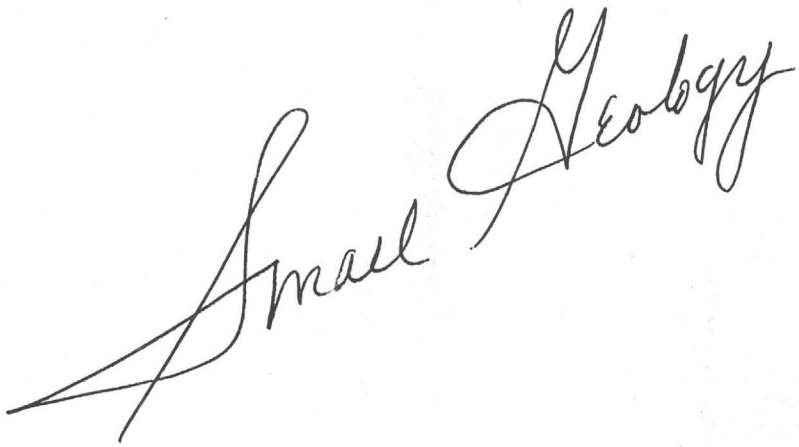
I will phone you after Thanksgiving to get the results of the last holes, and any fire assays which may be available by then. Also, we will get together to try to evaluate the economics of the State of Maine underground mine. Any data which you can turn up on the old underground mine will be most helpfull.

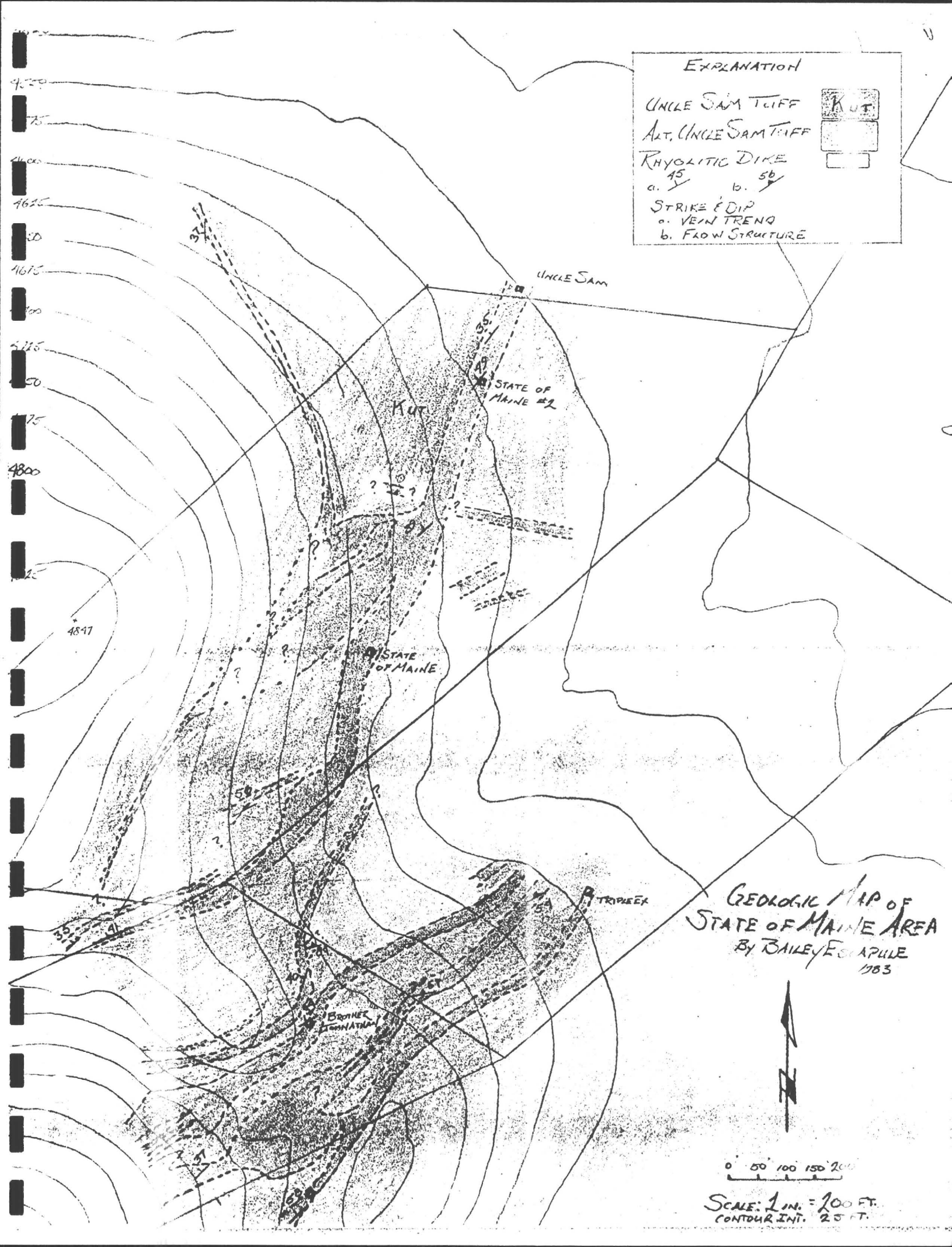
It was a pleasure working with you for a day in the field, and I hope we get to do more of it together.

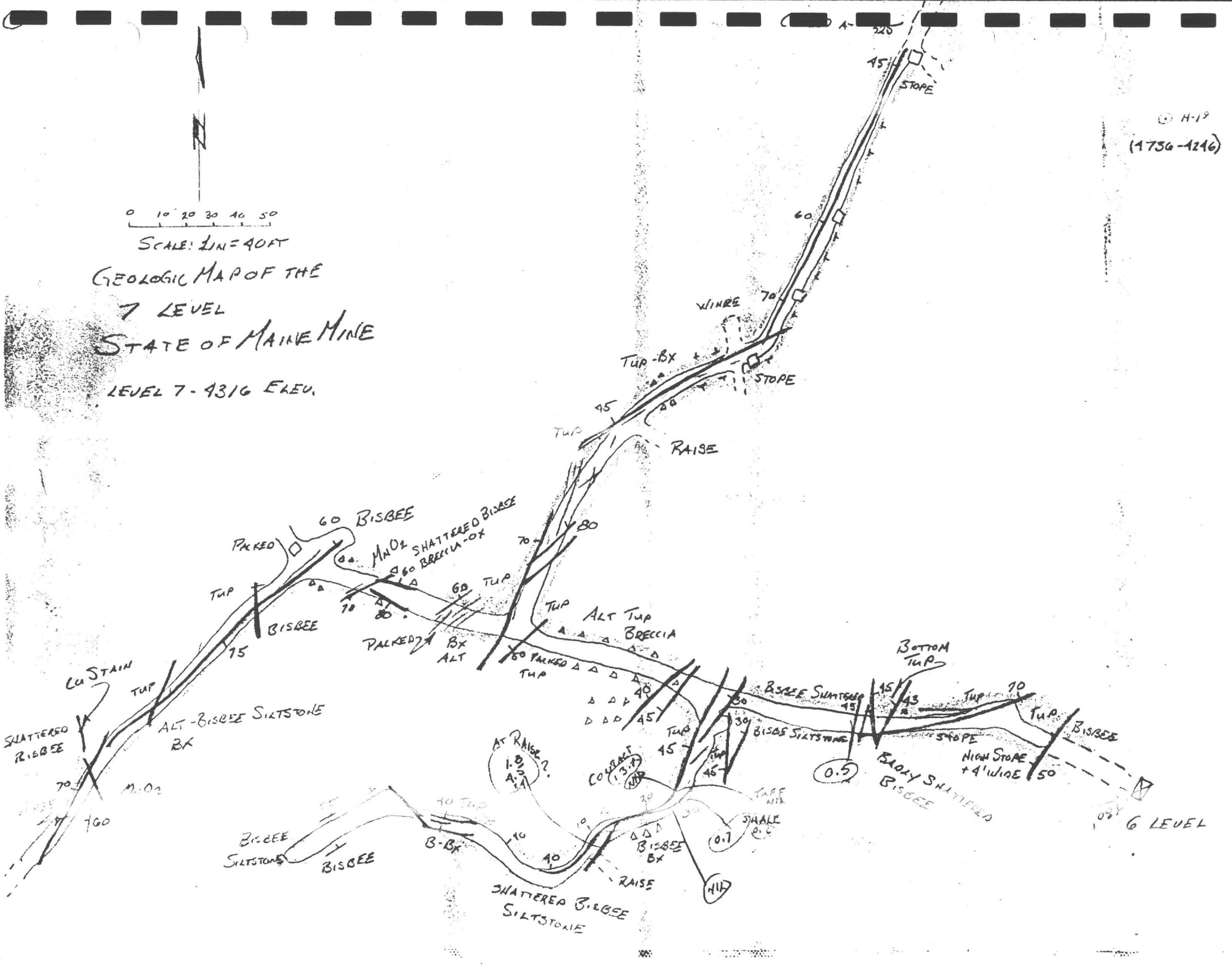
Very truly yours,

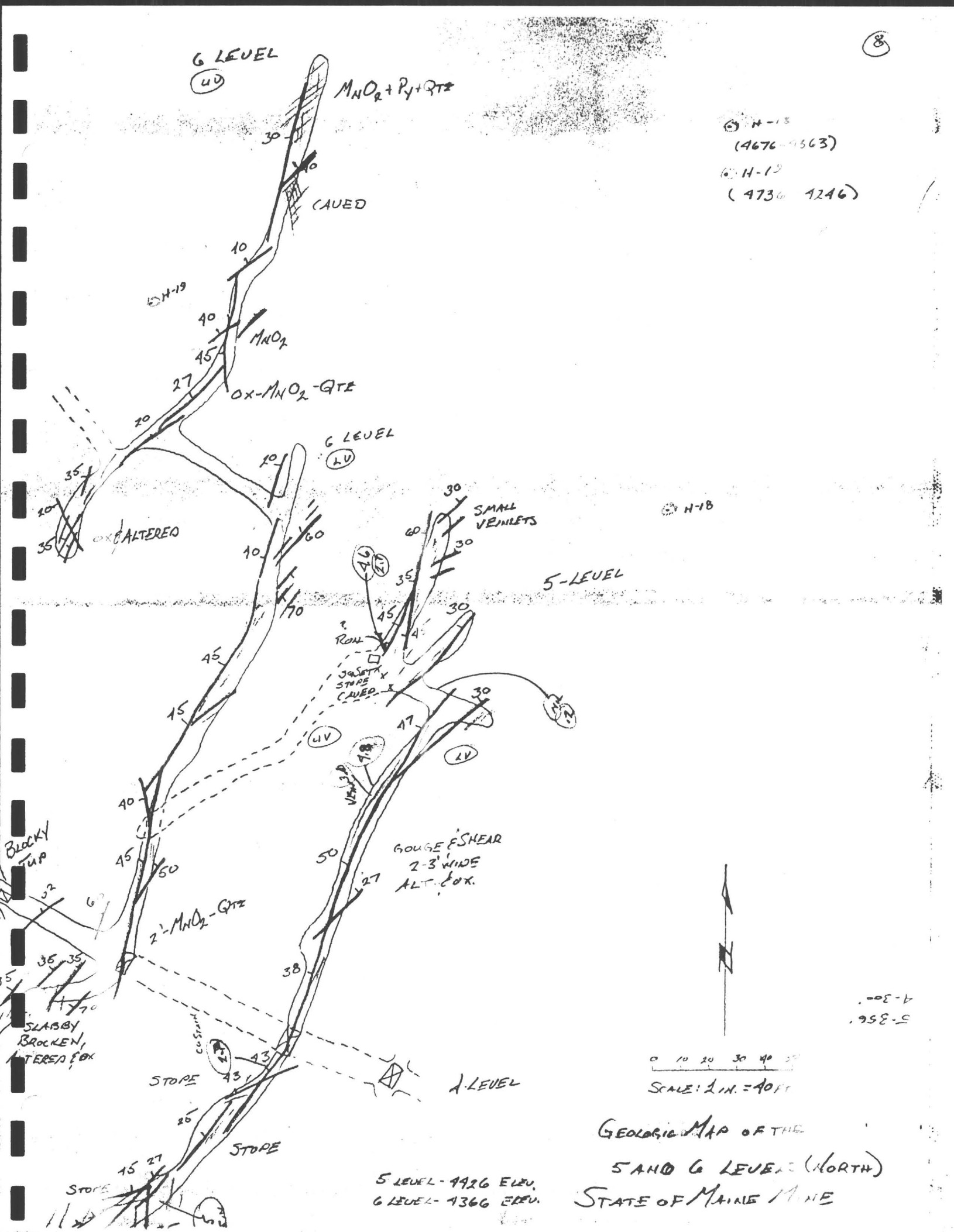
Arthur R. Still

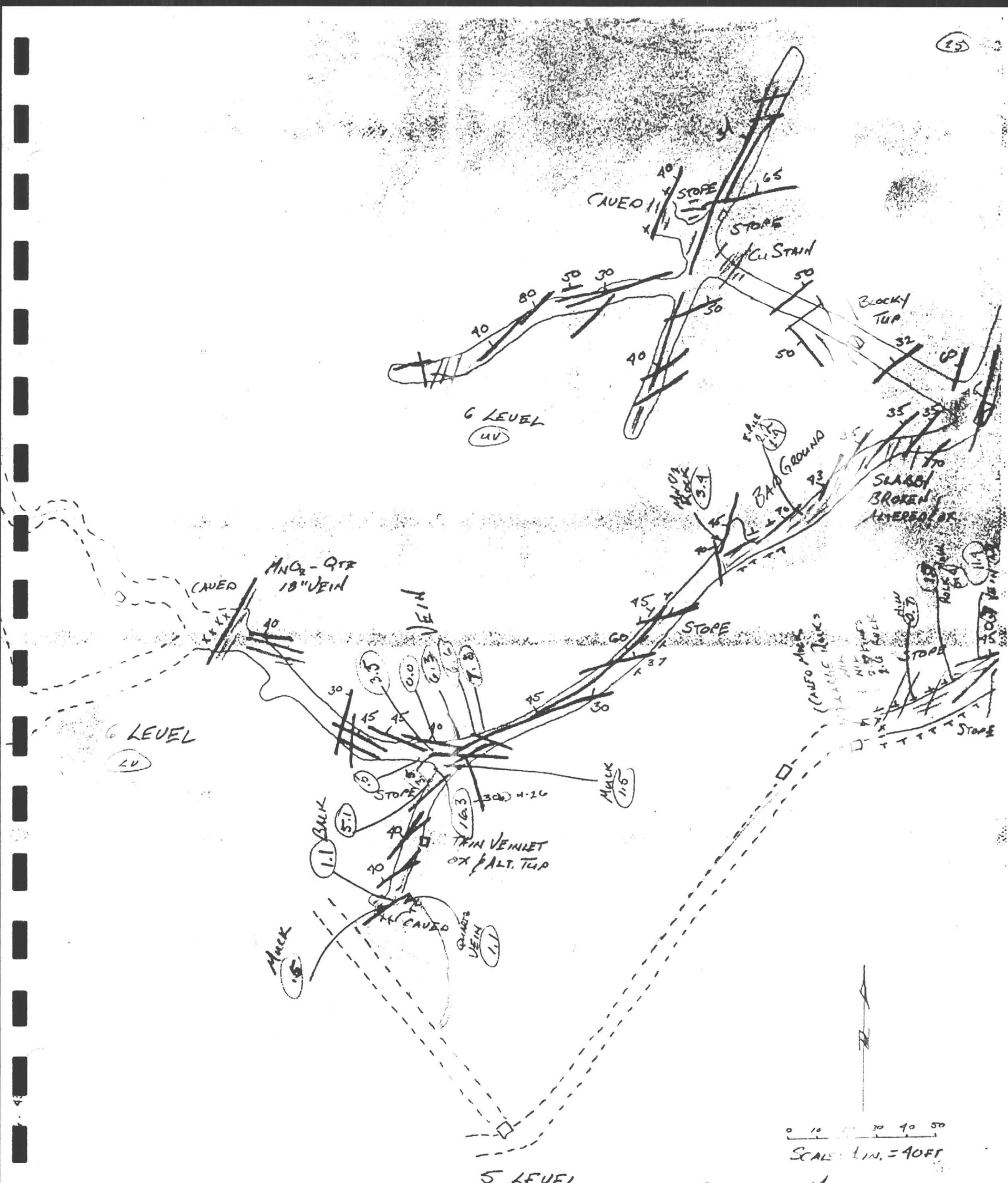

SEC. A-A'
1" = 100'
N
12 FT SHAFT ON 6° - 8° FT ZONE OF SHEARING W/ MNOX, BARITE & IRON Hy
SIDE LINE "LOWELL" PAT
NORTH
FENCE (ON
BACK HOE TRENCH
EXPLANATION
COVER
UNCLE SAM PHY
RHYOLITE PHY
ALTERED AREAS (BLEACHED & W/ MNOX & FeOx)
ANDESITE PHY
WAGON DRILL HOLE L-2, ETC
POSSIBLE FAULT
bleached & alt rhy phy
DOZER TRENCH
PORTION OF
LOWELL PAT. CLAIM
TOMBSTONE, ARIZ.
A.R. STILL 1" = 100' 11/18/80


Small Geology


EXPLANATION
UNCLE SAM TUFF
KUT
ALT. UNCLE SAM TUFF
RHYOLITIC DIKE
a. 45
b. 56
STRIKE & DIP
a. VEIN TREND
b. FLOW STRUCTURE
UNCLE SAM
STATE OF MAINE #2
KUT
STATE OF MAINE
TRIPLE EX
BROTHER
4847
GEOLOGIC MAP OF STATE OF MAINE AREA
BY BAILEY EASTMAN
1963
0 50 100 150 200
SCALE: 1 IN. = 200 FT.
CONTOUR INT. 25 FT.


0 10 20 30 40 50
SCALE: 1IN = 40FT
GEOLOGIC MAP OF THE
7 LEVEL
STATE OF MAINE MINE
LEVEL 7 - 4316 ELEV.
H-19
(1736-1216)
STOPE
WINZE
TUP-BX
RAISE
60 BISBEE
PACKED
MnO2
SHATTERED BISBEE
BRECCIA-OX
TUP
ALT TUP
BRECCIA
BISBEE
PACKED
BX
ALT
BOTTOM
TUP
BISBEE SHATTERED
BISBEE SILTSTONE
STOPE
HIGH STOPE
+4' WIDE
BISBEE
Cu STAIN
SHATTERED
BISBEE
ALT-BISBEE SILTSTONE
BX
MnO2
BISBEE
SILTSTONE
B-BX
RAISE
SHATTERED BISBEE
SILTSTONE
BISBEE
BX
SHALE
BLOCKY SHATTERED
BISBEE
6 LEVEL

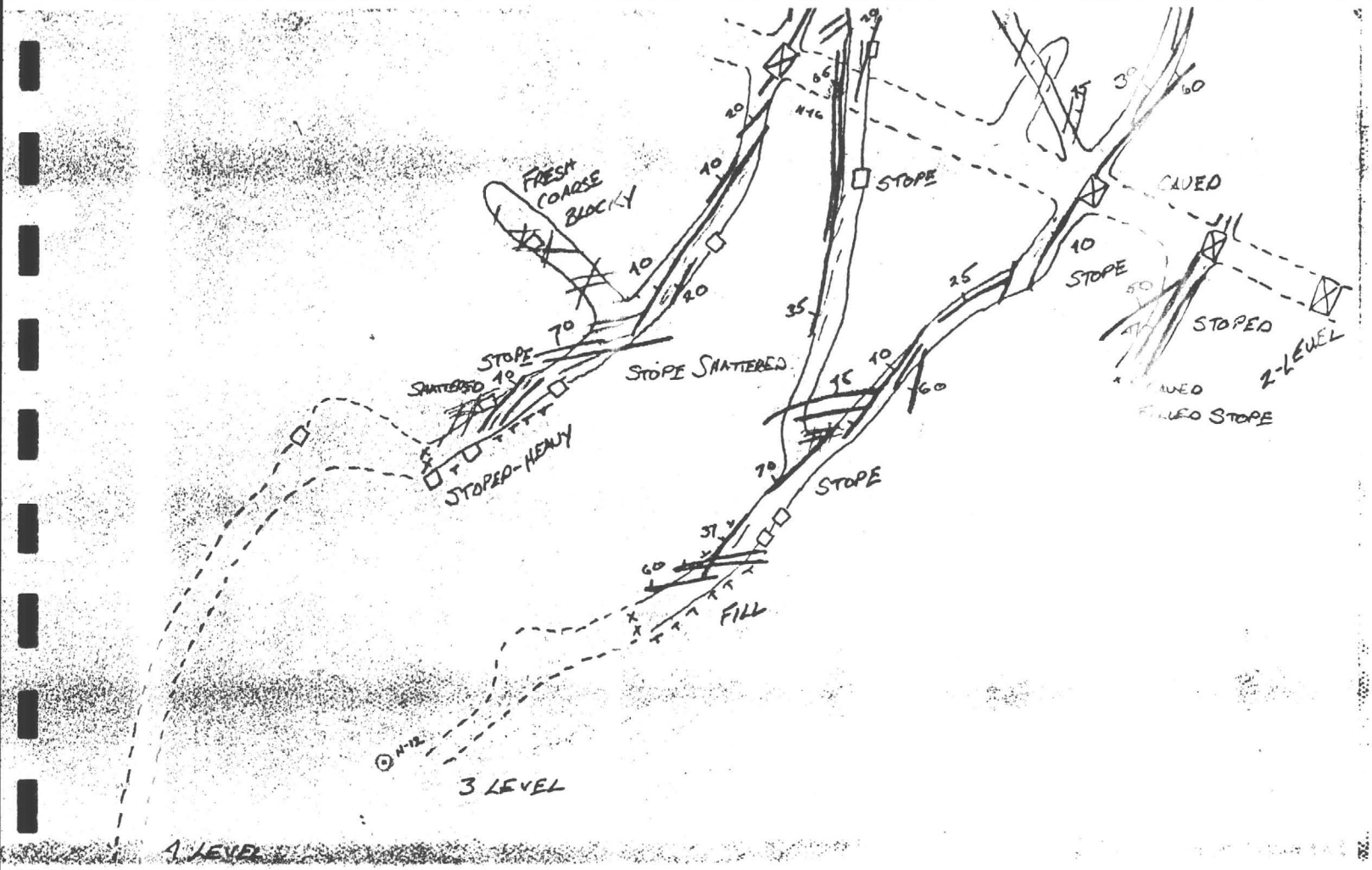

6 LEVEL
MnO2 + Py + Qtz
CAVED
H-19
MnO2
ox-MnO2-Qtz
6 LEVEL
ox & ALTERED
H-18
SMALL VEINLETS
5-LEVEL
ROLL
JOINTED & STOPE CAVED
GOUGE & SHEAR 2-3' WIDE ALT. & OX.
2'-MnO2-Qtz
BLOCKY TOP
SLABBY BROKEN, ALTERED & OX
STOPE
4 LEVEL
STOPE
STOPE
SCALE: 1 IN. = 40 FT
5 LEVEL - 4426 ELEV.
6 LEVEL - 4366 ELEV.
GEOLOGIC MAP OF THE 5 AND 6 LEVELS (NORTH)
STATE OF MAINE MINE

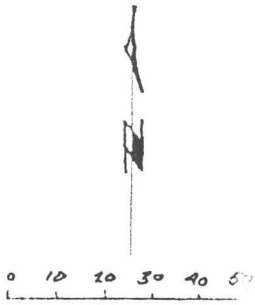


H-26
(1796 - 1296)

LEVEL 5 - 1426 ELEV.
LEVEL 6 - 1316 ELEV.

GEOLOGIC MAP OF THE
5 AND 6 LEVELS (SOUTH)
STATE OF MAINE MINE

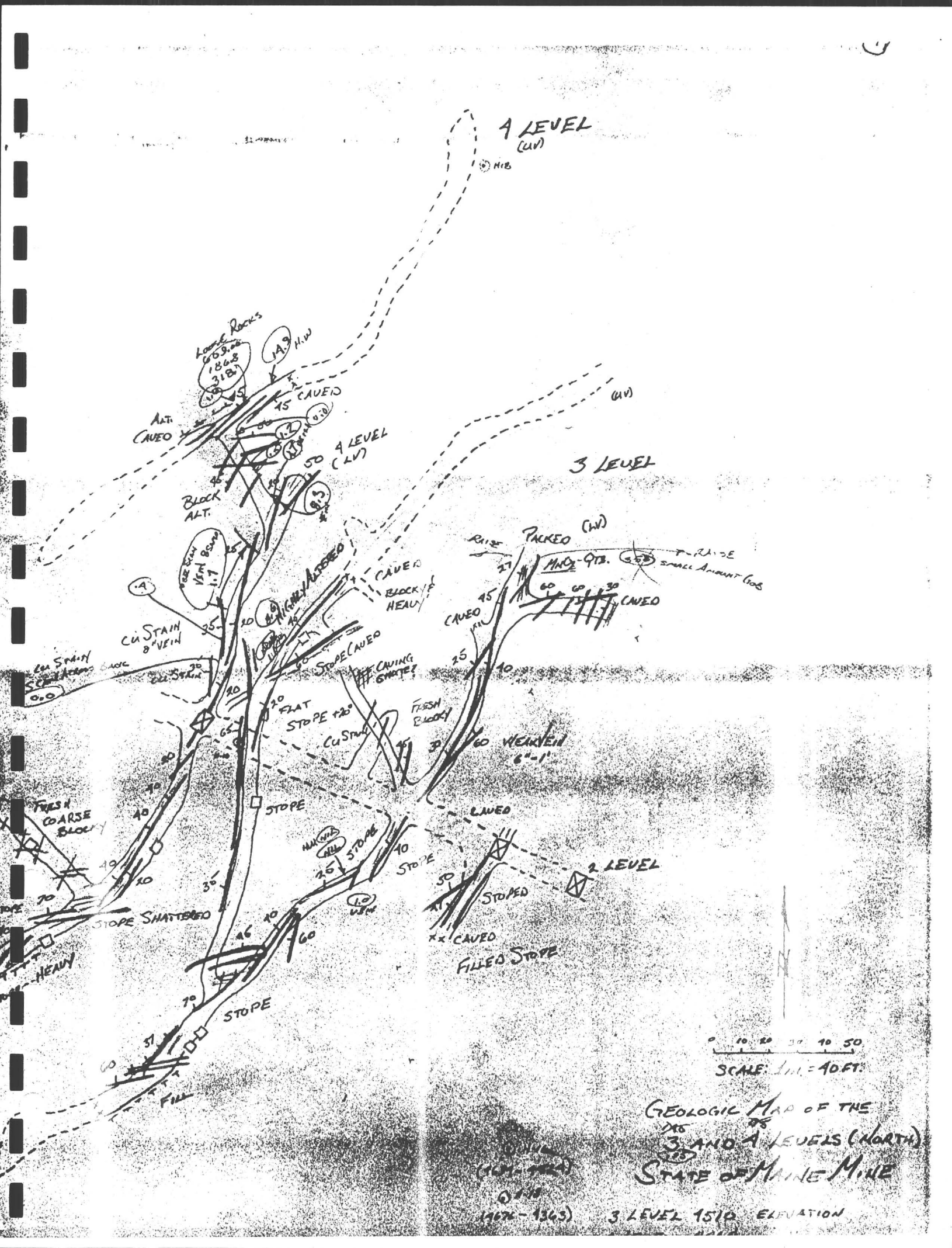


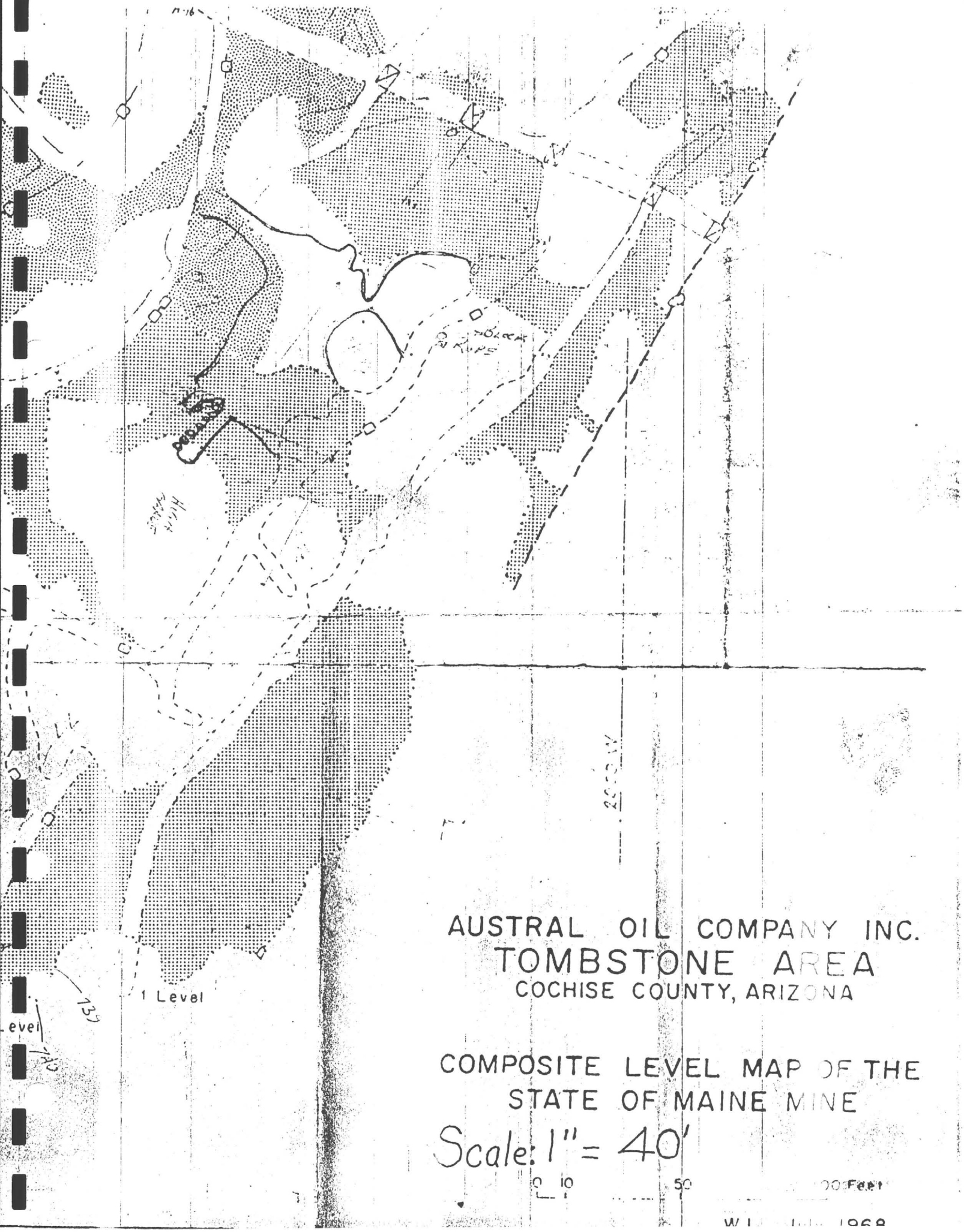


H-12
(4724-4514)

H-16
(4694-4521)

GEOLOGIC MAP OF THE
3 AND 4 LEVELS (SOUTH)
STATE OF MAINE MINE
3 LEVEL 4510 ELEV.


4 LEVEL
(LW)
HIB
Loose Rocks
669.00
1868
318
14.9
H.W
CAVED
15
ALT.
CAVED
0.0
1.2
4 LEVEL
(LW)
50
BLOCK
ALT.
9.3
3 LEVEL
(LW)
PACKED
(HW)
RAISE
MnO2 - 9TS.
T-RAISE
SMALL AMOUNT GOB
CAVED
CAVED
BLOCKY & HEAVY
SEE SAM
VEIN 8 SAMP
1.7
HIGHLY ALTERED
A
CU STAIN
8" VEIN
CU STAIN
SCALE ACCESS
CU STAIN
0.0
STOPE CAVED
CAVING GHOSTE?
FLAT
STOPE +20°
CU STAIN
FRESH
BLOCKY
WEAK VEIN
6"-1'
FRESH
COARSE
BLOCKY
STOPE
STOPE
STOPE
STOPE SHATTERED
HEAVY
CAVED
2 LEVEL
STOPED
CAVED
FILLED STOPE
FILL
0 10 20 30 40 50
SCALE: 1" = 40 FT.
GEOLOGIC MAP OF THE
3 AND 4 LEVELS (NORTH)
STATE OF MAINE MINE
(1967 - 1963)
3 LEVEL 15'D ELEVATION



AUSTRAL OIL COMPANY INC.

TOMBSTONE AREA

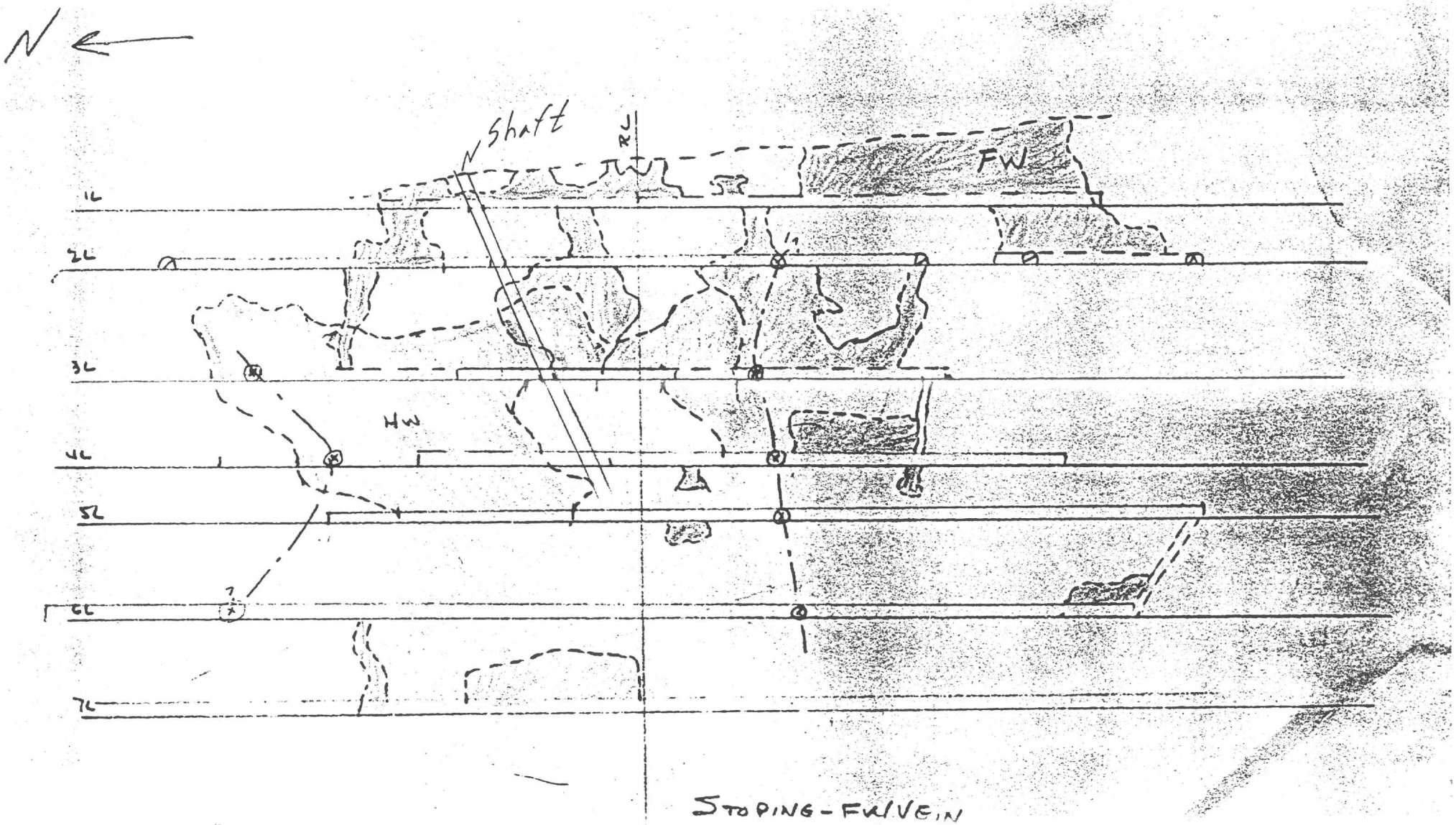
COCHISE COUNTY, ARIZONA

COMPOSITE LEVEL MAP OF THE STATE OF MAINE MINE

Scale: 1" = 40'

0 10 50 100 Feet

W.I. ... 1968



STOPING - FW VEIN

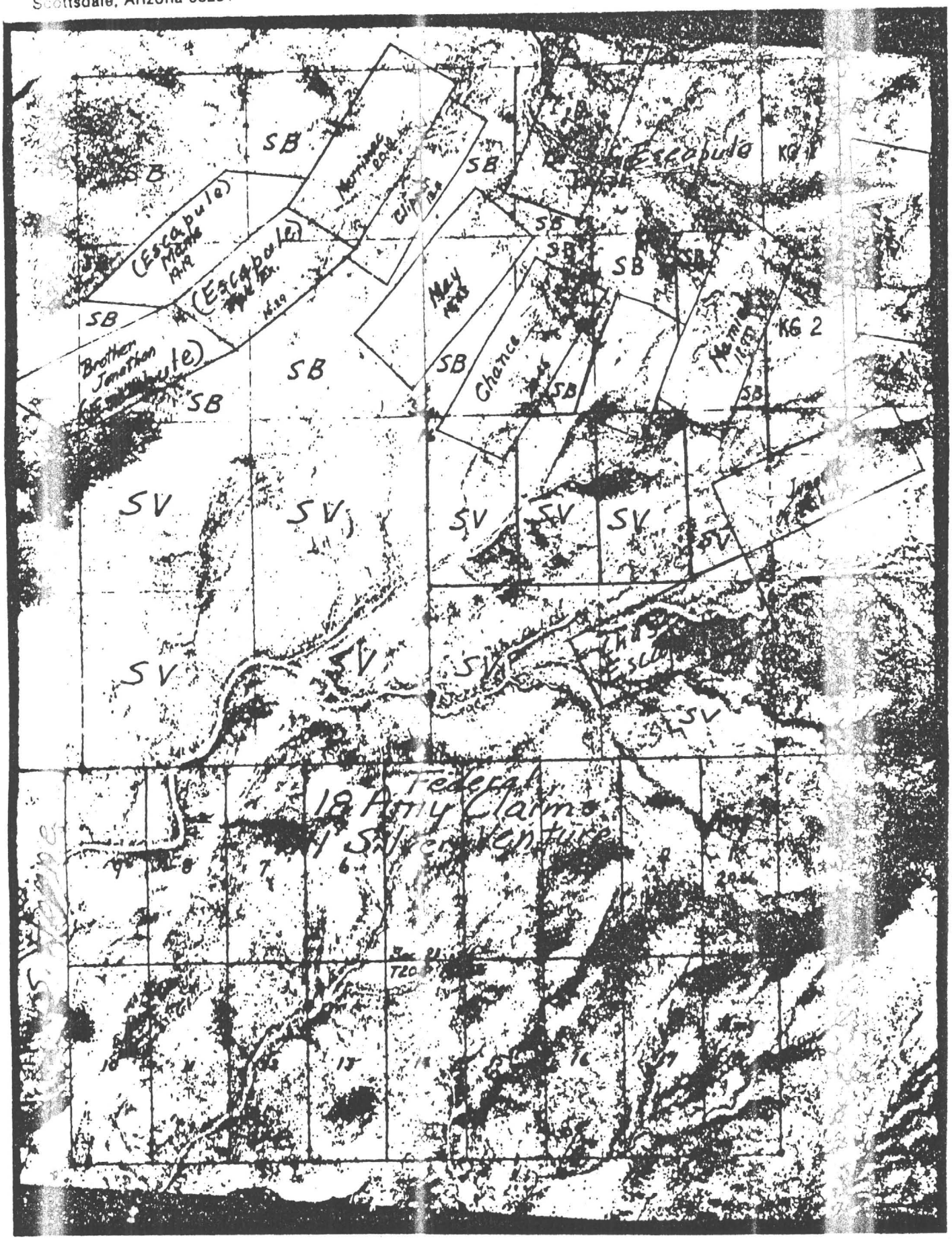
STATE OF MAINE

LONGITUDINAL SECTION (VERT)

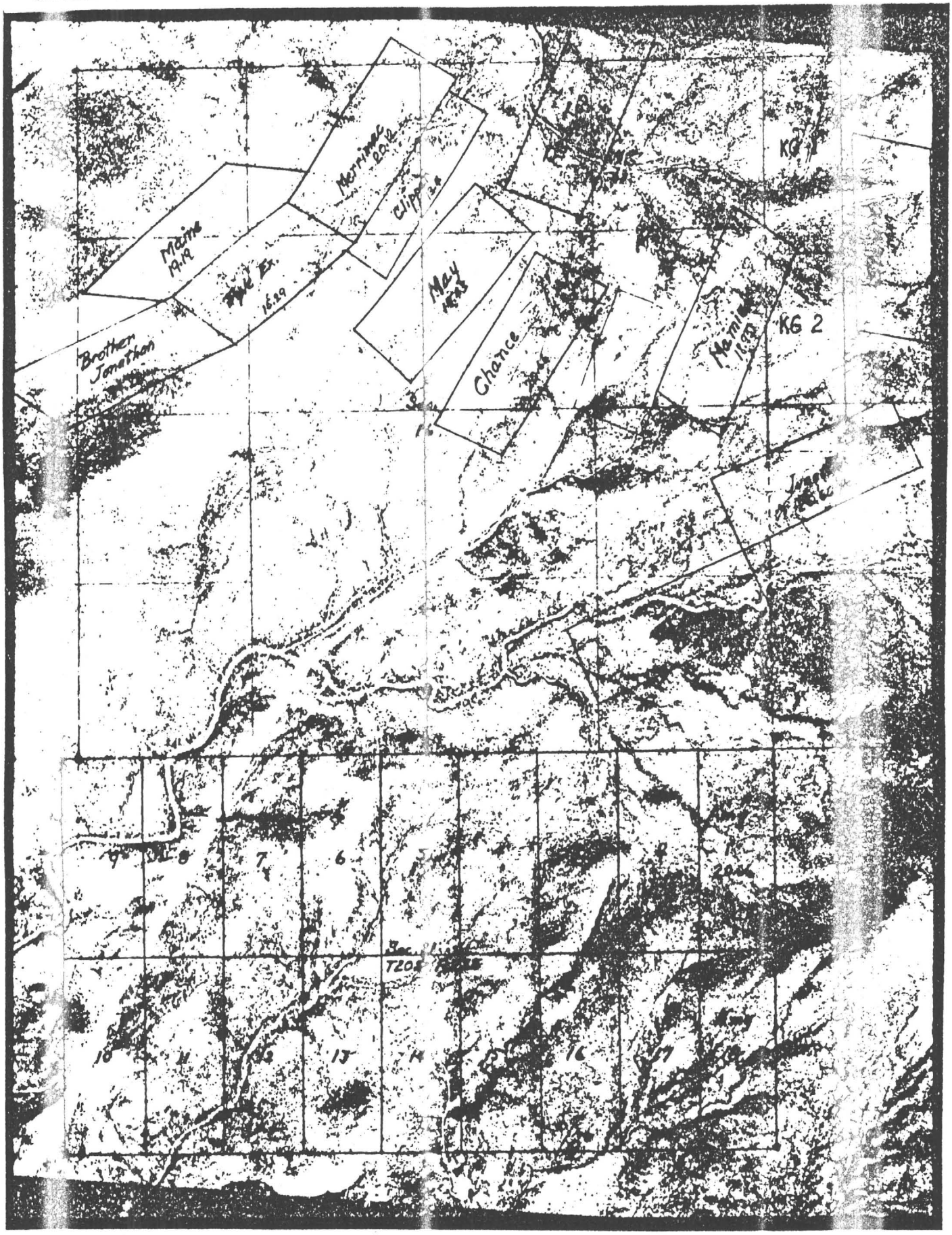
ARST 1/1 11/19/80

1" = 75FT

W.W. GRACE
8230 E. Indian School Road
Scottsdale, Arizona 85251



W.W. GRACE
8236 E. Indian School Road
Scottsdale, Arizona 85251



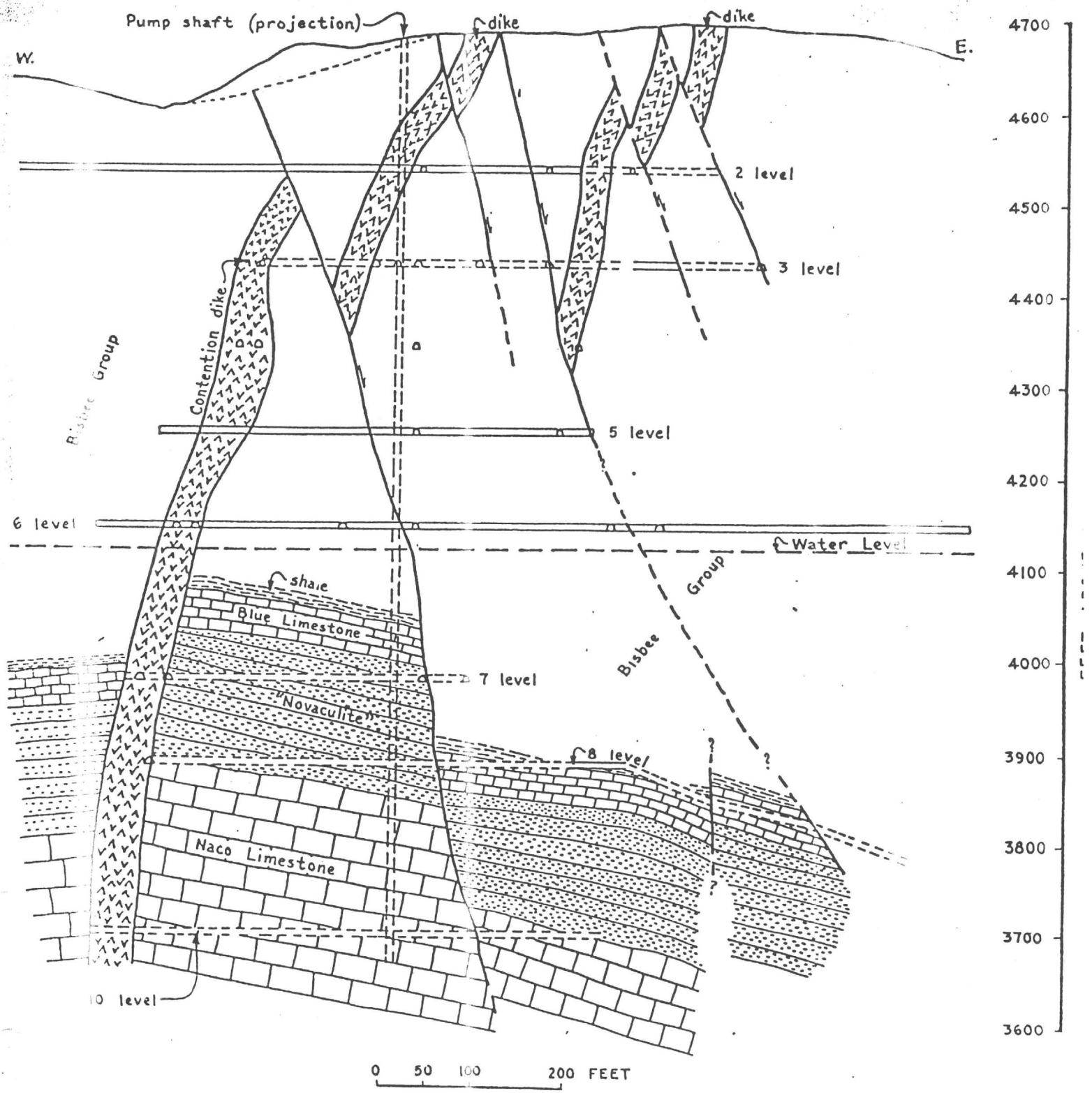
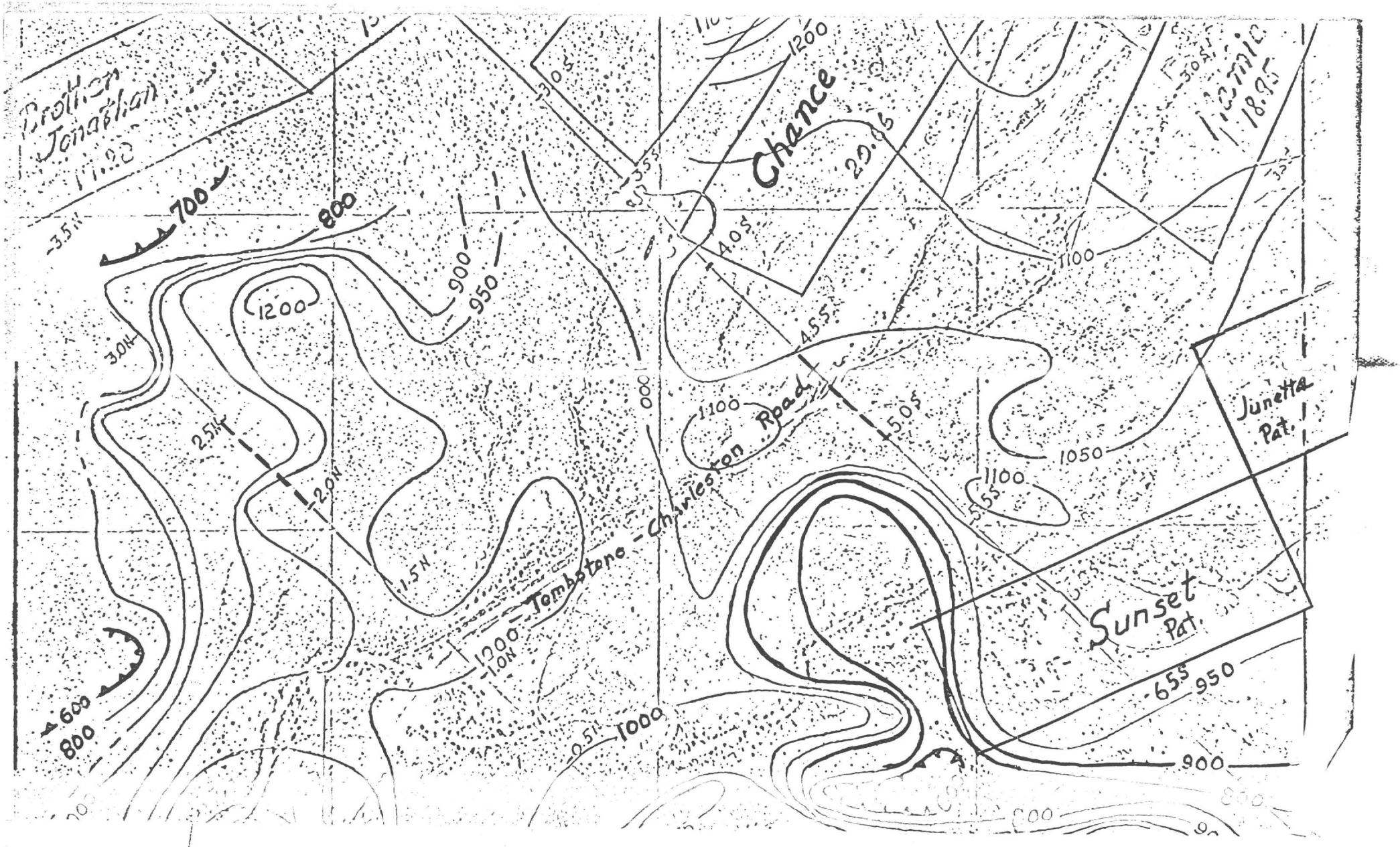
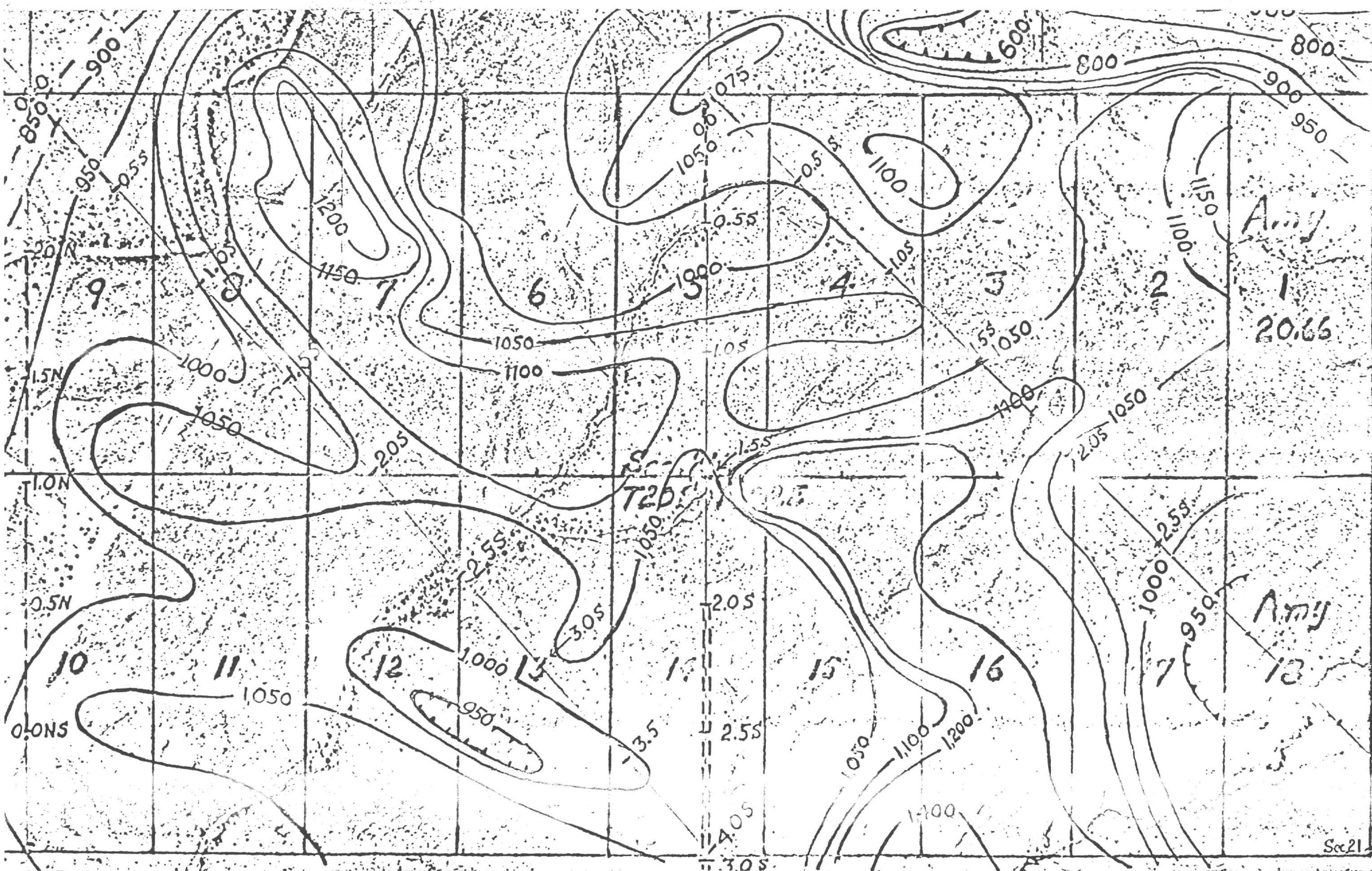


Plate VIII.—Generalized cross section through Contention dike at Pump shaft, looking north. (Modified from F. L. Ransome.)

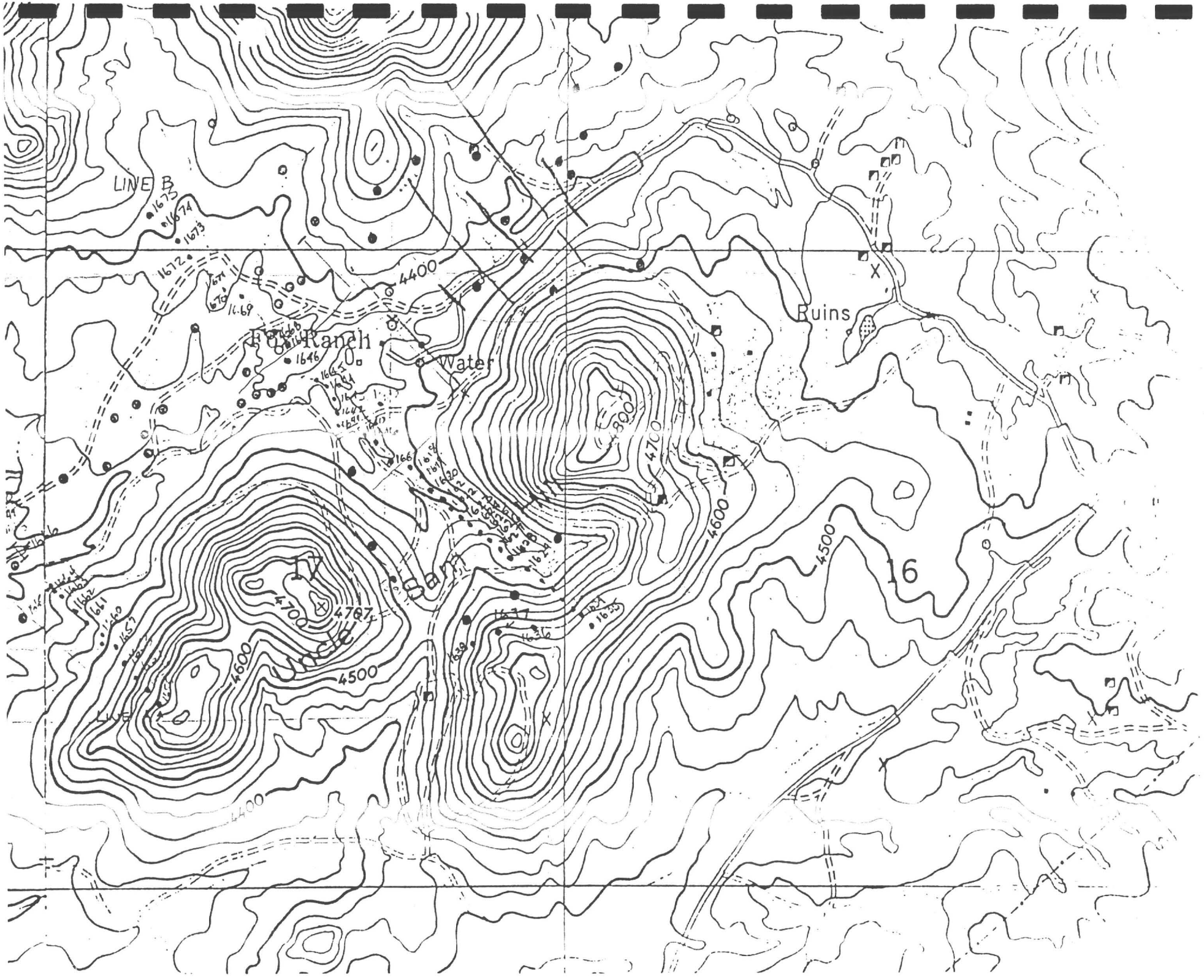
ABM # 143

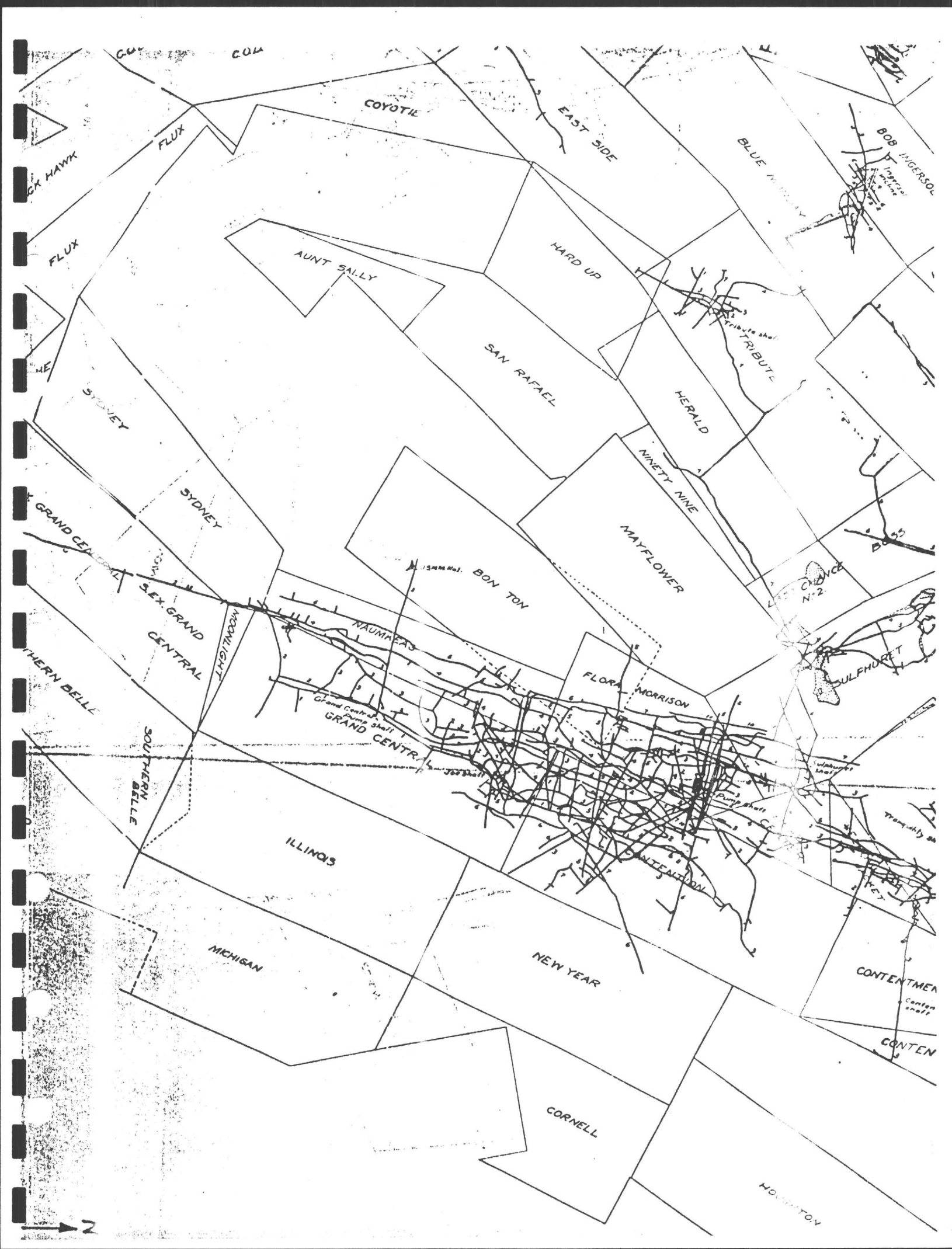

Brothers Jonathan
11.2
Chance
20.6
1.2 mile
18.9
Tombstone - Charleston Road
Junetta Pat.
Sunset Pat.
700
800
900
950
1200
1100
1050
1000
600
3.5N
3.0N
2.5N
2.0N
1.5N
1.0N
0.5N
3.5S
4.0S
4.5S
5.0S
5.5S
6.5S
6.0S

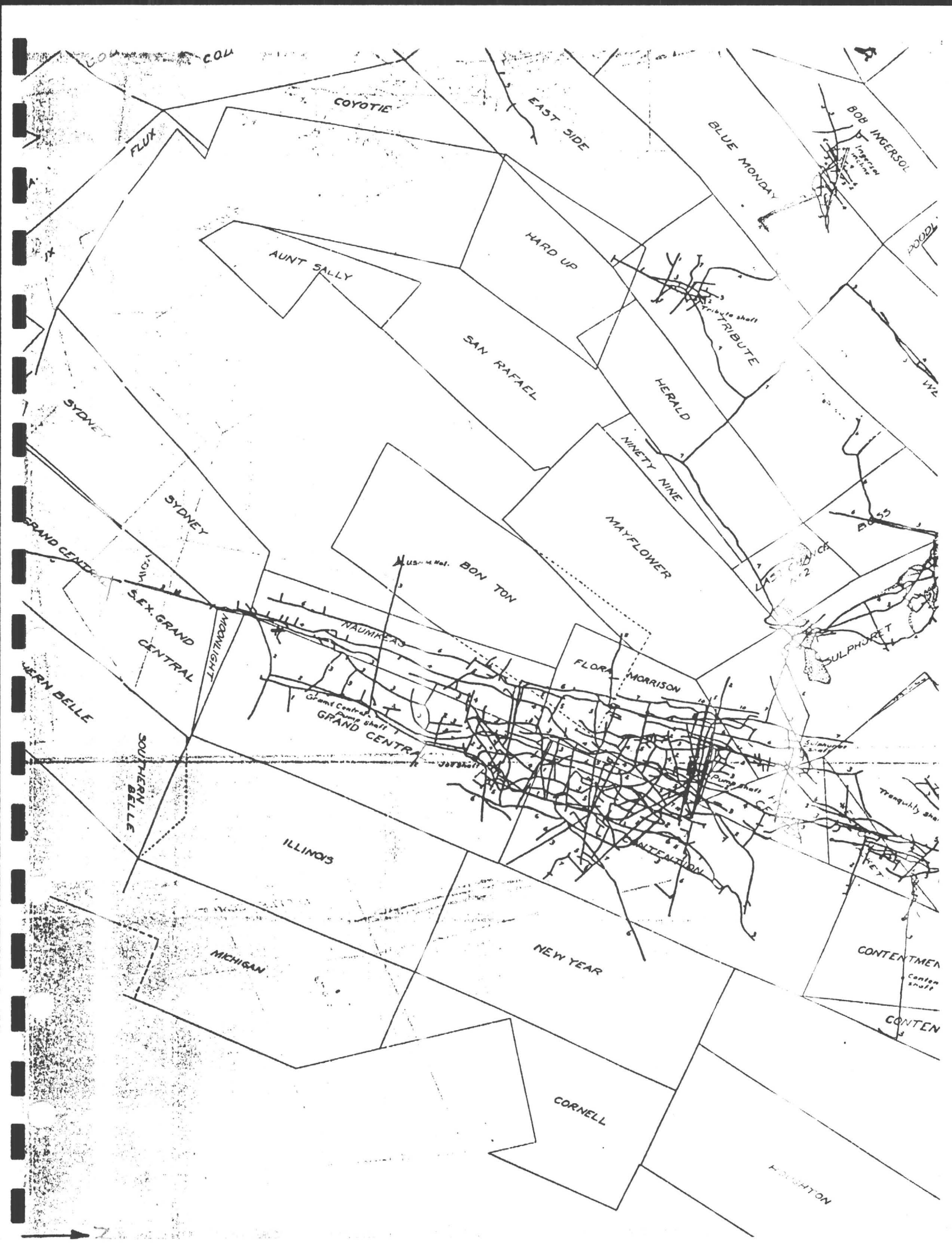

Sec21
1.5N
1.0N
0.5N
0.0NS
2.0S
2.5S
3.0S
20.66

Reference:
Ariz Geol Society Digest
Volume X
Tectonic Digest, 1976

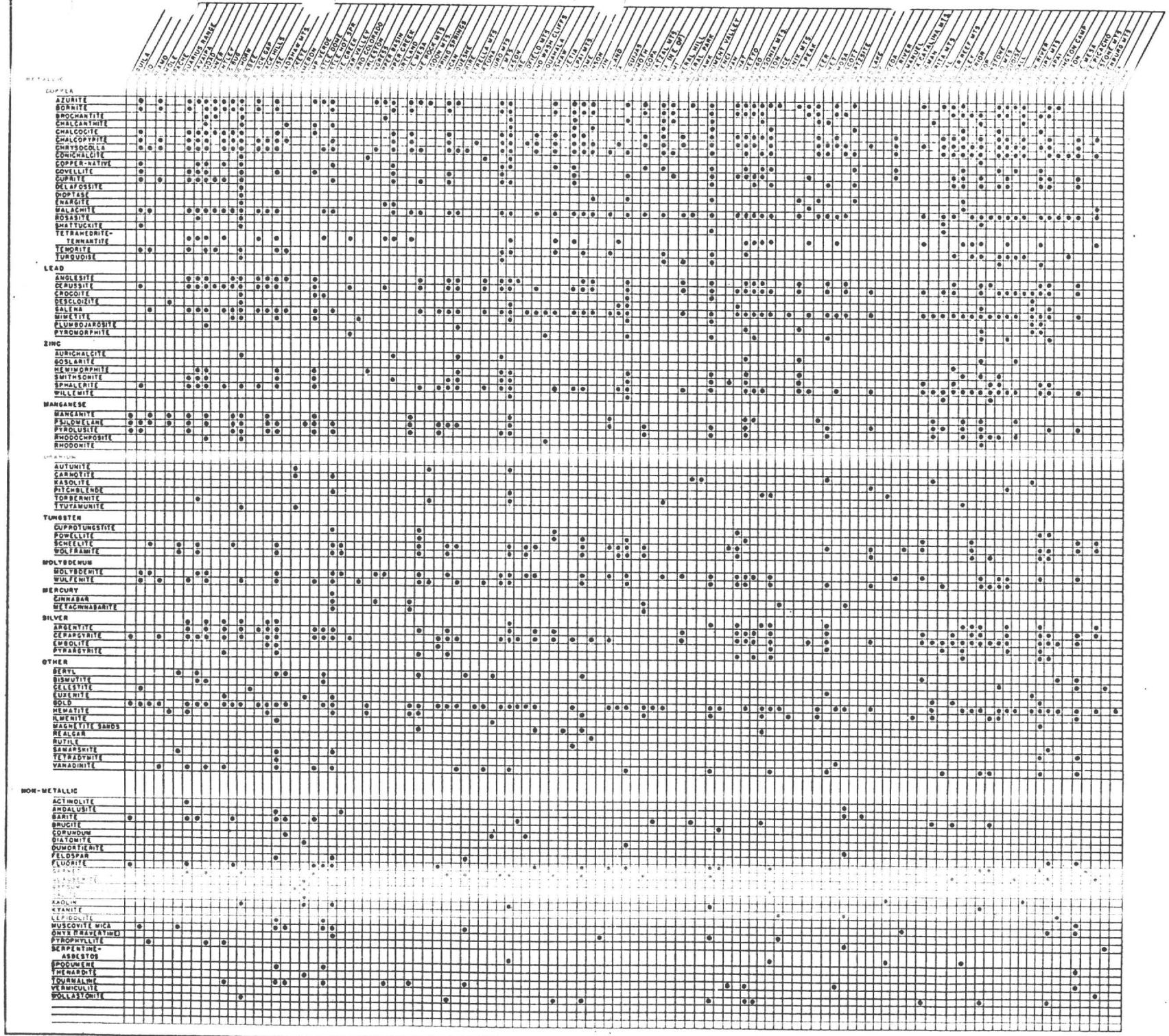
"Geology + Geological Sections
Central Dragoon Mountains
Cochise County, Ariz"
Plate 3


LINE B
1673
1674
1673
1672
4400
1646
Ranch
Water
Ruins
X
4700
4600
4500
16
IV
4707
4700
4600
4500
4400


COYOTIE
EAST SIDE
FLUX
FLUX
AUNT SALLY
HARD UP
SAN RAFAEL
HERALD
TRIBUTE
SYDNEY
SYDNEY
NINETY NINE
MAYFLOWER
BON TON
NAUMKEAG
SEX. GRAND CENTRAL
MOONLIGHT
FLORA MORRISON
GRAND CENTRAL
SULFHURST
SOUTHERN BELLE
ILLINOIS
MICHIGAN
NEW YEAR
CORNELL
CONTENTMEA
CONTEN
HOUSTON
BOB INGERSOL
BLUE


COYOTIE
FLUX
EAST SIDE
BLUE MONDAY
BOB INGERSOL
AUNT SALLY
HARD UP
TRIBUTE
SAN RAFAEL
HERALD
SYDNEY
NINETY NINE
MAYFLOWER
BON TON
GRAND CENTRAL
S.E.X.
MOONLIGHT
NAUMKEAG
FLORA MORRISON
SULPHURET
JERN BELLE
SOUTHERN BELLE
ILLINOIS
MICHIGAN
NEW YEAR
CORNELL
CONTENTMENT
HOUGHTON

ARIZONA MINERALS



ARIZONA STATE DEPARTMENT OF MINERAL RESOURCES
JUNE 1948

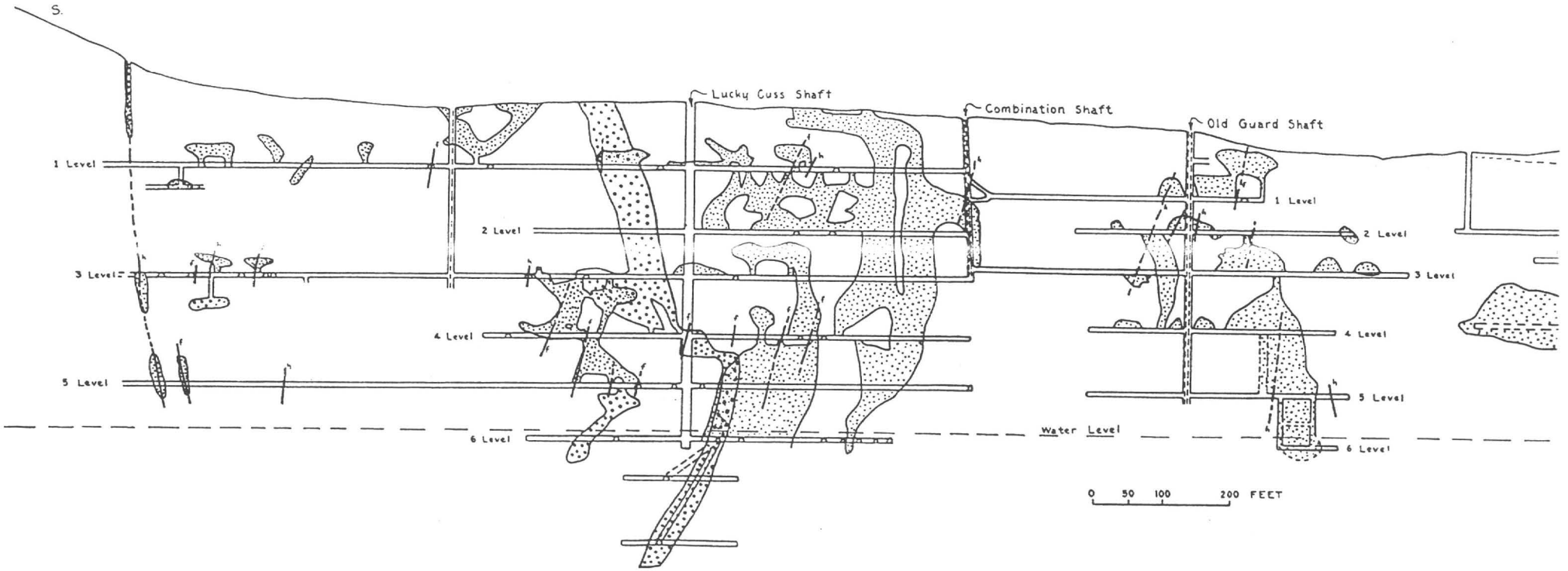


Plate XII.—Longitudinal section through Lucky Cuss, Old Guard, and Herschel mines, looking west. Stopes in Lucky Cuss fault zone indicated by small dots; stopes in massive limestone indicated by large dots; h, hanging-wall fissu

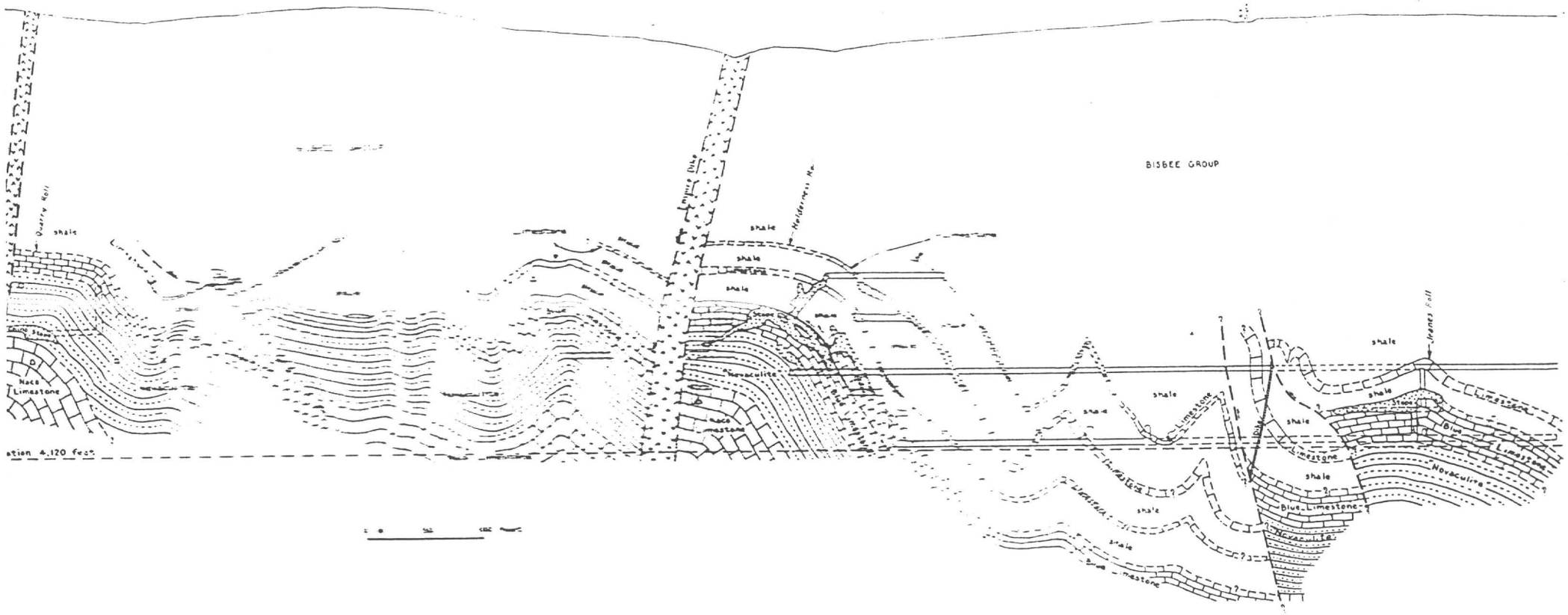


Plate XV.—Section along "409" fissure, looking northwest.

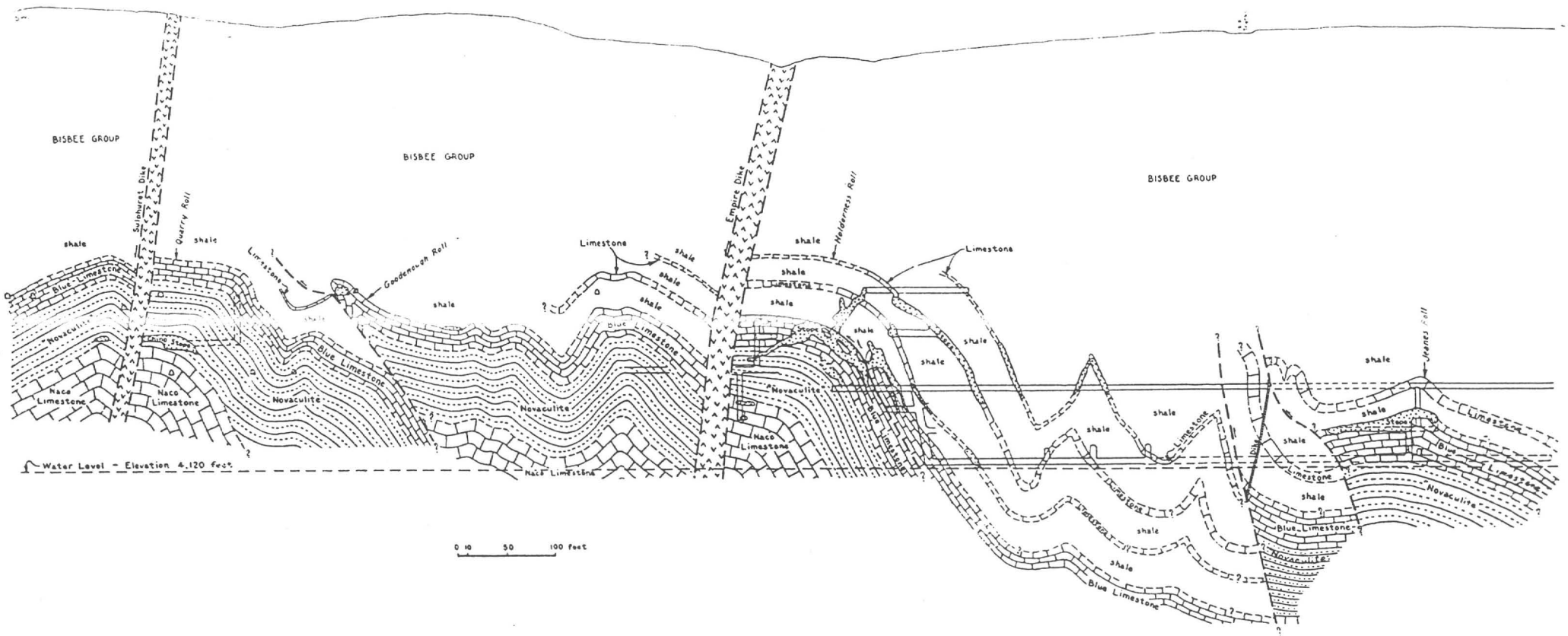


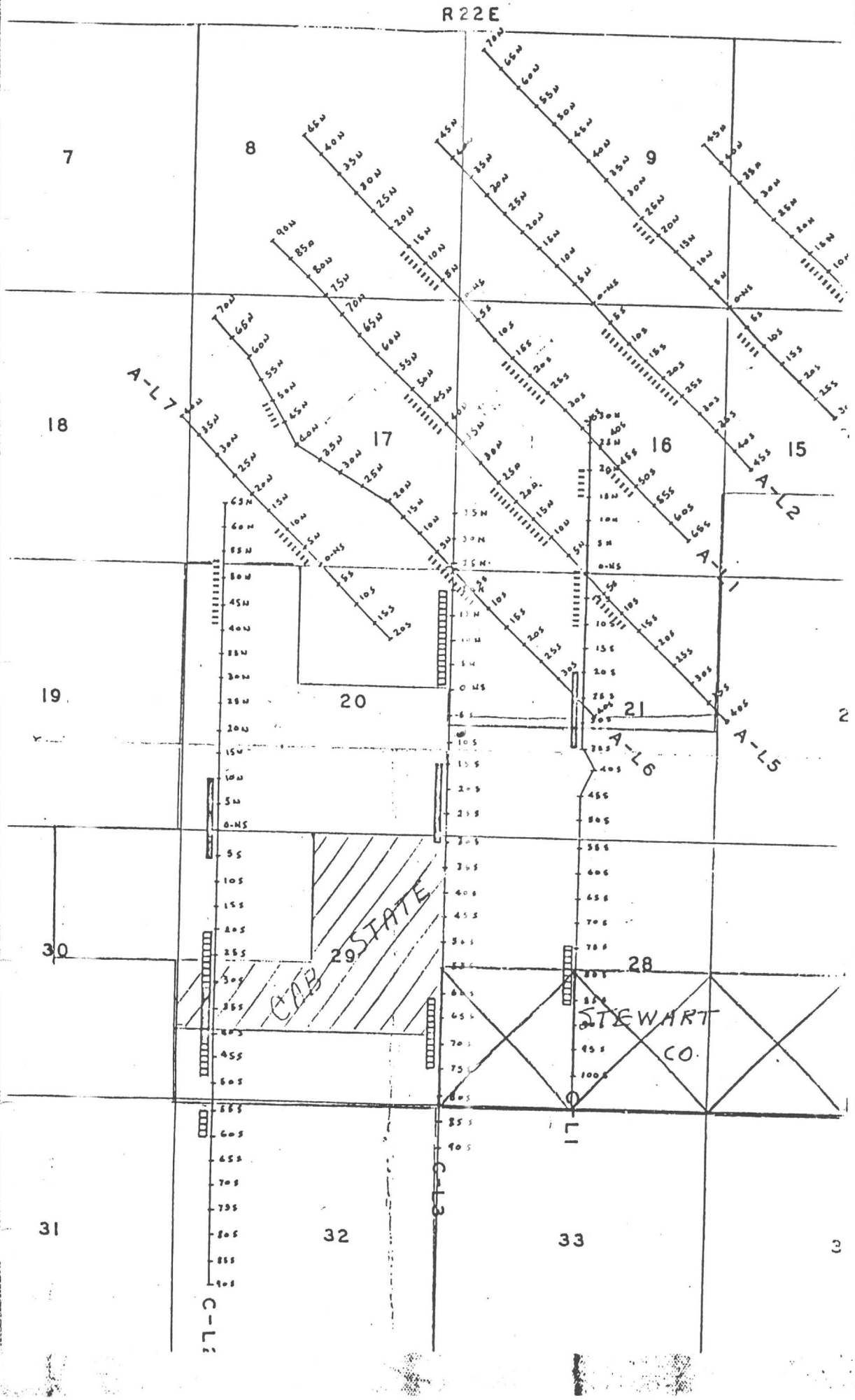
Plate XV.—Section along "409" fissure, looking northwest

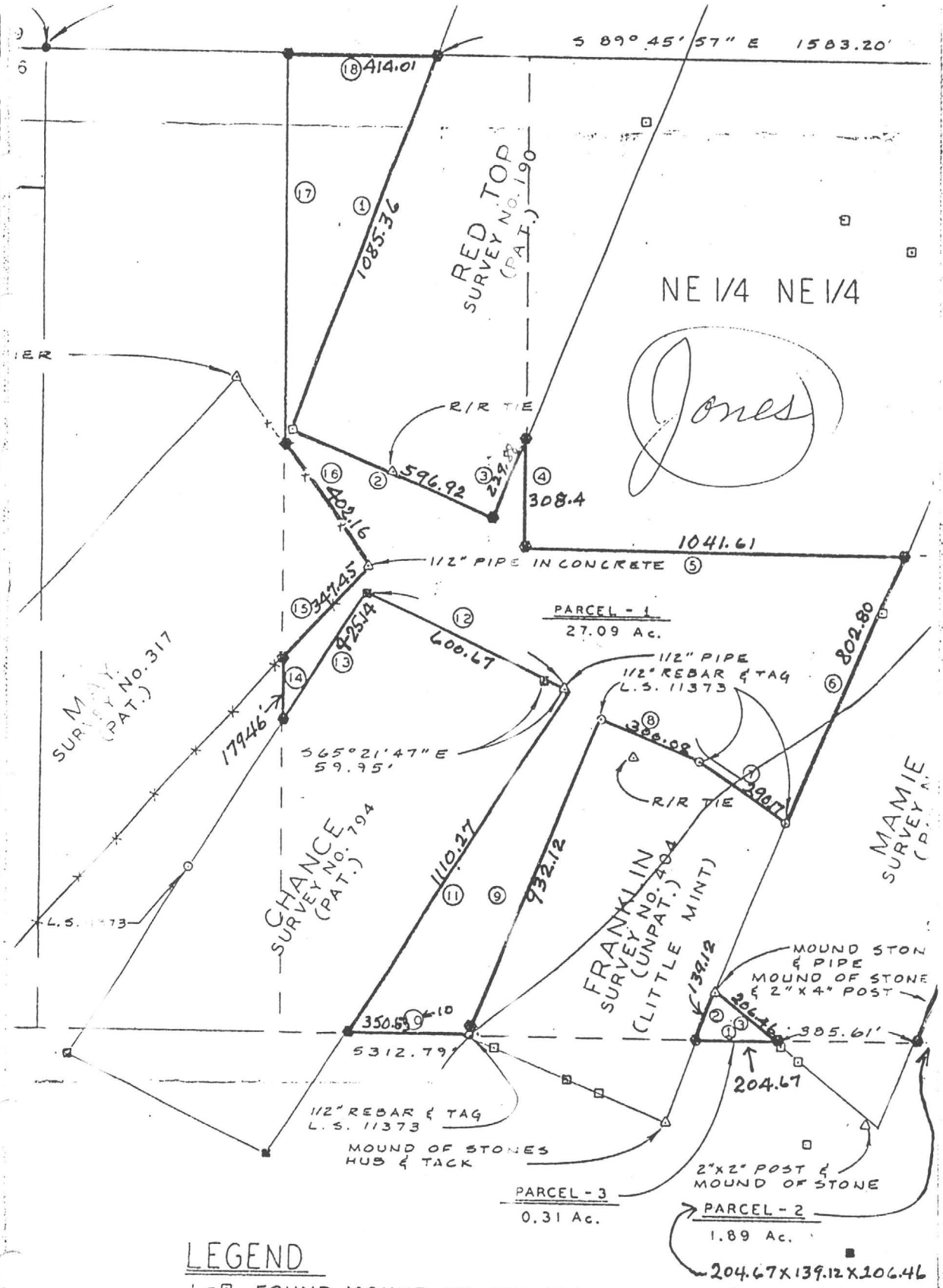
(Last of 1982)

State of Maine Mine - By Aker, Flint & Angel

Sample #	Location	Description	Assays — Au
350	40 Level Under J. Raise	Tan / White	11.85 ± 0.01
351	40' L. S. Midway Between Shaft & S. Raise	Tan / white / Pink	7.18 - .005
352	" S. of Shaft, 1st Cave Area	" " "	2.49 - Tr.
353	100' Level S. of Shaft	Upper part of muck Lt. Brown & white, muck from 40'	4.32 - Tr.
354	100' Level Hanging Wall CX to Midway to HW.	Where rocks are stacked along drift	0.18 - Tr.
355	100' L. CX to HW Midway pit 75' to Shaft in Dr.	Dark - Mafic 50 - 60 Tons	0.14 - Nil
356	100' L. CX is NW of Dr.	Rock Wall S. Side Considerable gold showing in Stopes & Drifts	0.21 - Tr.
357-A	140' L. S. First Cave & Gob	Gob from the 100' Level -	15.25 - .15
357-B	150' Level - N	Gob from 100' L. North in back of Shaft on 100' L.	2.54 - Tr.
358 -	195' L. N 87'	Small amt. of Gob, bottom of Stope Most Gob was filled in Box going down to next Lvl	8.68 - .005
359 -	195' L. S 1st Draw Point	First Draw Point Gob Muck from 150' L.	4.79 - .01
360 -	195' L. S 100' To 2nd Gob	Filled Stope from 150' L. Muck from muck to Shaft.	3.61 - .005
361 -	195' L. HW CX	1st Cave W. Shaft - Looks like hanging Wall Cave-in	3.97 - Tr.
362 -	195' L.	Hanging Wall V. Gob	5.54 - .005
373 -	100' L. S of Shaft	Bottom part of Muck. Lt. Brn & white muck coming from 40' Level	1.68 - Tr.
374 -	140' L. S. of Shaft	Upper part of Draw Point Brn. & Lt. Brn Muck coming from 100' Level (Resampled)	2.12 - Tr.
375 -	140' L. S. of Shaft	Lower part of Draw Point. Brn & Lt. Brn. Muck coming from 100' Level (Resampled) →	68.22 - Tr.
376 -	150' Level - N. of Shaft	Muck pile coming from 100' Level Lt. Brn & White. (Resampled)	5.20 - .005
377 -	195' Level - S. of Shaft	Muck on 2nd Draw Point From Upper Left. side of Draw Pt. - Caved?	3.09 - .020
378 -	195' Level S. of Shaft	Muck on 2nd Draw Pt. Lt. Brn & White. From R.H. side of Draw Pt.	1.22 -
379 -	195' " S. of Shaft	Muck from 1st Draw Pt. Lt. Brn & white From R.H. side of Draw Pt.	1.81 - Tr.
380	195' " " "	Muck from 1st Draw point Brn. and Lt. Brn. From LH of Drawpoint. Looks Like Cave in Draw Point.	1.81 - Tr.
381	195' " NW of Shaft	Brn. & Lt. Brn.	2.31 - .010
419	100' " S. of Shaft Compare 353 & 373	Muck from Gob and cave mixed (5 yd. bucket) Taken by Schaffer	3.54 - .029

No. of Samples	Mine Level	Average Ag	Average Au
3	40' Level (1st Lvl)	7.17	.005
6	100' Level (2nd Lvl.)	1.68	.005
3	140' Level (Intmdt)	28.53	.050
2	150' Level (Intmdt)	2.87	.003
10	195' Level (3rd Lvl.)	3.68	.006


R22E
7
8
9
18
17
16
15
19
20
21
30
29
28
31
32
33
A-L7
A-L2
A-L1
A-L6
A-L5
C-L1
C-L3
L1
CAB STATE
STEWART CO.

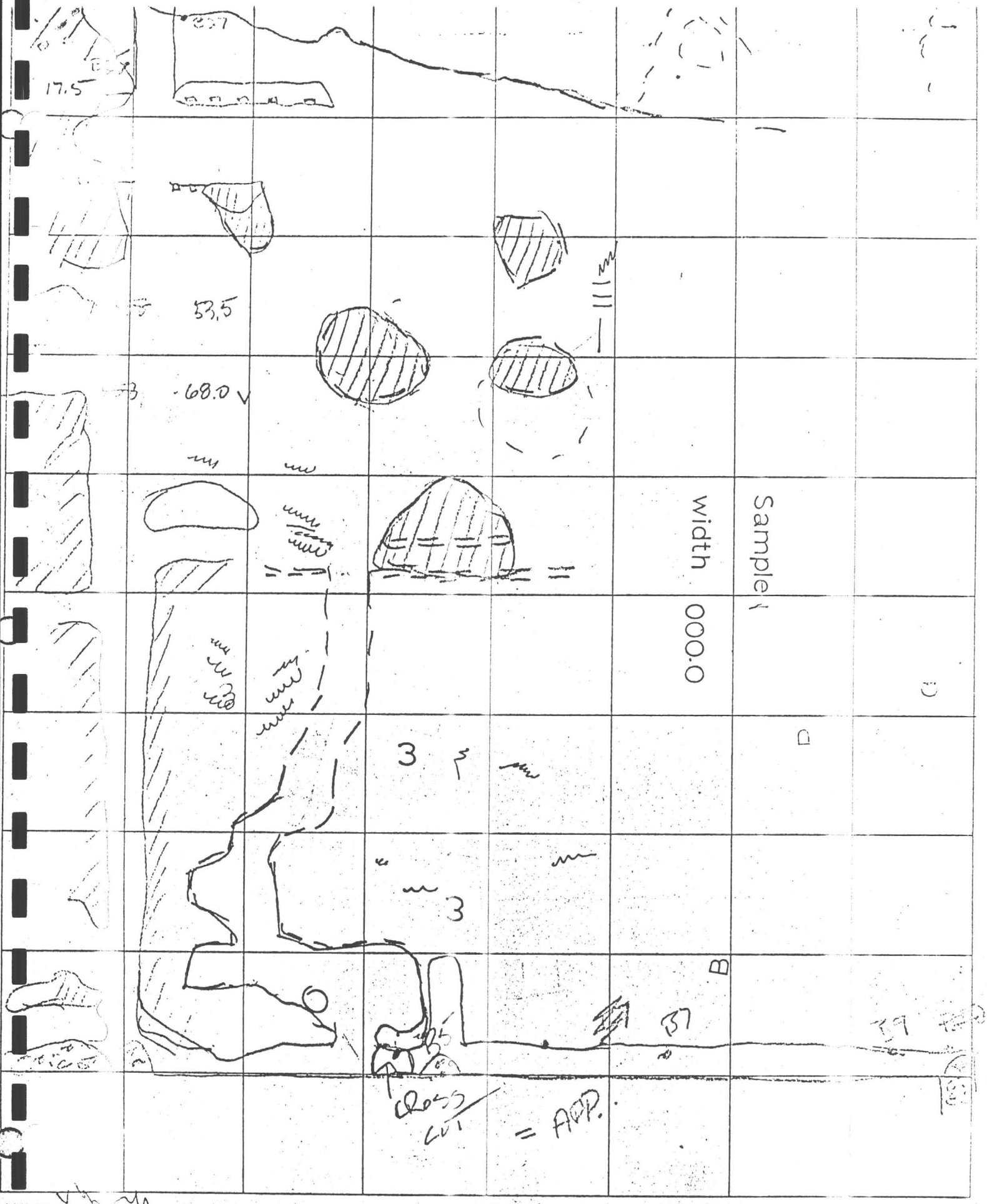


LEGEND

1. - ⊡ FOUND MOUND OF STONES.
2. - ▣ FOUND MOUND OF STONES & 4 x 4 WOOD POST.
3. - ⊙ POINTS FOUND THIS SURVEY (REBAR).
4. - ● POINT SET THIS SURVEY 1/2" REBAR & CAP P.E. 1709.
5. - ◉ G.L.O. MARKED STONE.
6. - △ FOUND POINTS AS INDICATED.
7. - ● CORNERS TO BE SET BY PENTONY.

BEARI
THAT LI
SECTIO
SECTIO
AS PE
ENGIN

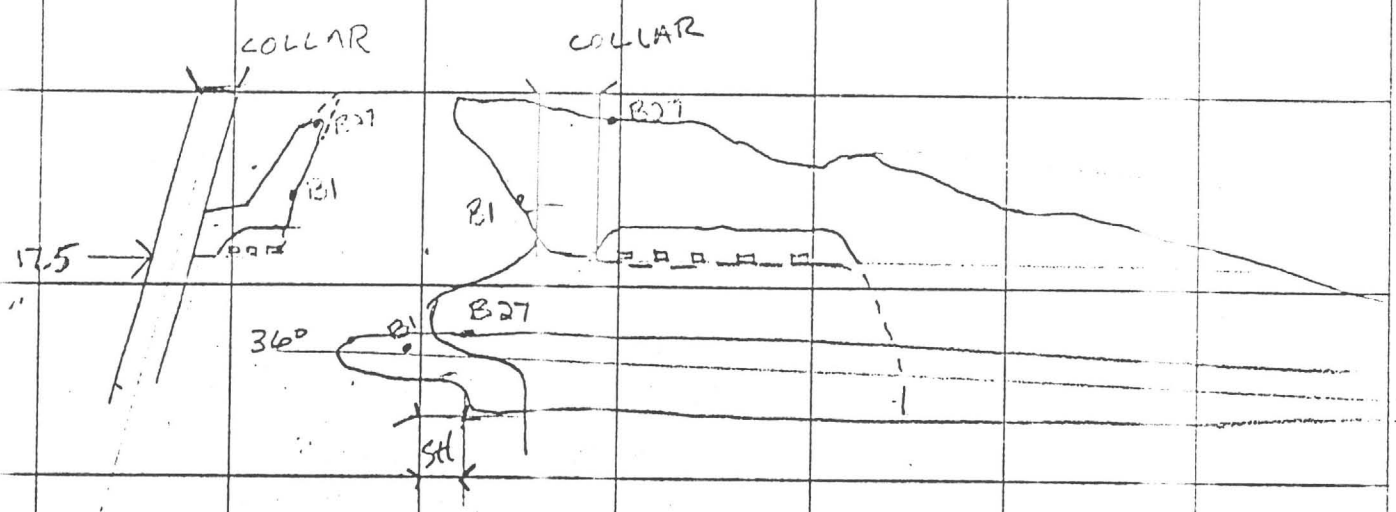

COYOTIE
FLUX
EAST SIDE
BLUE MONDAY
BOB INGERSOL
AUNT SALLY
HARD UP
TRIBUTE
SAN RAFAEL
HERALD
SYDNEY
NINETY NINE
MAYFLOWER
BON TON
GRAND CENTRAL
S.EX. GRAND CENTRAL
MOONLIGHT
NAUMKEAG
FLORA MORRISON
SULPHURET
KERN BELLE
SOUTHERN BELLE
ILLINOIS
MICHIGAN
NEW YEAR
CONTENTMENT
CORNELL



MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ DATE _____ SCALE _____

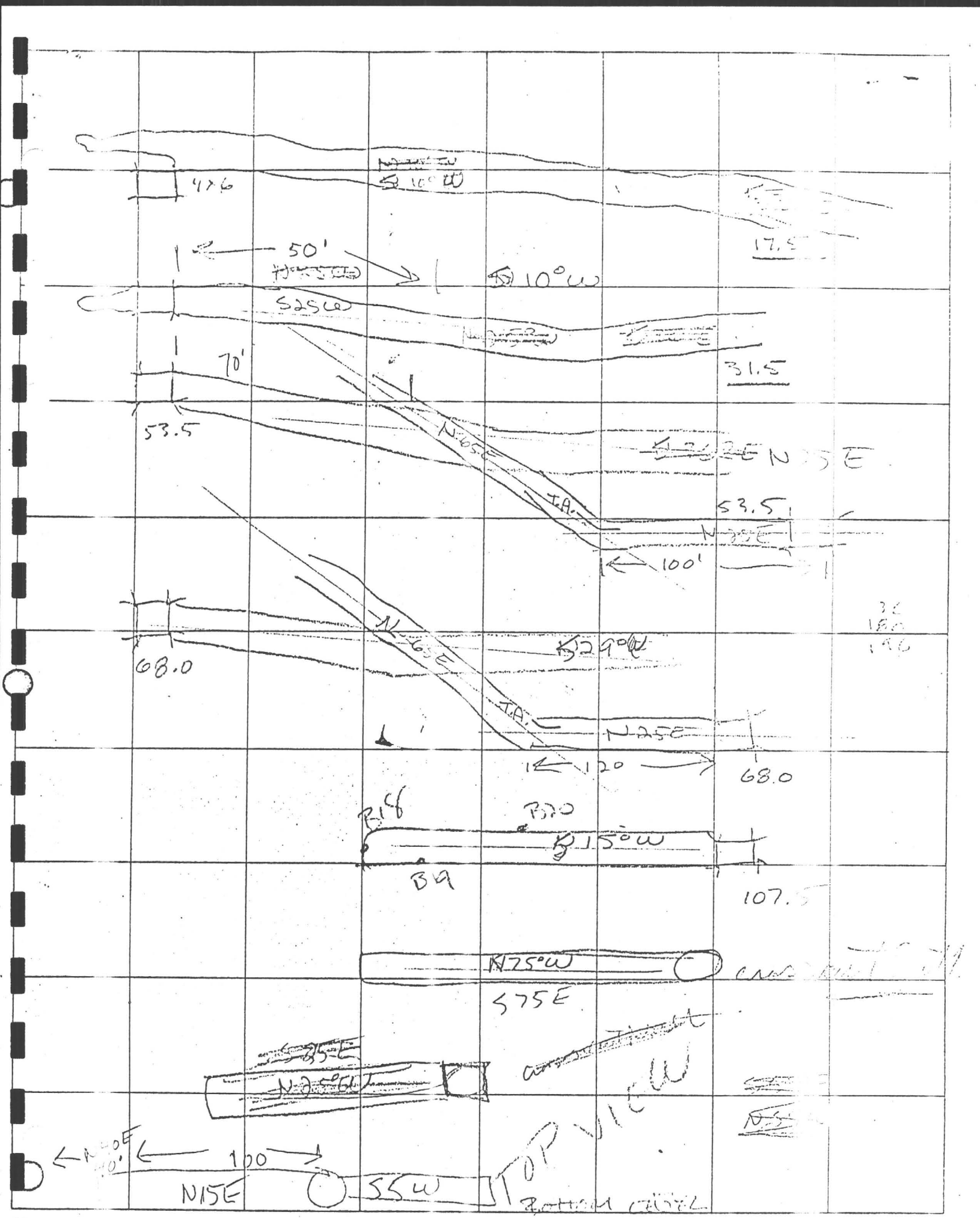
E _____ EL. _____



MINE _____ LOCATION _____ LEVEL G

GEOLOGY BY _____ SURVEY _____ DATE _____ SCALE _____

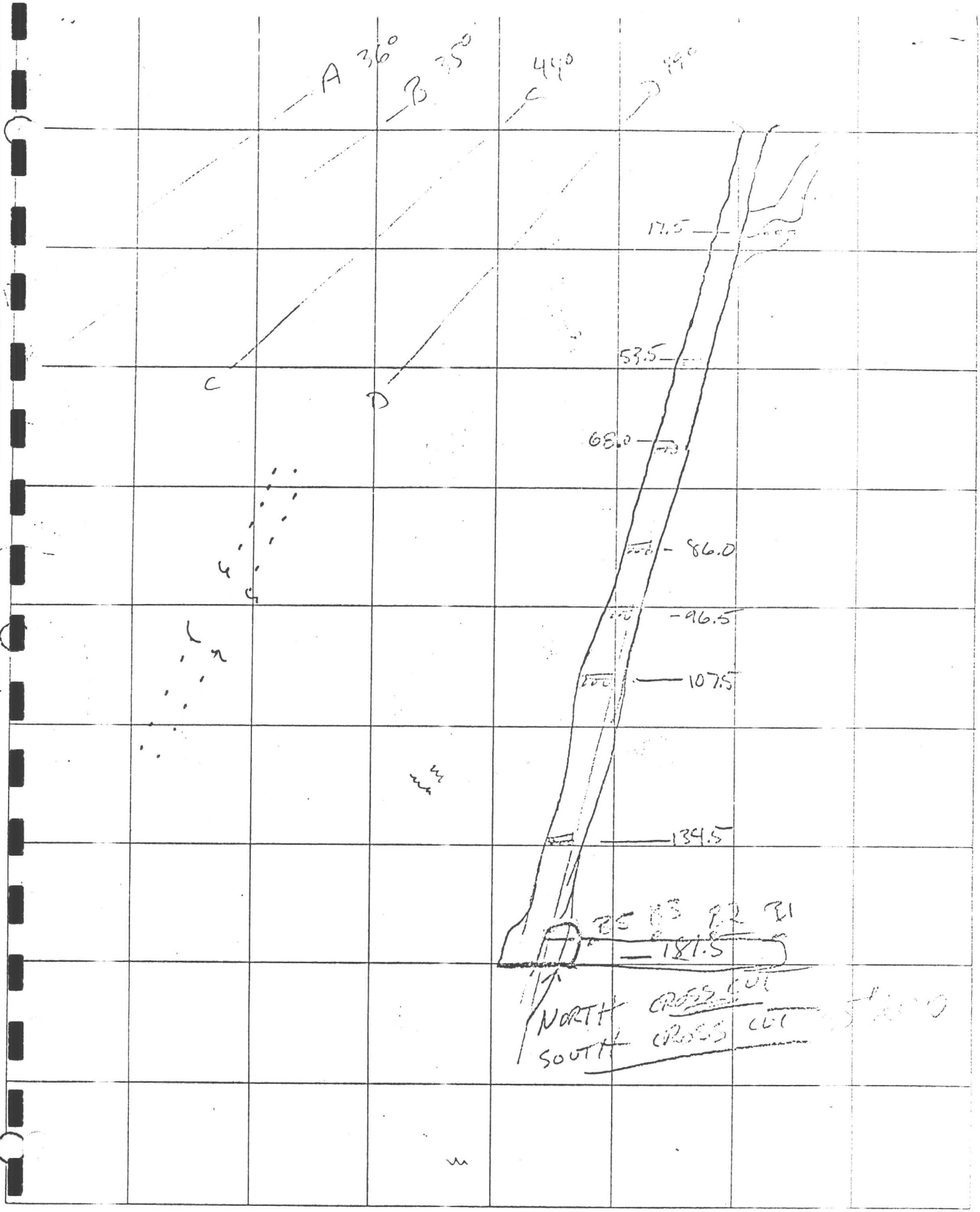
N _____ E _____ EL _____



MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ DATE _____ SCALE _____ G

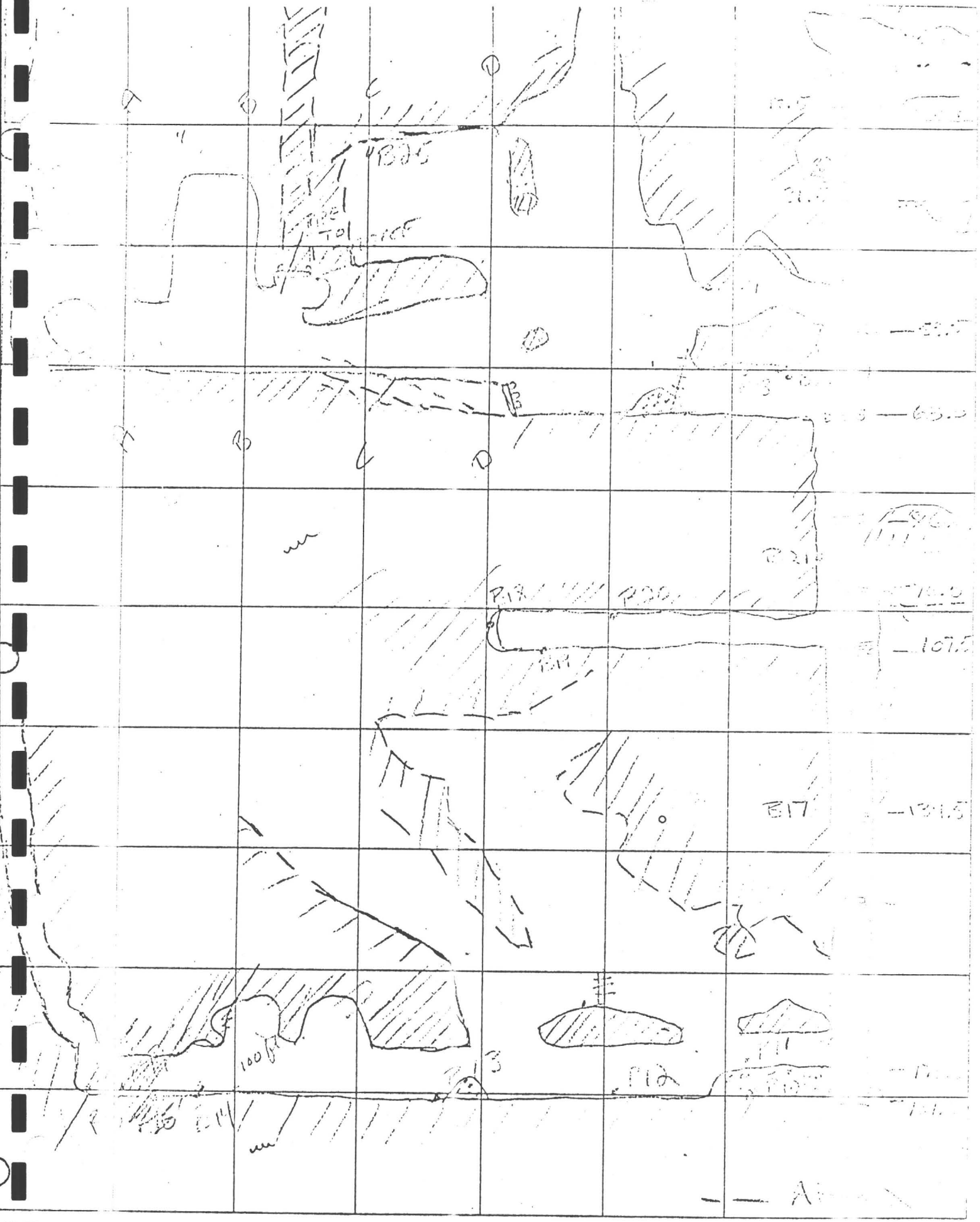
N



MINE _____ LOCATION _____ LEV _____

GEOLOGY BY _____ SURVEY _____ DATE _____ SCALE 9

N _____ E _____ EL. _____



MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ DATE _____ SCALE _____

N _____ E _____ EL _____

B 18 NORTH
across face
East of bin
to face

B 25
180' approx
12 in vein
near surface

B 23
16 ft from start
8 ft dip in cross
to South wall
12 in vein

B 19
cross vein
in hanging wall
2 ft. across
ft to 19

B 27
2 ft vein
South of shaft
near surface

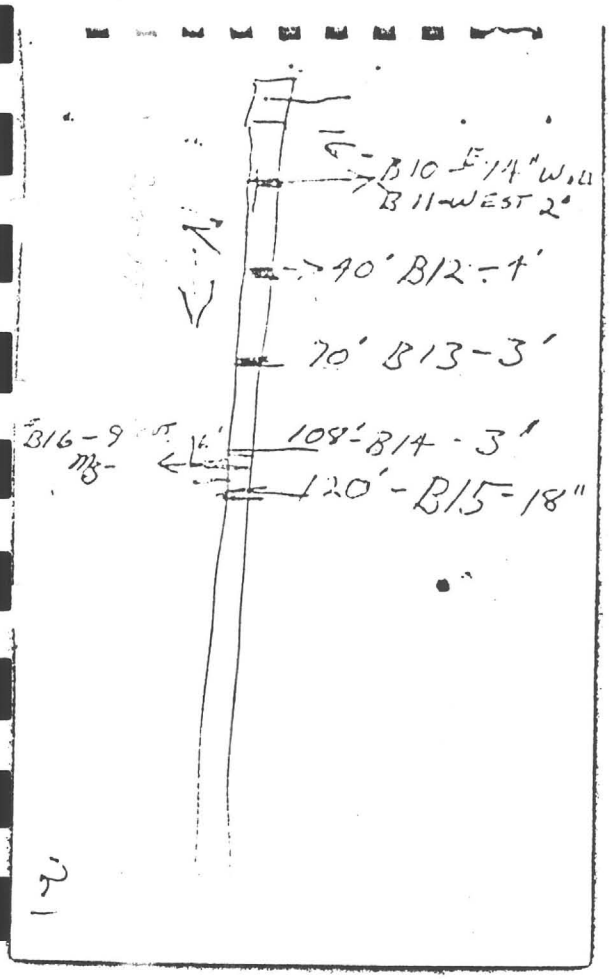
B 24
23 ft from shaft
12 in vein overhead
30 ft.

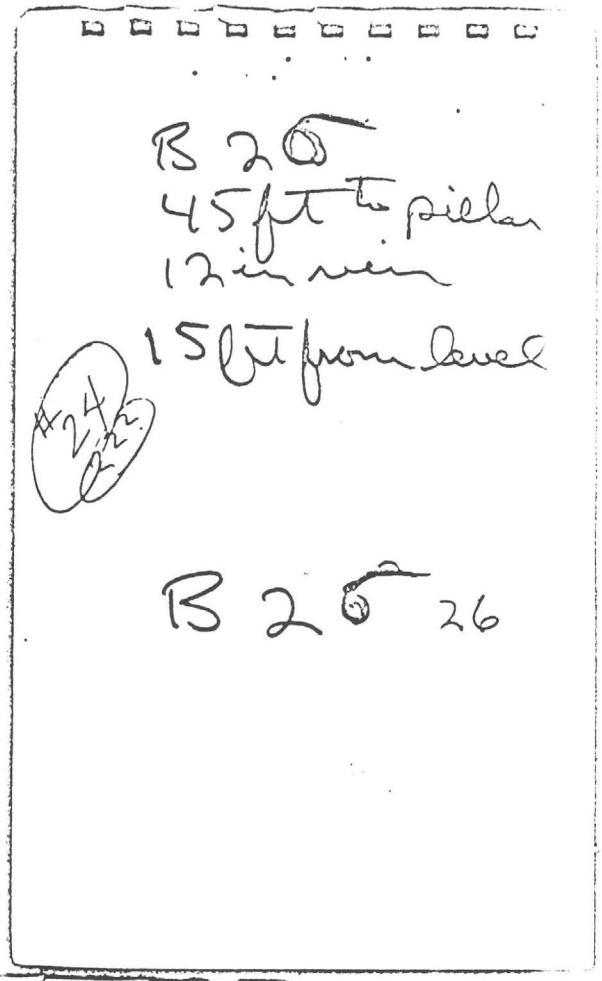
B 20
across vein
overhead
5 ft. across
34 ft from shaft

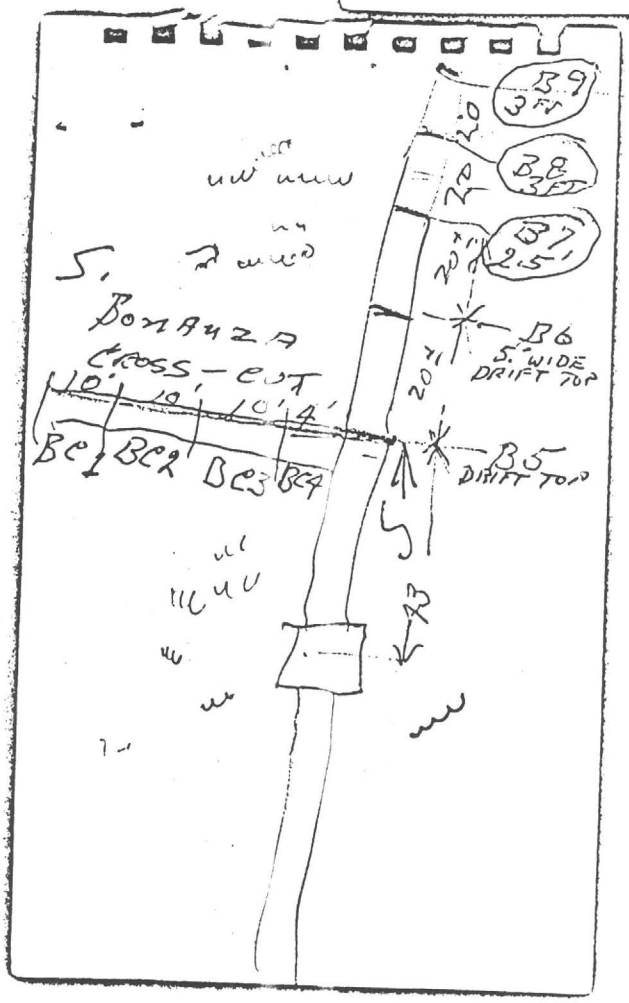
B 28
10 ft South of
shaft
30 ft. from Surface
3 ft vein

B 21
3 ft. across vein
down shaft

B 22
8 ft from start
2 ft vein start
of crosscut
West


B10 - E 14" W.U
B11 - WEST 2'
90' B12 - 4'
70' B13 - 3'
108' B14 - 3'
120' - B15 - 18"


B20
45 ft to pillar
12 in min
15 ft from level
#24
B20 26


B9
3 FT
B8
3 FT
B7
2.5'
B6
5' WIDE
DRIFT TOP
B5
DRIFT TOP
S. BONANZA
CROSS-CUT
10' 10' 10' 4'
BC1 BC2 BC3 BC4
A3

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. IRVANS BLVD.
PHONE 602-294-5811

Austral Oil Company
2100 Humble Building
Houston, Texas

JOB # 002731
RECEIVED 7-11-6
REPORTED 7-16-6

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	MOLYBDENUM %
H-19:						
0-10		Trace				
10-20		Trace				
20-30		Trace				
30-40		Trace				
40-50		Trace				
50-60		Trace				
60-70		Trace				
70-80		Trace				
80-90		Trace				
90-100		Trace				
100-1103		Trace				
110-120		Trace				
120-130		Trace				
130-140		Trace				
140-150		Trace				
150-160	Nil	.80				
160-170		Trace				
170-180		Trace				
180-190		Trace				
190-200		Trace				
200-210		Trace				
210-220		Trace				
220-230		Trace				
230-240		Trace				
240-250		Trace				
250-260		Trace				
260-270		Trace				
270-280		Trace				
280-290		Trace				
290-300		Trace				

CHARGE _____

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

SOUTHWESTERN ASSAYERS & CHEMISTS, INC.

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Austral Oil Company

JOB # 002731 Continued
RECEIVED
REPORTED

Page # 2

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER ppm	ZINC %		MOLYBDENUM %
H-19:							
300-310		Trace					
310-320		Trace					
320-330		.14					
330-340		Trace					
340-350		.12	0.17				
350-360		.22					
360-370		.04	0.05				
370-380		.08					
380-390		.04	0.45				
390-400	Tr	.32		60			
400-410		.22	0.30	40			
410-420		.34		32			
420-430		.30		20			
430-440	No Sample						
440-450		.08		20			
450-460		.06		24			
460-470		.06		16			
470-480		.20		16			
480-490		.08		12			

REGISTERED ASSAYER CERTIFICATE 5875 WILBUR D. WRIGHT Date Signed Arizona U. S. A.

CHARGE $ 116.00

INVOICE

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. [illegible]NS BLVD.
PHONE [illegible]2-294-5611

Austral Oil Company
2[illegible]00 Humble Building
Houston, Texas

JOB # 002737
RECEIVED 7-2-[illegible]
REPORTED 7-5-[illegible]

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %		MOLYBDENUM %
H-[illegible]:							
0-[illegible]0		.02					
10-20		Trace					
20-30		Trace					
30-40		Trace					
40-50		Trace					
50-60		Trace					
60-70		Trace					
70-80		Trace					
80-90		Trace					
90-100		Trace					
100-110		Trace					
110-120		.08					
120-130		Trace					
130-140		Trace					
140-150		Trace					
150-160		Trace					
160-170		Trace					
170-180		Trace					
180-190		Trace					
190-200		.48					
200-210		.32					

0.15

REGISTERED ASSAYER
CERTIFICATE NO.
5875
WILBUR D.
WRIGHT
Not Signed
Arizona U. S. A.

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. [illegible]NS BLVD.
PHONE [illegible]-234-5811

Austral Oil Company
2700 Humble Building
Houston, Texas

JOB # 002757
RECEIVED 7-8-68
REPORTED 7-9-68

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %		MOLYBDENUM %
HH-16:							
0-10		Trace					
10-20		Trace					
20-30		Trace					
30-40		Trace					
40-50		Trace					
50-60		.08					
60-70		Trace					
70-80		Trace					

REGISTERED ASSAYER
CERTIFICATE
5875
STATE OF ARIZONA
U. S. A.

$ 16.00

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. [illegible]NS BLVD.
PHONE [illegible]2-294-5811

Austral Oil Company
2700 Humble Building
Houston, Texas

JOB # 002774
RECEIVED 7-10-68
REPORTED 7-14-68

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %		MOLYBDENUM %
H-15:80-90		.06					
90-100		.20					
100-110		Trace					
110-120		.04					
120-130		.06					
130-140		Trace					
140-150	Tr	.10	0.10				
150-160		.14					
160-170	.012	7.69					

CHARGE $ 20.00

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. [illegible] BLVD.
PHONE [illegible]02-294-5611

Austral Oil Company
270[illegible] Humble Building
Hou[illegible]ton, Texas

JOB # 002776
RECEIVED 7-10-[illegible]
REPORTED 7-14-[illegible]

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %		MOLYBDENUM %
H-[illegible]8:							
[illegible]-10		.08					
1[illegible]-20		Trace					
2[illegible]-30		Trace					
3[illegible]-40		Trace					
4[illegible]-50		Trace					
5[illegible]-60		Trace					
6[illegible]-70		Trace					
7[illegible]-80		Trace					
8[illegible]-90		Trace					
9[illegible]-100		Trace					
1[illegible]-110		Trace					
1[illegible]-120		Trace					
1[illegible]-130		Trace					
1[illegible]-140		.16					
1[illegible]-150		.24		0.21			
1[illegible]-160	T=	.35		0.155			
1[illegible]-170		.22					
1[illegible]-180		Trace					
1[illegible]-190		Trace					
1[illegible]-200		.04					
2[illegible]-210		Trace					
2[illegible]-220		Trace					
2[illegible]-230		Trace					
2[illegible]-240		Trace					
2[illegible]-250		.14					
2[illegible]-260		Trace					
2[illegible]-270		Trace					
2[illegible]-280		Trace					
2[illegible]-290		Trace					
2[illegible]-300		Trace					

CHARGE _____

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

SOUTHWESTERN ASSAYERS & CHEMISTS, INC.

REGISTERED ASSAYERS

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

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Austral Oil Company

JOB # 002776 Continued

RECEIVED

REPORTED

Page # 2

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %	MOLYBDENUM %
H-18:						
300-310		Trace				
310-~~313~~ 313		Trace				

REGISTERED ASSAYER
CERTIFICATE NO.
5875
Arizona U. S. A.

CHARGE $ 64.00

INVOICE

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS.

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 5676

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5611

Austral Oil Company
2700 Humble Building
Houston, Texas

JOB # 002792.
RECEIVED 7-[illegible]-68
REPORTED 7-[illegible]-68

SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD %	COPPER %	ZINC %		MOLYBDENUM %
4-26							
H-28							
0-10		Trace					
10-20		Trace					
20-30		Trace					
30-40		Trace					
40-50		Trace					
50-60		TRace					
60-70		Trace					
70-80		Trace					
80-90		Trace					
90-100		Trace					
100-110		Trace					
110-120		Trace					
120-130		Trace					
130-140		Trace					
140-150		.04					
150-160		.04					
160-170		Trace					
170-180		Trace					
180-190		Trace					
190-200		Trace					
200-210		Trace					
210-220		Trace					
220-230		Trace					
230-240		Trace					
240-250		Trace					
250-260		Trace					
260-270		Trace					
270-280		Trace					
280-290		Trace					
290-300		Trace					

CHARGE _____

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

INVOICE

SOUTHWESTERN ASSAYERS & CHEMISTS, Inc.

REGISTERED ASSAYERS

FELIX K. DURAZO
WIL WRIGHT
ARIZONA REG. NO. 8678

P. O. BOX 7517
TUCSON, ARIZONA 85713

710 E. EVANS BLVD.
PHONE 602-294-5811

Austral Oil Company

JOB # 002792 Continued

RECEIVED

REPORTED

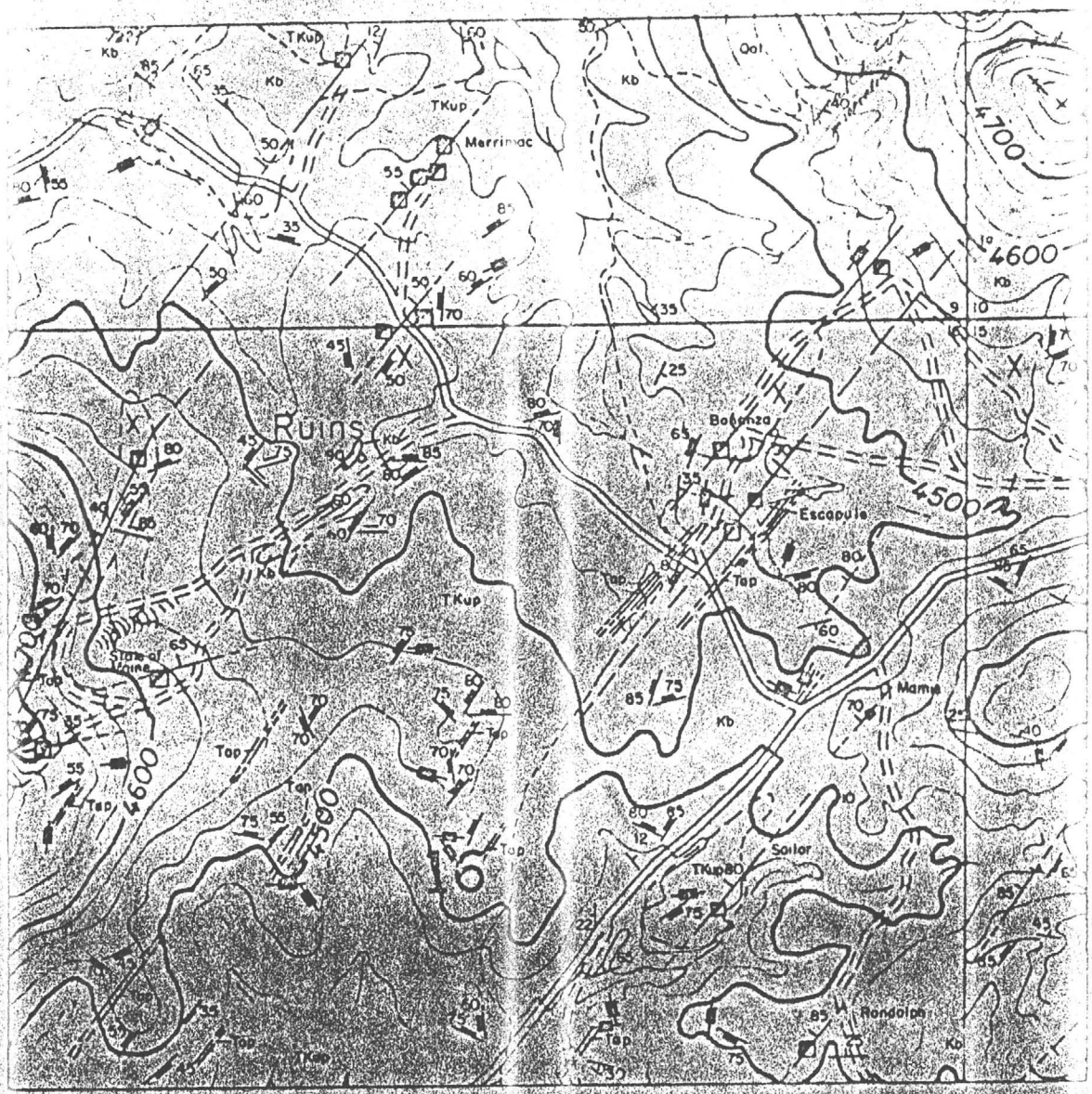
SAMPLE NUMBER	GOLD OZ.*	SILVER OZ.*	LEAD	COPPER ppm	ZINC %		MOLYBDENUM %
H-26:							
300-310		.04					
310-320		Trace	Tr				
320-330		Trace					
330-340		Trace					
340-350		Trace					
350-360		Trace					
360-370		Trace					
370-380		.36					
380-390		.12	0.19				
390-400		.10		28			
400-410	Nil	2.10		36			
410-420	Nil	3.02	2.90 2.56	104			
420-430	Nil	.90	0.90	140			
430-440		.30	0.30	32			
440-450		.08		24			
450-460		.06		20			
460-470		.10	0.07	22			
470-480		.08		.20			
480-490		.04		16			
490-500		.08		16			

CHARGE $ 120.00

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

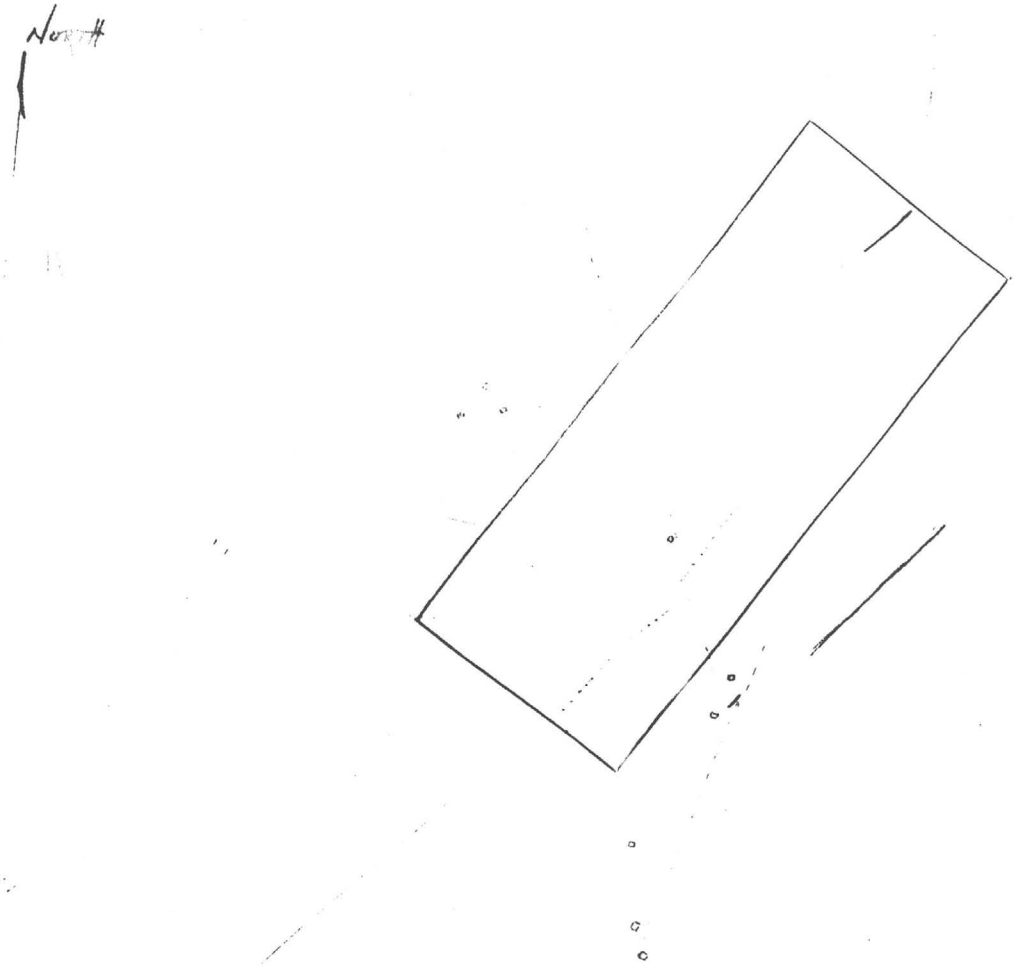
INVOICE

w/15 modules & explosives



GEOLOGIC MAP OF THE TOMBSTONE AREA, COCHISE COUNTY, ARIZONA

FIGURE 3. - THE ESCAPULE MINE AREA


North

Soil samples (-80 mesh)

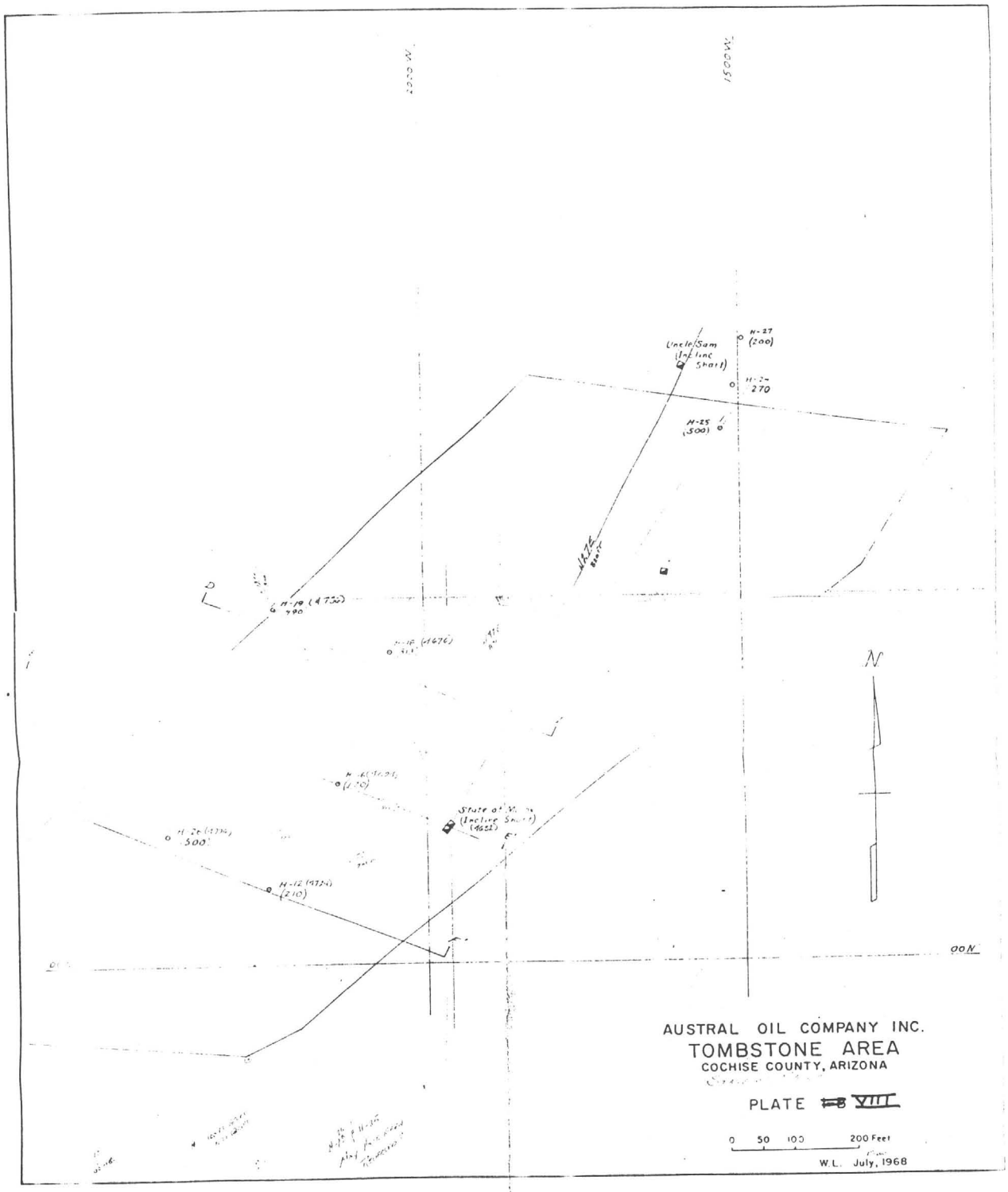
— -30 ppm Cu

— 30 - 100 ppm Cu

— +100 ppm Cu

Soil samples (-80 mesh)

- ▭ — -1 ppm Ag
- ▭ (hatched) — 1-5 ppm Ag
- ▭ (dotted) — +5 ppm Ag


Uncle Sam (Incline Shaft)
N-27 (200)
N-26 270
N-25 (500)
N-19 (1732) 490
N-18 (1676)
State of Ariz. (Incline Shaft) (1652)
N-12 (1724) (210)
00N
N
AUSTRAL OIL COMPANY INC.
TOMBSTONE AREA
COCHISE COUNTY, ARIZONA
PLATE VIII
0 50 100 200 Feet
W.L. July, 1968

GEOLOGICAL REPORT

ON THE

GRACE CLAIM GROUP

COCHISE COUNTY

ARIZONA

FOR

TOMBSTONE SILVER

MINES INCOPORATED

BY

BAILEY ESCAPULE

CONSULTING GEOLOGICAL

ENGINEER

June 4, 1981

TABLE OF CONTENTS

SUMMARY

The Tombstone Silver Mines Inc. property is located within the famous Tombstone mining destrict which produced silver from oxide ore in the late 1800's.

New mining equipment and methods along with high metal prices has brought about new and vigorous mining activity in the Tombstone district.

Past production in the area came from silver halides in high grade plancs, pods or lenses in narrow noutheast striking fissures concentrated in the oxide zone.

The property contains approximately 111 acres, located in the western portion of the district.

The propery is underlain by Bisbee Group sediments intruded by porphyry and andesite porphyry dikes.

Several vein structures and extentions of past productive vein structures occur on the property. Current assays taken from vein structures and zones examined, range from 0.07 to 220.07 oz/ton silver.

The State of Maine Mining Company is currently cyanide leaching old mine dump material and developing vein structures that extend into the Tombstone Silver Mines Inc. holdings.

Values in the vein structures vary greatly at the surface but reports indicate that with depth (15 to 50 feet) the ore grade becomes higher and more consistant.

Due to the increased metal prices, economical cyanide leaching processes, and the fact that the State of Maine Mining Company is currently producing silver from their property located in the center of the Tombstone Silver Mines Inc. holdings, an exploration program and a development-mining-processing evaluation is warrented.

An exploration program is needed to determine the depth of the oxide zone mineralization, quantity and grade of available surface ore for open cut mining, quantity and grade of available dump material, and possible presence of primary mineralization. The estimated cost of this first phase is $ 67,100.00.

A second phase of development, which would lead to mining and processing ore from the property would include a 100 ton/day operation very simular to the State of Maine Mining Company's. The total estimated cost for this operation is $ 523,300.00.

From operations in the immediate area, the average costs/ton to mine and process ore, is about $ 6.00 to $ 9.00. The average grade of this ore usually runs between 3 to 5 oz/ton silver.

INTRODUCTION

At the request of Mr. W. W. Grace and Mr. D. G. Thomas, both of Phoenix, Arizona, I was asked to map the property area near Tombstone, Arizona and recommend a mining program suitable to the economic potential of the property.

I mapped and sampled the area during the last three weeks of May 1981. During this time I also mapped and sampled portions of the patented mining claims owned by the State of Maine Mining Co. (owners Charles and Louis Escapule, my father and uncle). These patented claims are 90% surrounded by the property held by Tombstone Silver Mines Inc.

The following report is the result of this three week study and a first hand knowledge of the exploration, mining, and processing techniques used by the State of Maine Mining Company, a silver producing mine in the Tombstone Mining district.

PROPERTY

Approximate co-ordinates; 31°42'N, 110°06'W. The property consists of the northern half of the Chance patented mining claim containing approximately 10 acres, and approximately 101 acres held under a State of Arizona Prospection Permit, surrounding 6 patented mining claims held by Charles and Louis Escapule of Tombstone.

LOCATION

The Tombstone Mining District is located in western Cochise County, Arizona approximately 25 miles north of the Mexico-United States bourder.

The property is approximately 2 miles directly southwest of Tombstone, and about 75 miles southeast of Tucson, Arizona.

The property is located in Township 20 south, Range 22 east, cover a portion of the north half of section 16.

TRANSPORTATION

Tombstone may be reached from Tucson via Interstate Highway 10, and State Highway 80. The Southern Pacific Railway, which serves Bisbee, 24 miles southeast of Tombstone, traverses the area along the San Pedro river. Two short airstrips lie within the area; one is 3 miles southeast of Tombstone, and a second is about 6 miles directly southwest of Tombstone. The property is easily accessible by paved and dirt roads from Tombstone.

CLIMATE

The climate is semi-arid and typical of intermediate altitudes of southern Arizona. In winter the average high daily temperature is about 75° F (24°C) and the average low about 25° F (-4°C), whereas in the summer the average high is near 100° F (38°C) and

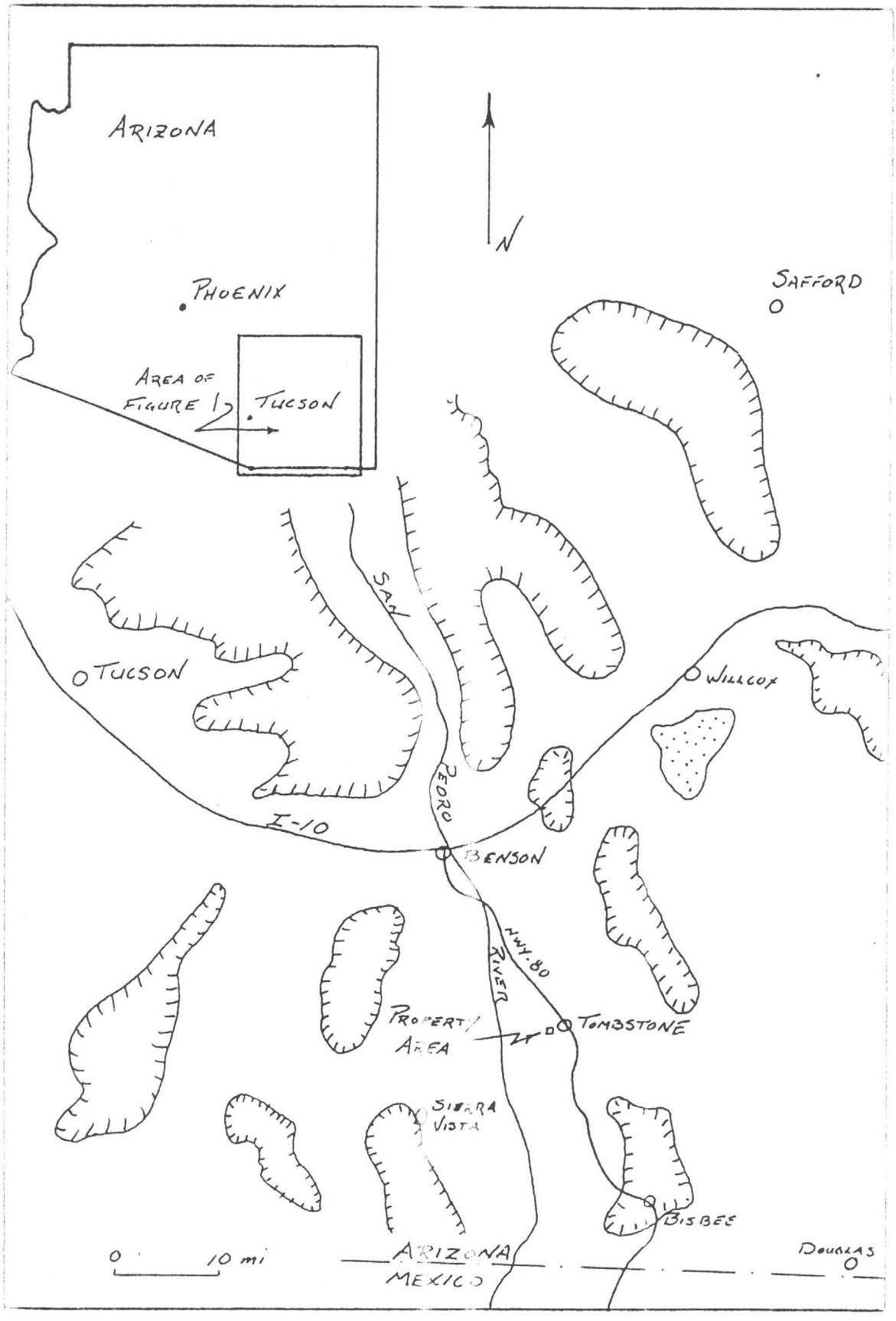


Fig. 1. -- Index map of the Tombstone area, southern Ari-

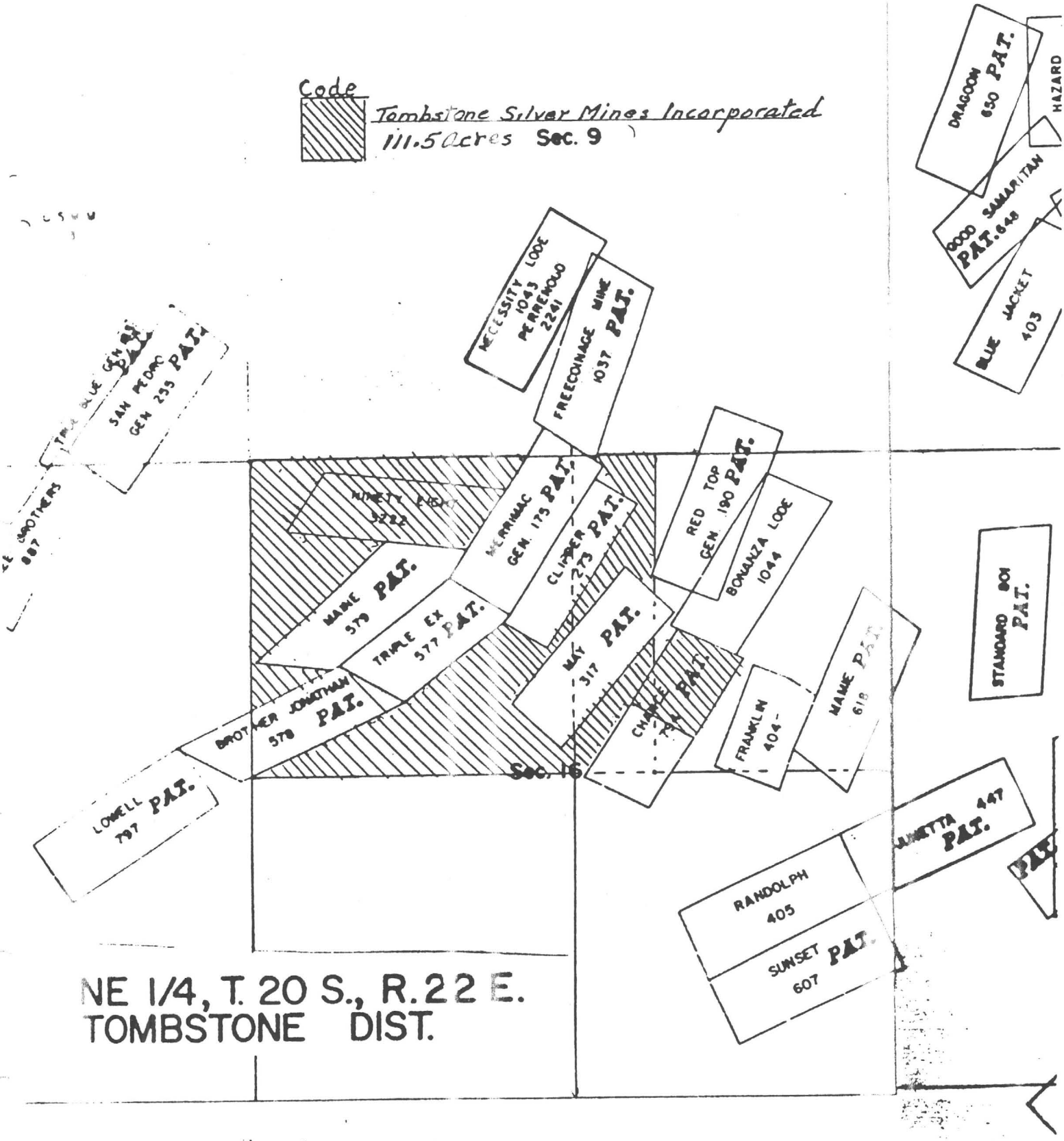


Fig. 2 - Property map

the low near 55° F (13°C). Average annual rainfall is 1[illegible].56 inches, seventy percent of the precipitation is from intense storms during July, August, and September. Vegetation in the area includes cat's claw, cholla, creosote, mesquite, ocotillo, and prickly pear. The district does not contain timber suitable for mine use.

PHYSICAL FEATURES

Topographically, the Tombstone district is one of predominantly low scattered hills with the highest elevation of 5320 feet on Ajax Hill and the lowest, about 3900 feet, along the San Pedro river. The highest elevation on the property area is 48[illegible] along Uncle Sam Hill and the lowest elevation is 4425 feet along the southedge. There are no perennial streams in the area.

CULTURE AND PRODUCTION

The town of Tombstone has about 1500 inhabitants. The residents thrive on Tombstone's rich history, and the town has been designated as a National Historic Monument. The first mining claim was located in the district in 1857, but it was not until 187[illegible] that Edward Schieffelin discovered rich silver deposits at Tombstone proper.

From its earliest days the district has been plagued by severe mine water problems and fluctuating silver prices. In March 1881 water was first encountered in the mines at a depth of 320 feet, and early 1884 initial pumping procedures began. Pumping

operations continued successfully until May 1886 when fire paralyzed the pumping works. Many of the rich deposits were already exhausted above the water table, and a low silver price ($0.98/oz as compared to $1.20/oz) coupled with the loss of the pumping facilities forced many mines to close. By 1901 the larger mines were consolidated into a single company, and renewed efforts were made to drain the district. In 1906 a new pump shaft was completed to the 1000 foot level, and the mines were able to continue successful operations until 1909 when a defect in the pumping works caused the 1000 foot level pumps to cease operation. In 1910 the pumps on the 1000 foot level were recovered, and mining was resumed. Between 1908 and 1909, water was pumped from the mines at a rate of about 5 million gallons/day, and by January 1911, the financial strain of high pumping costs combined with a low silver price ($0.50/oz) forced the closure of the major mines. The smaller companies continued with limited production above the water table, but by 1918 most of the mines were operated by lessees. With the exception of reprocessing of mine dumps, and minor lead and copper production, the district experienced little activity in the years following 1918.

Between 1879 and 1970, the total estimated production was about $38.8 million (Keith, 1973). From 1879 to 1886 mineral production totaled about $18 million (Butler, Wilson and Rasor, 1938). Estimated production between 1936 and 1970 is about $1.8 million (Keith, 1973). From 1879 to 1970, Keith estimated that the district produced about 1.5 million short tons of ore

which yielded 3 million pounds of copper, 45 million pounds of lead, 240 thousand ounces of gold, 30 million ounces of silver, and 9 thousand tons of manganese ore.

In the past few years mining activety has again increased. There are at least 10 mining operations on the Tombstone district today that are either producing silver or plan to produce in the next few months. These operations range in size from a small 2 man operation to larger 50 to 60 man, multi-million dollar operations. This renewed activety is due to the increased silver price and the use of low cost, heap leaching of the ores. Virtually every operation in the district is heap leaching old mine dumps and/or new mined ore from either surface or underground mines. Ore grades range from about 3 ounces/ton silver (2000 tons/day operation) to more than 100 ounces/ton silver (a few tons/day operation).

GENERAL GEOLOGY OF THE TOMBSTONE DISTRICT

The rocks in the Tombstone district range in age from pre-Cambrian to Quaternary. The following discription of the general geology of the Tombstone district is quoted from Butler (1938, page 11-12).

" The oldest rock is fine-grained, greenish gray schist evidently pre-Cambrian and correlated with the Pinal schist of Bisbee. It is invaded by granitic and porphyritic rocks that have been tentatively regarded as pre-Camprian, but may be younger.

Uncomformably overlying the pre-Cambrian rocks is the Cambrian Bolsa Quartzite, here about 440 feet thick. This is succeeded by the Cambrian Abrigo Limestone, approximately 700 feet thick. Overlying the Abrigo with apparent conformity is the Devonian Martin limestone, about 340 feet thick, followed by the Mississippian Escabrosa limestone, estimated to be about 500 feet thick. It is not very distinctly separable from the overlying Naco limestone of Pennsylvanian and Permian age. As the upper limit of the Naco is a surface of erosion, the original thickness of this formation is unknown; its present maximum thickness exceeds 3,250 feet. The Naco limestone is intruded by a few dikes and sheets of quartzose porphyry, generally rather decomposed, that were erupted prior to the deposition of the Mesozoic sedimentary rocks.

Uncomformably overlying the Naco is the Bisbee Group, a series of conglomerate, sandstone, quartzite, shale and limestone. These beds, as shown by fossils in the limestone layers, are of Mesozoic, probably Comanch, age. The thickness of the Bisbee group is unknown, as no measurable section of the whole is available; it probably exceeds 3,000 feet.

After the deposition of the Tombstone formation, the rocks of the district were folded and faulted and, probably at the same time, were invaded by the mass of Uncle Sam quartz latite porphyry that crops out in the western part of the district. About the same time, but probably slightly later, they were intruded by an irregullar body of granitic rock, the Schieffelin granodiorite. Southwest of the mapped area, near Charleston,

The quartz latite porphyry is intruded ino andesitic and rhyolitic extrusive rocks. It seems likly that the earliest volcanic activity was extrusion of lavas, followed by intrusion of quartz latite porphyry near the then existing surface, and this in turn was followed by intrusions of granodiorite.

After the intrusions, the district appears to have been subject to long-continued erosion. Probably in late Tertiary time the lowlying parts of the district were covered by a fluvial deposit of crudely stratified, more or less firmly consolidated angular rock detritus with some layers of sand and silt. This material which appears to be analogous in age and made of deposition to the Gila conglomerate of central Arizona, occupies large areas in the broad valleys that separate the hills of the Tombstone district from the Huachuca, Whetstone, and dragoon ranges. Inmost places it is overlain by a few feet of Quaternary gravel, sand, and silt. At least one basaltic eruption occurred during or after the accumulation of the valley fill, as shown in Walnut Gulch, about a mile southeast of Tombstone. Some faulting has taken place since the deposition of the valley fill, which has been deeply trenched by arroyos of the present erosion cycle."

These paragraphs are a breif but accurate summary of the general geology of the region.

SPECIFIC DESCRIPTION OF THE GEOLOGY OF THE TOMBSTONE SILVER SILVER MINES INC. PROPERTY

The area is underlain by highly fractured Cretaceous Eisbee Group sandstones, shales, quartzites and limestones, intrude by sill like bodies of Uncle Sam porphyry of early Cretaceou age and several younger northeast striking andesite porphyr dikes.

Mineralization occurs in narrow planes, pods or lenses, as cerargyrite, or bromeyerite in northeast striking fissures with steep northwest dips. The silver minerals occur above the water table and are associated with quartz, hydrous mang oxides, calcite, limonite, and sericete in open space filli

The fissure zones formed where small amounts of slip occurr along closely spaced parallel joint planes. Occasionally, andesite porphyry dikes are intruded along these joint plan parallel to the regional northeast joint pattern. Ore bear solutions frequently found the more permeable zones along t dikes a favorable environment, filling open spaces and repla brecciated wall rock.

The Chance mining claim is located on the southern extensio of the Bonanza vein along which several shafts have been sunk and sketchy records indicate several areas of stoping. A 1928 report by Earle and Mellgren indicates high grade or was removed from theChance mine. It is also stated that a

Winze was sunk to a depth of 22 feet below water level and a drift run 18 feet in 1922. The ore was stripped to the 200 foot level above, however before it could be removed, the upper part of the shaft caved in. Assays are reported to have run in excess of 100 oz/ton. Two samples were taken by the writer from back-hoe trenches near the old mine workings and are listed as follows:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
TSM-19	Back-hoe	2.5 ft	Trace	0.16
TSM-20	Back-hoe	2.5 ft	Trace	1.74

Samples from dumps on the Chance claim taken by W. G. Timmons on December 13, 1980 are as follows:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
Chance #1	Exposed vein	1.0 ft	Trace	7.18
Chance #2	Dump beside trench	-	Trace	2.18
Chance #3	Dump Bonanza shaft	-	0.02	12.74
Chance #4	Dump 30' S.W. Bonanza shaft	-	0.04	6.50
Chance #5	Open stope	3.0 ft	Trace	0.74

Various samples taken by W. W. Grace on the Chance claim a[re] listed as follows:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
Chance #1	-	-	0.02	7.[illegible]4
Chance #2	-	10.0 ft	Trace	3.[illegible]8
Chance vein	-	-	0.01	28.[illegible]0
Black 1	-	-	-	7.[illegible]0
Red 1	-	-	-	0.[illegible]5
White 1	-	-	-	0.[illegible]5

A cross vein striking N 60° E and dipping 75° NW is exposed east of the Chance-Bonanza vein (sample no.s Chance #1 and [illegible], TSH-19). This structure would intersect the Chance-Bonanza vein 80 to 90 feet to the southwest of the Chance shaft. This intersection should be drilled to determine its exact location and value. Trenching has been unsuccessful in locating this intersection.

A vein 50 feet west and parallel to the Chance-Baonaza vein has been mined from a shaft about 300 feet north of the Chance shaft. Though this mine is off the property, the workings extended close if not to the Chance claim. An assay map of this mine (appendix I) shows an average assay of 0.004 oz/ton gold and 3.20 oz/ton silver. Extensions of this vein into the Chance claim need to be investicated.

Several samples were also taken on permit land northwest of the

Chance claim and east of the Triple Ex claim from small prospect pits, bulldozer and back-hoe trenches. These samples ran as follows:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
TSM-1	Prospect pit	5.0 ft	0.040	0.8
TSM-2	Prospect pit	2.0 ft	Trace	0.
TSM-3	Prospect pit	5.0 ft	0.002	0.
TSM-4	Prospect pit	6.0 ft	0.095	5.
TSM-5	Dozer cut	3.0 ft	0.005	0.
TSM-6	Prospect pit	4.0 ft	0.020	2.
TSM-10	Back-hoe cut	2.5 ft	Trace	0.
TSM-11	Back-hoe cut	10.0 ft	Trace	0.
TSM-12	Back-hoe cut	12.0 ft	Trace	0.
TSM-13	Back-hoe cut	10.0 ft	Trace	0.
TSM-14	Back-hoe cut	4.0 ft	Trace	0.

Sample numbers TSM-3,4,5,6,10,11,12 indicated an extension of the Clipper vein being developed by the State of Maine Mining Co. The other above samples are from 3 other vein structures.

More samples were taken from permit land north of the Maine claim. These include the following:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
TSM-7	Prospect pit	3.0 ft	Nil	Tr
TSM-8	Prospect pit	2.0 ft	Trace	3.

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
TSM-15	Back-hoe cut	~1.0 in	0.980	220.7
TSM-16	Back-hoe	25.0 ft	0.010	1.3
TSM-17	Back-hoe	7.0 ft	0.005	0.5
TSM-18	Prospect pit	3.0 ft	Trace	0.9

Samples taken by W. G. Timmins on December 13, 1980 include the following:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
Chance #6	Dozer cut	5.0 ft	Trace	0.6
Chance #7	Dozer cut	5.0 ft	Trace	0.1
Maine #8	Shaft dump	-	Trace	0.6

Samples taken by the writer on the Maine claim just south of the north end line, assayed as follows:

Sample No.	Type	Width	Au oz/ton	Ag oz/ton
SM2-7	Dozer cut	0.5 ft	0.80	33.8
SM2-8	Dozer cut	0.5 ft	Trace	44.4

The above samples (excluding TSM-7,8,15,16,17) were taken from the State of Maine vein and its extension northward onto Tombstone Silver Mines Inc. property. The State of Maine vein is also under development by the State of Maine Mining Co.

Sample numbers TSM-15,16,and 17 came from a cross vein north of the Maine claim and east of the State of Maine vein extension.

Samples TSM-7,8, and 9 came from 3 other small vein structures.

All samples and their locations are shown on the enclosed map of the property area (plate I).

CONCLUSIONS

Although the Tombstone district has been plagued with mine water problems since the beginning, this was not the only factor in closing the mining district. Other important factors included labor problems, fires, and fluctuating metal prices. Depletion of the ore reserves was not a factor, though some reports indicate a drop in values at the water table, ore was still present in most mines when mining activity stopped.

New mining equipment and methods along with high metal prices has brought about new and vigorous mining activity in the Tombstone district.

The property area is underlain by Bisbee Group sediments intruded by Uncle Sam Porphyry and andesite porphyry dikes.

Past production in the area came from silver halides in high grade planes, pods or lenses in narrow northeast striking fissures concentrated in the oxide zone.

Land holdings, though not contiguous, contain several vein structures which include extentions of previously prodctive

veins and structures that are currently under development for production.

The State of Maine Mining Company is currently cyanide leaching old mine dump material and developing vein structures that extend into the Tombstone Silver Mines Inc. holdings.

A small leaching process is in operation on the south half of the Chance claim.

Assays from vein structures or zones, and old dumps on the property range from 0.07 to 220.07 oz/ ton silver.

RECOMMENDATIONS

Due to the increased metal prices, economical cyanide leaching processes, and the fact that the State of Maine Mining Company is currently producing silver from their property located in the center of the Tombstone Silver Mines Inc. holdings, an exploration program and a development-mining-processing evaluation is warrented.

An exploration program is needed to determine the depth of the oxide zone mineralization, quantity and grade of available surface ore for open cut mining, quantity and grade of available dump material, and possible presence of primary mineralization.

The following program is recommended:

Phase I

1) Examine and sample accessible underground workings.

2) Trenching and sampling to futher determine quantity and grade of surface ore.

3) Dump material survey and sampling.

4) Percussion drilling to determine the extent of ore zones with depth.

Phase II

Using the results of phase I, a second phase of development, which would lead to mining and processing ore from the property is recommended.

Since the State of Maine Mining Company is now well into this second phase, a discussion of their operation is warrented.

During the past 4 years the State of Maine Mining Company has been processing old dump material by means of cyanide leaching, zinc precipitation and electrolitic refining. In the last year, development work on 4 vein structures has lead to a 100 ton/day open cut mining operation due to begin in about 2 months.

This mining operation will include the following:

1) Mining with an International 3/4 cu. yd. excavator and a 1-1/2 cu. yd. rubber tired loader

2) Ore and waste haulage by truck to a crushing-agglomerating circuit. Ore assaying less than 15 oz/ton silver will be agglomerated and heap leached. Ore assaying over 15 oz/ton will be aggitated with cyanide solution in a specially designed mixer.

3) Pregnant solutions from the leach and the mixer will be stripped of its silver values by a Merrill-Crowe zinc precipitation unit manufactured by the State of Maine Mining Company.

4) The silver precipitates will then be smelted and refined by electrolysis.

A flow sheet of the State of Maine Mining Company's heap leach operation is enclosed as plate II.

In veiw that the State of Maine Mining Company's operation involes the central portion of the Tombstine Silver Mines Inc. holdings, a very simular operation is recommended.

The next phase of mining would include underground mining of the vein structures or zones.

ESTIMATED COSTS OF PROGRAMS

Phase I

Estimated Costs of Exploration Program

1)	Geological examination and sampling of underground workings.	$ 5,000.00
2)	Trenching and Sampling.	1,000.00
3)	Dump material survey and sampling.	5,000.00
4)	Percussion Drilling 3000 feet.	40,000.00
5)	Supervision on site, logging, assays, accommodations, transportation etc.	10,000.00
	Contingency @ 10%	6,000.00
	Cost of Phase I	$67,000.00

Phase II

Estimated Costs of Development-Mining-Processing Operation

Mining Equipment	Cost of leasing for 6 months
1- 3/4 cu. yd. excavator	$23,[illegible].00
1- 1-1/2 cu. yd. loader	15,[illegible].00
1- 10 wheel truck	10,[illegible].00

Crushing, Agglomerating, and Precipitation	
Crushing facilities	$60,[illegible].00
Agglomeration facilities	30,[illegible].00
Interconnecting conveyors	60,[illegible].00
Aggitation facilities	25,[illegible].00
Heap leach facilities	
Pad base and pond liners	7,[illegible].00
Plastic piping	1,[illegible].00
Zinc precipitation units	
1- 300 TPD sol. for heap leach	20,[illegible].00
1- 65 TPD sol. for aggitator	4,5[illegible].00
Chemicals (start up)	1,5[illegible].00
Complete refining facilities	8,64[illegible].00
Building (precipitation units and refining)	50,0[illegible].00
Total Equipments and Supplies	$ 317,1[illegible].00

Estamated Total Cost of a 100 ton/day Mining-Processing Operation	
Equipment and Suplies	$ 317,1[illegible].00
Contingency @ 15%	47,5[illegible].50
Engineering @ 20%	63,4[illegible].00
Labor @ 30%	95,1[illegible].00
Total Estimated Cost	$523,2[illegible].50

[signature]

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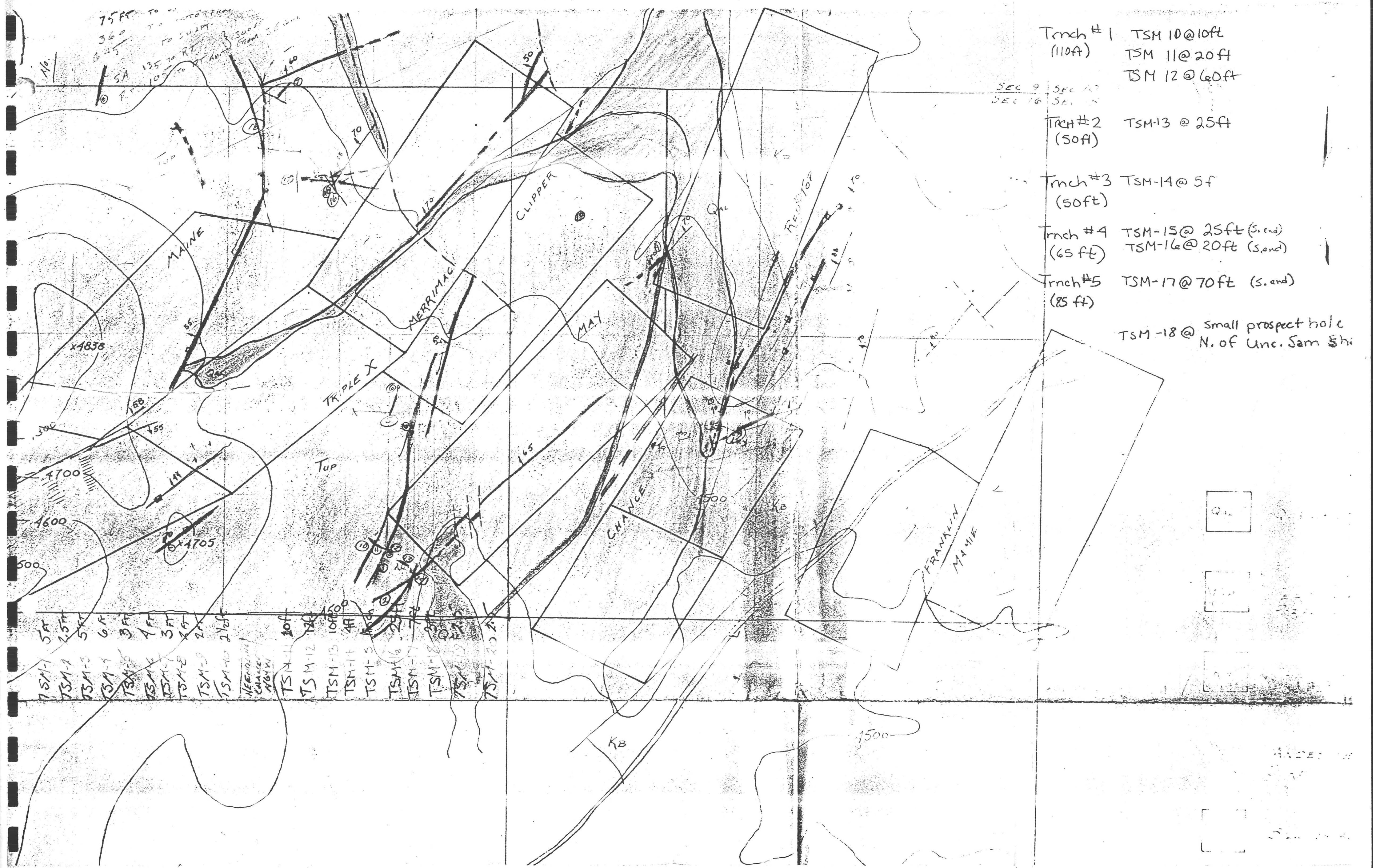
Charles Bailey Chapman

June 5 1981

APPENDIX


Trnch #1 (110ft) TSM 10@10ft
TSM 11@20ft
TSM 12@60ft
SEC 9
SEC 16
Trch #2 (50ft) TSM-13 @ 25ft
Trnch #3 (50ft) TSM-14@ 5f
Trnch #4 (65 ft) TSM-15@ 25ft (S. end)
TSM-16@ 20ft (S. end)
Trnch #5 (85 ft) TSM-17@ 70ft (S. end)
TSM-18 @ Small prospect hole N. of Unc. Sam Sh
MAINE
MERRIMAC
CLIPPER
TRIPLE X
MAY
CHANCE
REDTOP
FRANKLIN
MAMIE
KB
Tup
QAL
x4838
4700
4600
+4705
1500
TSM-1 5ft
TSM-2 2.5ft
TSM-3 5ft
TSM-4 6ft
TSM-5 3ft
TSM-6 4ft
TSM-7 3ft
TSM-8 4ft
TSM-9 2ft
TSM-10 2½ft
TSM-11 10ft
TSM-12 12ft
TSM-13 10ft
TSM-14 4ft
TSM-5
TSM-16 25ft
TSM-17 7ft
TSM-18 3ft
TSM-20

To: W.G. TIMMINS EXPLORATION & DEVELOPMENT LTD.,
202, 909 - 5th Avenue SW.,
Calgary, Alberta T2P 3G5

File No. 2087
Date January 9, 1981
Samples Rock Chip

ATTN: W.G. Timmins

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	OZ./TON GOLD	OZ./TON SILVER
"Rock Chips"		
Chance # 1	Trace	7.18
Chance # 2	Trace	2.18
Chance # 3	.020	12.34
Chance # 4	.040	6.50
Chance # 5	Trace	.74
Chance # 6	Trace	.26
Chance # 7	Trace	.40
Maine # 8	Trace	.66

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.
Pulps Retained one month unless specific arrangements

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Mr. W. W. Grace
8238 East Indian School Road
Scottsdale, Arizona 85251

Date November 21, 1980

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES		
		GOLD	SILVER	COPPER		
8883	Black 1, Chance		7.8			
	Red 1, Chance		0.25			
	White 1, Chance		0.05			

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLean Jr.

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO.
6258
CLAUDE EUGENE
McLEAN

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Mr. W. W. Grace
8238 East Indian School
Scottsdale, Arizona 85251

Date December 3, 1980

ASSAY CERTIFICATE

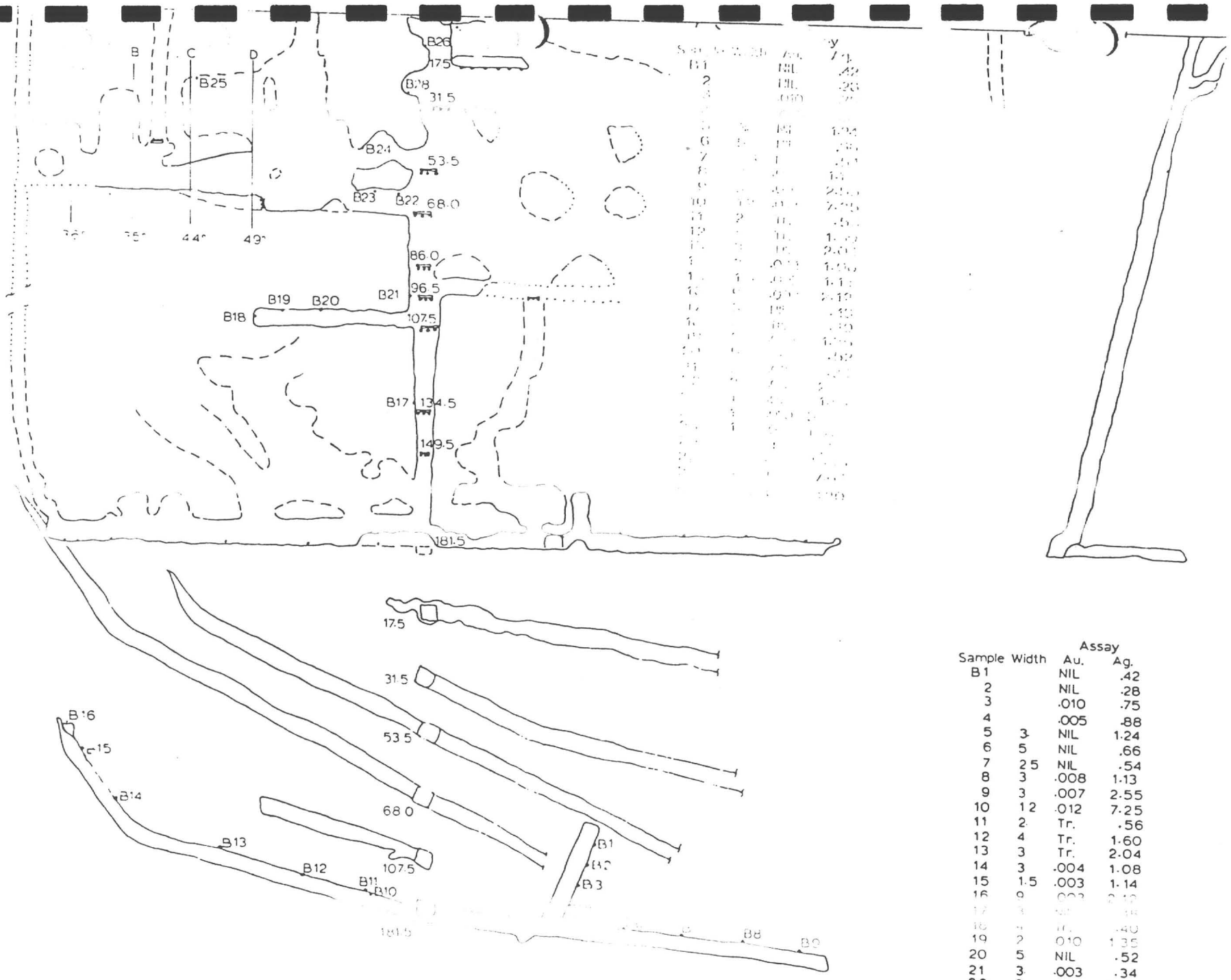
LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES		
		GOLD	SILVER	COPPER		
9017	Chance Vein	0.01	28.			
	Uncle Sam Black Vein		0.35			
	Uncle Sam 10' cut		0.70			

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO. 625
CLAUDE E. McLEAN
Date Signed



Sample	Width	Assay Au.	Assay Ag.
B1		NIL	.42
2		NIL	.28
3		.010	.75
4		.005	.88
5	3	NIL	1.24
6	5	NIL	.66
7	2.5	NIL	.54
8	3	.008	1.13
9	3	.007	2.55
10	1.2	.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	2.10
17	3	Tr.	.56
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.	.020	52.38
25	1.	.014	12.13
26		no sample	
27	2	.020	23.08
28	3	.008	7.64

By
ASTRAL OIL CO.
1968 (ABOUT)

SOUTH BONANZA SHAFT

INVOICE NO.

6185

May 30, 1981

Arizona Assayers

SOLD TO Tombstone Silver Mines Inc.

STREET & NO.

CITY

SHIPPED TO

STREET & NO.

CITY

CUSTOMER'S ORDER	SALESMAN	TERMS	VIA	F.O.B.	DATE
_ quantity	test	code#	price	Ag.	Au.

9	fire assays	TSM1	@ $8.00	.92		.040	
	"	TSM 2		.40		tr	
	"	TSM 3		.21		.002	
	"	TSM 4		5.11		.095	
	"	TSM 5		.81		.005	
	"	TSM 6		2.02		.020	
	"	TSM 7		tr		nil	
	"	TSM 8		3.66		tr	
	"	TSM 9		2.12		tr	

REDIFORM

7H 736

INVOICE

INVOICE NO.

6199

June 3, 1981

ARIZONA ASSAYERS,
P. O. Box 672
TOMBSTONE, AZ. 85638

SOLD TO Tombstone Silver Mines Inc.

STREET & NO. 8238 E. Indian School Rd.

CITY Scottsdale, Az. 85251

SHIPPED TO

STREET & NO.

CITY

CUSTOMER'S ORDER	SALESMAN	TERMS	VIA	F.O.B.	DATE
quantity	test	Code#	price	Ag	Au
11	fire assays	#10	@$8.00	.08	tr
	"	#11		.74	tr
	"	#12		.13	tr
	"	#13		.12	tr
	"	#14		.07	tr
	"	#15		220.0	0.980
	"	#16		1.53	.010
	"	#17		.24	.005
	"	#18		.29	tr
	"	#19		.36	tr
	"	#20		1.74	tr
			balance due $88.00		

REDIFORM
7H 736

INVOICE

REGISTERED ASSAYER
ARIZONA REG. No. 7126

ARIZONA REG. No. 4073

ARIZONA REG. No. 2473

Rochin Assay Office, Inc.

P. O. DRAWER 3507 PHONE (AC 602) 364-8092

DOUGLAS, ARIZONA – 85607

ASSAYERS & METALLURGICAL CHEMIST 602-946-9772

CERTIFICATE OF ASSAY

Name: W.W. Grace 8238 E Indian School Road Scottsdale Az 85251

	GOLD OZS.	SILVER OZS.	COPPER %	LEAD %	ZINC %			
Lab 39343 Chance #1	0.02	7.34						
344 Chance 2	Tr	3.18	General sample					

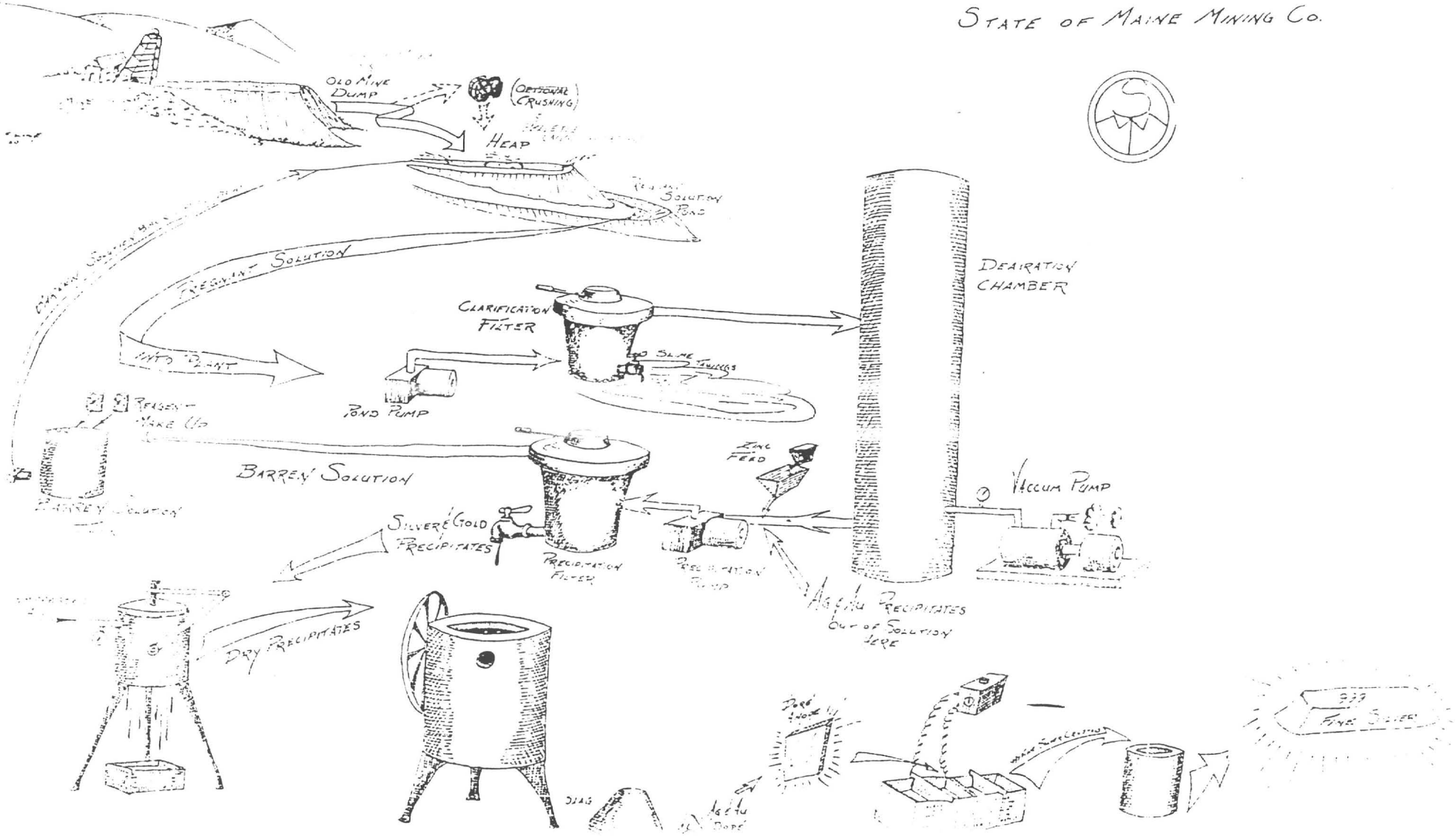
REMARKS:

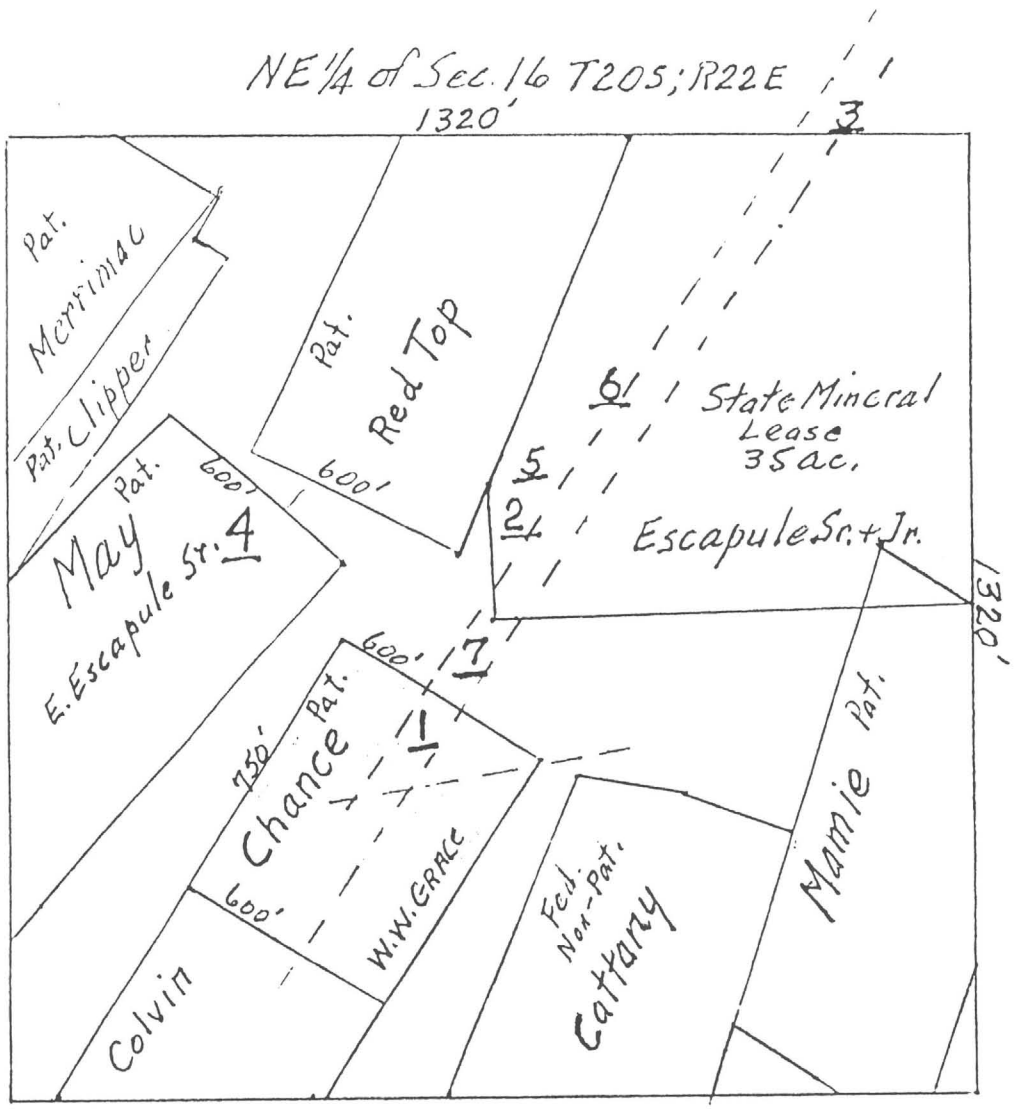
DATE: 14 Jan 80

CHARGES: $

Flow Sheet of Heap Leach Operation

State of Maine Mining Co.

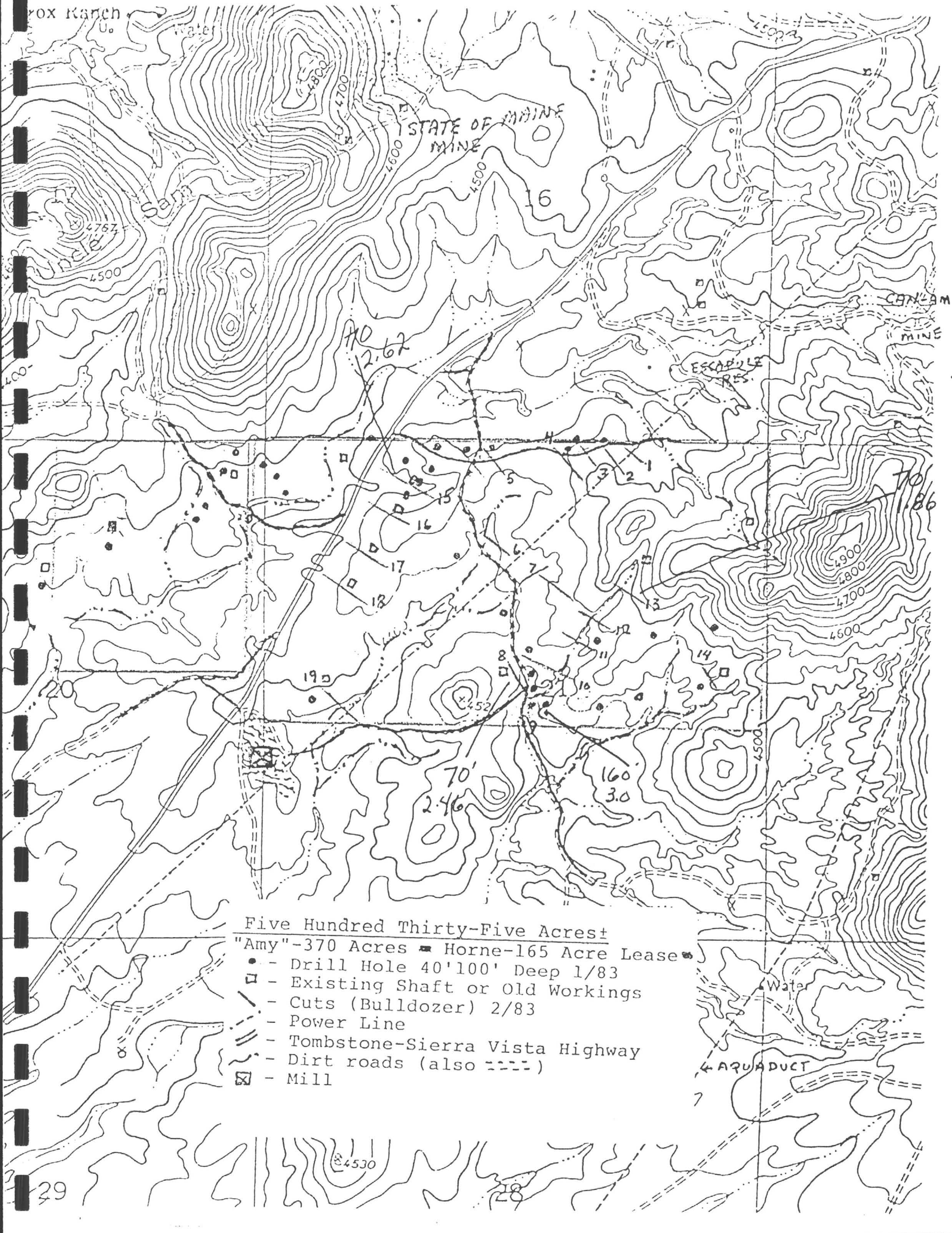




Approx. but not to scale .2 in = 100'

1. Page 8 of Sarle report shows ore 18'x22' by width of vein with assays from 100 to 1200 oz. silver
2. Approx. 500' N. of Chance is Santa Anna Mine that produced high grade
3. Solstice Mine now being worked by Escapules and processed at site 4.
4. Site of leaching for ore from Solstice Mine
5. Site of drill hole showing silver 10.06 and gold .52 at depth between 80 and 90 foot depth. (about 150' N of Santa Anna Mine
6. Site of North Bonanza Mine. See report page 33.
7. Twenty-two tons with value $2273 per ton smelter report.

Area between claims exc. Escapule 35 ac. lease is held under State mineral rights by Silver Bonanza Mining Co. Inc.


rox Ranch
Water
4800
4700
4600
4500
STATE OF MAINE MINE
16
17
4762
Uncle Sam
CAN-AM MINE
ESCAPULE RES.
70' 2.67
70' 1.86
4900
4800
4700
4600
20
452
70' 2.46
160 3.0
4500
Five Hundred Thirty-Five Acres±
"Amy"-370 Acres ■ Horne-165 Acre Lease
• - Drill Hole 40'100' Deep 1/83
□ - Existing Shaft or Old Workings
╲ - Cuts (Bulldozer) 2/83
- Power Line
- Tombstone-Sierra Vista Highway
- Dirt roads (also ====)
☒ - Mill
Water
AQUADUCT
4530
29
28

MISC NOTES
RED TOP CLAIM

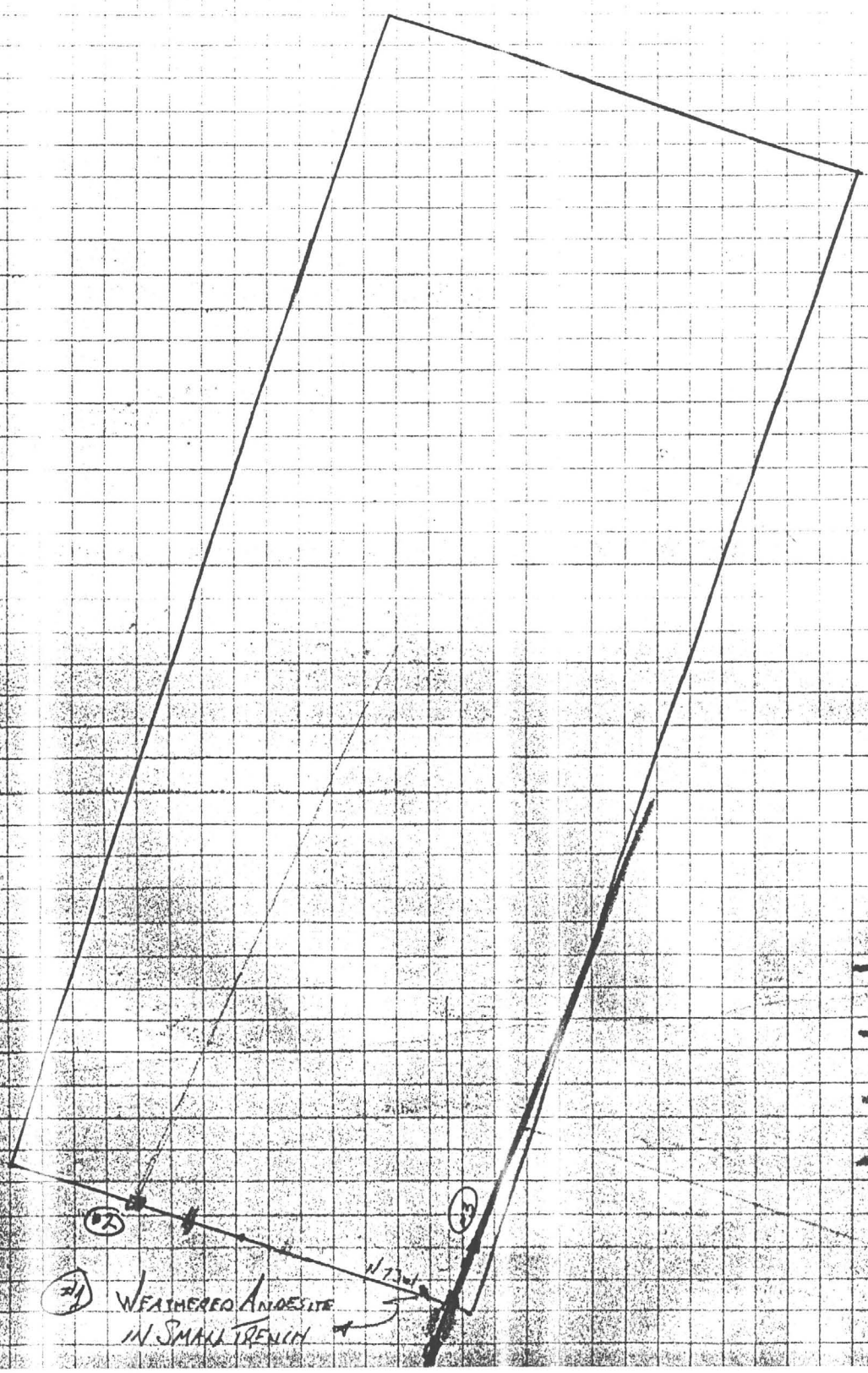
RED TOP CLAIM MAP NOTES
FEB. 16, 1981

#1 - ANDESITE PORPHRY DIKE (ABOUT 40 TO 50 FEET WIDE, VERY HARD TO SEE BOUNDARIES DUE TO POOR EXPOSURE.) IT APPEARS THAT THIS DIKE IS IN CONTACT WITH THE HANGING WALL OF THE BONANZA VEIN.

#2 - VEIN (N-S DEG.) (N25E NEAR VERTICAL DIP) OF ALTERED UNCLE SAM PORPHRY

#3 - BONANZA VEIN APPROX. N22-25E 70°-73° N/W

RED TOP CLAIM MAP



NORTH

0 100 200

SCALE: 1" = 200'

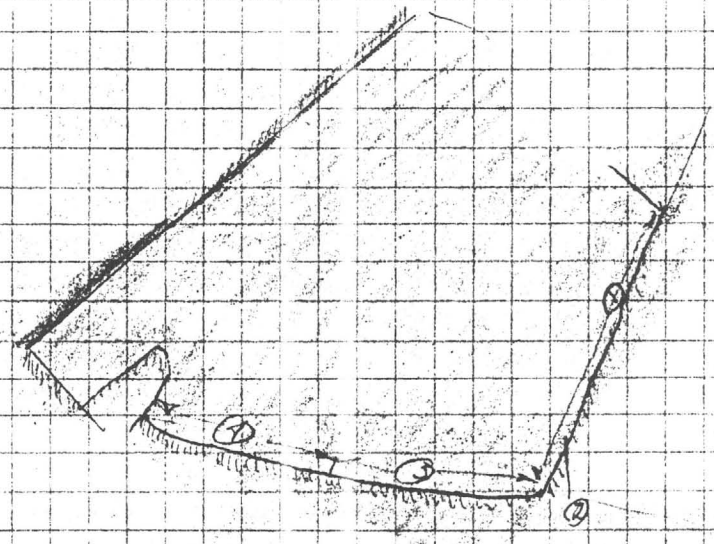
DECL. AT 13° E
FEB 16, 1981

— BONANZA VEIN (AND OTHER QUARTZ VEINS)
— BISBEE SEDIMENT
— ANDESITE DIKE
— UNCLE SAM PORPHYRY

CLIPPER VEIN
SAMPLES CV-1 THRU

NORTH

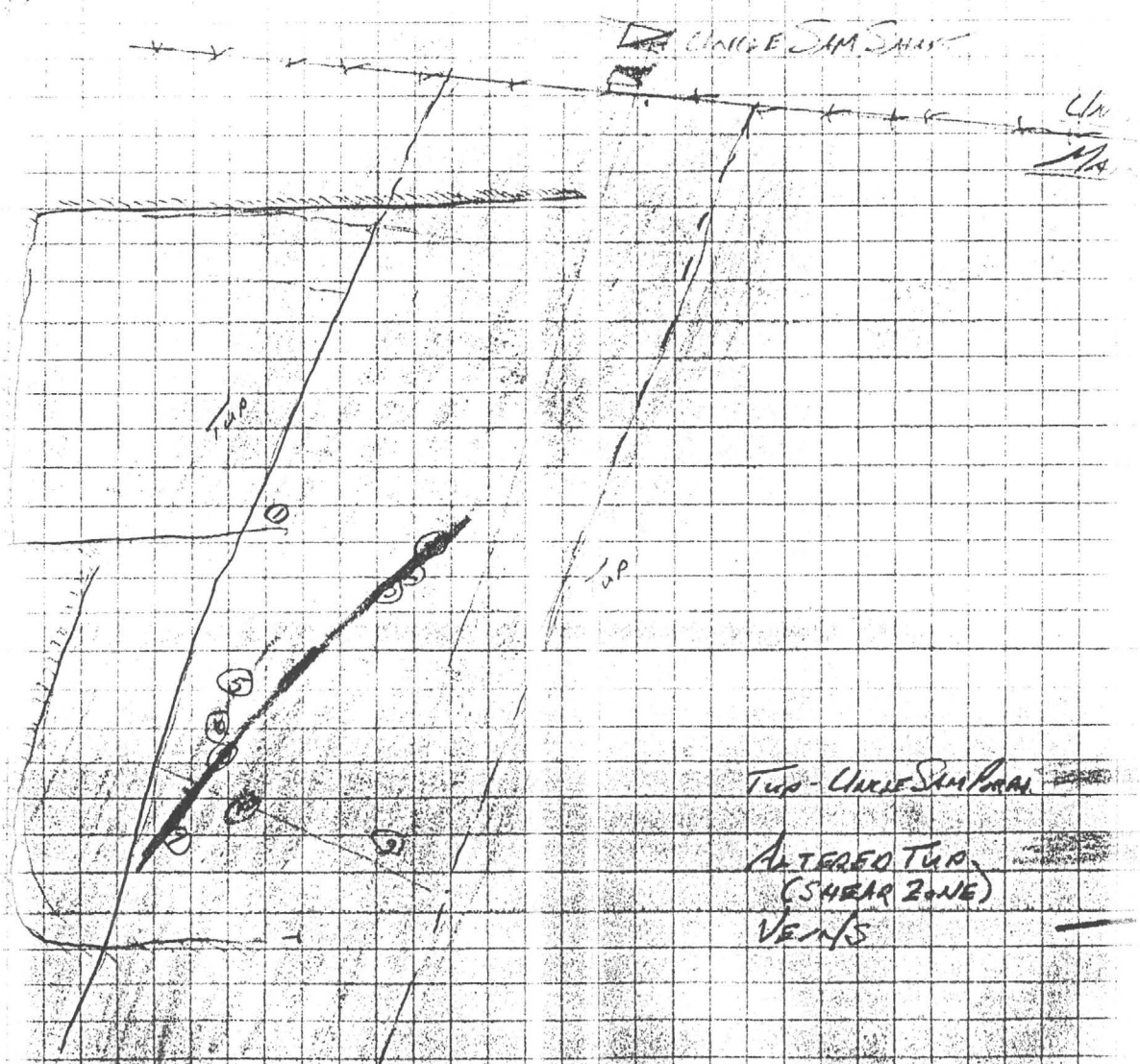
SCALE: 1" = 20'
MAY 16, 1951



		SHAKER TEST Au	Au Cl
CV	1 – COMPOSITE	.28	TR
	2 – SILICIOUS GOUGE	.28	NIL
	3 – COMPOSITE	.02	NIL
	4 –	.04	NIL
	5 – VUGGY & SILICIOUS TUF	.05	NIL
	6 – RED TUF ALT. W/SM. PALE GREEN GOUGE	.03	NIL
	7 – BRECCIA SILICIFIED	.01	NIL

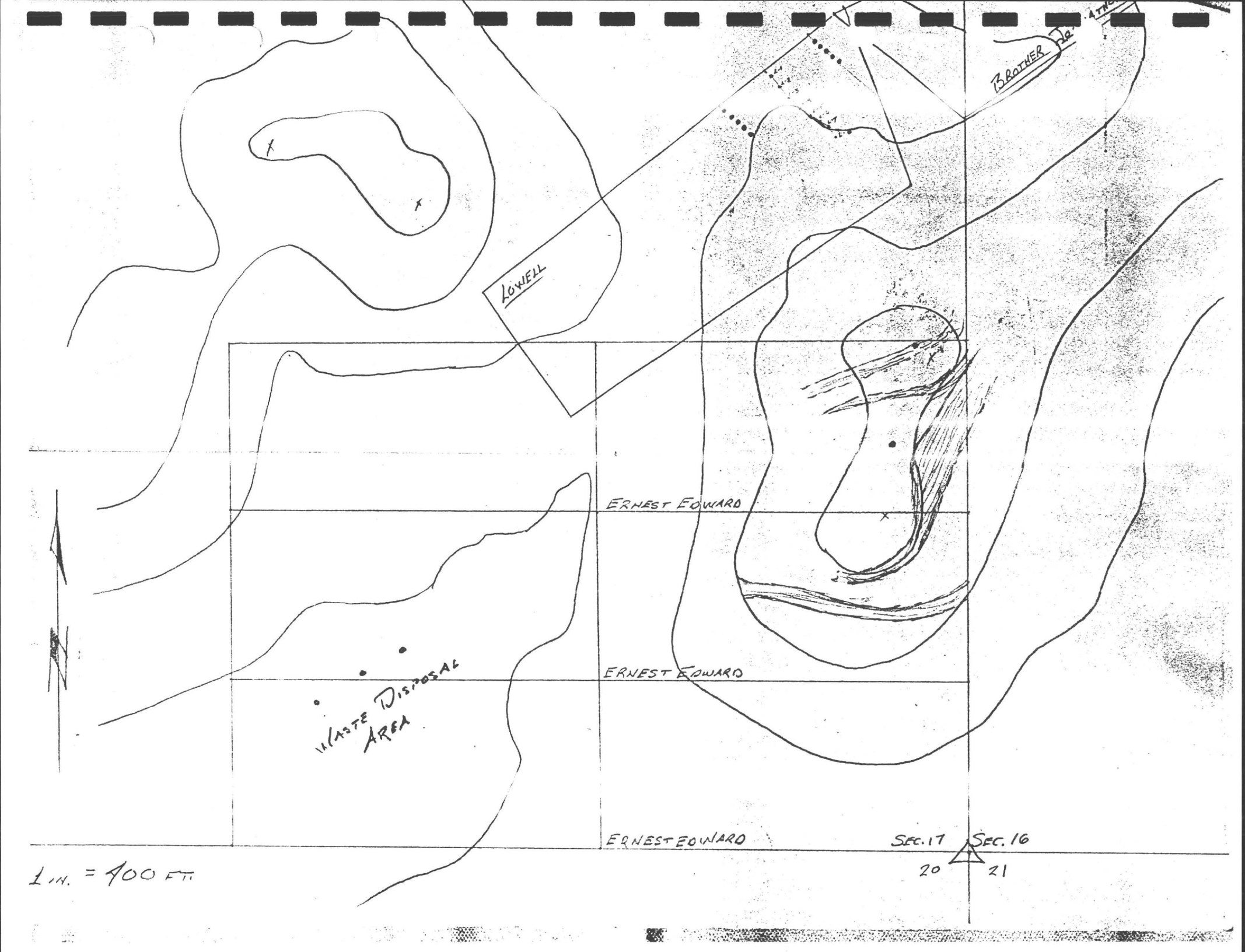
B.E.

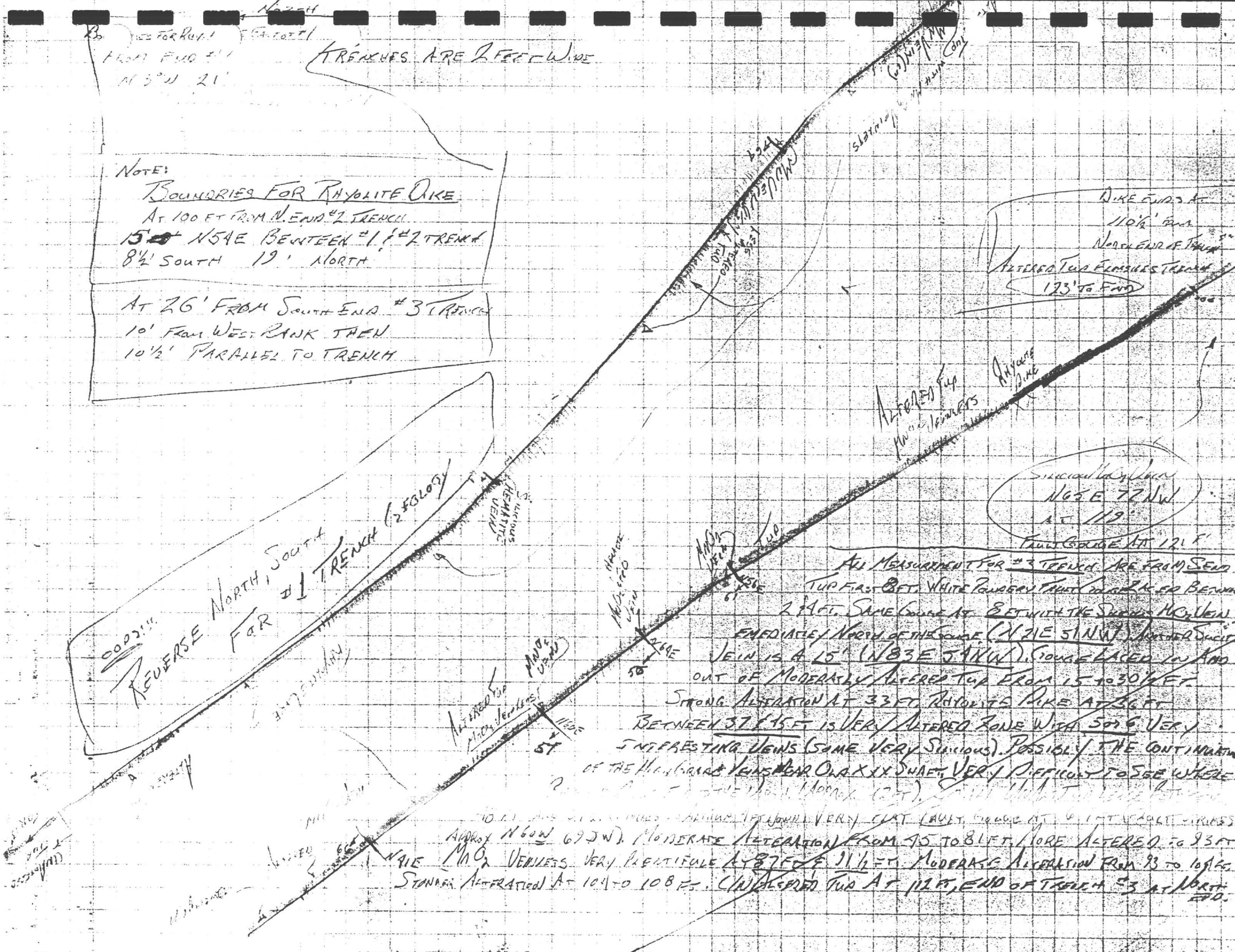
STATE OF MAINE #2
SAMPLE NO's SM2-1 THRU SM2-10



		SHAKER TEST Au-TR	Au-Nil
SM2-1	HANGING WALL OF SHEAR ZONE	.06	.008
-2-	BLACK VEIN	.26	NIL
-3-	SILICIOUS VEIN	.04	NIL
-4-	" " VUGGY	1.54	NIL
-5-	BLACK VEIN	.07	NIL
-6-	RED OXIDE VEIN	10.34	.020
-7-	VUGGY QUARTZ (HORN) 5"	13.86 ~~2010~~	~~NIL~~ .005
-8-	BLACK VUGGY VEIN (HORN) 5"	.20	NIL
-9-	GRANITE ACROSS SHEAR ZONE EXCLUDING VEINS 7'8"	.38	TR
-10-	KELLY QUARTZ VEIN 2" SOLID		

3-E


BROTHER
LOWELL
ERNEST EDWARD
ERNEST EDWARD
ERNEST EDWARD
WASTE DISPOSAL AREA
SEC. 17
SEC. 16
20
21
1 IN. = 400 FT.


North
TRENCHES ARE 2 FEET WIDE
NOTE:
BOUNDRIES FOR RHYOLITE DIKE
AT 100 FT FROM N. END #2 TRENCH
15 N54E BETWEEN #1 & #2 TRENCH
8½' SOUTH 19' NORTH
AT 26' FROM SOUTH END #3 TRENCH
10' FROM WEST BANK THEN
10½' PARALLEL TO TRENCH
OOPS!!! REVERSE NORTH, SOUTH FOR #1 TRENCH
SILICIOUS HEMATITE VEIN
DIKE ENDS AT 110½' FROM NORTH END OF TRENCH
ALTERED TUF FINISHES TRENCH
123' TO END
ALTERED TUF MnO2 VEINLETS
RHYOLITE DIKE
SILICIOUS MnO2 VEIN N65E 72NW AT 119'
FAULT GOUGE AT 121 F'
ALL MEASUREMENT FOR #3 TRENCH ARE FROM S END
MODERATE ALTERATION FROM 45 TO 81 FT. MORE ALTERED TO 93 FT
MnO2 VEINLETS VERY PLENTIFULE AT 87 FT & 91½ FT. MODERATE ALTERATION FROM 93 TO 104 FT.
STRONG ALTERATION AT 104 TO 108 FT. ALTERED TUF AT 112 FT, END OF TRENCH #3 AT NORTH END.

BROTHER JOHNATHAN
MAINE
TRIPLE EX
MERRIMAC
CLIPPER
RED TOP
X-SECTION LOOKING NE
NORTH
200 – MERRIMAC
① QUARTZ VEIN 1 FT WIDE
Qal
Tup
SHEAR ZONE
100 – CLIPPER JUNE 12, 1981
③ MnO2 VEIN (8 IN)
MnO2 QTZ VEINLETS
ALLUVIUM
UNCLE SAM PORPHYRY
RHYOLITE DIKE
SHEAR ZONE
VEIN (QUARTZ)
FAULT