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To: J. S. Coupal

From: Elgin B. Holt

Subject: Portland Gold Mine

Suggest you call Broadgate's attention to this mine

DEPT. MINERAL RESOURCES
MAR 10 1944
PHOENIX ARIZONA

Some time ago, you and Charlie stated that Bill Broadgate had a client who was in the market for a gold mine that would supply a 400-ton mill. Later on I sopke to yourselves about the Portland gold mine, located 50 miles northwest of Kingman.

Without mincing words, the Portland is by far the best gold mine I have ever examined in Arizona, excepting Goldroad, and it can be secured on reasonable terms.

E. A. McVicar, of Kingman, represents the owners of this property and any deal should be negotiated through him. He is a reliable business man of this community and can be depended upon in every way.

I am herewith inclosing my report on Portland, mainly compiled from authentic records in McVicar's office, but partly from my own investigations, as I have inspected it a number of times.

You will note that Portland was examined during 1937 by Clyde M. Becker, a geologist of high standing, now deceased. He estimated that the mine then contained 287,000 tons of ore averaging $6.64 gold per ton.

It seems that Becker was very modest in this estimate, as Gold Standard actually mined and milled 132,000 tons averaging $7.22 gold per ton, according to this company's own assays, used as a basis for figuring royalties to owners. It is a well-known fact that Gold Standard used an adequate safety factor in reporting assays. So I would say off-hand this 132,000 tons in all probabilities contained about $8.00 gold per ton, not counting

in Portland ores. By cyanidation, a goodly portion of the silver values would be recovered along with the gold. Possibly the recoverable silver should at least equal 50 cents per ton, an item not to be sneezed at.

You will also note that this mine, after its abandonment by Gold Standard, was thoroughly sampled by the Continental Mining Company of New York and also by Mette & Hamron of Los Angeles; results of both samplings averaging around $7.00 gold per ton.

The main Portland vein is wide, from 12 to 20 feet in thickness and crops for 1200 feet. I would say at least half of the ore mined by Gold Standard was quarried from the outcroppings of this huge vein. The managers of this company were chloriders, and not miners. They gutted the surface croppings of a half-score of mines surrounding the Katherine mill. They were not interested in the development of any mine in this or any other area.

Roughly I would estimate that if the Portland vein could be developed by sinking an inclined working shaft on vein and then blocked out by drifts on vein at 100-foot intervals, that each 100-foot block below the present workings would yield at least 100,000 tons of ore, estimated to run around $7.00 gold per ton, with a little silver. Furthermore, deducting the 132,000 tons mined by Gold Standard from the 287,000 tons originally reported by Becker, the Portland now has indicated about 155,000 tons, averaging about $7.00 gold per ton, although this ore is not blocked out by any means, and should be considered as probable ore only. In the bottom of the "Big Stope" the vein is still at least 12 feet wide, with values holding to around $7.00 gold per ton.

deleterious minerals or metals present. The gold is finely divided in the ore, in the nature of "flour" gold. Hence, this ore is amenable to treatment by cyanidation, by which 97% of the gold and 90% of the silver should be recovered as bullion. This statement is true of most of the other gold mines of that general region.

As to terms, Mr. McVicar states the Portland mine can be purchased outright for $100,000, with around $25,000 cash and the balance in term payments over a period of years, mainly payable from royalties figured at about 10% of recoverable gold and silver values. It being understood that a monthly payment, figured as advance royalties, must be paid owners in the sum of $500; same to apply on the purchase price. Under this arrangment, purchasers will not be obliged to work the mine for the duration.

While the Portland, in its present stage of development, would not warrant the erection of a 400-ton mill, it has all the earmarks of a large-tonnage mine in the making. Also, additional ore in considerable amounts could be secured from several other gold mines within a radius of 10 miles of this property.

GOLDEN DOOR & KLONDYKE MINES:

Attached hereto are two reports by McVicar, one regarding the Golden Door and the other concerning the Klondyke mine, both located near together around 10 miles north of Portland. These are potential large-tonnage gold mines, especially Golden Door, which has a record production from surface workings, per McVicar, of 20,000 tons of ore milled, averaging $8.59 gold per ton. These two mines can be secured, through McVicar, from owners on reasonable terms, by paying owners a monthly stipend; and should be worked in conjunction with Portland.

MINING & MILLING COSTS:

I would say roughly the costs of mining and milling Portland ores, using pre-war figures, should not exceed $3.50 per ton, not including taxes. Hence, estimating mill heads at $7.00, a goodly profit should be made, when and if we ever get back to "normalcy". Also, should gold be revalued upward, later on, which seems to be in the offing, profits would be increased accordingly.

If you think Broadgate would be interested in presenting these properties to his clients, I suggest you have copies made of the three reports, inclosed herewith, together with a copy of this letter, and mail the same to him. If he is then interested, he can then take these properties up direct with McVicar, whose address is: E. A. McVicar, Kingman, Arizona.

Elgin B. Holt

Elgin B. Holt,
Field Engineer.

cc - E. A. McVicar
Charles F. Willis

J O R I N E X
Exploration and Mining, Inc.
P. O. Box 6283
Kingman, Arizona 86401

RECEIVED JAN 7 1984

December 30, 1983

D.M.E.A., Ltd.
4203 N. Brown Avenue
Suite F
Scottsdale, AZ 85251

Attention: B. F. Dickerson and C. O'Brien

RE: Northern Miner - August 12, 1983

Dear Mr. Dickerson and Ms. O'Brien:

Jorinex Exploration and Mining, Inc. is an Arizona Corporation, the wholly owned subsidiary of Jorinex Exploration and Mining Company, Ltd., an Ontario, Canada company. private? no shares? who?

Jorinex, Inc. has entered into a joint venture agreement with Dr. Antone Aguiar wherein Jorinex is to provide the funds to place the Portland Mine into production. Dr. Aguiar holds a lease-purchase agreement to the Portland Mine; terms of which include a 6% head royalty, and a $2,000,000.00 buy-out. what basis? must be changed

The Portland Mine has a record of production of 132,000 tons @.225 oz/ton AU from 1935 - 1941. Recent drilling (1970's - 1980's) approximates 15,000 feet of rotary, percussion and diamond drilling. Estimates of ore using various cut-off grades include:

(a) 44,000 tons @ .115 AU and stripping ratio of 2.9:1

(b) 131,000 tons @ .095 stripping ratio 3.9:1

(c) 748,000 tons @ .0575 stripping ratio 1.47:1 (above estimates by P. Durning, Fisher-Watt Mining, 1981).

(d) 84,000 tons @ .088 stripping ratio 4.4:1

In addition, there is good potential for additional ore on the property, both at the north end of the outlined ore (faulted off) and the second vein known as the "little ore body".

Jorinex started stripping in March, 1983, and up to the present time has produced 1700 T. O. of gold from approximately 54,000 tons; averaging .05 oz/ton. 0.03/oz 63% rec.

Recoveries from heap-leaching has been a problem. This problem was solved by dramatically increasing the amount of solution being sprayed on the pads. Oil contamination of the charcoal has been an on-going problem which was not recognized until September and October, and is being overcome by waste-oil management and replacement of contaminated charcoal.

Stripping of waste to date approximates 320,000 tons. 6:1

Start-up problems have included the incompetence and dishonesty of the independent metallurgical consulting engineer and the untimely death of the mine manager in a traffic accident.

Jorinex, (Ontario) Ltd. has invested $660,000 Canadian dollars (approximately $528,000 United States dollars) into Jorinex, Inc. Jorinex, Inc. has a working capital deficiency of approximately $220,000 U. S. Due to the high start-up costs (including construction of facilities, training of personnel, acquisition of materials and equipment, and especially the early large quantity of stripping required), Jorinex, Inc. has operated at a loss to-date. December showed a large quantity of low-grade ore mined and crushed (20,000 ton) and just recently palced on the pads. It is anticipated that the recovery of this gold in January will show a profit for the month. In addition, there is a stockpile of approximately 12,000 tons of + 8" material that has to be crushed in a primary jaw crusher. 12th-mining 18 mon

Assets of Jorinex on-site include:

1. Leach pads - 80,000 square feet sealed
2. Carbon columns - four sets
3. Pumps for pregnant and barren solution (5)
4. Developed wells capable of 60 G.P.M.
5. Trained crew

It is proposed that your client invest $500,000 U. S. to be used as follows:

Working Capital Def.	$220,000
Working Capital	100,000
Acquisition of Primary Crusher	50,000
Accelerated Stripping Program	100,000
Purchase of Larger Carbon Stripper	20,000
Purchase/Manufacture of Addition Columns	10,000

It is proposed that represntation in management and equity be effected on a dollar to dollar basis with the money already invested by Jorinex, (Ontario) Ltd. Audited financial statements and records will be made available. For your client to acquire management control would require them buying out a portion of the Jorinex investment.

In addition, Dr. Aguiar has stated that he would be willing to sell all or a portion of his 50% interest in the joint venture agreement. How much? $50,000

Should your client be interested in this proposal, the drill sections, production records, financial records, etc. will be made available. Should you wish a site visit, please call me at (602) 753-1965. Should you wish a meeting, I could come to Phoenix. However, I suggest this be done in conjunction with a site visit.

To clarify any of the above or to acquire more information, please telephone me.

Yours truly,

L. J. Bardswich
P. Eng.

LJB:db

HEINEN·LINDSTROM
ASSOCIATES, INC.

ORE TESTING • RESEARCH • CONSULTING

November 23, 1983

Mr. Joseph Bardswick
Jorinex Mines
1710 Pacific Avenue
Kingman, AZ 86401

Dear Mr. Bardswick:

Enclosed herewith is our report on the leaching phase of the evaluation conducted on your operation by Bateman Process Services, Inc.

Basically, the results show that the gold contained in the ore sample submitted is not liberated or exposed sufficiently well at 3/4 inch to allow favorable contact with the cyanide leach solution. Study of finer crushed or ground ore is suggested.

We appreciate the opportunity to work on this project with you. Please call us if there are any questions regarding the results.

Sincerely,

Roald E. Lindstrom
Chemical Engineer

REL/cam

Encl.

1550 Linda Way · Sparks, Nevada 89431 · (702) 356-7572

INVESTIGATION OF ACTIVITY OF CARBON
FROM JORINEX PROPERTY
J-7073

INTRODUCTION

Various samples of carbon were contacted with pregnant leach solution provided by Jorinex. The objective of this test program was to identify potential problems associated with stripped carbon currently being used in the Jorinex facility.

A sample of new North American G-204 carbon was used to provide a maximum loading point on which to compare the activity (loading) response of the other carbon samples.

RESULTS

Carbon Type Used	% of Maximum Achievable Loading
New North American G-204	100% (assumed as baseline)
Stripped Jorinex carbon (as received)	49.5%
Stripped Jorinex carbon (as received) + acid wash 10% with HNO_3	70.6%
Stripped Jorinex carbon (as received) + regeneration (20 mins. @ 1200°F)	95.8%
Stripped Jorinex carbon (as received) + acid wash (with 10% HNO_3) followed by regeneration (20 mins. @ 1200°F)	100%

CONCLUSIONS

It is apparent from the carbon loading results illustrated above that regenerating the carbon virtually restores it to its new condition. This indicates that the carbon is heavily saturated with organics. These organics could be from the ore (unlikely), oil spills and from the organics used in the strip cycle.

RECOMMENDATION

A regeneration kiln should be installed to treat at least half of the carbon stripped per cycle. This will not only reduce the amount of carbon removed from the carbon adsorption circuit (due to higher loadings) but also improve the recovery of gold from the heap leach solutions.

SPECTROGRAPHIC ANALYSIS ON PREGNANT SOLUTION

Attached are the results of the spectrographic analysis performed on pregnant heap leach solution solution supplied by Jorinex.

RENO OFFICE

ROCKY MOUNTAIN GEOCHEMICAL CORP.

840 GREG STREET • SPARKS, NEVADA 89431 • PHONE: (702) 359-6311

Certificate of Analysis

JOB INDEX

RMGC Numbers:

Local Job No.: 83-49-45R

Foreign Job No.:

Invoice No.: R22728

Date: October 27, 1983

Client: Heinen-Lindstrom Corp.
1550 Linda Way
Sparks, Nevada 89431

Client Order No.: None

Report On: 1 sample

Submitted by: Don Moody

Date Received: October 12, 1983

Analysis: 35 elements

Analytical Methods: Spectrograph

Remarks: Emission spectrograph was run on dissolved solids in CN sol'n.

cc: Enclosed
RMGC
File

FAB/jf

All values are reported in parts per million unless specified otherwise. A minus sign (—) is to be read "less than" and a plus sign (+) "greater than." Values in parenthesis are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

ND = None Detected 1 ppm = 0.0001% 1 Troy oz./ton = 34.286 ppm 1 ppm = 0.0292 Troy oz./ton

Client HLC Date Oct. 27, 1983 RMGC Job No. 83-49-45R

Lower Detection Limit		Element	B3-18
10	ppm	Gold	200
0.5	ppm	Silver	1500
5	ppm	Copper	2000
10	ppm	Lead	70
200	ppm	Zinc	200
5	ppm	Molybdenum	30
0.05%		Iron	1.
50	ppm	Tungsten	N
5	ppm	Nickel	70
10	ppm	Cobalt	100
20	ppm	Chromium	N
20	ppm	Cadmium	N
200	ppm	Arsenic	N
100	ppm	Antimony	N
10	ppm	Manganese	300
10	ppm	Vanadium	10
10	ppm	Bismuth	N
10	ppm	Tin	N
10	ppm	Zirconium	N
10	ppm	Boron	N
10	ppm	Barium	N
2	ppm	Beryllium	N
20	ppm	Lanthanum	N
10	ppm	Niobium	N
5	ppm	Scandium	N
100	ppm	Strontium	700
10	ppm	Yttrium	N
0.05%		Calcium	5.
0.02%		Magnesium	.7
0.001%		Titanium	.003
0.2%		Sodium	10.G
0.5%		Potassium	N
1%		Silicon	N
0.5%		Aluminum	N
0.1%		Phosphorus	N

N - Not Detected

L - Detected, but below limit of determination

G - Greater than value shown

By Floy A. Beecher

Floy A. Beecher

ROCKY MOUNTAIN GEOCHEMICAL CORP.

SALT LAKE CITY UTAH • RENO, NEVADA • TUCSON ARIZONA

HEINEN·LINDSTROM
ASSOCIATES, INC.

ORE TESTING • RESEARCH • CONSULTING

November 23, 1983

REPORT

on

COLUMN LEACH CYANIDATION OF

JORINEX MINES ORE
(Job No. HLA-3-C)

for

Joseph Bardswick
Jorinex
1710 Pacific Avenue
Kingman, AZ 86401

Summary

A sample of gold-bearing ore from the Jorinex property was tested to determine its amenability to agitation and column leach cyanidation. The bottle-roll agitation leach was conducted on pulverized ore. Column leach studies were conducted on -3/4 inch ore.

Results indicated that 90 percent of the gold in the finely ground sample was readily amenable to agitation leaching. Parallel column leach tests conducted on -3/4 inch ore, both agglomerated and unagglomerated, were much less satisfactory, in that gold extraction was only in the 52-53 percent range. Screen analysis of the column leach tails indicated that the ore would have to be ground to about -20 mesh to obtain reasonably good tails by leaching.

Sample Preparation

The two drums of submitted ore sample crushed to a nominal 3/4 inch size were blended by the cone and quartering method. Next, two 60 pound test charges were cut from the composite by splitting with a riffle-type ore splitter. In addition, a 10 pound sample was riffled out to serve as the head sample for assay and the preliminary bottle-roll leach test. The head sample was crushed and pulverized to minus 100 mesh.

1550 Linda Way · Sparks, Nevada 89431 · (702) 356-7572

Assay of Head Sample

The pulverized head sample was assayed for gold and silver by the conventional fusion fire assay procedure. Assays were:

Gold	0.055 Troy ounce per ton of ore
Silver	0.64 Troy ounce per ton of ore

Bottle-Roll Leach Test

A cyanide leach test was conducted to determine the amenability of the precious metal contents of the ore to cyanidation and to gather some preliminary information regarding lime and cyanide requirements useful for subsequent percolation leach tests. Our laboratory procedure consisted of pulping 400 grams of the pulverized ore with 600 grams of water. Addition of lime, equivalent to 2.0 pounds per ton of ore produced an alkaline pulp having a pH of 10.5. Cyanide was then added to the alkaline pump to provide a cyanide strength of 1.0 pound of NaCN per ton of leach solution. Leaching was accomplished by rolling the bottle containing the cyanide pump on the laboratory rolls for 24 hours. Then a liquid-solids separation was made by filtration. Each product was analyzed for gold and silver. Pertinent metallurgical results are shown in Table 1.

Table 1. Gold-Silver Recoveries From Minus 100 Mesh Ore

Metallurgical Results	Gold	Silver
Extraction		
Percent of Total	90	20
Ounce per ton of ore	0.044	0.15
Assay of Leached Residue		
Ounce per ton	0.005	0.59
Calculated Heads		
Ounce per ton of ore	0.049	0.74

15:1

The results presented in Table 1 indicate that the gold contents are readily extractable from finely ground ore, however, only a small fraction of the silver values are amenable to cyanidation. Cyanide consumption was low, only 0.15 pound of NaCN per ton of ore.

Column Leach Testing

Two 60 pound splits of the Jorinex ore sample, as received, was subjected to a simulated heap leach test in a 5.5 inch diameter, 60 inch high column to determine the gold extraction obtainable from the 3/4 inch feed material. In Test No. 1, the ore charge was mixed with 2.0 pounds of lime per ton and then bedded in the leach column. In the second test, the ore charge was agglomerated prior to leaching. The ore was mixed dry in a concrete mixer with 2.0 pounds of lime and 7.5 pounds of Portland cement per ton. This mixture was then moistened and agglomerated with 6.7 weight-percent cyanide solution containing 13.6 pounds of NaCN per ton. The agglomerates were cured at ambient conditions for 72 hours and then bedded in the leach column. When the ore is agglomerated and cured with the cyanide solution, a head start is obtained in the dissolution of the gold-silver values.

After the pretreatments described above, the two ore charges were leached under identical procedures. The column of ore was leached with a solution containing 1.5 pounds sodium cyanide per ton solution. This solution was applied to the column from an overhead reservoir by dripping onto the ore charge at a flow rate of about 0.3 gallons per hour per sq. ft. of surface area. This amounted to about 5.0 liters of solution per day. Pregnant effluent was collected in a vessel under the leach column. The volume of solution collected was measured each day and analyzed for free cyanide and gold-silver. Fresh cyanide solution was applied every day for the duration of the leach period. Resulting pregnant effluents were not processed for gold recovery or recycled for further leaching. After leaching was terminated, the leach residue or tails was sampled and assayed. The tails from column leach test No. 1 was also subjected to screen analysis to determine the distribution of the unleached values in the various sized fractions.

The metallurgical leach data are shown in Tables 2 and 3,and the plot of gold dissolution as a function of time is shown in Figure 1. The rate of silver dissolution is not shown because it was of no significance. The screen analysis results for the tailings from the No. 1 column leach test is presented in Table 4.

Table 2. Column Leach Cyanidation of 3/4 Inch Crushed Ore

Leaching Time, Days	Pregnant Cyanide Effluent Volume Liters	pH	Analysis mg Au/l	mg Ag/l	NaCN Lb/ton	Extraction Oz/Ton Feed Au	Ag
1	2.50	11.7	4.4	3.7	1.3	0.0118	0.0099
2	4.75	11.4	1.2	0.6	1.2	0.0061	0.0031
3	4.50	11.4	1.0	0.5	1.1	0.0048	0.0024
4	4.17	11.4	0.2	0.2	1.1	0.0009	0.0009
5	5.10	11.1	0.3	0.2	1.0	0.0016	0.0011
6	4.00	11.1	0.2	0.1	1.1	0.0008	0.0004
7	4.50	10.8	-0.1 2/	0.1	1.0	-	0.0005
8	4.67	10.8	-0.1	0.1	1.0	-	0.0005
9	4.70	10.9	-0.1	0.1	1.1	-	0.0005
10	5.30	10.9	-0.1	-0.1	1.1	-	-
				Total Extraction		0.0260	0.0193

Leach Residue, Ounce Au/Ton = 0.024
Calculated Head, Ounce Au/Ton = 0.050
Gold Recovery 1/ = 52.0 percent
NaCN Consumption = 1.0 pound/Ton Feed
Lime Consumption = 2.0 pounds/Ton Feed

1/ Based on calculated head
2/ Symbol "-" means "less than"

Table 3. Cyanidation of Aggomerated 3/4 Inch Crushed Ore

Leaching Time, Days	Pregnant Cyanide Effluent					Extraction Oz/Ton Feed	
	Volume Liters	pH	Analysis mg Au/l	mg Ag/l	NaCN Lb/Ton	Au	Ag
1	3.80	12.0	6.5	4.3	4.9	0.026	0.0175
2	3.25	11.8	0.5	0.6	1.1	0.0017	0.0021
3	6.00	11.8	0.2	0.1	1.1	0.0013	0.0006
4	4.57	11.6	0.1	0.1	1.0	0.0005	0.0005
5	4.85	11.8	-0.1 2/	-0.1	1.1	-	-
6	5.34	11.8	-0.1	-0.1	1.2	-	-
7	4.88	11.8	-0.1	-0.1	1.2	-	-
8	4.60	11.8	-0.1	-0.1	1.2	-	-
9	4.90	11.7	-0.1	-0.1	1.2	-	-
				Total Extraction		**0.030**	**0.0207**

Leach Residue, Ounce Au/Ton = 0.027
Calculated Head, Ounce Au/Ton = 0.057
Gold Recovery 1/ = 52.6 percent
NaCN Consumption = 0.6 pound/ton of feed
Lime Consumption = 2.0 pounds

1/ Based on Calculated Head

2/ Symbol "-" means "less than"

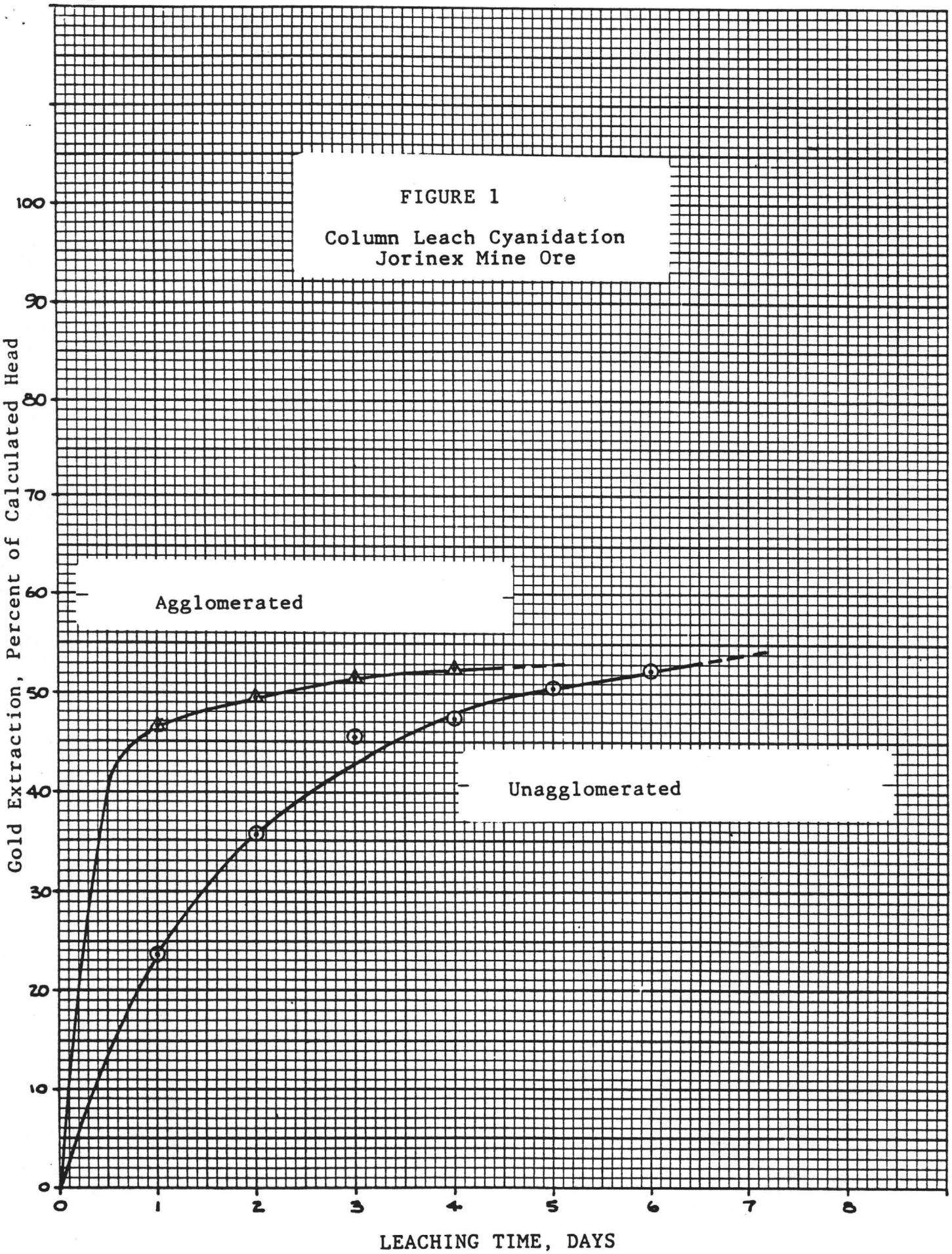
FIGURE 1
Column Leach Cyanidation
Jorinex Mine Ore
Agglomerated
Unagglomerated
Gold Extraction, Percent of Calculated Head
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
LEACHING TIME, DAYS

The leach data in Tables 2 and 3 and Figure 1 show that the gold extraction from Jorinex ore crushed to 3/4 inch is in the range of 52 percent from feed carrying about 0.05 ounce gold per ton. The silver recovery is inconsequential, 0.02 ounce per ton of ore. While the gold recovery of 52 percent cannot be considered good by any means, it is not unusual for vein quartz type gold ores.

The agglomeration pretreatment employing cyanide solution for moistening the ore accelerated the gold recovery and the faster leaching or shorter retention time reduced the cyanide consumption. Agglomeration of the ore had no effect on the overall gold-silver recoveries.

Table 4. Screen Analysis of Column Leach Tails

Product Size	Weight Percent	Gold		
		Assay Oz/Ton	Distribution Pct.	Pct.-Cum
+3/4 inch	10.8	0.074	33.2	33.2
-3/4" + 1/2"	18.2	0.018	13.7	46.9
-1/2" + 3/8"	9.8	0.018	7.5	54.4
-3/8" + 1/4"	11.1	0.028	12.8	67.2
-1/4" + 10 mesh	17.9	0.026	19.5	86.7 in 67.8% of rock
-10 + 20 mesh	9.1	0.020	7.5	94.2
-20 + 35 mesh	5.8	0.008	2.1	96.3
-35 mesh sands	13.9	0.005	2.9	99.2
-200 mesh slimes	3.4	0.005	0.8	
Composite	100.0	0.024	100.0	

3/4 inch plus 20 mesh retained about 0.02 ounce gold per ton that was not leachable apparently because the gold is not exposed or liberated at this grind.

Conclusions

Based on the leach data obtained from the particular sample submitted, it must be concluded that the gold in ore crushed to a nominal 3/4 inch in size is not sufficiently exposed or liberated to be favorably contacted by the cyanide leach solution during heap-leach operations.

Conclusions (Con't)

Crushing to -1/4 inch, followed by agglomeration (because of increased amount of fines) and heap leaching may be a viable alternative, however, the data indicate that fine grinding and agitation leaching will be required to substantially decrease gold losses to the tails.

Harold Heinen
Metallurgist

HH/cam

GEOLOGICAL REPORT

ON

PORTLAND GOLD MINES PROPERTY

MOHAVE COUNTY

ARIZONA

FOR

PACIFIC CYPRESS MINERALS LTD. who then?

NOVEMBER 30,1982

L.D.S. Winter
B.A.Sc., M.Sc., F.G.A.C.

BFD (Note: cost figures not reliable)

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1. INTRODUCTION

Pacific Cypress Minerals Ltd. has recently acquired the Portland Gold Mine property in the Weaver Mining District of Mohave County in the northwestern part of the State of Arizona, U.S.A.(Figure 1). Between 1935 and 1939 a total of 132,000 tons of gold ore was shipped to the Katherine mill from this property from both open pit and underground operations. When the Katherine mill closed in 1939 the Portland Mine was also forced to cease operations and the property has remained idle since that time.

At the request of Mr. Edward Mueller, president of Pacific Cypress Minerals Ltd., the Portland property was visited on November 15, 1982 for the purpose of conducting a geological investigation as the basis for an exploration and developement proposal for the property. The following report describes the property, summarizes the results of the previous work and outlines a proposed developement program.

2. SUMMARY AND RECOMMENDATIONS

2.1 The Portland Mine property consists of 22 patented and located claims in the Weaver Mining District, Mohave County, Arizona.

2.2 Access is via paved and gravel roads from the Kingman-Boulder highway(U.S. 93). The semi-arid climate is favourable for year-round operation and the logistics for an open pit - heap leaching operation are excellent.

2.3 The mineralization occurs as colloidal gold and silver in a strataform "vein" of quartz and calcite close to the contact of Precambrian granites and schists and overlying Tertiary volcanics. The mineralized zone strikes north-south and dips 25°E. Mineralization is exposed over a strike length of 2200 feet.

2.4 Between 1935 and 1939, 132,000 tons of ore with an average grade of 0.225 oz Au/T. was produced from the property. In 1981 the Fischer-Watt Mining Co. Inc. of Kingman, Arizona re-evaluated the property. Their work produced estimates of 131,060 tons at 0.095 oz Au/T. or 748,364 tons at 0.057 oz Au/T. still available in the deposit.

2.5 The writer has recalculated the tonnages at 134,000 tons at 0.095 oz Au/T. with a waste to ore ratio of 3.90/1 or 788,000 tons at 0.057 oz Au/T. with a waste to ore ratio of 1.47/1 for an open pit operation.

2.6 A comparison of the assay results from drilling and those obtained by chip sampling of the mineralized zone suggests that the drill assays underestimate the value of the mineralization. A program of 700 feet of drilling plus additional sampling is recommended to better assess the grade of the mineralization in the "North and South Tunnel Orebodies" area. This work plus associated engineering studies would provide the basis for the layout of a viable open pit operation. The estimated cost of this work is $22,000.*

why not over?

2.7 Preliminary leach tests have indicated that the ore is amenable to heap leaching technology. It is recommended that further testing, including a column leach test be conducted, prior to crushing plant and leach pad construction.

2.8 It is considered that there is considerable potential for additional mineralization between the "South Tunnel Orebody" and the "Little Orebody"(Figure 3) and also down dip from the presently known known areas.

2.9 The presently known ore is defined as probable or inferred ore and based on this material a three phase program of exploration followed by open pit developement and the construction of a crushing plant - heap leach facility is recommended. The estimated cost of this total program is $352,000.

2.10 Based on a production of 500 TPD for a 5 day week and with an open pit reserve of 134,000 tons with an estimated grade of 0.095 oz Au/T. and a maximum stripping ratio of 4 to 1, the estimated operating costs are $9.00 per ton rising to $15.00 per ton with the maximum stripping ratio.

With gold at $US 400 per oz and an 80% recovery, the estimated recoverable value is $30.40 per ton. This provides a net gain of $21.40 per ton decreasing to $15.40 per ton with the maximum stripping ratios. If one considers the lesser net gain per ton of $15.40, then the estimated total net gain for the 134,000 tons is $2,063,600.

* All dollar values quoted in this report are in US dollars.

Respectfully submitted,

L.D.S. Winter

L.D.S. Winter,
B.A.Sc., M.Sc., F.G.A.C.

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FELLOW

3. PROPERTY

3.1 CLAIM GROUP AND OWNERSHIP

The property consists of 3 contiguous patented claims , namely, the Portland, Sunshine and Sunshine #2 (Mineral Survey 3757, Patent #909600), and 19 located claims, the Portland 1 to 15 inclusive, the Better Luck and Better Luck #1 claims, the Good Luck claim and the Sunshine #3 claim(Figure 2).

The patented claims are jointly owned and the located claims controlled by the following.

Mona G. Potter
2415 Ala Wai Boulevard
Honolulu, Hawaii, U.S.A.
96815

Samuel L. Clark and Lavonne G. Clark
3955 Maple Tree Drive
Anaheim, California, U.S.A.
92807

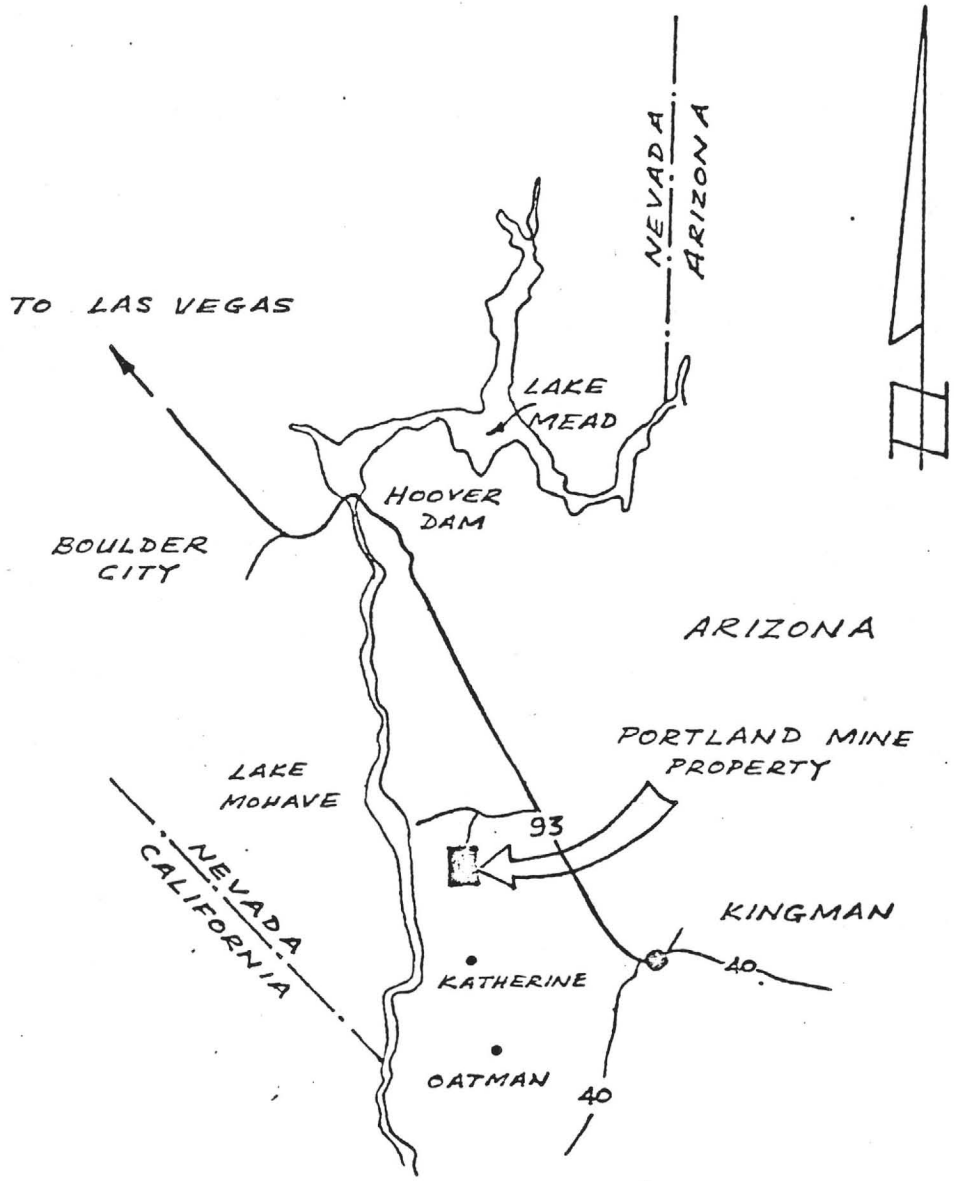
Leland M. Wiscombe and June M. Wiscombe
6750 Hawaii Kai Drive No. 1005
Honolulu, Hawaii, U.S.A.
96825

The claim group is under option to Mr. Antone Aguiar, 4021 Fairmont Street, San Diego, California, U.S.A. 92105. In turn, Mr. Aguire has entered into an agreement with Pacific Cypress Minerals Ltd. in which Pacific Cypress has made an initial payment of $12,000 and is required to provide all the funds necessary to bring the property to production. In return Pacific Cypress will be entitled to 60% of net profits with the vendors retaining 40% of net profits.

3.2 LOCATION AND ACCESS

The property is located in the Weaver Mining District in Sections 14 and 15, Township 23 North, Range 21 West, Gila and Salt River Base Meridian. (Mohave County Assessors Map 43, Book 307).

Paved and gravel roads permit easy access to the property. It is reached by travelling 27 miles north from Kingman, Arizona on the Boulder-Kingman Highway(US 93) and then 8.9 miles west on the Cottonwood Wash Road. From here the mine access road leads southwesterly for a distance of 10 miles. A truck or four-wheel drive vehicle is most appropriate for this access road.



PACIFIC CYPRESS MINERALS LTD.

FIGURE 1

LOCATION MAP

PORTLAND MINE PROPERTY

MOHAVE COUNTY

0 12 24 36 48

MILES

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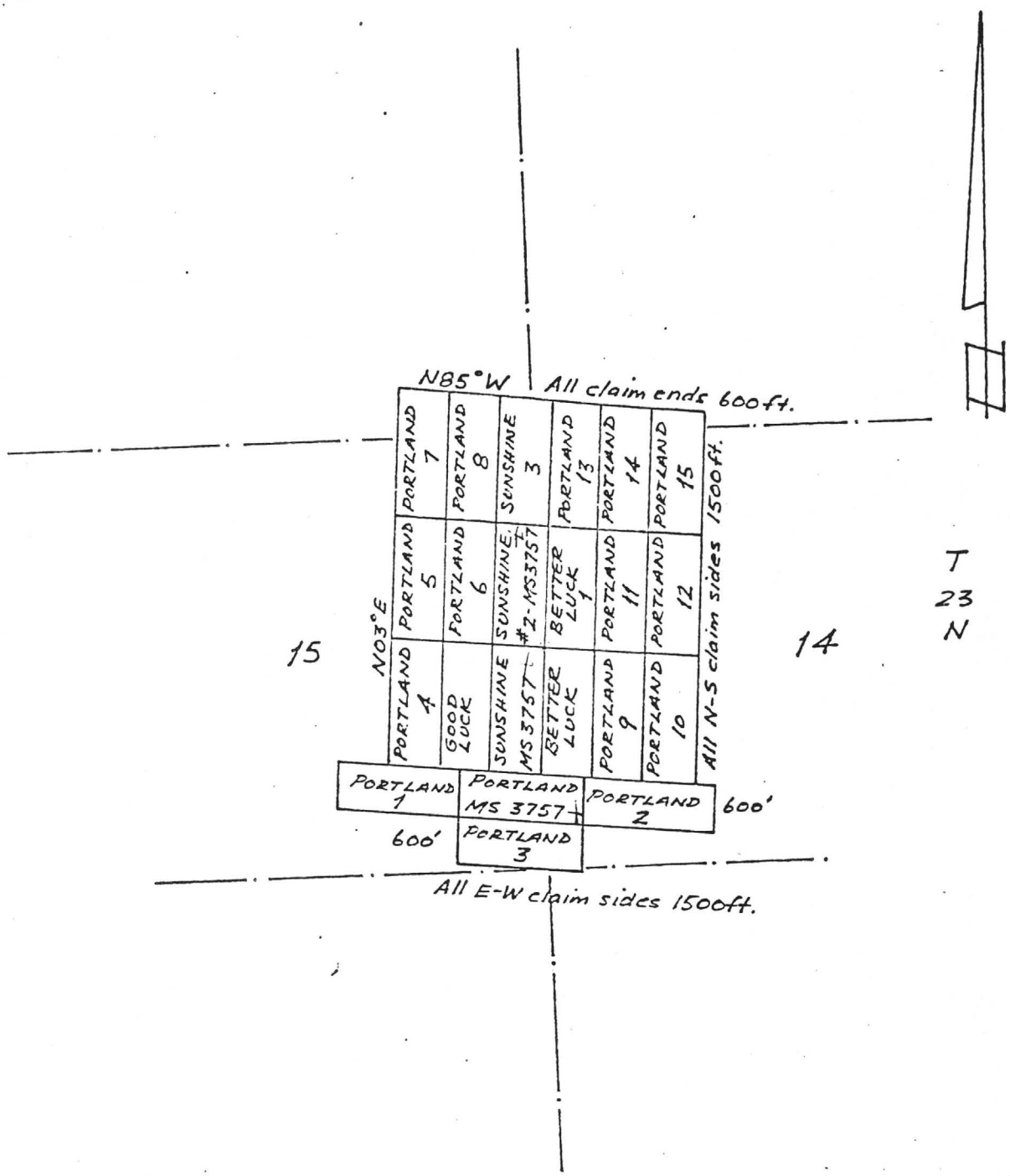
Nov. 30, 1982



PACIFIC CYPRESS MINERALS LTD.

FIGURE 2

CLAIM GROUP

PORTLAND MINE PROPERTY

MOHAVE COUNTY

ARIZONA.

SCALE: 1IN. = 2000FT.

NOV. 30, 1982

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3.3 TOPOGRAPHY

The claim group is in the western foothills area of the Black Mountain Range, approximately 5 miles east of the Colorado River. Rocky, hilly areas are separated by relatively flat sediment filled valleys..

3.4 CLIMATE

The semi-arid climate is characterized by high summer temperatures with low humidity and mild winters. The annual precipitation is from 6 to 9 inches. These conditions make the area favourable for year round operation.

3.5 WATER

There is no water on the surface but wells could supply sufficient water for the operations. Water is present in the lower mine workings, indicating that the water table is approximately 50 feet below the surface. The Colorado River is about 5 miles to the west.

3.6 SERVICES

Diesel electric power would be necessary for the initial developement but electricity could be available from the Kingman-Boulder power line if future requirements so dictated..

Supplies are available from Kingman, Boulder City or Phoenix in Arizona or Las Vegas in Nevada.

The 10 miles of mine access road would require upgrading for heavy truck and/or more continuous usage.

4. PREVIOUS WORK

Gold was first discovered in the Oatman-Katherine District, just to the south of the area of the property, in 1863-1864 by soldiers from Camp Mohave on the Colorado River. Exploration and mining has been carried on intermittently since that time with the main periods of activity being from 1900 to 1925 and from 1930 to 1942.

Developement records indicate that the Portland Mine operated between 1935 and 1939 when 400 feet of inclined and vertical shafts were sunk and 700 feet of lateral developement completed. Considerable trenching was also done in the area of the three main workings with the main production coming from the middle or "South Tunnel Orebody"(Figure 3).

Past production is reported to be 132,000 tons with a recovered grade of 0.225 oz Au/T.(Sookochoff, 1975). The ore was treated in the Katherine mill, about 10 miles from the property. In 1939 the Katherine Mine flooded, the Katherine mill was forced to close and subsequently the Portland Mine closed.

5. GEOLOGY

5.1 GENERAL

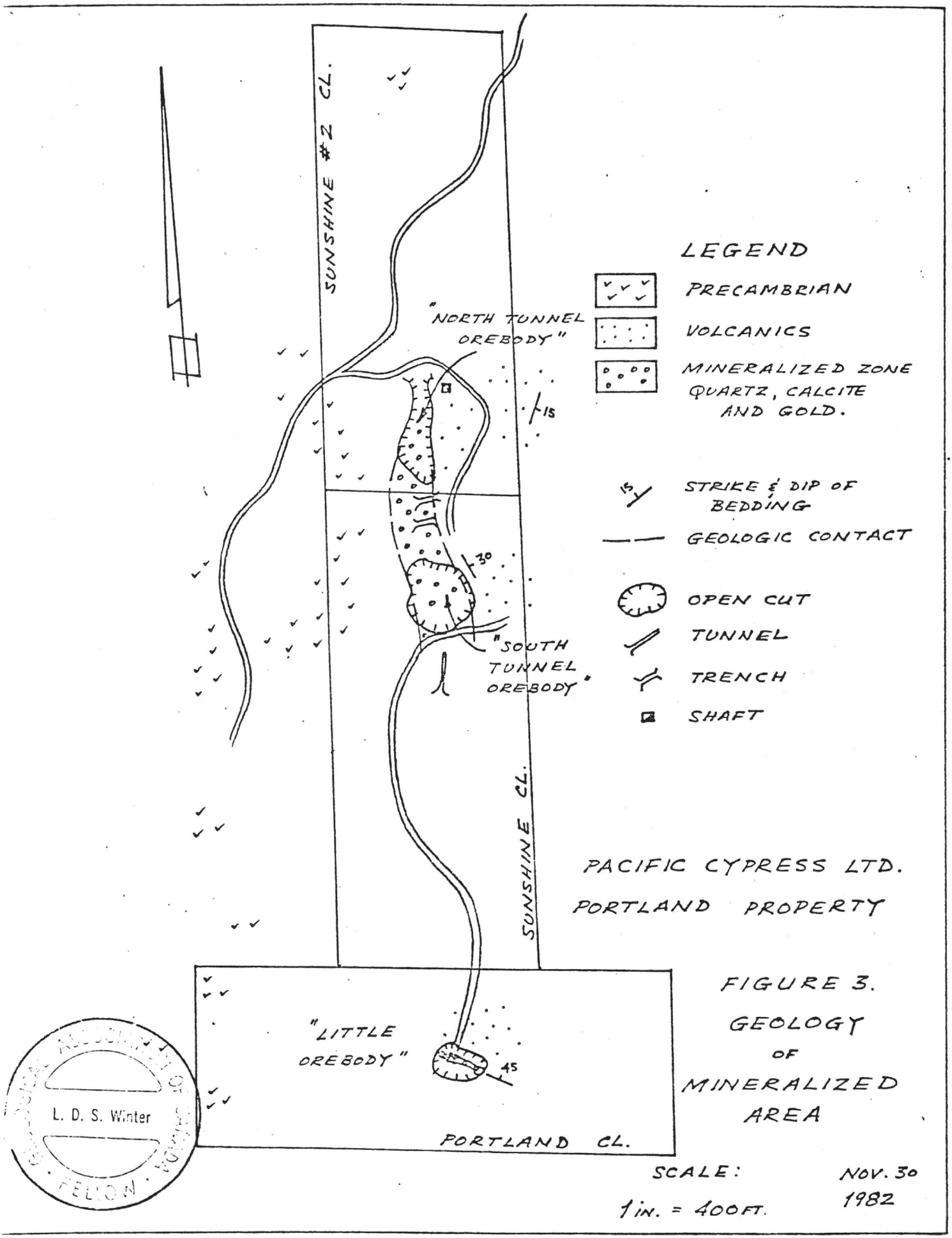
The geology of the Weaver Mining District and that of the Oatman and Katherine District to the south is very similar. An uneven terrain of Precambrian granites, diorites and mica schists is unconformably overlain by a thick sequence of Tertiary volcanics ranging in composition from felsic to mafic. All rock units have been intruded by porphyries of granitic to monzonitic composition. Following this event the rocks were tilted and faulted.

To the south in the Oatman District the gold bearing veins occur in fault structures, generally in the Oatman andesite unit , while in the Katherine area the important deposits occur in faults in Precambrian basement rocks. At the Portland Mine the mineralization occurs in a strataform "vein" close to the Precambrian - Tertiary volcanics contact.

The vein mineralogy is simple, being quartz, calcite, occasionally a grain of pyrite and gold. Ransome (1923) reports that the gold in the Oatman and Katherine Districts is free gold, but on the Portland property the gold appears to be in the colloidal state (E. Blanchard, personal communication).

5.2 PROPERTY GEOLOGY

Figure 3 is a sketch map of the property geology in the area of the old workings. The western part of the property is underlain by Precambrian rocks and some andesite flows, while the eastern part is occupied by Tertiary volcanic flows (Oatman andesite) striking approximately north - south and dipping 15° - 30° east. In the region of the unconformity between these units occurs the strataform "vein" or zone of quartz-calcite - gold mineralization, striking north-south and dipping 25°E. At the northern end of the"North Tunnel Orebody" the mineralized vein


SUNSHINE #2 CL.
"NORTH TUNNEL OREBODY"
15
30
"SOUTH TUNNEL OREBODY"
SUNSHINE CL.
"LITTLE OREBODY"
45
PORTLAND CL.
LEGEND
PRECAMBRIAN
VOLCANICS
MINERALIZED ZONE QUARTZ, CALCITE AND GOLD.
STRIKE & DIP OF BEDDING
GEOLOGIC CONTACT
OPEN CUT
TUNNEL
TRENCH
SHAFT
PACIFIC CYPRESS LTD.
PORTLAND PROPERTY
FIGURE 3.
GEOLOGY
OF
MINERALIZED
AREA
SCALE:
1 IN. = 400 FT.
NOV. 30
1982
L. D. S. Winter
FELLOW

rolls very quickly to take on an east - west strike and a steep north dip. Durning (1981) considers there is a fault in this area cutting off the ore, but it may be only a folding of the mineralized zone. A similar situation may exist in the area of the "Little Orebody" (Figure 3), where the mineralization strikes east-west and dips 30°-40° north. It is suggested that this is a roll in themineralization and that the main gold bearing zone is continuous between the "Little Orebody" in the south and the "South Tunnel Orebody".

The upper contact of the mineralized zone with the overlying andesite is considered to be a thrust fault, as indicated by the gouge, slicken sides and hematite alteration. This thrust strikes north-south and dips 25° E.

The footwall of the ore is variable, being either andesite or Precambrian basement, as well as stockworks of small quartz and calcite veins or a breccia cemented by quartz and calcite.

The main zone of mineralization is a 3 to 100 foot thick zone of quartz and calcite that appears to be conformable with the volcanic stratigraphy. The occasional spec of pyrite can be seen in the mineralized zone and the gold is reported to be in the colloidal state.

6. ORE RESERVES

6.1 PAST APPRAISALS AND PRODUCTION

In 1937 C.M. Becker M.E. made an estimate for Gold Standard Mines Corporation, which showed proven reserves of 287,000 Tons grading 0.19 oz. Au/T. in three orebodies (Table 1). From 1935 to 1939 Gold Standard Mines produced 132,000 tons of ore from underground and open pit operations grading 0.225 oz. Au/T. (Sookochoff, 1975). If these figures are accurate then there should be approximately 155,000 tons of reserves still present on the property.

54,500 oz
29,700

TABLE 1
ORE RESERVE ESTIMATE
C.M. BECKER M.E. (1937)

	Tons	Grade oz.Au/T
Little Orebody	6,000	0.40
South Tunnel	200,000	0.175
North Tunnel Orebody	81,000	0.207
TOTAL	287,000	0.189

Sookochoff (1975) arrived at a tonnage estimate from both drill and underground data of 300,000 tons at o.201 oz.Au/T.

In 1978 and 1979 ASARCO Inc. undertook a surface sampling and hammer drilling program, in an attempt to develop a large tonnage open pit reserve. Their drilling results indicated a small gold deposit how small? and the property was returned to its owners.

From October through December 1980, Fischer-Watt Mining Co. Inc. of Kingman, Arizona initiated and extensive surface and underground sampling program. This work indicated a potenteal of + 100,000 tons of open pit material grading 0.10 oz. Au/T. (Durning, 1981). Following this a 10 hole (1585 feet) core and rotary drilling program was undertaken in January through March of 1981. Using the information from this drilling, plus the ASARCO Inc. results and the results of underground sampling, Fischer-Watt estimated the tonnage of ore available in the area of the "North and South Tunnel Orebodies" within 200 feet of surface. (Table 2)

TABLE 2
ORE RESERVE ESTIMATE-NORTH AND SOUTH TUNNEL OREBODIES AREA

ZONE	TRUE THICKNESS (feet)	oz.Au/T	oz.Ag/T	TONS
Upper or Hangingwall Portion of Vein	11.4	0.095	0.61	131,060
Hangingwall Portion of vein with values	30.6	0.098	0.56	318,420
Total Vein	63.6	0.057	0.58	748,364

Tonnage factor 13 $ft.^3$ per ton
Cut-off grade 0.04 oz.Au/T

Durning(1981) considered that the Fischer-Watt drilling indicated a number of significant points about the mineralization.

1. The mineralized zone is locally greater than 100 feet thick.

2. The gold values are erratically distributed throughout the zone but the upper 10 feet is of a better grade than the material below it.

3. There is some doubt as to the validity of the drill hole results, i.e., they may have

underestimated the grade of the mineralization. In general the drill hole values were significantly lower than the chip samples from underground workings taken close to the drill hole locations.

6.2 TONNAGE ESTIMATE

Using the Fischer-Watt data(Durning,1981) the writer re-calculated the tonnage potential in the area of the "North and South Tunnel Orebody". Two possible open pit mining situations were considered, one to mine only the hangingwall zone and the other to mine the total "vein". In both cases a tonnage of available ore was determined and the stripping ratio required to mine the ore. The results of these calculations are presented in Table 3. For the details of the calculations the reader is referred to Appendix 1.

TABLE 3

NORTH AND SOUTH TUNNEL OREBODY AREA

TONNAGE ESTIMATE

AVAILABLE FOR OPEN PIT MINING

ZONE	TONS	GRADE oz/T.*		W/O RATIO
		Au	Ag	
Upper or hangingwall portion of vein	134,000 (131,060)+	0.095	0.61	3.90/1
Total vein	788,000 (748,364)+	0.0575	0.58	1.47/1

NOTE: * Grades are as calculated by Durning, 1981.

+ Tonnage estimates by Fischer-Watt (Durning,1981).

The tonnage calculations by Fischer-Watt using the polygonal method and those by the author using the method of cross-sections are in close agreement. The Fischer-Watt grade estimates have been used but due to the comments by Durning(1981) the reported grades are tentatively considered to be minimum grades. As an example, hole PM-1 is reported to have no significant hangingwall values and Durning(1981) reports only 8.6 ft. at 0.095 oz Au/T. or 51.9 ft. at 0.034 oz Au/T. A vertical

shaft within a few feet of this hole is reported by Sookochoff(1975) to have given 30.5 ft. assaying 0.299 oz Au/T.

It is recommended that some additional drilling and sampling be done to better assess the grade of the calculated tonnage prior to development for production is started.

To get some idea of the distribution of values across the vein width 5 chip samples were taken by the writer from the underground workings. The results are presented in Table 4.

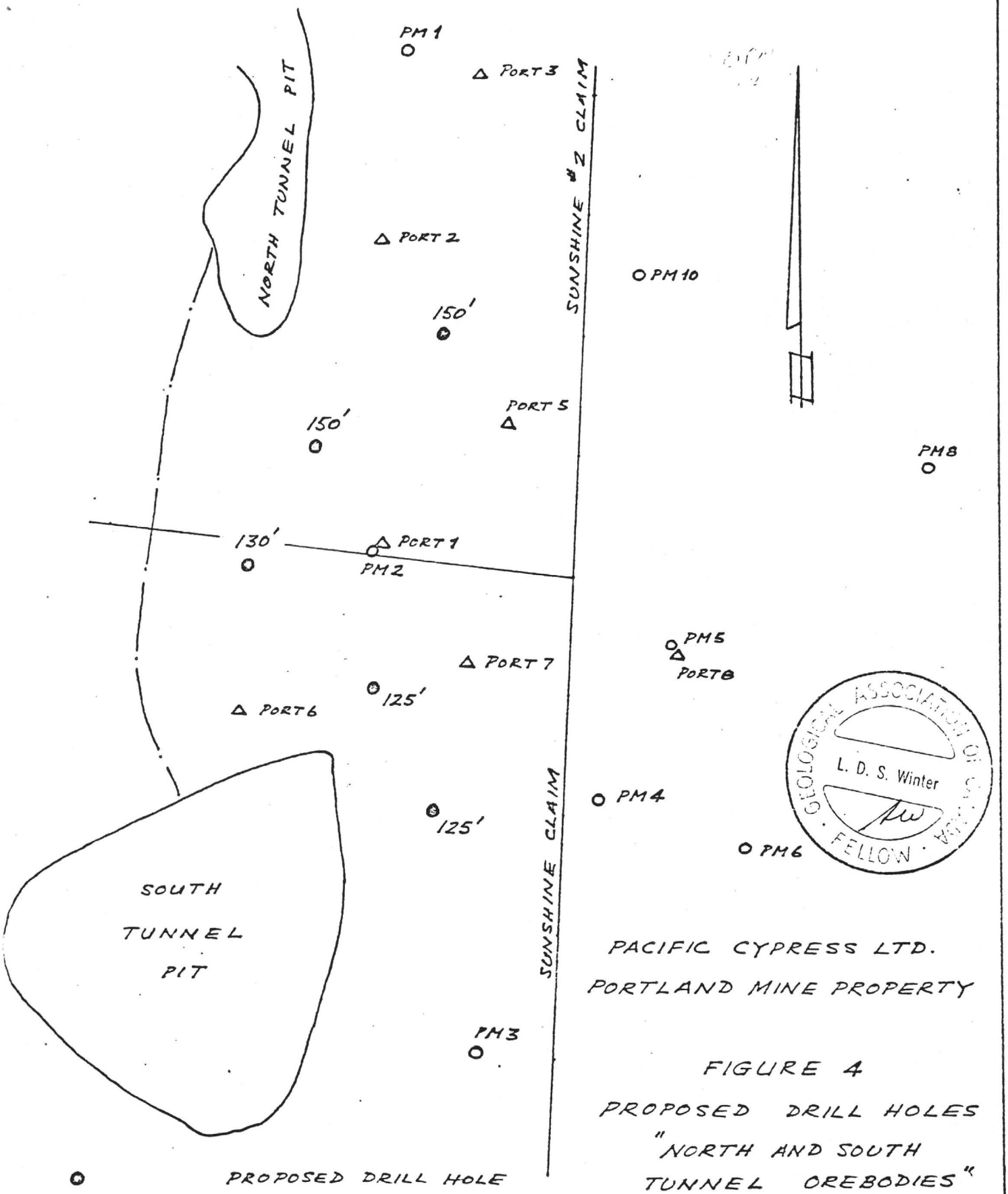
TABLE 4

SAMPLE RESULTS ACROSS THE "VEIN"

"NORTH TUNNEL OREBODY"

SAMPLE	LOCATION	VALUES oz/T. Au	Ag
1.	North Tunnel Orebody Chip sample over 6 ft Hangingwall zone	0.23	1.23
2.	7 ft. vertical section Tunnel portal	0.19	1.75
3.	7 ft. vertical section approximately in middle of stratigraphic section North Tunnel Orebody	0.11	0.68
4.	North Tunnel Orebody Chip sample over 8 ft. Drift face at hangingwall	0.21	0.92
5.	North Tunnel Orebody Chip sample over 7 ft, vertical section at footwall of ore	0.02	0.51

In summary, it is considered that there is 134,000 tons of inferred or probable ore with a minimum grade of 0.095 oz Au/T. available for open pit mining with a maximum stripping ratio of 3.9/1.



PACIFIC CYPRESS LTD.
PORTLAND MINE PROPERTY

FIGURE 4
PROPOSED DRILL HOLES
"NORTH AND SOUTH
TUNNEL OREBODIES"
AREA

SCALE
1 IN. = 100 FT.

NOV. 30, 82

PROPOSED DRILL HOLE
PM ASARCO DRILL HOLE
PORT FISCHER - WATT DRILL HOLE

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6.3 POTENTIAL FOR ADDITIONAL MINERALIZATION

It is considered that the mineralized zone in the "Little Orebody" represents the southerly continuation of the "South Tunnel Orebody" and as such the 1400 feet between the two has the potential to be mineralized. Sookochoff(1975) reports that trenches have traced the "Little Orebody" for a strike length of over 300 feet on surface.

Durning(1981) suggests that the mineralized zone is faulted off just north of the "North Tunnel Orebody". As indicated earlier, the mineralization in this area may be folded, not faulted. In either case geological investigation may be able to locate additional mineralization north of the presently known limits.

All of the drilling to date has been in relatively short drill holes. From the extensive and strataform nature of the "vein" it is considered that there is considerable potential down dip for mineralization. Drilling would be required to assess this possibility.

Was it done?

7. PROPOSED PROGRAM

The work to date indicates that at least a small open pit-heap leaching gold operation should be considered for the property. A small exploration program, to better assess the grade of the mineralization, followed by open pit developement and treatment plant facilities is recommended. The recommended program is proposed in three phases.

Phase 1 Mapping of the geology, underground workings and surface features in the "North and South Orebody" area to provide engineering data for pit development.

At the same time it is recommended that 700 feet of core drilling in 5 holes(Figure 4) plus sampling of the exposed mineralization be done to determine more accurately the grade of the ore.

The estimated costs are:

Drilling, 700 ft. @ $20 per ft	$14,000
Mapping, sampling, assaying	8,000
Total (See Section 8.1 Exploration work & Pit Preparation)	$22,000

Phase 2 This phase would involve the acquisition of equipment and/or the arrangement of contracts for stripping and then mining the ore.

At this time all the necessary state and federal permits should be obtained.

Phase 3 Concurrent with Phase 2 a crushing plant, leach pads, ponds and associated facilities should be constructed on site.

An integral part of this phase would be to develop an adequate supply of water for the property.

7.1 MINING

It is considered that approximately 134,000 tons of ore are initially available to be mined by open pit methods. Much of the stripping could be done by a D-9 or D-10 dozer since the rock overlying the mineralization is either poorly compacted, altered or fractured. The ore, and those portions of the waste that are harder could be drilled and blasted with little difficulty. Following the completion of the exploration work proposed in Phase 1 detailed production planning could be undertaken

*$1.00/ton
Not true decad
ing to Bardwich

Past mining has shown that thicknesses of greater than 10 feet of ore could be mined by the room and pillar method, provided the grade is satisfactory.

7.2 MILLING

Preliminary leach tests(Witte,1982) have shown that the ore is amenable to heap leach technology but that further studies such as column tests to determine the optimum size for crushing, percolation rates and reagent consumption are required.

Test work done at the same time as the leach tests indicated that the gold is easily extracted in a conventional cyanidation process with recoveries of 95% of the gold at 80% -200 mesh with reasonable reagent consumption of 2.1 lb/T. of NaCN and 1 lb/T. of lime being experienced.

From these preliminary results it is proposed that a crushing plant to treat 500TPD(5 days per week) in association with a heap leaching operation be considered for treating the Portland Mine ore.

8. ESTIMATED COSTS AND REVENUE

The following estimates are based on a production of 500 TPD from an open pit with an estimated reserve of 134,000 tons and an estimated grade of 0.095 oz Au/T. All dollar values quoted are US dollars.

8.1 ESTIMATED CAPITAL COSTS

Crushing plant, turnkey 500 TPD erected on site		$ 120,000
Heap Leaching Facility		
3 heap leach pads	$ 9,000	
2 heap leach ponds	9,000	
Carbon circuits and electrolytic cells	11,000	
Pumps, plumbing, accessories, piping etc.	7,000	
Fencing	1,000	
Sub-total	$ 37,000	37,000
1- 30 Ton transloader: loads and hauls muck from mine to mill and moves crushed ore to leach pads		43,000
Mining equipment: no capital costs since work to be done by contract and all costs are operating costs		---
Assay laboratory for mining and mill control		25,000
Exploration work & pit preparation		33,000
Mill site & leach pad preparation Development of water supply		15,000
Engineering, supervision, start up and consulting expense		15,500

Capital to place 3500 tons on the leach pad prior to leaching	31,500
Sub-total	320,000
Contingency 10%	32,000
TOTAL ESTIMATED EXPENSES	$ 352,000

8.2 ESTIMATED OPERATING COSTS

Mining, delivery to mill	$ 5.00 per ton ore (high side)
Crushing & heap leaching	3.00
Electrochemical recovery and overhead	1.00
TOTAL	$ 9.00 per ton ore

These estimates do not take into account a stripping ratio greater than 1 to 1. An estimated cost of $2.00 per ton for stripping waste would add an additional $6.00 per ton of ore to the operating costs for a stripping ratio of approximately 4 to 1.

8.3 ESTIMATED REVENUE

These estimates are based on 134,000 tons of ore at 0.095 oz Au/T., production of 500TPD and recovery of 80% of the gold. No account is taken of the values in silver in the ore and gold is valued at $US400/oz.

Value per ton (gross)	0.095 x $400	$38.00	300 33.00
Value per to at 80% recovery	$38 x .80	30.40	21.60
Gross daily return	500 x $30.40	$15,200	10,800
Daily operating costs Stripping ratio 1/1	500 x $9.00	$4,500	
Stripping ratio 4/1	500 x $15.00	$7,500	
Daily net gain Stripping ratio 1/1	$15,200 - $4,500	$10,700	
Stripping ratio 4/1	$15,200 - $7,500	$7,700	
Daily gold production	500 x .095 x .80	38 oz	30.8
Gross value recoverable gold 134,000 x $30.40		$4,073,600	2.4 mm

Net value of recoverable gold

Stripping ratio 1/1	134,000 x $21.40	$2,867,600
Stripping ratio 4/1	134,000 x $15.40	$2,063,600

Duration of operation

134,000 tons @ 500TPD	268 days
500TPD for 5days/week	12 months

Production is estimated at 120 days after the start of development work.

Cash flow is anticipated 150 days after the start of development work

In summary, these estimates indicate that an open pit - heap leach operation would be a profitable operation based on 500 TPD and operation for one year. Production past that time would depend on the development of additional open pit and/or underground reserves.

L.D.S. Winter

L.D.S. Winter,
B.A.Sc., M.Sc., F.G.A.C.

GEOLOGICAL ASSOCIATION OF CANADA
L. D. S. Winter
FELLOW

November 30, 1982

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Ransome,F.L.,1923: Geology of the Oatman Gold District, Arizona, A Preliminary Report, U.S.G.S., Bull. 743, p.56.

Sookochoff, L.,1975: Geological Report on the Portland Gold Mines Property, Mohave County, Arizona, January 14,1975 for Cedar City Mines Ltd., p.24.

Witte,M.K.,1982: Metallurgical Testing on Arizona Ore, Project No. 5041-82, Sept. 1982, p.6.

APPENDIX 1

CALCULATION OF ORE TONNAGES IN THE "NORTH AND SOUTH TUNNEL OREBODY" AREA

Using the Fischer-Watt and ASARCO data(Durning 1981) and the method of sections, the tonnage of ore with a stripping ratio less than 4 to 1 and apit slope of 45° was calculated. The general outline of the pit is shown in Figure 5 and the accompanying sections in Figures 6-10. A tonnage factor of 13 cu. ft. per ton was used. In calculating the tonnage in the total vein no attempt was made to subtract the mined out area from the sections. This correction of 132,000 tons was made after the total tonnage was calculated. In the calculation of the tonnage in the hangingwall zone the open pit ore already mined was excluded during the calculations and then a correction for the underground ore, 15,000 tons, was made at the end.

Thus for repre H.G.

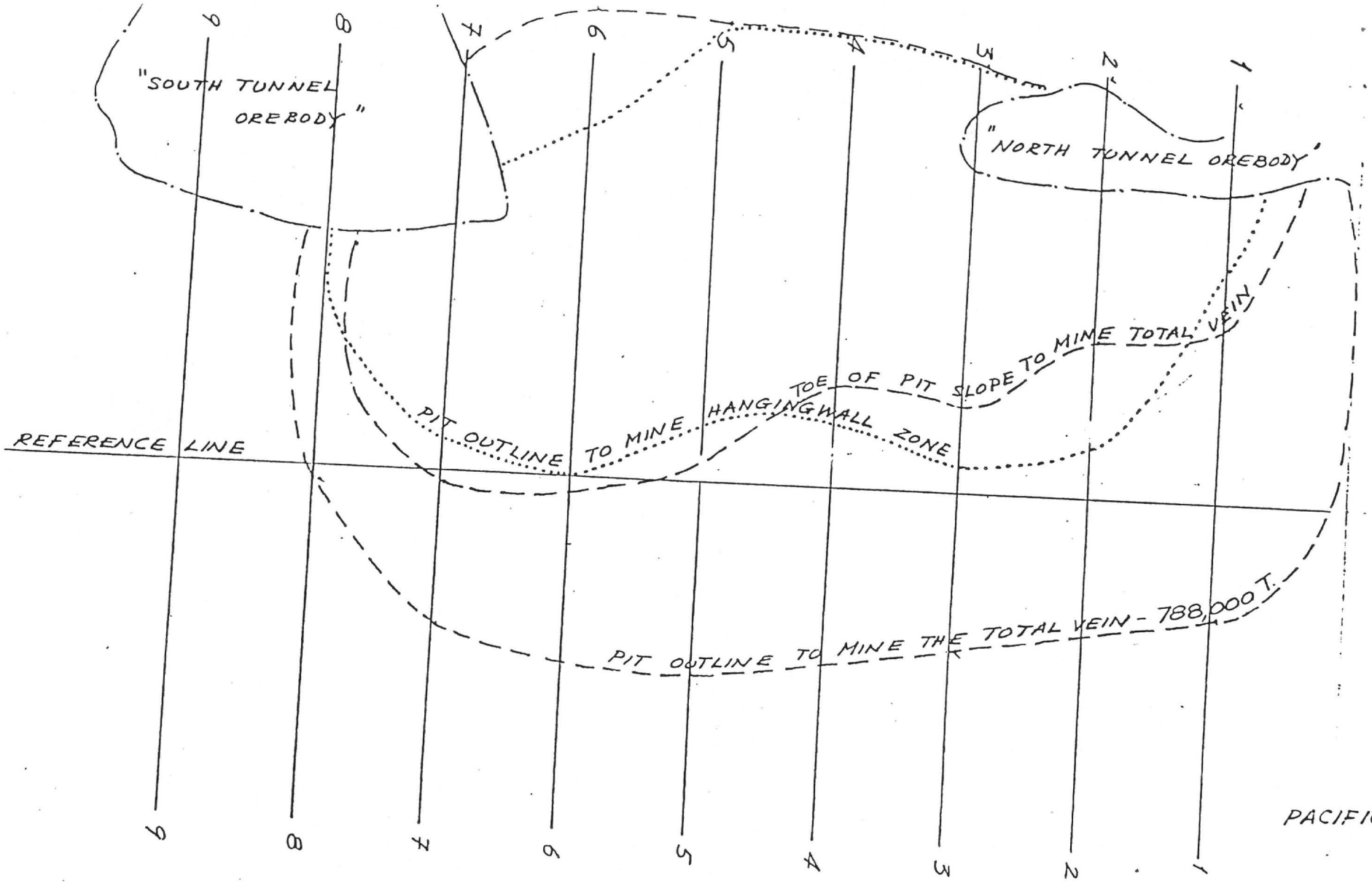
TONNAGE ESTIMATES

	TOTAL VEIN		HANGINGWALL VEIN	
SECTION	ORE	WASTE	ORE	WASTE
1	49,200	125,385	1,538	3,846
2	117,692	168,462	19,231	68,462
3	168,462	221,538	20,769	80,769
4	162,308	197,692	26,923	91,538
5	182,308	262,308	25,385	113,077
6	146,154	197,692	40,769	97,692
7	84,615	149,231	12,308	59,231
8	9,616	33,461	2,308	8,846
less	132,000		less 15,000	
TOTAL	788,355	1,355,769	134,231	523,461
Waste/Ore	1.47/1		3.90/1	

LEGEND FOR FIGURES 6 - 10

PM	ASARCO drill hole
Port	Fischer-Watt drill hole
26 - 0.075	Intersection: length of intersection in feet assay in oz Au/T.
	Hangingwall Zone
	Total vein
— — — — —	Eastern pit limit for mining total "vein"
.....	Eastern pit limit for mining 134,000 tons from the hangingwall zone only.

All sections drawn looking north



E

PACIFIC C

PC

MOHA

PRO

"NORT

SCALE: 1

GEOLOGICAL ASSOCIATION
L. D. S. Winter

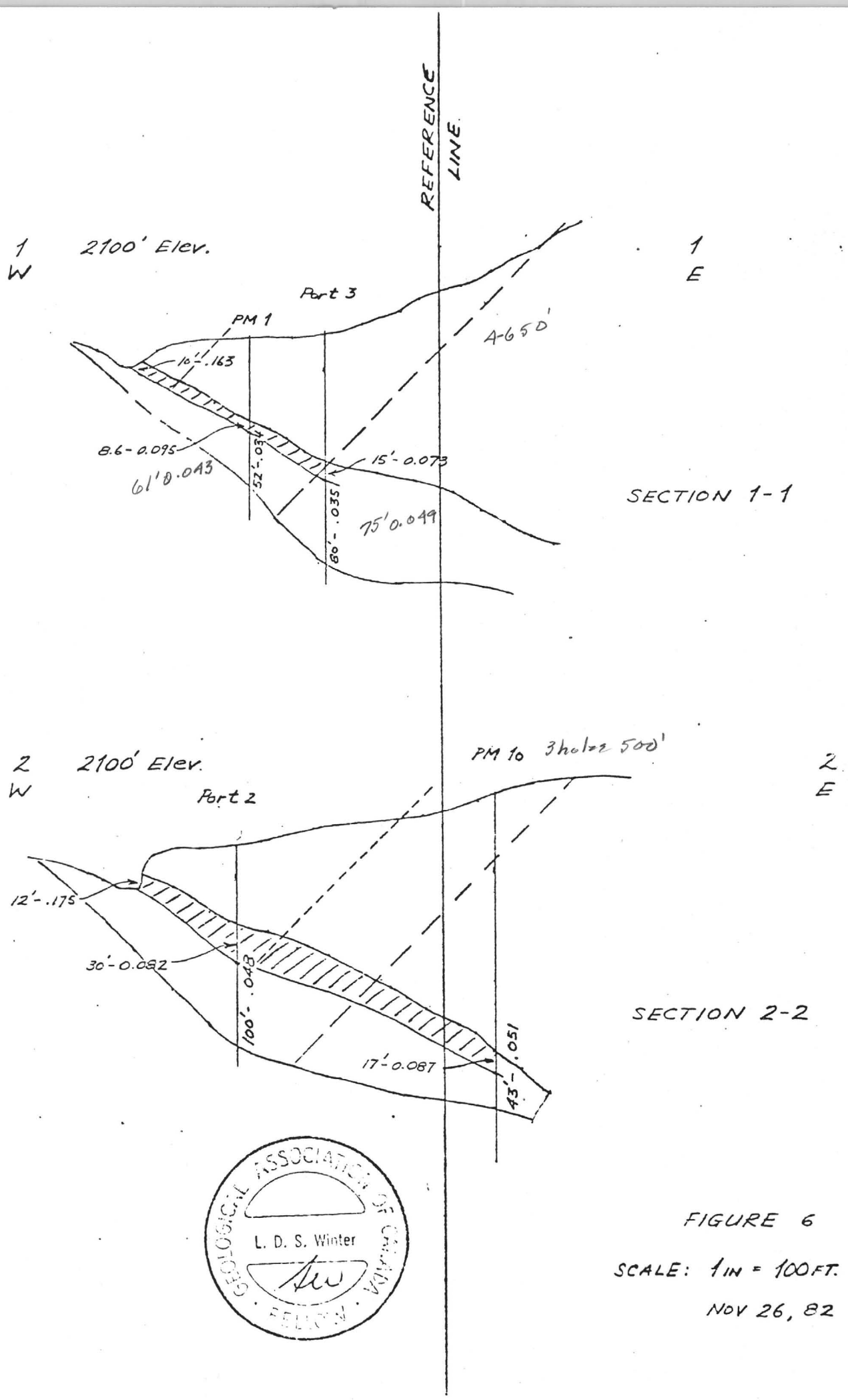


FIGURE 6

SCALE: 1 IN = 100 FT.

NOV 26, 82

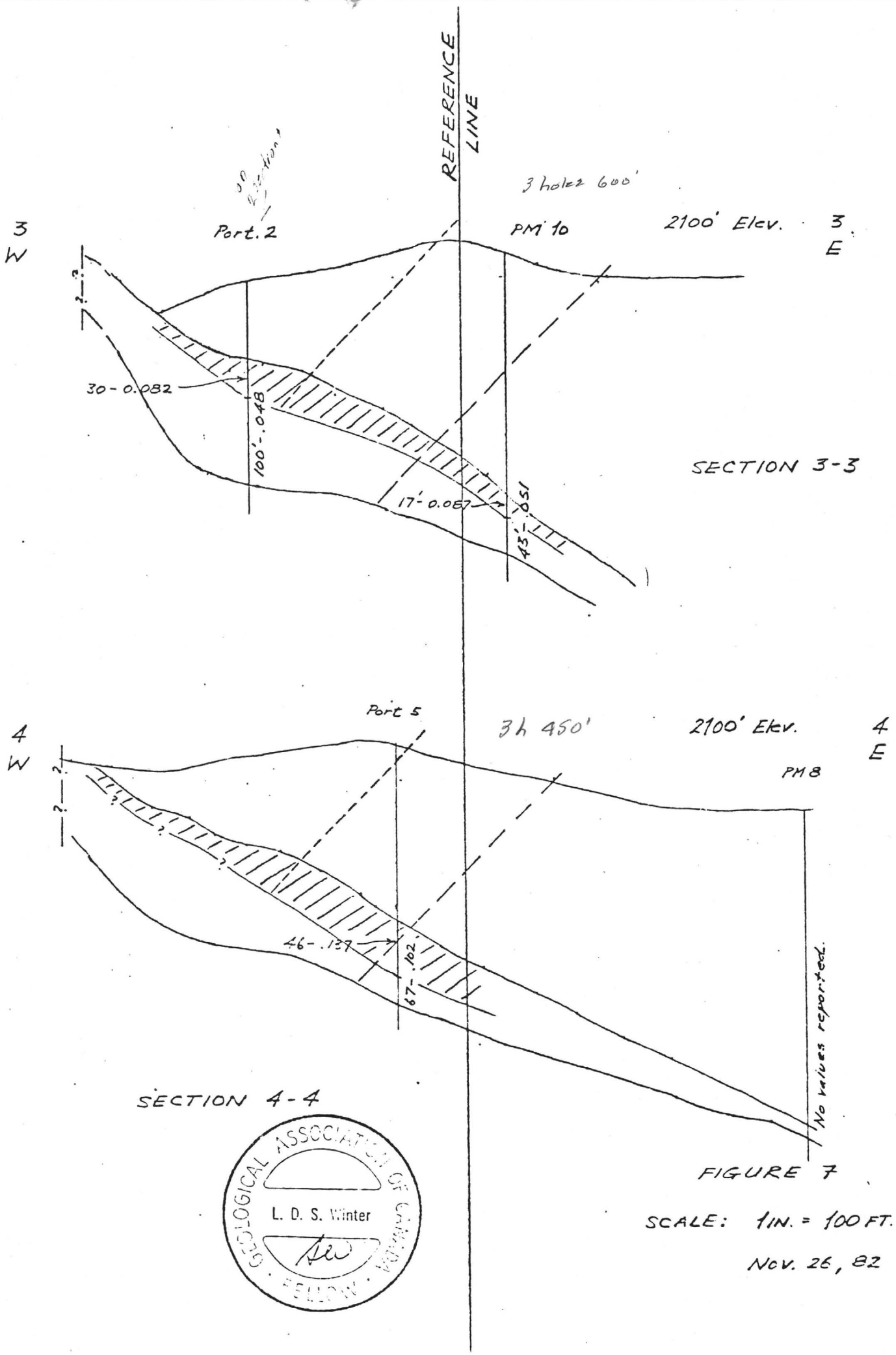


FIGURE 7

SCALE: 1 IN. = 100 FT.

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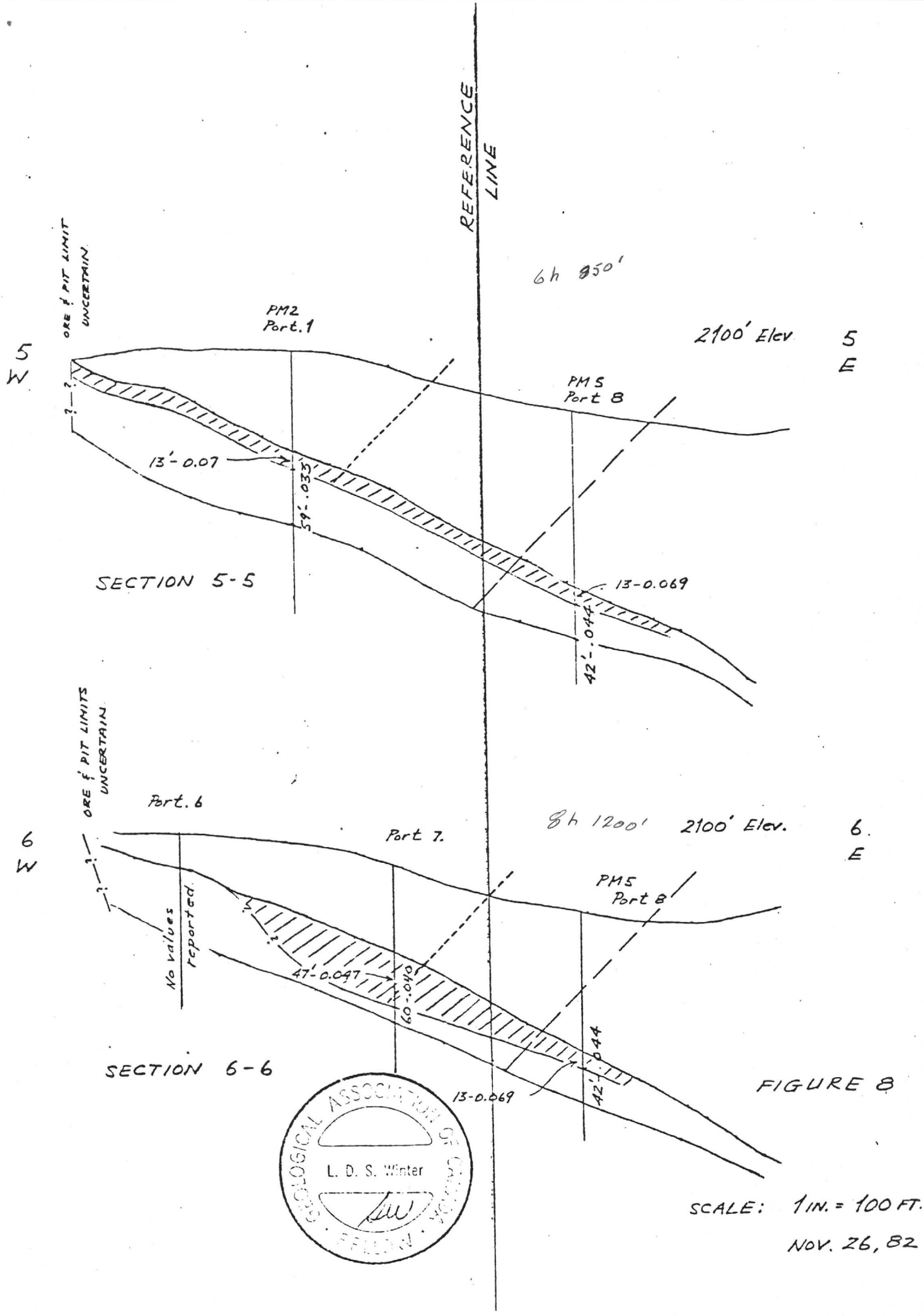

REFERENCE LINE
ORE & PIT LIMIT UNCERTAIN
6h 850'
PM2 Port. 1
2100' Elev
5 W
5 E
PM 5 Port 8
13'-0.07
59'-.033'
13-0.069
42'-.044'
SECTION 5-5
ORE & PIT LIMITS UNCERTAIN
Port. 6
8h 1200'
2100' Elev.
6 W
6 E
Port 7.
PM5 Port 8
No values reported
47'-0.047
60'-.040
13-0.069
42'-.044
SECTION 6-6
GEOLOGICAL ASSOCIATION OF CANADA
L. D. S. Winter
FELLOW
SCALE: 1 IN. = 100 FT.
NOV. 26, 82

FIGURE 8

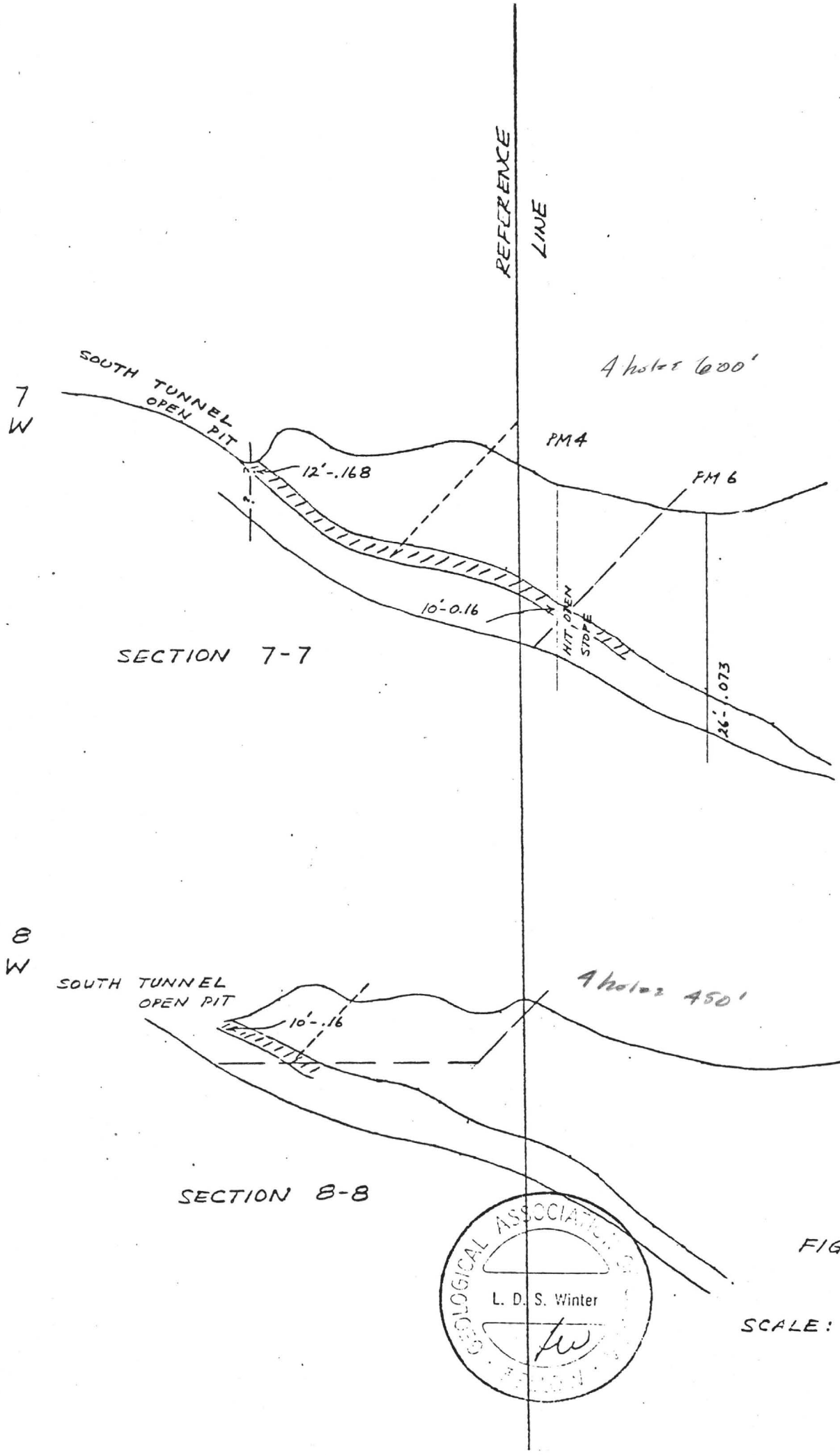
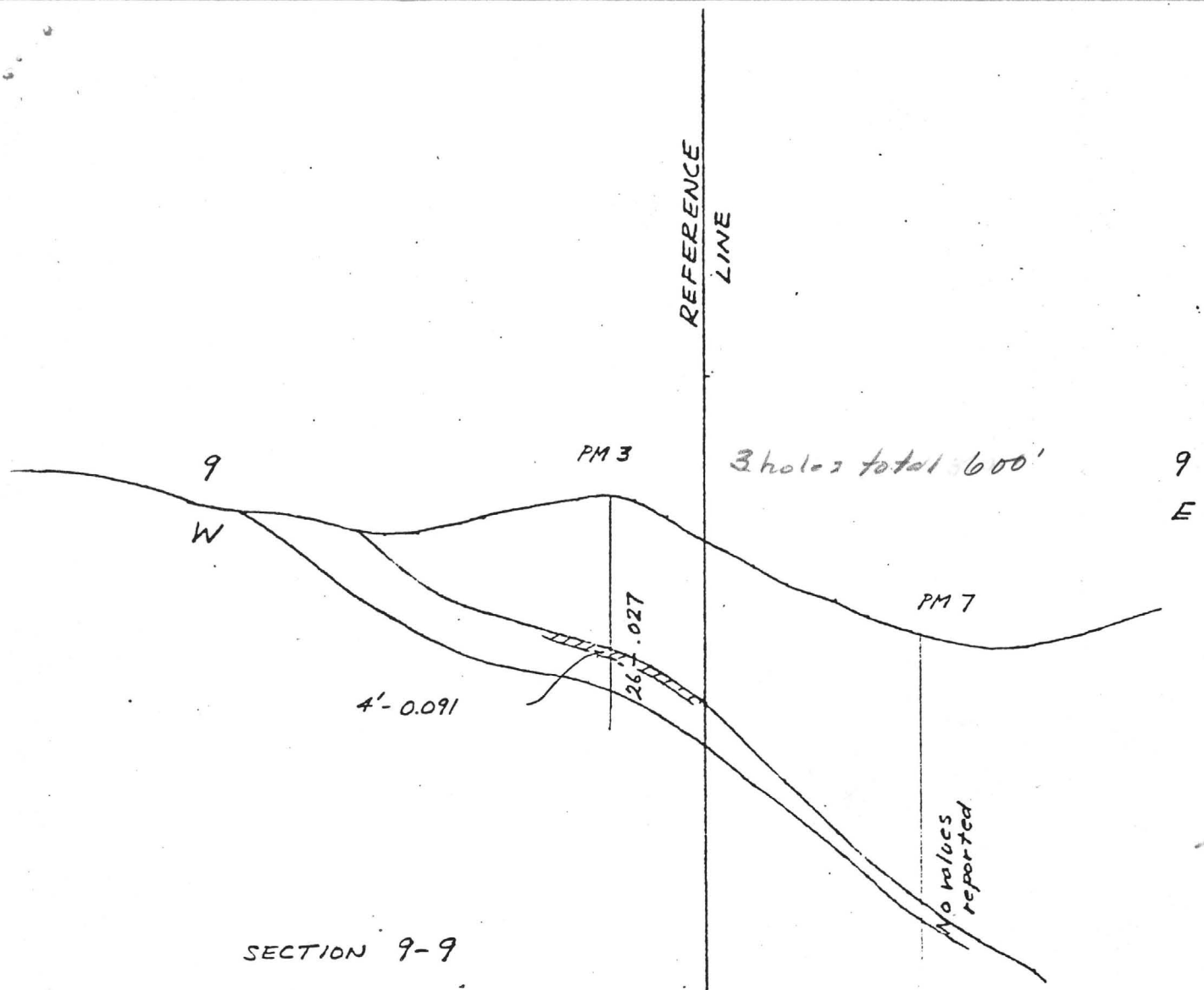


FIGURE 9

SCALE: 1IN. = 100FT.

NOV. 26, 82



SECTION 9-9

FIGURE 10

SCALE: 1IN. = 100 FT.

Total 6000
+ 20% 1200
7200 @ $7.00
$50,400

1800' assayed
at 5' = 360 assays @ $10.00

GEOLOGICAL ASSOCIATION OF CANADA
L. D. S. Winter
FELLOW

GEOLOGICAL REPORT

ON THE

PORTLAND GOLD MINES PROPERTY

MOHAVE COUNTY, ARIZONA

for

CEDAR CITY MINES LTD. (N.P.L.)

PART B

INTRODUCTION

The following report has been compiled from information obtained by the writer during a personal examination of the surface and underground workings located on the property on December 8-18th inclusive, 1974; from a study of available past records of work and production carried out by previous and present owners, and from public and private publications.

PROPERTY

The property consists of three contiguous patented claims,

Exploration and development has been carried out by various owners and leasors with the bulk of production totalling 132,000 tons occurring during 1935 and 1939. The production came primarily from the "South Tunnel Ore Body" where the bulk of the ore was mined by open pit methods. Minor production came from the "Little Ore Body" with limited tonnage from the "North Tunnel Ore Body."

Extensive sampling has been done on the property since production ceased in 1939. Reported ore reserves of approximately 300,000 tons averaging $6.64/ton at $35.00 (.19) gold, which, at today's prices, would be $33.20/ton ($175.00 gold).

A total of 335 feet of X-ray diamond drilling was done in the open pit area of the "South Tunnel Ore Body" most of which showed values in the country rock to a depth of 130 feet with a grade of 0.08 oz Au/ton and 0.96 oz Ag/ton in the footwall area of the main limestone unit.

Percussion drilling in December of 1974 intersected zones containing significant gold and silver values. The best intersection was a 25 foot section of .076 oz Au/ton and 0.82 oz Ag/ton which at recent metal prices would be valued at $17.40/ton

Other significant intersections were of .075 oz Au/ton and 0.33 oz Ag/ton over 10 feet and .085 oz Au/ton and 0.52 oz Ag/ton also over 10 feet.

Assays within the footwall and hangingwall of the main zone were generally less than .025 oz Au/ton.

The method of air percussion drilling that was utilized was not adequately equipped for full recovery of the cuttings to assess the actual value of the intersections. Therefore it is felt that core drilling as a follow-up programme could possibly reflect the values of previous core drilling and former and recent detailed sampling.

The property is underlain by altered andesites and siliceous limestone of Tertiary Age. A thrust fault marks the hanging wall contact between the limestone and andesite. The zones trend northerly and dip at a low angle to the east. The drilling and pit development in the "South Tunnel Ore Body" suggests a thickness of at least 200 feet.

The mineralization appears to be sub-microscopic and may possibly be colloidal in nature.

The potential ore in the vicinity of the "North Tunnel Ore Body" and the "South Tunnel Ore Body" workings

tons of low grade ore which could be developed with a detailed drilling programme.

The topography is such that any such tonnages developed would be amenable to inexpensive open pit mining methods.

RECOMMENDATIONS

It is recommended that a programme consisting of diamond drilling, geological mapping and prospecting be carried out on the property. Additional claims should be staked to cover all possible extensions of the mineralized zone.

It is also recommended that Cedar City Mines Ltd (N.P.L.) allocate the sum of $50,000.00 to implement the recommended exploration programme.

Respectfully submitted,

L. Sookochoff, P.Eng.,
Consulting Geologist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
LAURENCE SOOKOCHOFF

January 14, 1975
Vancouver, B.C.

A truck or four-wheel drive vehicle is required for the last eleven miles.

All the workings are accessible by roads.

TOPOGRAPHY

The topography is relatively gentle with very slight relief as is typical of the western foothills area of the Black Mountain Range.

CLIMATE

The semi-arid climate is characterized by high summer temperatures with low humidity and mild winters. The annual precipitation is only from 6 to 9 inches, making it a favourable climate for year round operations.

WATER

Water is non-existent on the surface but wells could supply sufficient water for exploration. The Colorado River is located five miles to the west of the property.

Tunnel Ore Body". The pit measures approximately 300' x 200' x 75'.

(i) Production

Past recorded production totalled 132,000 tons of ore which netted $7.89/ton based on $35.00/oz of gold. The ore was mined and shipped to the Katherine mill a distance of some 10 miles.

Production figures from August 13 to August 25, 1935 show 516.20 tons of ore shipped with a weighted average grade of 0.347 oz Au/ton and 1.22 oz Ag/ton.

Recovery of the metals by the cyanidation process was 93% of the gold. Silver recovery was not recorded.

The Katherine Mine flooded in 1939, hence the mill was shut down followed by the cessation of operations at the Portland Mine.

(ii) Sampling

During July 1940 Dr. Emil J. Rausch sampled all the underground workings and surface exposures. A total of 203 samples were cut which gave an average grade for the three

developed workings and surface areas of $7.03/ton in gold values at $35/00/oz Ag. At present day prices the value would be approximately $35.00/ton.

Clyde M. Becker, M.E. reported proven ore reserves calculated from some 700 feet of development work at 287,000 tons with an average value of $6.64/ton @ $35.00 gold. Today's prices would impart a value of approximately $33.00/ton. Mr. Becker's tonnage breakdowns were as follows:

Little Ore Body	6,000 tons @ $14.00/ton	($70.00)
South Tunnel Ore Body	200,000 tons @ $ 6.14/ton	($30.00)
North Tunnel Ore Body	81,000 tons @ $ 7.24/ton	($36.00)

Recent personal contact was made with John Boissenault, P.Eng. of Timmins, Ontario, regarding sampling carried out by him during 1974. His results of 40 samples gave a weighted average grade of 0.22 oz Au/ton and 1.50 Ag/ton.

(iii) Diamond Drilling

A total of 4 short X-ray diamond drill holes were drilled in the open pit area of the "South Tunnel Ore Body."

HOLE NO. 1 - was located near the south end of the pit; was drilled at -45° with an azimuth of 305°; was collared in the footwall of the main limestone unit, and averaged 0.08 oz Au/ton and 0.96 oz Ag/ton for a length of 130 feet. The hole, plus the main zone and hangingwall portion, suggests a thickness of at least 200 feet.

HOLE NO. 2 - was located near the middle of the pit; was drilled at -10° with an azimuth of 295°; was also collared in the footwall of the limestone unit, and averaged 0.0612 oz Au/ton and 0.90 oz Ag/ton over a length of 85 feet.

HOLE NO. 3 - was located at the north face of the pit and was drilled at +8° with an azimuth of 330°; was collared in the limestone unit and drilled along the zone for a length of 60 feet. The hole averaged 0.318 oz Au/ton and 0.67 oz Ag/ton over its entire length. A five foot section between 45 and 50 feet assayed 2.16 oz Au/ton and 1.22 oz Ag/ton.

HOLE NO. 4 - could not be located in the pit but it averaged 0.224 oz Au/ton and 0.45 oz Ag/ton for a length of 60 feet.

P-5 - located near the Little Ore Body and drilled to a depth of 120 feet. The more significant intersection was from 100 to 110 feet where assays averaged .075 oz Au/ton and 0.33 oz Ag/ton. At recent metal prices this would indicate a value of $14.44/ton.

P-6 - located near the Little Ore Body and drilled to a depth of 40 feet. A 10-foot section from 30 to 40 feet returned assays averaging 0.085 oz Au/ton and 0.52 oz Ag/ton which would be valued at $16.95/ton. The top part of the hole assayed up to 0.025 oz Au/ton and 0.10 oz Ag/ton.

GENERAL GEOLOGY

The Oatman District is generally underlain by rocks consisting of Tertiary lava flows resting on an underlying Precambrian crystalline complex. The lava flows and associated tuffs vary in composition and texture from basalt to rhyolite. The units trend north-south and dip eastward at a low angle.

The Oatman andesite is the most significant formation in the area as all known mineral deposits in the area are generally found in or associated with it. The lavas are generally intensely altered.

Intrusive dykes and stocks of rhyolite porphyry form prominent topographical features in the area.

LOCAL GEOLOGY

The property is underlain by interbedded silicified and crystalline limestone and altered andesite. A thrust fault marks the contact between the andesite and the hangingwall of the limestone units. The fault zone is marked by shearing and hematite gouge. The fault action has probably played a role in brecciating the limestone unit as well as the

footwall and hangingwall andesites. Deuteric quartz has been introduced into the limestone unit and in some areas colloform structure was noted. The highest gold and silver values occur within the limestone.

Quartz and calcite have pervaded into the hangingwall and footwall andesites which carry significant gold and silver values.

MINERALIZATION

The only visible metallic mineral noted in the mineralized rock was rare minute pyrite cubes. The gold and silver minerals appear to be sub-microscopic which suggests that the minerals may be colloidal in nature. Such a case would conceivably be the reason for the pervasiveness of the gold and silver values evident in both the limestone and altered andesite.

A total of three main workings exist on the property over a distance of approximately one-half a mile.

"Little Ore Body"

The "Little Ore Body" workings consist of a cut along the strike of the surface exposure of the limestone unit and some

underground development including a 100 foot deep inclined shaft and some stoping. The silicified limestone unit strikes at 290° and has a dip of -30° to the north east. The actual thickness of the zone could not be determined as the footwall was not exposed in the underground workings. A chip sample taken approximately 50 feet down the -45° incline shaft assayed 0.16 oz Au/ton and 0.06 oz Ag/ton across a width of 7.0 feet. Previous assaying of the "Little Ore Body" gave a value of $70.00 per ton based on present day values for gold with a 6,000 ton ore reserve.

The zone could be the same zone that the other two workings are on or could well be a parallel unit. There are several limestone units within the vicinity of the property. Several trenches have traced the zone for over 300 feet along the surface.

"South Tunnel Ore Body"

The "South Tunnel Ore Body" is located approximately 1200 feet at 10° from the "Little Ore Body" workings.

The development consists of a 200 foot long drift above which some stoping has taken place and an open pit has been developed above the drift. The open pit has dimensions of about 300' x 200' x 75'. The zone strikes at 310° and dips N.E. at -30°.

The work done in the pit and underground, plus the diamond drilling carried out in the pit, suggests a mineralized section of at least 200 feet in thickness. The limestone unit varies between 12 and 25 feet thick where worked.

Previous sampling of the underground and surface exposures on the zone averaged $6.14/ton ($30.00) for an ore reserve figure of 200,000 tons.

A 14-foot chip sample cut in the stoping that was done in the southeast corner of the pit assayed 0.08 oz Au/ton and 0.58 oz Ag/ton.

A chip sample cut along the wall of the last 100 feet of the 200-foot long drift which was along the footwall area of the limestone horizon, assayed 0.02 oz Au/ton and 0.62 oz Ag/ton.

"North Tunnel Ore Body"

Approximately 800 feet at 10° from the open pit on the "South Tunnel Ore Body" a surface cut and underground development represent the work carried out on the "North Tunnel Ore Body." The zone here strikes at 000° and dips at -33° to the east.

Previous sampling gave a grade of $7.24 ($36.00)/ton for a reserve figure of 81,000 tons.

A chip sample cut from the main stope area assayed 0.18 oz Au/ton and 1.60 oz Ag/ton across 8.4 feet. The zone is exposed in the workings for 30 feet.

Samples cut in a shaft which has been sunk on the zone averaged $10.46 ($52.00) across 30.5 feet.

The zone has been developed by parallel winzes to a depth of 50 feet and 150 feet respectively with minor sub levels.

A crosscut driven at 250° into the footwall of the main zone has revealed the presence of another limestone unit which has been exposed across a 10-foot width with the face of the crosscut remaining in the limestone.

Underground chip sampling by the writer within a drift near the "North Tunnel Ore Body" revealed an average grade of 0.19 oz Au/ton and 0.26 oz Ag/ton over 72 feet which included 12 feet of 0.39 oz Au/ton and 0.47 oz Ag/ton. The true width of this section is not known.

ORE RESERVES

Ore reserves calculated from the workings totalled approximately 300,000 tons with a value of $7.03/ton ($35.00 gold). At present day prices this would be approximately $35.00/ton which would represent a grade in both instances of about 0.20 oz Au/ton. The silver associated with the ore should average around 1.0 oz Ag/ton.

POTENTIAL ORE

With the advent of a much higher price for gold and silver than prevaled over the past 30 odd years, and with the knowledge of low grade gold and silver values in the altered volcanics forming the footwall and hangingwall of the better mineralized silicified limestone, the potential for developing large tonnages of low grade ore are excellent.

The topography of the hangingwall area reflects a dip slope to some extent and could render the mineralized zone to be amenable to cheap open pit mining methods with a favourable ore to waste ratio.

The apparent dimensions of that portion of the zone developed by the "South Tunnel Ore Body" and the "North Tunnel Ore Body", within the limits of the underground workings and between

the workings, are 1,500 feet x 500 feet x at least 200 feet. The actual thickness of the mineralized section has yet to be determined.

Several million tons of open pitable ore could possibly be developed with a detailed drilling programme.

EXPLORATION PROGRAMME

Diamond drilling should commence at once to establish strike length, depth and thickness of the zone.

In conjunction with the drilling, geological mapping and prospecting should be carried out over the area including that area which should be staked to cover all extensions of the known zones and to cover other possible zones.

Some bulldozer work will be required to provide access to drill sites and to trench other areas on the property that have yet to be tested.

ESTIMATE OF COSTS OF EXPLORATION PROGRAMME

Diamond Drilling 2000 feet @ $15/foot	$30,000.00
Assaying - 400 assays @ $10/assay including shipping	4,000.00
Geological mapping and prospecting	2,000.00
Engineering and Supervision	4,000.00
Travel and Living Expenses	3,000.00
Bulldozer - Roads and Drills etc	1,500.00
Staking	1,000.00
Contingencies	4,500.00
	$50,000.00

CERTIFICATE

I, LAURENCE SOOKOCHOFF, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geological Engineer and an associate of T.R. Tough & Associates Ltd., with offices located at 519-602 West Hastings Street, Vancouver, British Columbia.

I further certify:

1. That I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.
2. I have been practising my profession for the past eight years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. This report is based on information obtained by the writer from a personal examination of the property December 8-18th, 1974 and from public and private publications as listed in the bibliography.
5. I do not own any direct or indirect interest in the property described herein nor in the securities of Cedar City Mines Ltd. (N.P.L.) nor do I expect to receive any therein.

PROVINCE OF BRITISH COLUMBIA LAURENCE SOOKOCHOFF ENGINEER

Laurence Sookochoff, P.Eng.
Consulting Geologist

January 14, 1975
Vancouver, B.C.

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2. Reconnaissance Report Portland Mine, Mohave County, Arizona, June 1973 by Dudley L. Davis, M.E.

3. Report on the Portland Mine by Dr. Emil J. Rausch, July 1940.

4. Report on the Portland Mine by Clyde M. Becker, circa 1940.

5. Report on the Victoria Gold Mines Inc. Oatman District, Arizona by J.P. Ryan, M.E. January 4, 1948.

6. Report; Victoria Gold Mines Inc. Oatman; Arizona, by J. Carlton Bray M.E. 1946.

SUMMARY REPORT

ON

THE PORTLAND MINES

Kingman, Arizona

By whom?

November, 1980

INTRODUCTION

This pamphlet presents information on the Portland Mining Properties located in the Weaver Mining District, Mojave County, Arizona.

The properties are approximately 26 miles Northwest of Kingman, just outside the Colorado River Recreational Preserve and approximately six miles East of the river itself.

The claims are recorded in the office of the County Recorder of Mojave County as follows:

NAME	STATUS	BOOK	PAGE
Portland	Patented	32	308
Sunshine	"	32	306-7
Sunshine No. 2	"	4	49

The title is clear on these claims and it is these claims which are for lease or sale.

In addition to the above there are nineteen unpatented claims on which the assessment work has not been kept current, but which should probably be reactivated as mining progresses. This should not be any problem, as these claims are purely protective in nature. All known ore bodies originate on the patented claims. The unpatented claims are as follows:

Lode claims listed by ¼ section in which Location Notice is posted, all in Township 23 North, Range 21 West, Mojave County.

Lode Claims	Original			Relocation		
¼ Sec.w/Plat	Book	Page	Date	Book	Page	Date
SW¼, Section 14:						
Better Luck	3N	479	1/28/32	496	75/76	9/20/78
Portland No. 2	3Q	349	12/10/34	"	84/85	"
Portland No. 9	496	105/106	9/20/78			
Portland No. 10	"	108/109	"			
Portland No. 11	"	111/112	"			
Portland No. 12	"	114/115	"			
NW¼, Section 14:						
Better Luck No. 1	3N	480	1/28/32	496	78/79	9/20/78
Sunshine No. 3	3U	67	4/4/39	"	72/73	"
Portland No. 13	496	117/118	9/20/78			
Portland No. 14	"	120/121	"			
Portland No. 15	"	123/124	"			

Lode Claims ¼ Sec.w/Plat	Original Book	Original Page	Original Date	Relocation Book	Relocation Page	Relocation Date
SE¼, Section 10:						
Portland No. 7	496	99/100	9/20/78			
Portland No. 8	"	102/103	"			
NE¼, Section 15:						
Portland No. 4	496	90/91	9/20/78			
Portland No. 5	"	93/94	"			
Portland No. 6	"	96/97	"			
Good Luck	3N	478	1/28/32			
SE¼, Section 15:						
Portland No. 1	3U	66	4/4/39	496	81/82	9/20/7[illegible]
Portland No. 3	"	68	"	"	87/88	"

The owners welcome inquiries about the mines.

Samuel L. Clark

Samuel L. Clark
Agent for
The Portland Mines
3955 Maple Tree Drive
Anaheim, Ca. 92807

Business Phone: (714) 632-1979
Home Phone: (714) 637-0762

General Background

on

THE PORTLAND MINES

INTRODUCTION

The Portland Mines consist of three patented claims, the Portland, the Sunshine, and the Sunshine No. 2. Although nineteen protective claims have at one time or another been filed near these patented claims, all known ore bodies originate on the patented claims.

Three ore bodies have been located, known as the North Tunnel body, the South Tunnel body and the Little Ore body.

The mines were closed in the late 1930's as the result of rising production costs coupled with a U.S. Government freeze on the price of gold at $35 per ounce. In the early 1940's several mining firms gave consideration to opening the mines again, but each time the decision was negative because of the inability to obtain either adequate mining equipment or experience labor during World War II.

LOCATION AND ACCESS

The Portland Mines properties are in the Weaver District range of mountains which parallel the Colorado river, with the claims approximately 10 miles Northeast of Davis dam. The raod from Davis dam to the mine, however, is currently impassable because of a flood washout, so until the road is repaired, access had to be from the North via Highway 466 (the Kingman to Las Vegas, Nevada, highway.) Officially, the properties are listed in the Mojave County Assessor's Map 43, book 307, as lying in Sections 14 and 15, Townships 23N, Range 21W, Gila and Salt River base and meridian.

Access from Kingman is 26.6 miles Northwest on Highway 466, then left (Southwest) 8.8 miles on the Cottonwood Wash road, then left (South) 3.5 miles to a little-used spring which has been fenced, then down the wash (South) 6.6 miles to a gate in a barbed wire fence, the 0.3 miles to a little-used road which leaves the wash on the East side and than 0.8 miles to the mines. A four-wheel drive vehicle is recommended for the trip, although it is possible to be traversed by any vehicle which has a high center.

GENERAL GEOLOGY

The Portland ore deposits are considered to be a continuation of the Oatman District which has been well reported in geological literature. The deposits are situated just above extensive alluvial fans which reach from the foothills West to the Colorado river. To the East are andesite and rhyolite flows and tuffs of the same series as at Oatman, Arizona.

Gold occurs in a fault braccia zone which trends generally North and dips 20 to 50 degrees East. This zone can be seen on the surface for about one-half mile and probably continues to the South under the alluvial fans previously discussed. The fault is a thrust of major proportions and can be expected to persist with depth.

PAST PRODUCTION

Previous production (prior to 1940) was accomplished by the Gold Standard Mining Corporation which mined and milled 132,000 tons in four and one-half years of operation. A lesser amount of mining was also done (solely in the Little Ore body) by the Portland Company during the same period. Although no figures are available for the entire 132,000 tons, records as of October 15, 1938, indicated, with gold priced at $35 per ounce, that:

Portland had shipped	3,391.79	tons worth	$ 27,575
Gold Standard shipped	111,642.61	tons worth	$864,151
Making a total of	114,034.40	" "	$911,727

ORE RESERVES AND VALUES

Past records and old correspondence relative to the Portland mines indicate that the three ore bodies contain two distinct veins. The South vein (the Little Ore body) was developed by a 100-foot shaft with drifts 50 feet each way at the bottom of the shaft. The shafts and drifts were all in ore which, according to 1940 assay reports, averages $147.60 at today's price of $700 per ounce.

Approximately 700 feet North of the Little Ore body is the large vein. This ore body is about 975 feet in length and the vein runs from 12 to 20 feet in thickness. The depth is not known.

Just prior to the closing of the mines in 1939, Clyde M. Becker, a well known mining engineer and geologist, and until his death the consulting engineer for the Gold Standard Mines Corporation, estimated that the approximate 700 feet of development work on the various ore bodies had proved that there was still available to be mined at least 267,000 tons of ore at an average value of $6.64 per ton (or $132.80 per ton today, based on $700 per ounce gold). His estimate divided the predicted tonnage as follows:

Little Ore Body	6,000	tons	value	$14.00/ton	($280.00 today)
South Tunnel	200,000	"	"	$ 6.14 "	($122.80 "
North Tunnel	61,000	"	"	$ 7.24 "	($144.80 "

In 1940 Dr. Emil J. Rausch, representing the Continental Mining Corporation, New York City, reported to Continental on 203 samples taken and assayed by a Mr. McAllister of Kingman. He summarized his work as follows:

(a) that about 60,000 tons of ore could be secured from the South Tunnel by the open-cut method,

(b) that the ore is hard and would have to be broken with powder, but that he did not anticipate any problem along that line,
(c) that he expected to get into better ore on sinking further.

A copy of the assay report presented by Dr. Rausch as an attachment to his report to Continental can be found elsewhere in this pamphlet.

These estimates and assays were further supported by a geological report by L. Sookochoff for Cedar City Mines, Ltd. (Canada) in 1975 and by assays from 14 drill holes made by Asarco (Tucson, Arizona) in 1979.

It should be noted that gold ore of this grade will normally assay about one-third ounce per ton in silver. While silver is known to be present in the Portland's ore, the old mining records did not show the extent of its presence.

MILLING

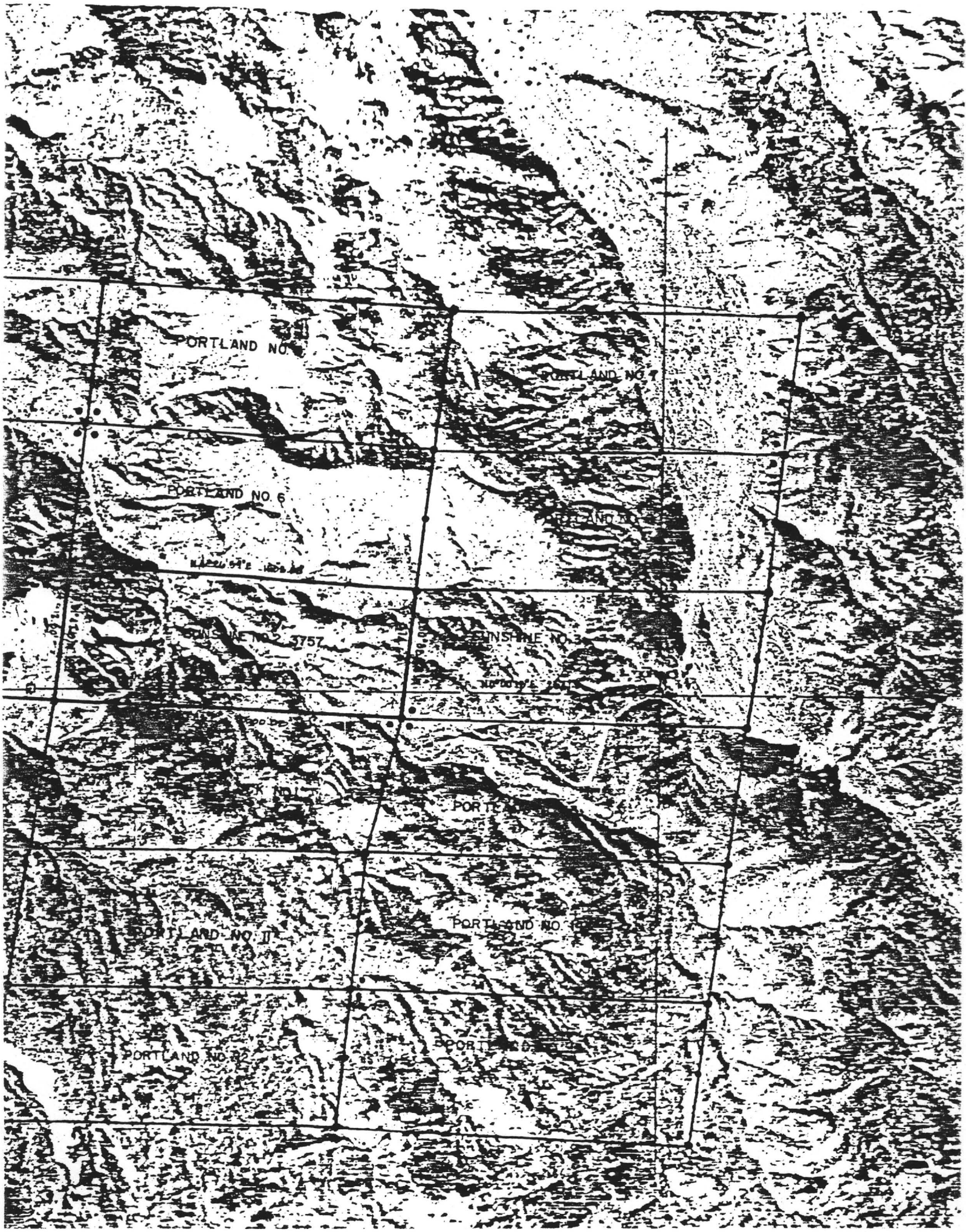
Ore from the Portland mines was previously trucked to the Katherine Mill in an area now called Katherine's Landing, near Davis Dam. Approximately 93% recovery was achieved by cyanidation. Silver recovery is not recorded but should have been about 60% of gross values.

SUMMARY

(a) There is 287,000 or more tons of ore available, as estimated by Clyde M. Becker as supported by the 1979 Asarco drilling, and
(b) Sampling has substantiated the values reported by Dr. Rausch ($147.80 per ton values at $700 per ounce,) and,
(c) The ore contains silver content of $8.00 per ton.

CONCLUSION

The Portland Mines represent a total gross recoverable value of approximately $42,418,600 in gold and $2,296,000 in silver, or a grand total value of $44,714,600.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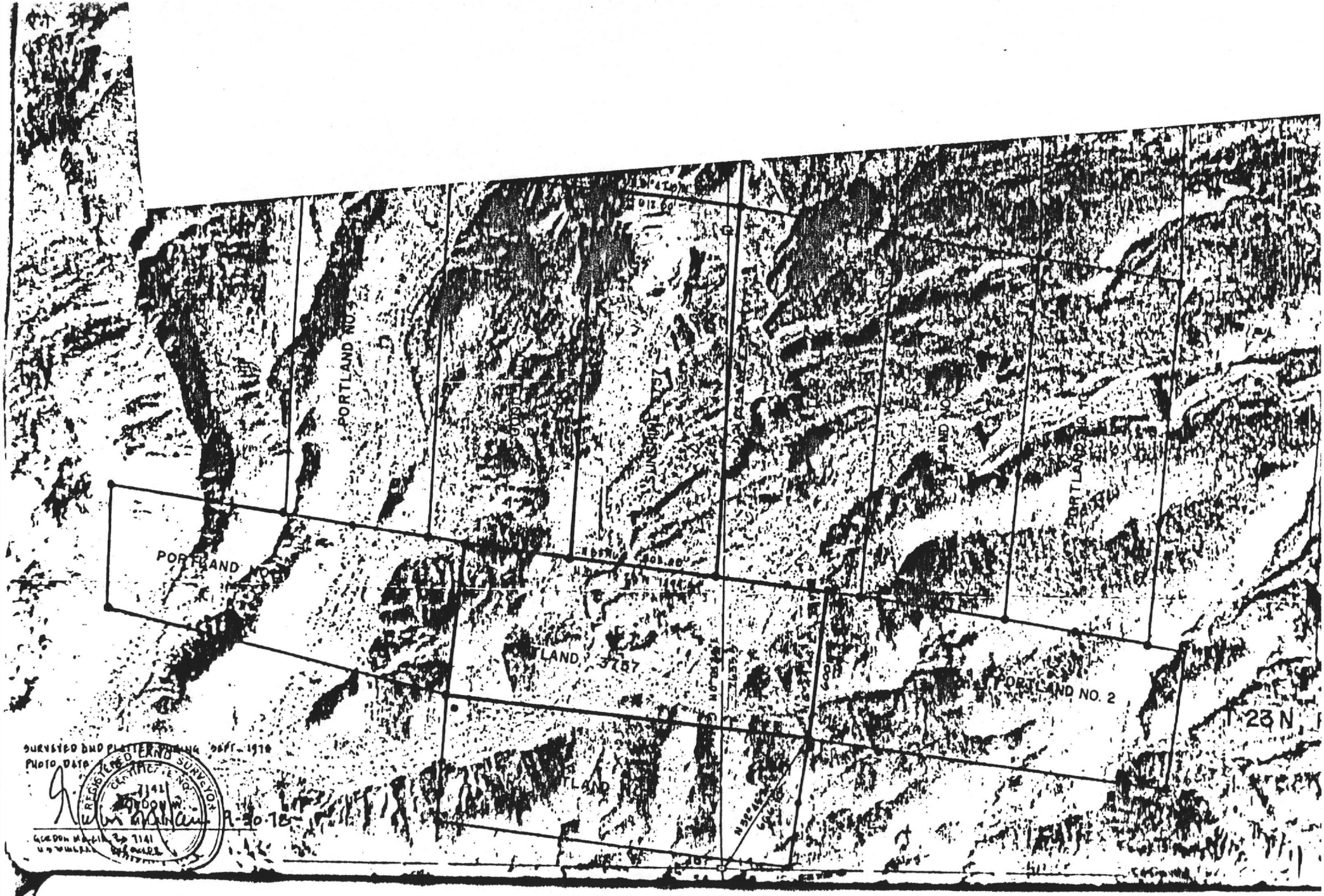
PORTLAND NO. 12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OREGON

NOTE

The following assay figures were originally contained in a report by Dr. Emil J. Rausch to the Continental Mining Corporation, New York City. The samples were taken and the assays performed by a Mr. McAllister of Kingman, Arizona.

It is noted that this report was made in 1940, after the closing of the mines in 1939. As no work has been done at the Portland properties since that time, it can be assumed that the figures are still valid today. provided that the values are adjusted for the current price of gold.

As all of the 1940 figures were based on gold priced at $35 per ounce, a column has been added to the original report to show the adjustment of price in relation to the price of gold at $700 per ounce. If the price of gold at the time of this reading is more or less than $700 per ounce, an approximate adjustment in the extended price would have to be made.

FROM REPORT OF DR. EMIL RAUSCH ON THE PORTLAND MINES

DATED JULY 14, 1940

	$35/ton Average	$700/ton Average
1. LITTLE ORE BODY	$ 7.39	$ 147.80*
2. SOUTH TUNNEL BODY (Lower & Upper Stopes - Dump)	7.80	156.00
3. SOUTH TUNNEL BODY - (Top Stope)	6.75	135.00
4. NORTH TUNNEL BODY	8.45	169.00
5. SURFACE	4.84	96.80
GENERAL AVERAGE FOR THE WHOLE MINE ACCORDING TO ABOVE SAMPLING	7.03	140.60

*Equivalent value with gold priced at $700/oz.

Assays of samples taken from the Portland Mine - Little Ore Body

(1.) Stope

#1	1405	Distance	____	Zone	3 ft.	wide	Values $ 4.92	$ 98.40*
#2	1391	"	5'	"	3½	"	" 18.43	368.60
#3	1392	"	"	"	3	"	" 7.77	155.40
#4	1393	"	"	"	3½	"	" 5.95	119.00
#5	1394	"	"	"	3	"	" 6.24	124.80
#6	1395	"	"	"	5	"	" 5.82	116.40
#7	1396	"	"	"	2½	"	" 9.32	186.40
#8	1397	"	"	"	4	"	" 4.62	92.40
#9	1398	"	"	"	18	"	" 6.72	134.40
10	1399	"	"	"	3	"	" 3.01	60.20
11	1400	"	"	"	2	"	" 7.99	159.80
12	1401	"	"	"	2½	"	" 5.18	103.60
13	1402	"	"	"	4	"	" 5.47	109.40
14	1430	"	12	"(Check on #1392)			" 7.71	154.20

(2.) Footwall Cross Cut 12.12 242.40

(3.) Shaft East

#1a	1403	"	5	"	4 ft.	wide	" 5.47	109.40
#2a	1410	"	"	"	4	"	" 7.01	140.20
#3a	1411	"	"	"	4	"	" 4.83	96.60
#4a	1413	"	"	"	4	"	" 15.06	301.20
#5a	1415	"	"	"	4	"	" 5.75	115.00
#6a	1417	"	"	"	4	"	" 4.70	94.00

(4.) Shaft West

#1b	1404	"	"	"	4	"	" 13.80	276.00
#2b	1409	"	"	"	4	"	" 8.20	164.00
#3b	1412	"	"	"	4	"	" 7.15	143.00
#4b	1414	"	"	"	4	"	" 7.85	157.00
#5b	1416	"	"	"	4	"	" 4.48	89.60
#6b	1418	"	"	"	4	"	" 4.13	82.60

Average value per ton of 27 samples "Little Ore Body" 7.39 147.80

*Equivalent value with gold priced at $700/oz.

Assays of Samples taken from the Portland Mine - South Tunnel Body

(1) Lower Stope - near water level

#1a	1425	"Distance" - 5'	4½	Values	$11.70	$ 234.20*
2a	1427		4½	"	7.63	152.60
3a	1429		4½	"	7.28	145.60
4a	1431		4	"	13.51	270.20

(2) Upper Stope

#1b	1424	"	4	"	9.25	185.00
2b	1426	"	4	"	5.82	116.40
3b	1428	"	4	"	13.26	265.20
4b	1432	"	4	"	7.01	140.20
5b	1442	"	4	"	6.31	126.20
6b	1443	"	4	"	8.95	179.00
7b	1444	"	6	"	15.90	318.00
8b	1445	"	8	"	10.78	215.60
9b	1446	"	8		7.22	144.40
10b	1447	"	4½	"	7.78	155.60
11b	1448	"	4	"	8.06	161.20
12b	1449	"	4½	"	5.75	115.00
13b	1450	"	4½	"	5.12	102.40
14b	1477	"	6	"	3.37	67.40
15b	1478	"	4½	"	5.95	119.00
16b	1479	"	4½	"	4.48	89.60
17b	1480	"	4½	"	7.00	140.00

(3) Ore Pile - Upper Stope - lower end:

#1c	1440	Grab Sample	.....	3.15	63.00
#2c	1441	" "	.....	4.28	85.60

Average value per ton of 23 samples "South Tunnel Body"	7.80	156.00

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*Equivalent value with gold priced at $700/oz.

Assays of Samples taken from the Portland - South Tunnel Body:

Top Stope:

#1	1471	Distance		3½	ft. wide	Values	$8.41	$168.20*
2	1472	"	5'	2½	"	"	8.69	173.80
3	1473	"	"	5½	"	"	8.55	171.00
4	1474	"	"	6	"	"	9.32	186.40
5	1475	"	"	6½	"	"	7.08	141.60
6	1476	"	"	6½	"	"	4.91	98.20
7	1494	"	"	5	"	"	3.78	75.60
8	1495	"	"	5	"	"	5.47	109.40
9	1496	"	"	5	"	"	8.55	171.00
10	1497	"	4½	4½	"	"	8.99	179.80
11	1498	"	4½	6	"	"	7.36	147.20
12	1499	"	5	5	"	"	7.71	154.20
13	1500	"	5	5	"	"	5.82	116.40
14	1501	"	"	3½	"	"	7.43	148.60
15	1502	"	"	4	"	"	7.36	147.20
16	1503	"	"	4½	"	"	6.66	133.20
17	1504	"	"	4½	"	"	7.01	140.20
18	1523	"	"	4½	"	"	4.35	87.00
19	1524	"	"	4½	"	"	4.77	95.40
20	1525	"	"	4	"	"	4.63	92.60
21	1526	"	"	4½	"	"	6.87	137.40
22	1527	"	"	4	"	"	6.52	130.40
23	1546	"	"	6	"	"	4.49	89.80
24	1549	"	"	5	"	"	7.28	145.60
25	1550	"	"	12	"	"	6.73	134.60

Average value per ton of 25 samples taken from South Tunnel Body Top Stope: 6.75 135.00

*Equivalent value with gold priced at $700/oz.

Assays of Samples taken from the Portland Mine - South Tunnel Body:

(1.) West Stope:

#1a	1712	Distance ---	4½ ft. wide		Values	$ 3.71	$ 74.20*
2a	1713	5'	6	"	"	3.93	78.60
3a	1714	"	5	"	"	3.93	78.60
4a	1715	"	5	"	"	6.10	122.00
5a	1716	"	4½	"	"	4.77	95.40
6a	1717	"	5	"	"	3.93	78.60
7a	1718	"	4½	"	"	6.94	138.80
8a	1719	"	4½	"	"	6.94	138.80
9a	1720	"	4½	"	"	6.10	122.00
10a	1721	"	4½	"	"	5.88	117.60
11a	1722	"	4	"	"	3.86	77.20
12a	1736	"	5	"	"	6.66	133.20
13a	1737	"	4½	"	"	4.63	92.60
14a	1738	"	5	"	"	7.71	154.20
15a	1739	"	4	"	"	6.31	126.20

(2.) West Stope "Footwall" (in fact; vein matter)

#1b	1729	Cross Cuts	- - - - -	"	7.02	140.40
#2b	1730	"		"	4.14	82.80
#3b	1731	"		"	3.37	67.40
#4b	1732	"		"	3.51	70.20
#5b	1733	"		"	3.93	78.60
#6b	1734	"		"	4.21	84.20
#7b	1735	"		"	3.30	66.00
#8b	1766	"		"	8.28	165.60
#9b	1767	"		"	4.42	88.40
10b	1768	"		"	7.65	153.00
11b	1769	"		"	4.64	92.80

(3.) West Stope Pillars - (Vein Matter)

#1c	1762	6 ft. wide	"	5.19	103.80
#2c	1765	6½ "	"	3.93	78.60

(4.) Lower Stope Footwall (Vein Matter)

#1d	1763	Irregular e -- Cross Cut	"	5.12	102.40
#2d	1764	" "	"	5.69	113.80

(5.) Check Sample

1711 - See 1571 - South Tunnel Body .... Surface Footwall	1.96	39.20

Average value per ton of 31 samples taken from South Tunnel Ore Body West Stope	5.09	101.80

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*Equivalent value with gold priced at $700/oz.

Assays of Samples taken from the Portland Mine - North Tunnel Bo

Main Stope:

#1	1637	Distance	---	6	Ft. Wide	Values	$ 11.91	$238.20*
2	1638	"	5'	6	"	"	12.48	249.60
3	1639	"	5'	6	"	"	6.46	129.20
4	1640	"	5'	6	"	"	10.10	202.00
5	1641	"	5'	6	"	"	7.71	154.20
6	1642	"	5'	6	"	"	13.38	267.20
7	1643	"	5'	6	"	"	10.45	209.00
8	1644	"	5'	6	"	"	6.89	137.80
9	1645	"	5'	6	"	"	4.92	98.40
10	1646	"	5'	6	"	"	6.17	123.40
11	1679	"	5'	5	"	"	8.63	172.60
12	1680	"	5'	6	"	"	5.89	117.80
13	1681	"	5'	6	"	"	4.35	87.00
14	1682	"	5'	6	"	"	4.49	89.80
15	1696	"	5'	5	"	"	5.34	106.80
16	1697	"	5'	6	"	"	5.34	106.80
17	1698	"	5'	5	"	"	8.14	162.80
18	1699	"	5'	5	"	"	10.52	210.40
19	1700	"	5'	5	"	"	10.10	202.00
20	1701	"	5'	6	"	"	9.18	183.60
21	1702	"	5'	5	"	"	7.57	151.40
22	1703	"	5'	4½	"	"	13.38	267.20
23	1704	"	5'	5	"	"	8.90	178.00
24	1705	"	5'	5	"	"	10.44	208.80

Average value per ton of 24 samples taken from
North Tunnel Body - Main Stope ..... $ 8.45 $169.00

*Equivalent value with gold priced at $700/oz.

(1) Shaft North Side: - North Tunnel Body

#1a	1784	Distance	___	4 ft.	wide	Values	$ 1.83	$ 36.60*
2a	1788	"	5'	4	"	"	3.44	68.80
3a	1791	"	5'	5	"	"	7.99	159.80
4a	1793	"	5'	5	"	"	3.93	78.60
5a	1832	"	5'	5	"	"	5.18	103.60
6a	1833	"	5'	5	"	"	3.44	68.80
7a	1835	"	5'	5	"	"	4.44	88.80
8a	1808	"	5'	5	"	"	1.55	31.00
9a	1809	"	5'	6	"	"	3.65	73.00
10a	1810	"	5'	6	"	"	4.28	85.60
11a	1811	"	5'	4	"	"	7.23	144.60
12a	1812	"	5'	5	"	"	8.42	168.40
13a	1836	"	5'	6	"	"	5.74	114.80

(2) Shaft South Side: - North Tunnel Body

#1b	1786	"	5'	5½	"	"	10.86	217.20
2b	1787	"	5'	6	"	"	12.27	245.40
3b	1790	"	5'	6	"	"	12.12	242.40
4b	1792	"	5'	6	"	"	10.59	211.80
5b	1794	"	5'	7	"	"	6.44	128.80

(3) Shaft Footwall (not well defined, partly vein matter)

#1c	1785	Cross Cuts		5	"	"	3.09	61.80
2c	1789	"		5	"	"	10.79	215.80
3c	1805	"		5	"	"	5.12	102.40
4c	1807	"		5	"	"	1.33	26.60

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(4) <u>Shaft North Side, Red Hanging Wall</u>

Cross cuts (7) with average of $ .64 taken but not considered in assay sheet covering the shaft section.

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(5) South Tunnel (Shaft)

#1f	1803	Distance	---	5 ft.	wide	"	7.37	147.40
2f	1804	"	5'	6	"	"	7.22	144.40
3f	1806	"	5'	6	"	"	8.28	165.60
4f	1830	"	5'	6½	"	"	5.47	109.40
5f	1831	"	5'	5	"	"	5.96	119.20
6f	1834	"	5'	5	"	"	4.56	91.20

Average value per ton of 28 samples taken from North Tunnel Body Shaft Section ..... $ 6.16 $123.20

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*Equivalent value with gold priced at $700/oz.

Assays of Samples taken from the Portland Mine - Surface:

(1) Face at end of Canyon - Rear Entrance to South Tunnel Body:

#1a	1572	Distance ---	7 ft.	wide	Values	$ 2.74	$ 54.80*
2a	1573	"	5' 7	"	"	16.04	320.80
3a	1574	"	5' 7	"	"	4.55	91.00
4a	1575	"	5' 5	"	"	1.97	39.40
5a	1576	"	5' 5	"	"	5.82	116.40
6a	1577	"	5' 5	"	"	3.92	78.40
7a	1578	"	5' 5	"	"	4.07	81.40
8a	1579	"	5' 5	"	"	4.07	81.40
9a	1611	"	5' 5	"	"	4.07	81.40
10a	1612	"	5' 5	"	"	4.48	89.60
11a	1613	"	5' 4	"	"	2.94	58.80
12a	1614	"	5' 5	"	"	2.73	54.60
13a	1615	"	5' 4	"	"	3.37	67.40

(2) Footwall at end of Canyon -
Rear Entrance to South Tunnel Body:

#1b	1571	" " "	Cross Cut			2.17	43.40

(3) West End Quarry:

#1c	1604	"	5' 5	"	"	2.25	45.00
2c	1605	"	5' 5	"	"	2.67	53.40
3c	1608	"	5' 5	"	"	2.03	40.60
4c	1609	"	5' 5	"	"	1.54	30.80
5c	1610	"	5' 5	"	"	2.38	47.60

(4) West End Quarry Footwall (not well defined)

#1d	1606	Cross Cut A				2.25	45.00
2d	1607	" " B				2.53	50.60

(5) North Tunnel Body - Surface:

#1e	1674	Distance ---	4	"	"	8.75	175.00
2e	1675	"	10' 5	"	"	11.14	222.80
3e	1676	"	10' 5	"	"	7.99	159.80
4e	1677	"	10' 5	"	"	11.78	235.60
5e	1678	"	10' 5	"	"	8.62	172.40

(6) North Tunnel Body - Surface Footwall:

#1f	1673	Cross Cut				3.93	78.60

Average value per ton of 27 samples taken from various parts of the surface of the Portland Mine .. 4.84 96.80

*Equivalent value with gold priced at $700/oz.

Portland Mine, Mohave County,

Humboldt, Arizona.
Jan. 18, 1950.

Mr. Bardon, Pres.,
Shattuck Denn Mining Corp.,
New York.

Tom Newell and I, with Mr. Ray Jones, visited this property on January 13th. The general features of this mine, its past production and grade of ore have been reported on by Joe Wilcox and Jack Hamilton and will not be repeated in this letter. Enclosed is a rough map which I made from Brunton and pacing notes, and several photographs. Accurate maps were not available.

The vein consists of a sheet of metamorphosed silicified rhyolite containing abundant quartz and quartz-calcite. As observed in the south pit and in the underground workings, the vein has a smooth well defined hanging wall which shows iron stains About 20 feet below this hanging wall, and roughly parallel to it is a basic dike, probably intruded into the structure during a reopening in the vein. Below the dike the footwall material is silicified and brecciated andesite. The metamorphism fades further from the dike, but is pronounced for as much as 40 feet. Below this the andesite is but little altered.

The adit shown at the south end of the map was the haulage level. It is caved at the face, and its course between the cave and the point at which we were able to enter it from the north face of the stope is in doubt. Apparently the portal was in the hanging wall part of the vein, it crossed into the footwall and then turned easterly across the dike. From the north face of the stope the adit trends westerly and again gets below the dike. Just north of this dike is a crosscut 50' long which ends in normal andesite. About 80 feet north of this crosscut a connection has been made to the adit run south from the north pit. This north drift is 10 feet higher in elevation, and the map gives a false impression of an offset in the dike because of the difference in elevation.

The mining in the north pit was from below the dike, which at the south end of the pit is about 30 feet higher than the pit floor. The ore removed from the underground stope was the ton feet immediatly below the hanging wall, and in no place in the stope was the dike visible, indicating that the full thickness of the upper part of the vein was not mined. The stoped areas extend several hundred feet down the dip below the adit level. Part of this stope collapsed because of inadequate pillars, making it apparently impossible to haul ore out the south adit. It is probable that about 80,000 tons came from this stope. Subsequent ore came from shovel operation in the south pit.

The silicified footwall andesite is exposed in the southwest corner of the south pit, and is well shown on the second print which also shows the dike immediatly above.

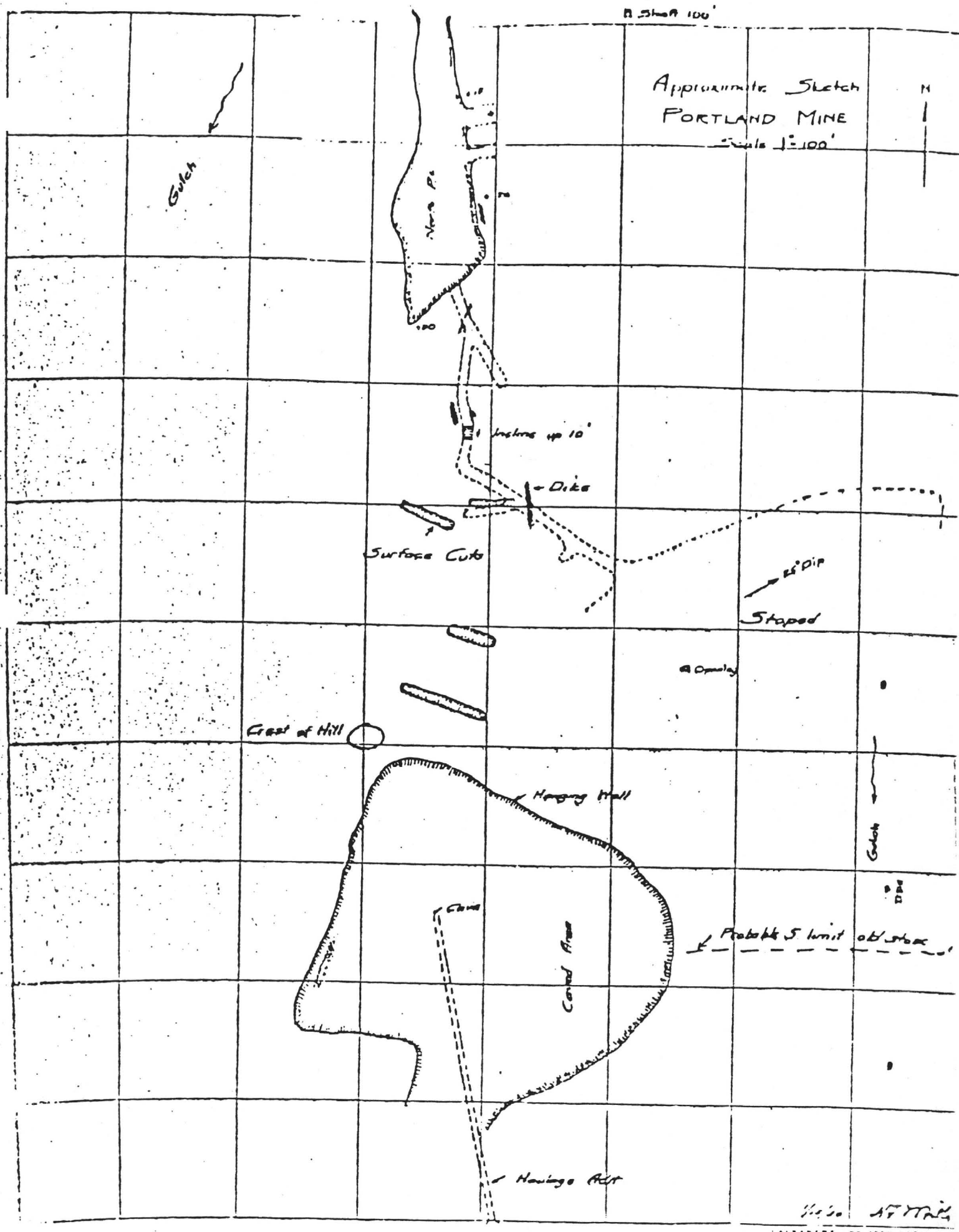
Without an accurate map it is difficult to approximate tonnage available for shovel mining The highest point of the hill is about 90 feet above the adit level. Assuming that ten feet is avarage moning thickness, there may be 120,000 tons north of the stope and eastward to a point at which waste stripping becomes excessive. It is possible that with low costs of shovel mining that 20 or even 30 feet of thickness could be extracted. However, with an absence of sampling this is pure speculation. Three drill holes have been put down from a gulch just east of the hill and are said to have penetrated the dike at about 150'. If the assay results on these holes can be obtained, and if the gold content and thickness are favorable the property has some possibilities of underground mining, as there is a possibility of a considerable tonnage if values extend about 1000 feet down the dip below the stope and over the 1000 feet along the strike covered by this map.

It seems reasonable that operating margins on the grade of ore previously extracted would be very low after costs of underground mining, fine-grind milling and either amortization of plant and water and power installation or truck haul and milling costs at the producers mill with its limited capacity. I believe that the remaining tonnage available for shovel mining is too limited to justify the expense of a limited operation.

Mr. Jones advised us that he had notified Kennecott, Howe Sound and the Gould interests that the property was available for sale on the basis of $50,000 cash with $5,000 down to secure refusal of the property for 90 days with the additional $45,000 put into escrow with the deed. This is a shotgun or first come first served proposition. The Portland is certainly not without merit, and an extensive program of drilling might indicate available tonnages sufficient to justify a large enough milling operation for a profitable operation.

H.F.Mills.

Jan. 18, 1950.


Approximate Sketch
PORTLAND MINE
Scale 1"=100'
N
Gulch
Incline up 10'
Dike
Surface Cuts
Stoped
Crest of Hill
Hanging Wall
Gulch
Probable S. limit old stoping
Caved Area
Hauling Raise

SUMMARY REPORT

ON THE

PORTLAND MINE PROPERTY

MOHAVE COUNTY, ARIZONA

OF

JORINEX EXPLORATION & MINING LIMITED

L.D.S.Winter
B.A.Sc., M.Sc., F.G.A.C.
October 14, 1983

(Poor original)

1. INTRODUCTION

In March of 1983 Jorinex Exploration and Mining Limited, a private Ontario company entered into a joint venture agreement with a Mr. Antonio Aguiar of San Diego, California to develop and mine the Portland Mine gold-silver orebody in Mohave County, Arizona. In early May, 1983, pad leaching of 15,000 tons of ore commenced and to date 37,500 tons of ore with an average grade of 0.066 oz Au/T have been placed in the pads.

Initial test work had indicated a 60% gold recovery after three weeks in column leach tests, however the leaching to date indicates the gold recovery is only about 35% of the total contained values. A leach pond to treat approximately 4500 tons of ore is presently being installed to assess the viability of pond leaching to increase the gold recoveries. If this approach shows positive results then it is proposed that the operation would move to leach all the ore in this fashion.

2. PROPERTY, LOCATION AND ACCESS

The property consists of 3 continguous patented mining claims and 19 located claims jointly owned by Samuel L. Clark et al of Anaheim, California.

The Portland Mine is located in the Weaver Mining District of Mohave, County, Arizona approximately 45 miles south of the Boulder Dam, 27 miles north of Kingman, Arizona and 8 miles west of US highway 93 from which it can be reached by gravel roads.

3. AGREEMENTS

The owners, Samuel L. Clark et al, retain a 6% royalty based on the head gold and silver assay with the property being optioned to Aguiar and operated under a joint venture agreement between Aguiar and Jorinex Exploration and Mining Inc., an Arizona company which is a wholly owned subsidiary of Jorinex Exploration and Mining Limited. Jorinex is required to provide the funds to place the property in operation and after return of these funds any profits from the operation are split 50-50 between Aguiar and Jorinex.

4. PREVIOUS WORK

Gold was first discovered in the Oatman-Katherine District, just to the south of the Portland Mine, by soldiers in 1863-1864. Most mining activity took place between 1900 and 1925 and 1930 to 1942.

Development records indicate that the Portland Mine shipped 132,000 tons with a recovered grade of 0.225 oz Au/T to the Katherine mill before the Katherine mine flooded and the mill was closed in 1939.

Since that time a number of appraisals have been made of the property. C.M. Becker M.E. estimated in 1937 that the deposit contained 287,000 Tons at 0.159 oz Au/T. In 1975 Sookochoff (1975) arrived at a tonnage estimate of 300,000 Tons at 0.201 oz Au/T. Using data from ASARCO drilling in 1978 and 1979 plus their own work in 1980 and 1981, Fischer-Watt Mining Co. Inc. estimated that the deposit contained 748,364 Tons grading 0.057 oz Au/T and 0.58 oz Ag/T. with a cut-off grade of

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Sookochoff, L., 1975: Geological Report on the Portland Gold Mines Property, January 14, 1975 for Cedar City Mines Ltd. p. 24.

0.04 oz Au/T. Included in this is the upper or hangingwall portion of the vein which is estimated to be 134,000 Tons averaging 0.095 oz Au/T and 0.61 oz Ag/T. The writer has calculated that the total tonnage could be mined with a stripping ratio of approximately 1.5 to 1.

5. GEOLOGY

The Portland Mine occurs in the Black Mountains of north-western Arizona, approximately 5 miles east of the Colorado River. An uneven terrain of Precambrian gneisses, schists, and acid intrusives is unconformably overlain by a thick sequence of Cretaceous to Tertiary volcanics ranging in composition from felsic to mafic. The rocks have been intruded by porphyries following which they were tilted and faulted.

The Portland mineralization occurs as a strataform "vein" of quartz and calcite up to 100 feet thick striking north-south and dipping at 15°-30° to the east, conformable with the enclosing volcanics. The vein mineralogy is simple, being dominantly quartz and calcite and the gold and silver are reported to occur as finely disseminated grains of electrum within the vein. In general the hangingwall portion of the vein carries the highest values and the grade diminishes towards the footwall.

6. WORK DONE TO DATE

As indicated earlier 37,500 tons of ore with an average grade of 0.066 oz Au/T have been mined and placed on leach pads to date. The necessary solution storage ponds, carbon columns, and stripping facilities have also been put in place.

From the beginning of leaching in May until mid-September 1983 approximately 870 oz Au have been recovered along with a small amount of silver.

The original 15,000 tons of ore that was placed on the pad was only crushed to minus 2" and this appeared to limit the ability of the solutions to leach the ore. As a result a new crusher was obtained in mid-July and the remaining ore has been crushed to minus 3/4". The leaching has also been hampered by a shortage of water but this problem will be readily solved by the drilling of one or two wells in the area. A number of shallow wells indicate that the water table lies about 100 feet below the surface in the region of the mine.

7. OPERATING COSTS

Based on the experiences from early May to mid-September 1983, the operating costs are placed at $US 8.00 per ton (0.02 oz Au/T. for gold at $US 4.00 per oz). From this it can be seen that from the recovery to date the operation is operating at about the break even point.

8. SUMMARY

Jorinex Exploration and Mining Inc. in a joint venture agreement with Antone Aguiar have been operating the Portland Mine in Mohave County, Arizona since early May 1983. The deposit is estimated to contain approximately 750,000 tons grading 0.057 oz Au/T. and 0.58 oz Ag/T. mineable by open pit methods with a stripping rate of 1.5 to 1. To date 37,500 tons of ore grading 0.066 oz Au/T have been mined and are presently being leached using a heap leaching

approach. To mid-September, 670 oz of gold have been recovered for a recovery rate of about 35%.

On an experimental basis a leach pond has been constructed and about 4500 tons of ore is now being processed in this facility. It is considered that this approach will significantly increase the gold recovery and if this proves to be the case then the management would move to treat all the ore in this manner.

L.D.S. Winter

L.D.S.Winter
B.A.Sc.,M.Sc.,F.G.A.C.
October 14, 1983

I .005

I .004

Surface Samples (Not U.G.)

EXPLANATION

ROCK CHIP SAMPLES

0.126 Horizontal sample or sample w/>10' horizontal component.

0.039 Vertical sample or sample w/<10' horizontal component.

0.192 Underground sample (*values in italics*)

Main Vein Complex (projected under cover)

Footwall Breccia (projected under cover)

GOLD VALUES

+ 0.10 oz/ton

0.05 – 0.10 oz/ton

0.025–0.05 oz/ton

< 0.025 oz/ton

Hanging wall sample, all values ≤0.005 oz/ton

Diamond Drill Hole

Rotary Drill Hole

Prospect Trench

north

Surface sample (Not U.G.)

ASSAY MAP – GOLD

PORTLAND GOLD MINE

MOHAVE COUNTY, ARIZONA

scale 1" = 100'

100'

Brunton Triangulation and Pace Control

S.R.Davis

Oct., 1976

Ore Reserve Calculations
Portland Mine Area
Mohave County Arizona

o FWM Drill Hole
□ ASARCO Drill Hole
4725 Area in Sq ft.
Colored areas represent area of influence for each data point.

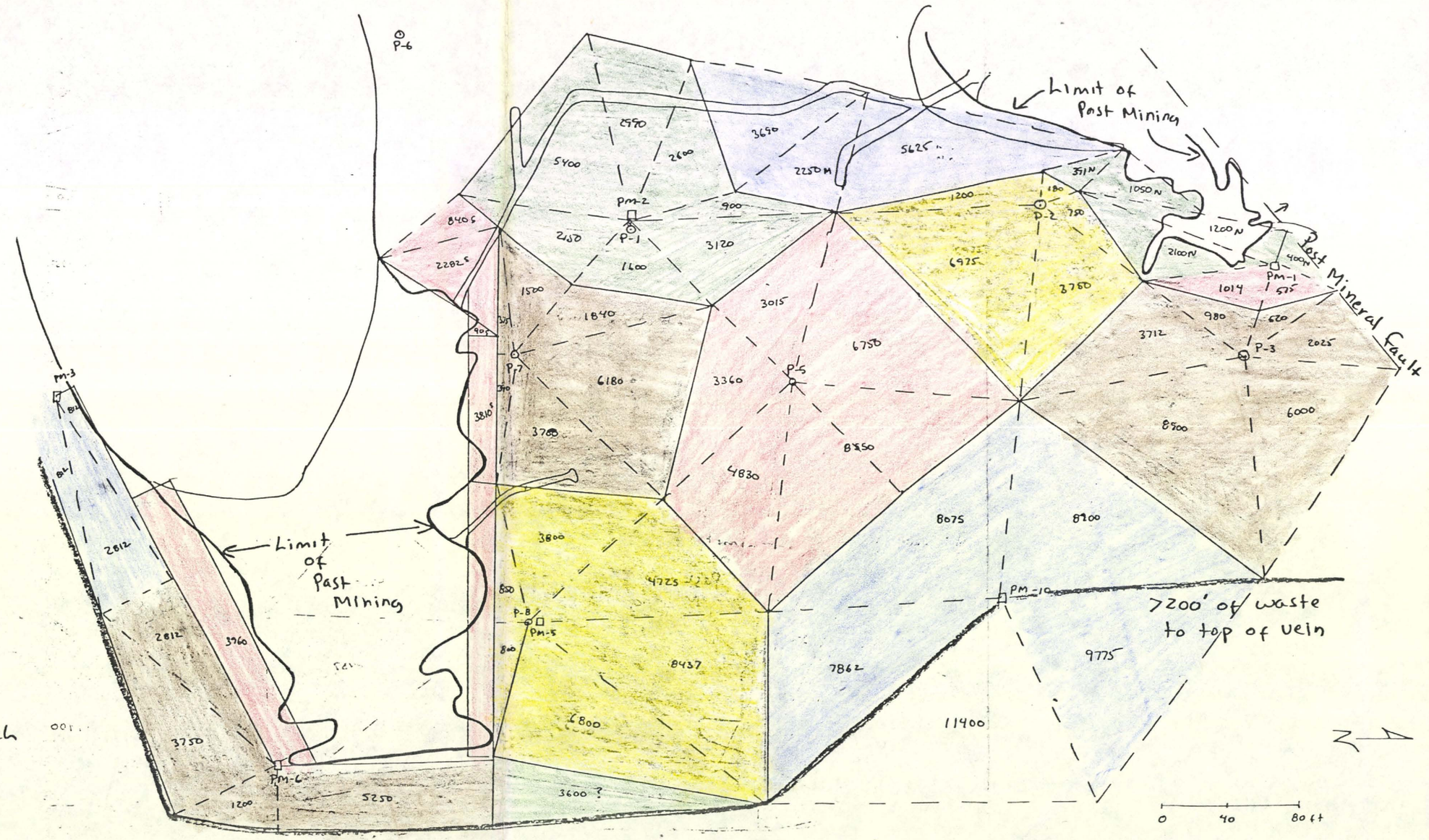
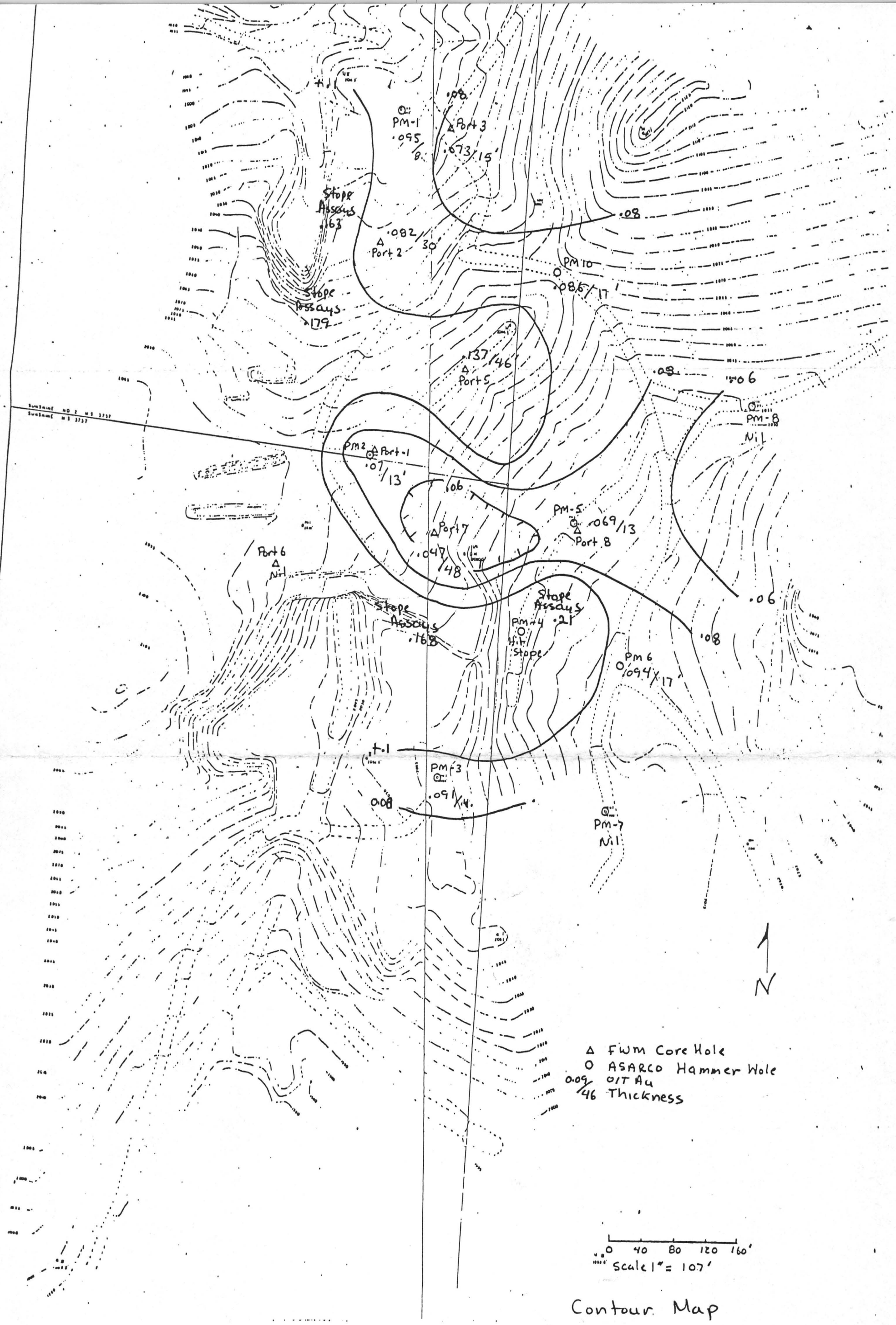
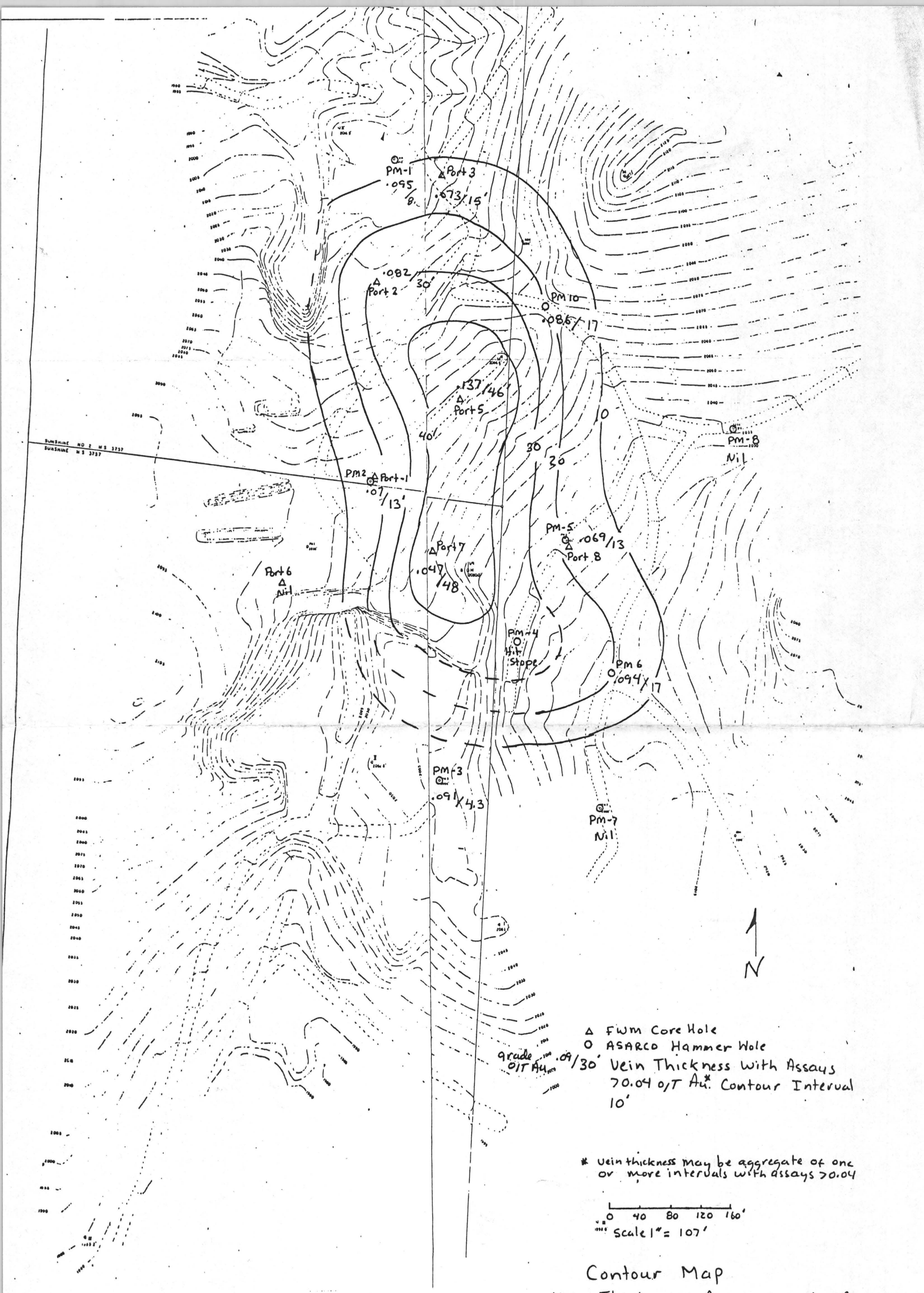


Figure 13



Contour Map
Gold Grades at 0.04 o/T Cut off
Portland Mine Area
Mohave County Arizona

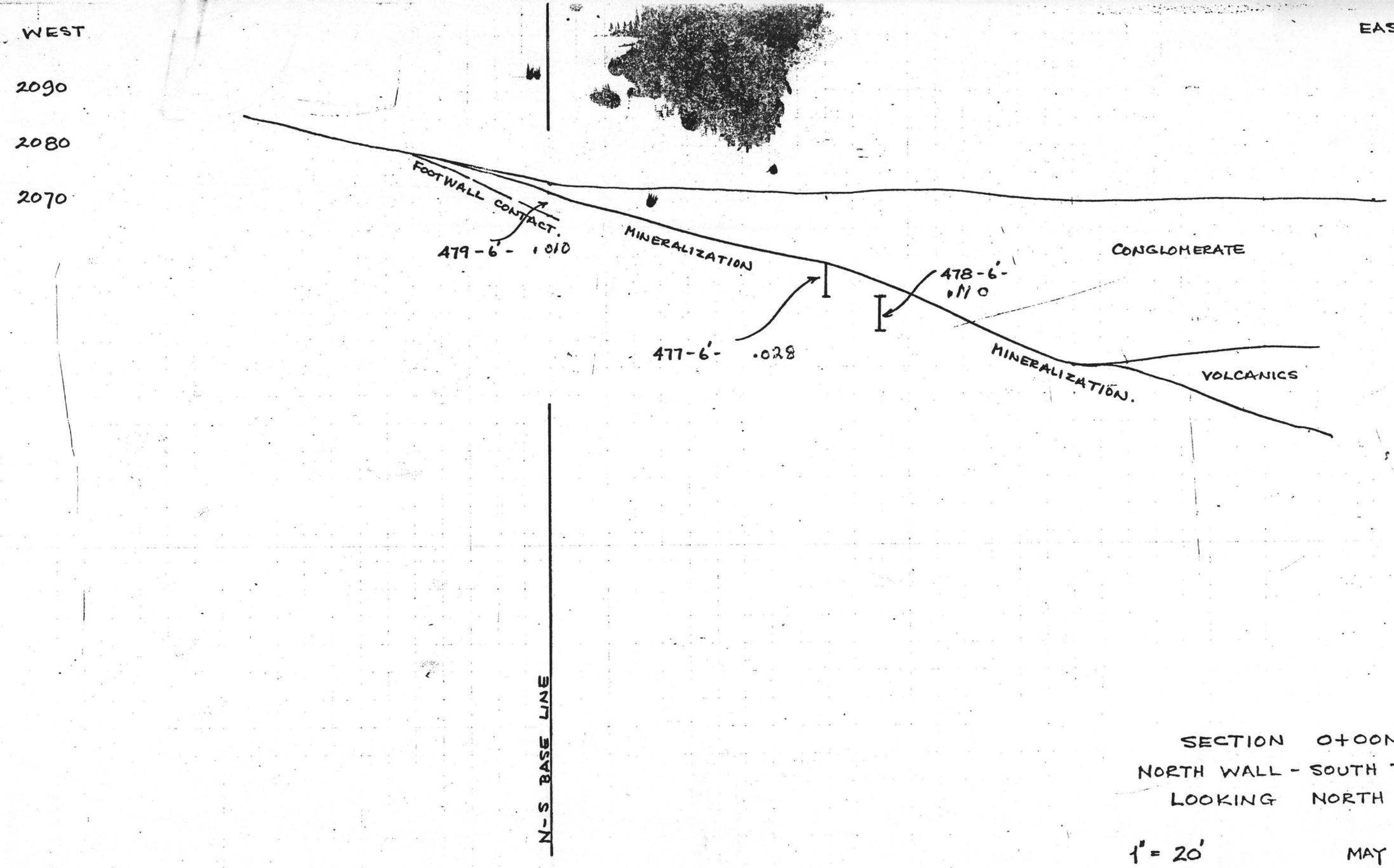
Figure 12



△ FWM Core Hole
○ ASARCO Hammer Hole

Contour Map
Vein Thickness Assays >0.04 o/T Au
Portland Mine Area
Mohave County Arizona

Figure 11

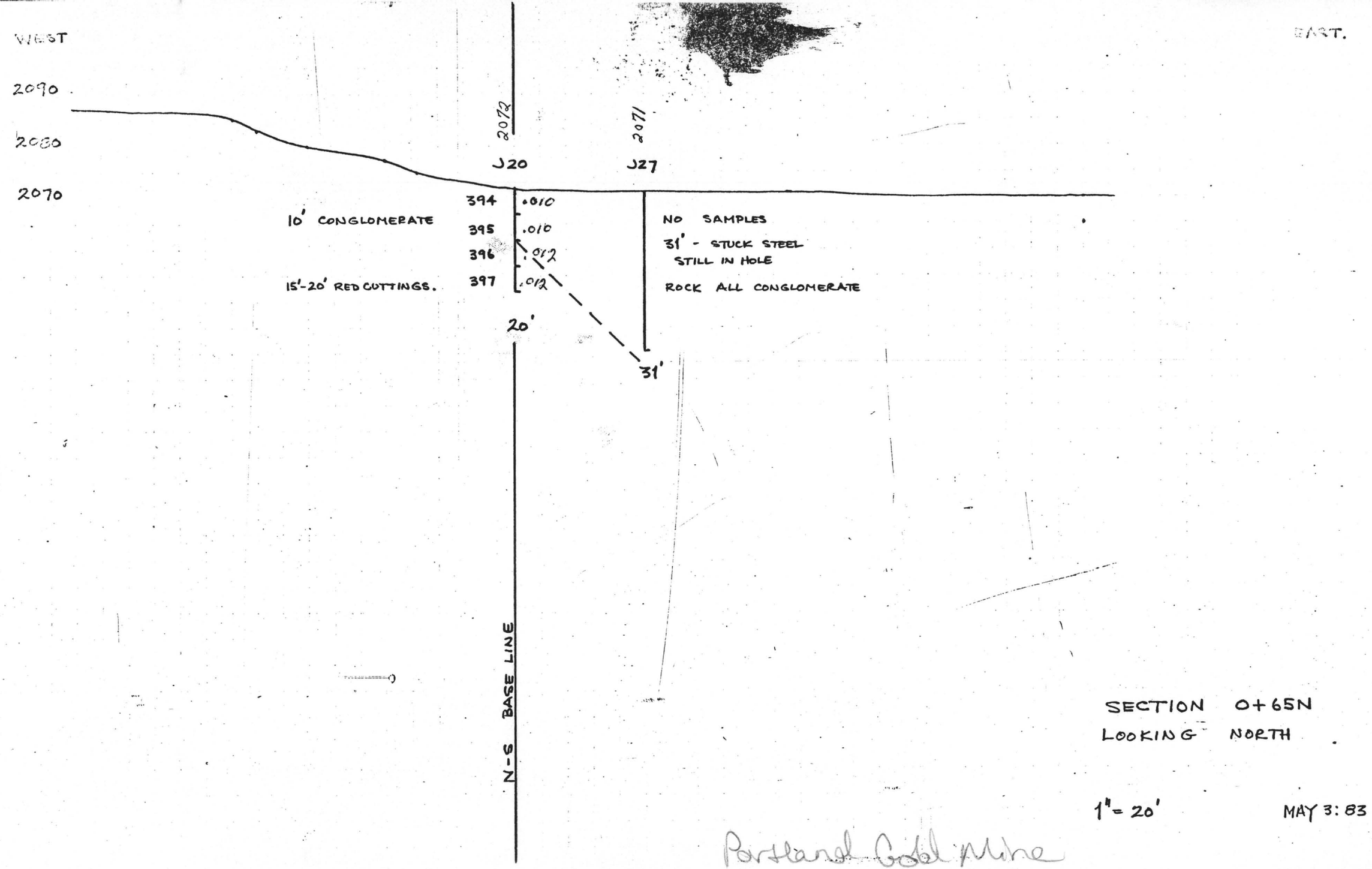


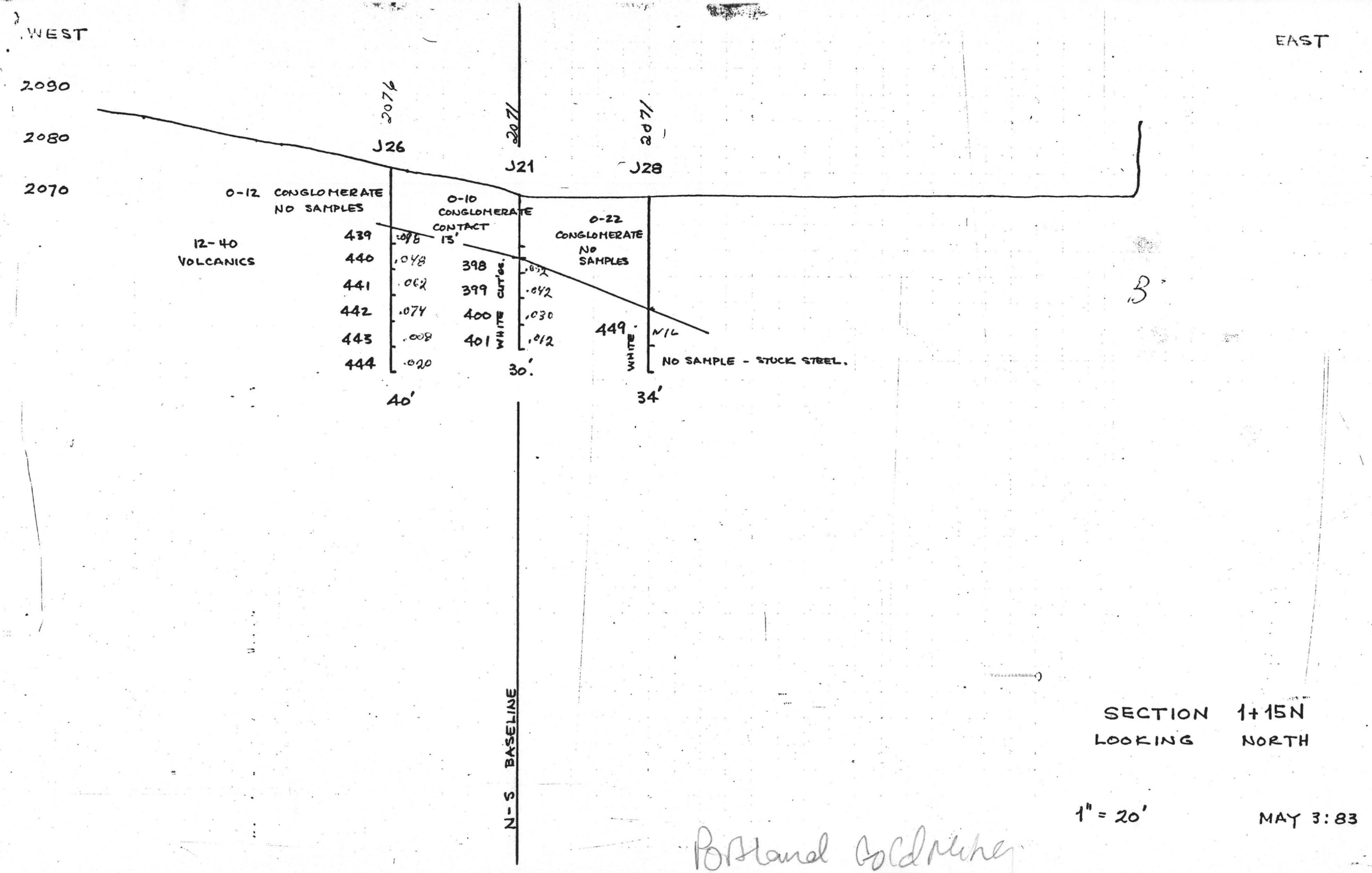
SECTION 0+00N
NORTH WALL - SOUTH PIT
LOOKING NORTH

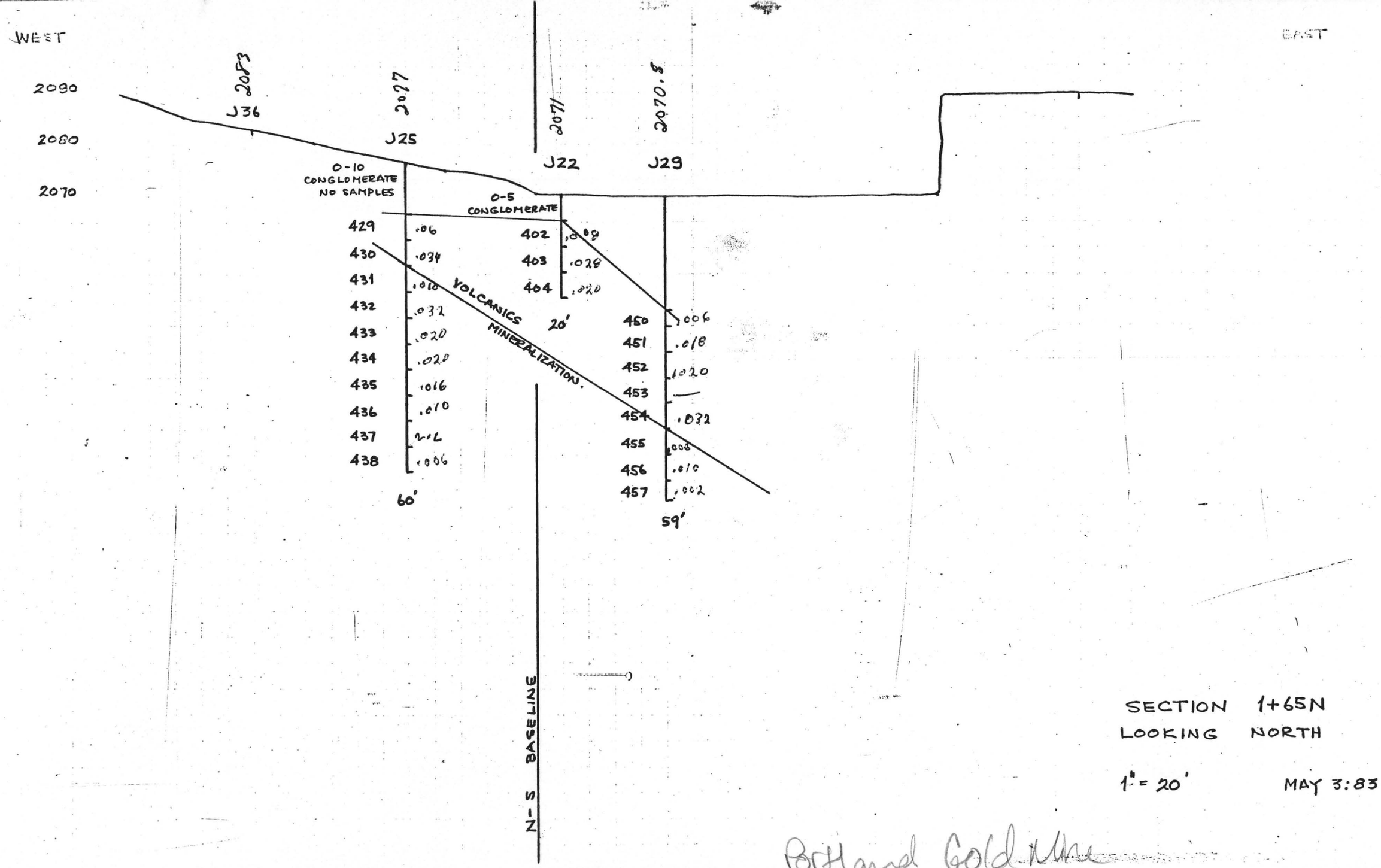
1" = 20'

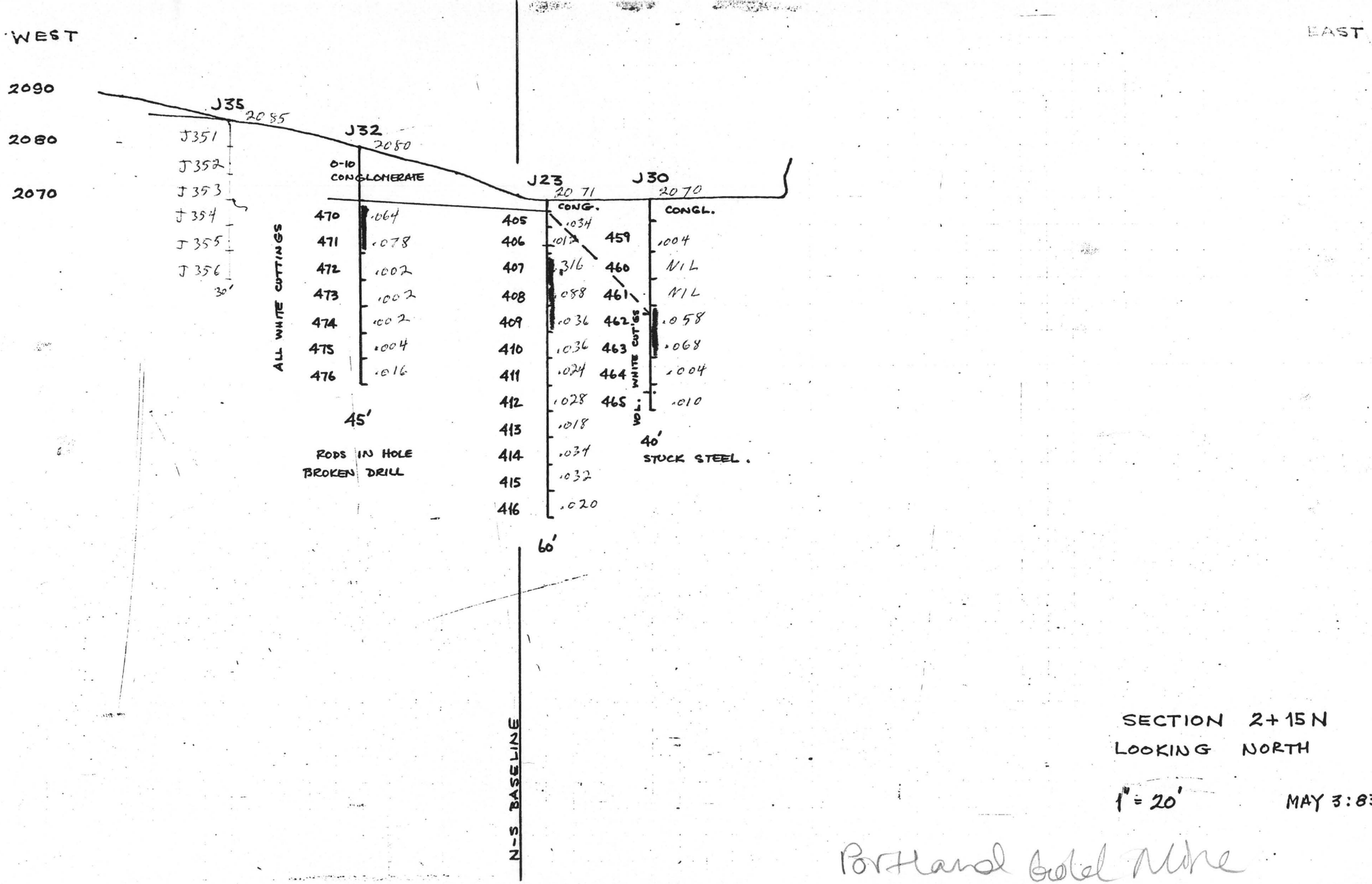
MAY 3:83

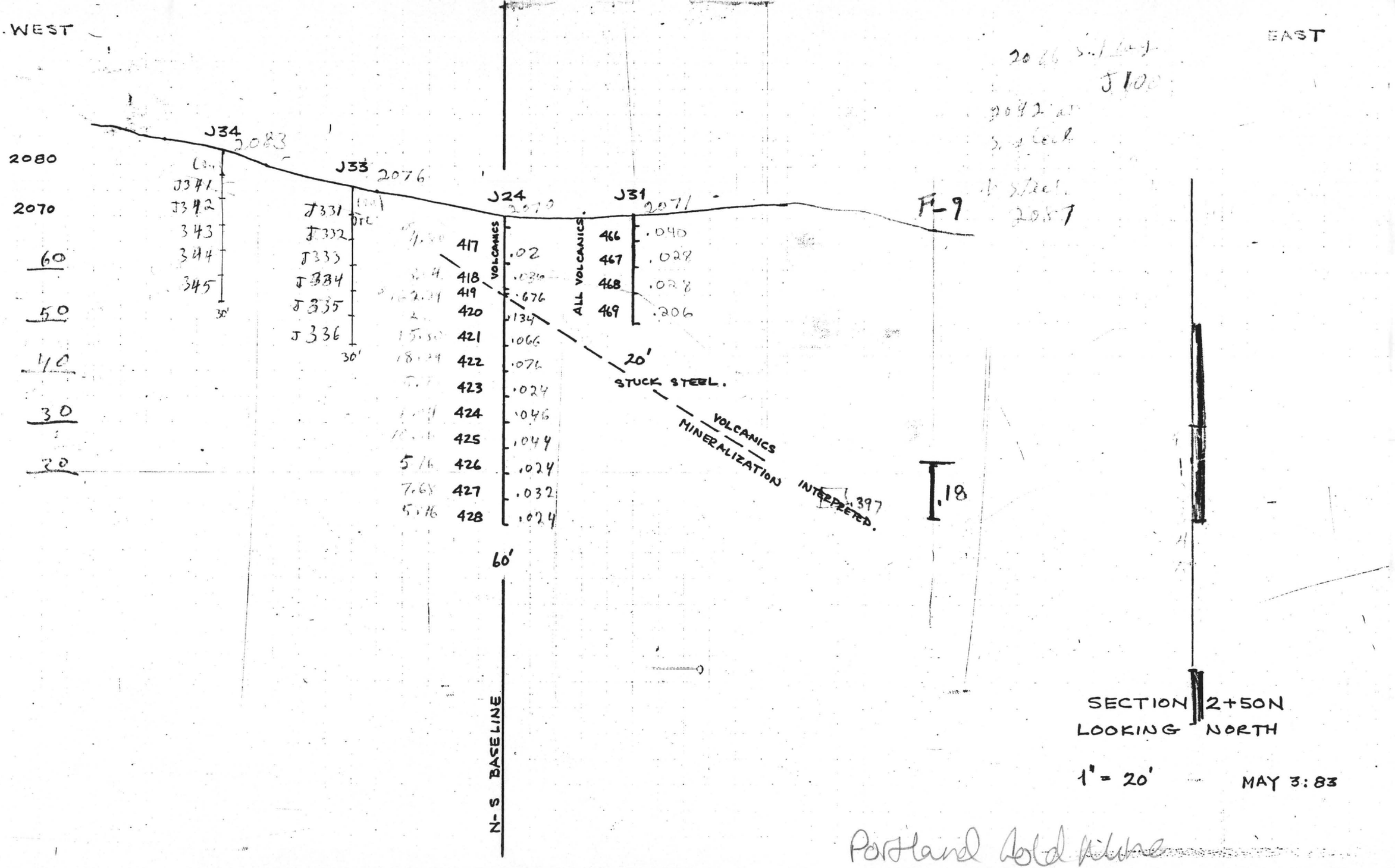
Portland Gold Mine


WEST
EAST.
2090
2080
2070
2072
2071
J20
J27
394
395
396
397
.010
.010
.012
.012
10' CONGLOMERATE
15'-20' RED CUTTINGS.
NO SAMPLES
31' - STUCK STEEL
STILL IN HOLE
ROCK ALL CONGLOMERATE
20'
31'
N-S BASE LINE
SECTION 0+65N
LOOKING NORTH
1" = 20'
MAY 3: 83
Portland Gold Mine

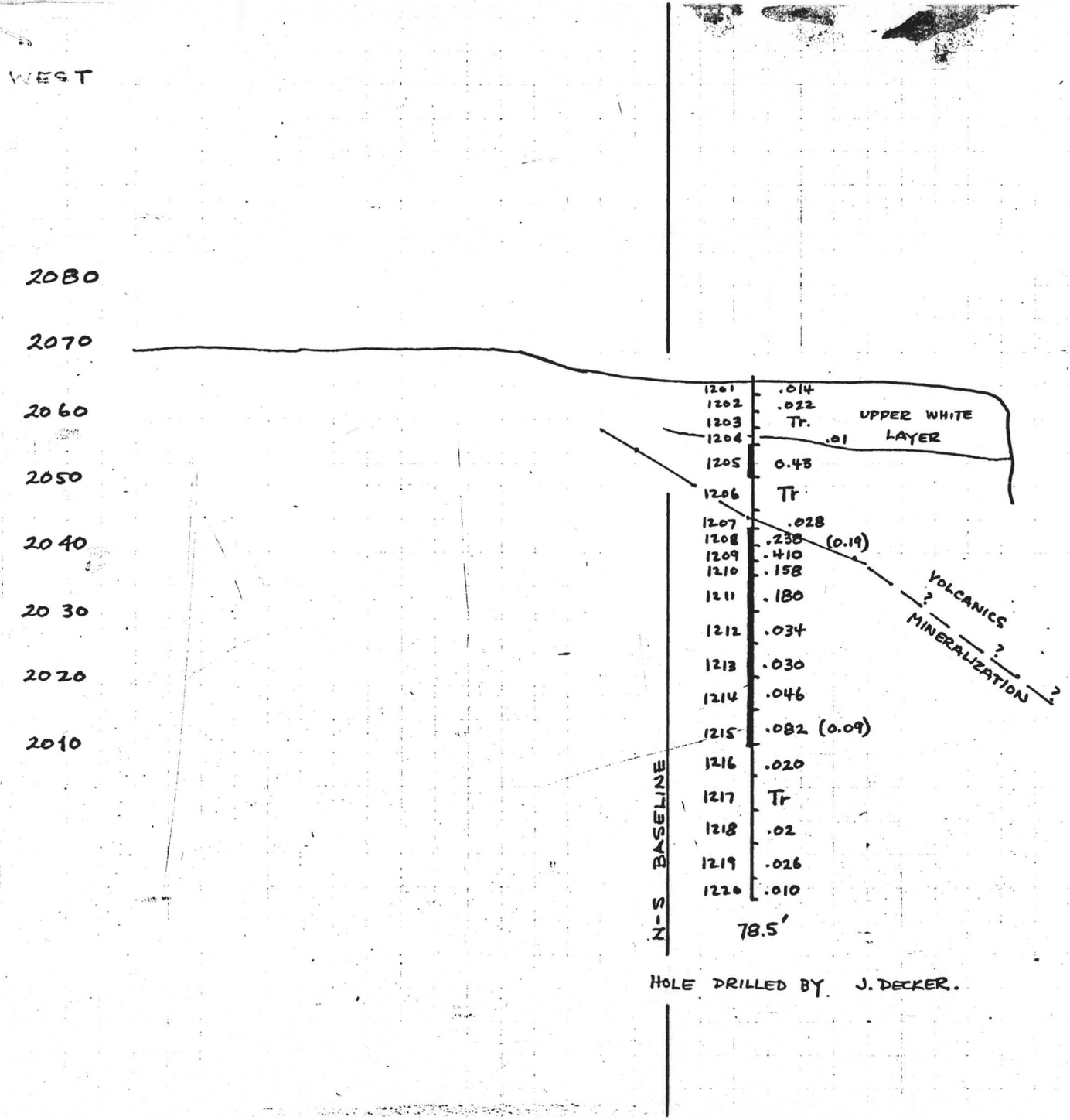

WEST
EAST
2090
2080
2070
2076
2071
2071
J26
J21
J28
0-12 CONGLOMERATE
NO SAMPLES
0-10
CONGLOMERATE
CONTACT
13'
0-22
CONGLOMERATE
NO
SAMPLES
12-40
VOLCANICS
439 .098
440 .048
441 .062
442 .074
443 .008
444 .020
398 .052
399 .042
400 .030
401 .012
WHITE CUT'GS.
449 NIL
WHITE
NO SAMPLE - STUCK STEEL.
40'
30'
34'
N-S BASELINE
3
SECTION 1+15N
LOOKING NORTH
1" = 20'
MAY 3:83
Portland Gold Mines


WEST
EAST
2090
2080
2070
J36
2053
J25
2027
2071
J22
2070.5
J29
0-10
CONGLOMERATE
NO SAMPLES
0-5
CONGLOMERATE
429 .06
430 .034
431 .010
432 .032
433 .020
434 .020
435 .016
436 .010
437 .012
438 .006
60'
402 .008
403 .028
404 .020
20'
450 .006
451 .018
452 .020
453 —
454 .032
455 .004
456 .010
457 .002
59'
VOLCANICS
MINERALIZATION.
N-S BASELINE
SECTION 1+65N
LOOKING NORTH
1" = 20'
MAY 3:83
Portland Gold Mine


WEST
EAST
2090
2080
2070
J35
2085
J32
2080
J23
2071
J30
2070
J351
J352
J353
J354
J355
J356
30'
0-10
CONGLOMERATE
ALL WHITE CUTTINGS
470 .064
471 .078
472 .002
473 .002
474 .002
475 .004
476 .016
45'
RODS IN HOLE
BROKEN DRILL
CONG.
405 .034
406 .012
407 .316
408 .088
409 .036
410 .036
411 .024
412 .028
413 .018
414 .034
415 .032
416 .020
60'
CONGL.
459 .004
460 NIL
461 NIL
462 .058
463 .068
464 .004
465 .010
VOL. WHITE CUTTINGS
40'
STUCK STEEL.
N-S BASELINE
SECTION 2+15N
LOOKING NORTH
1" = 20'
MAY 3:83
Portland Gold Mine



Portland Gold Mine



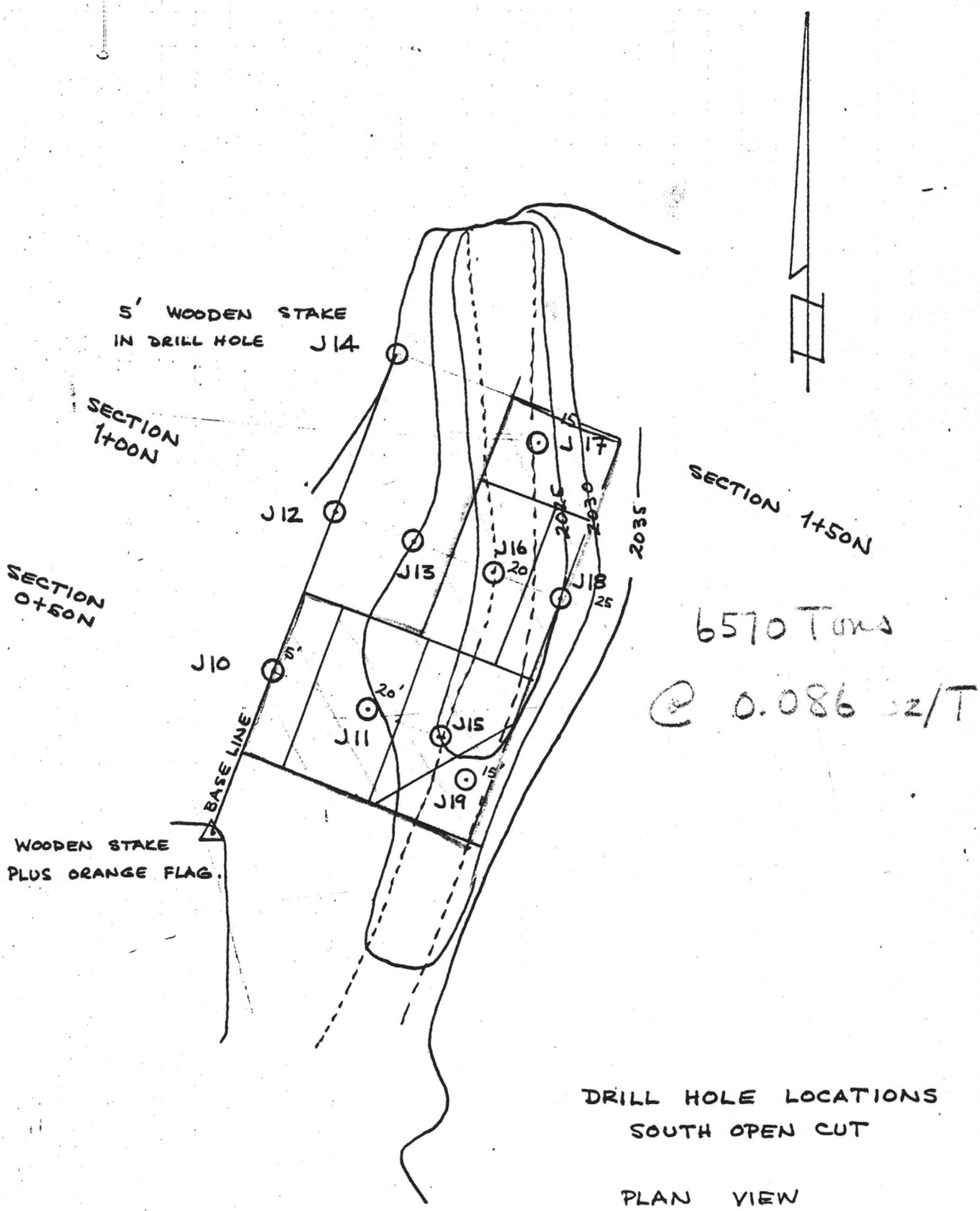
HOLE DRILLED BY J. DECKER.

SECTION 3+20N
SOUTH FACE OF NORTH OPEN CUT.
LOOKING NORTH

1" = 20'

MAY 3: 83.

Portland Gold mine



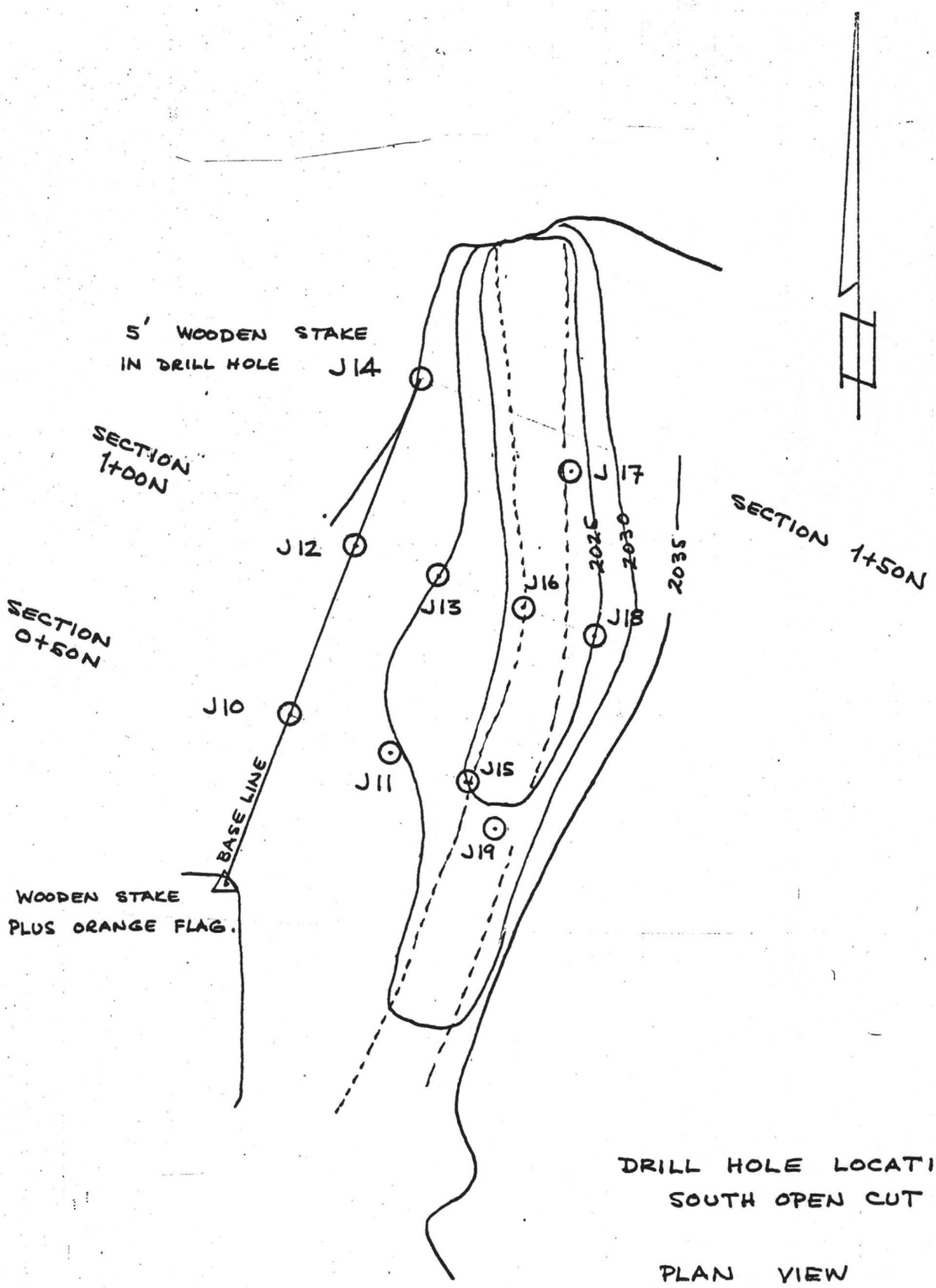
DRILL HOLE LOCATIONS
SOUTH OPEN CUT

PLAN VIEW

1" = 40'

MAY 3 85

Portland Goldmine



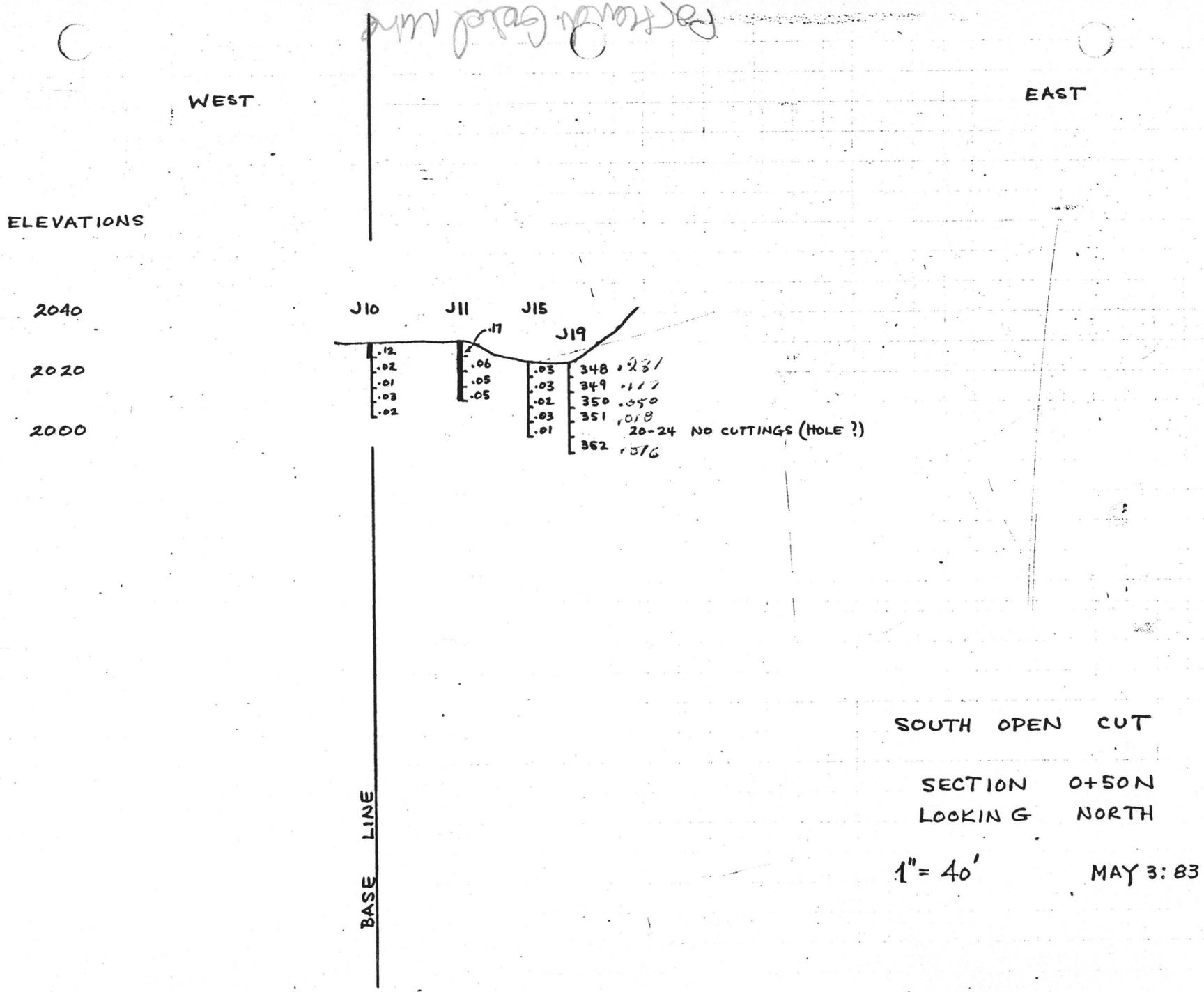
DRILL HOLE LOCATIONS
SOUTH OPEN CUT

PLAN VIEW

1" = 40'

MAY 3: 83

Portland Goldmine

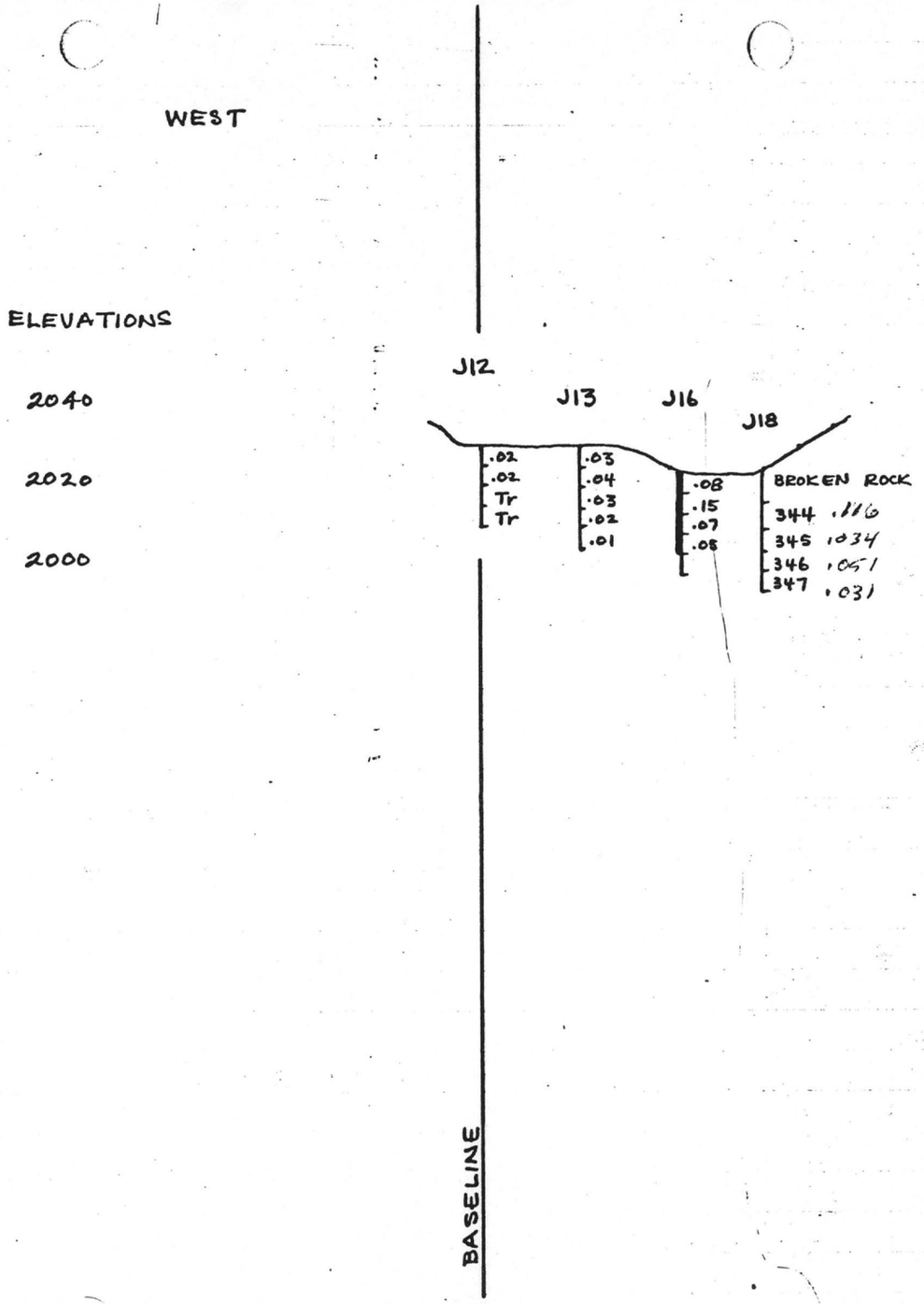


SOUTH OPEN CUT

SECTION 0+50N
LOOKING NORTH

1" = 40'

MAY 3: 83



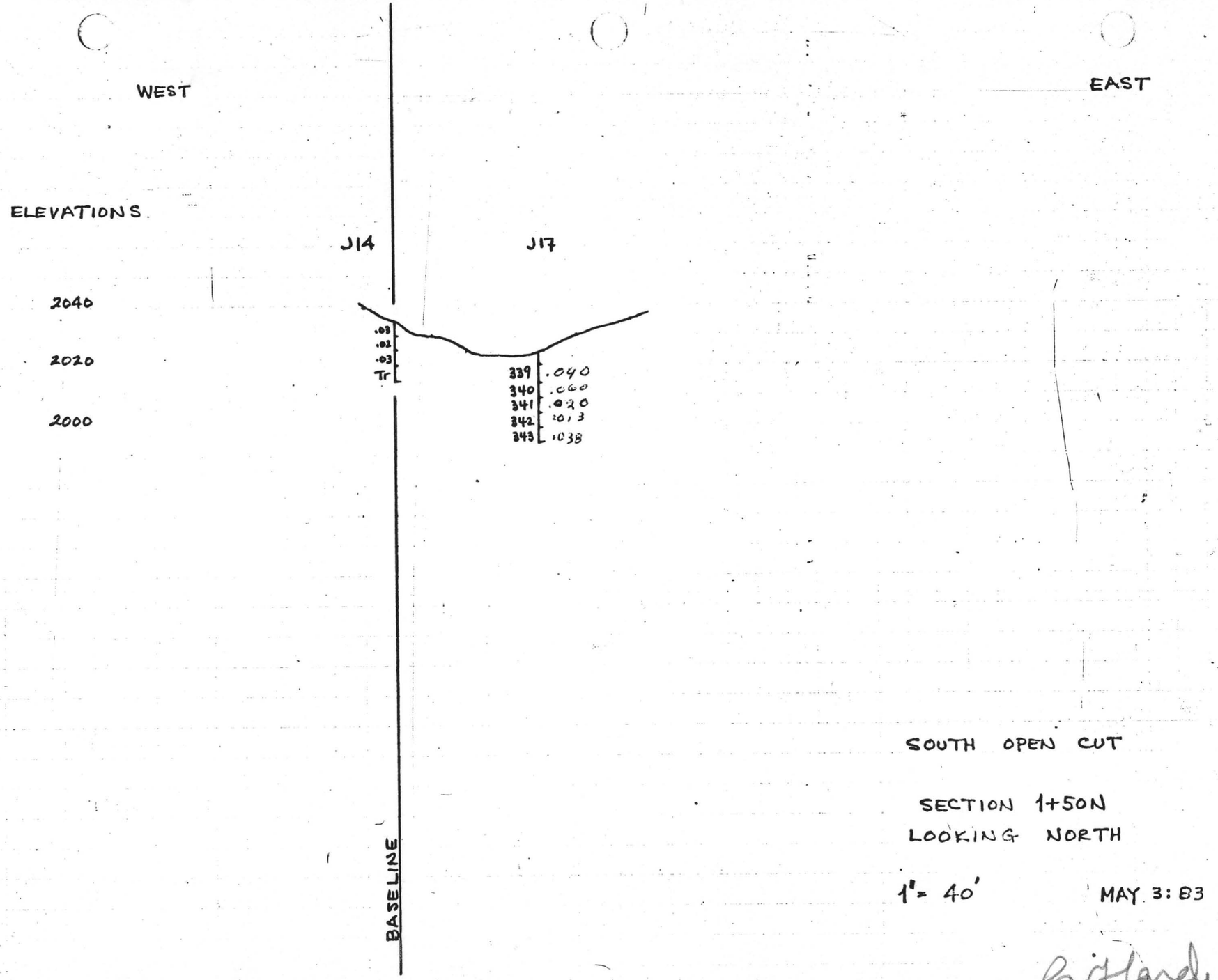
SOUTH OPEN CUT

SECTION 1+00N
LOOKING NORTH

1" = 40'

MAY 8: 83

Portland Gold mine



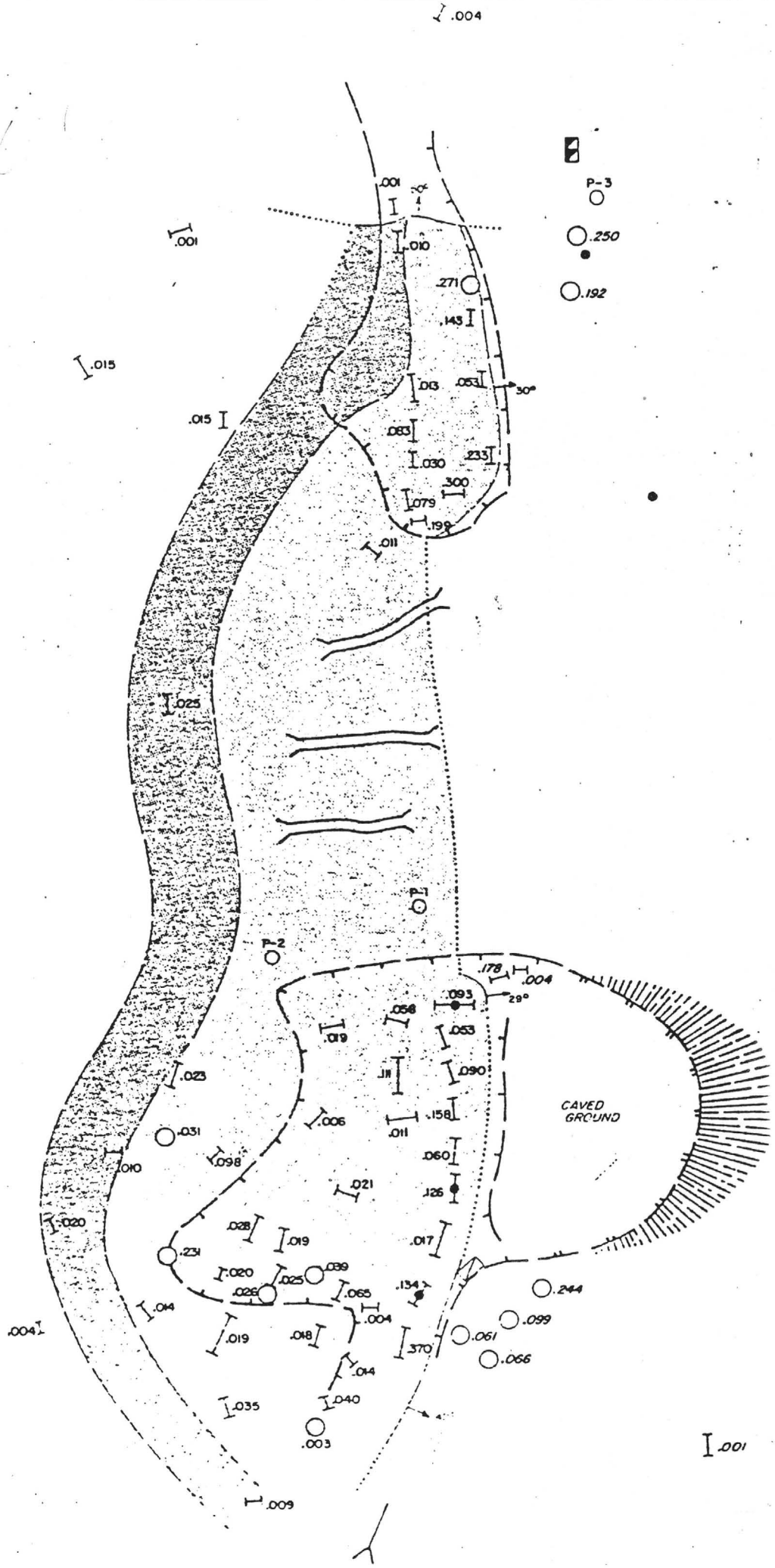
SOUTH OPEN CUT

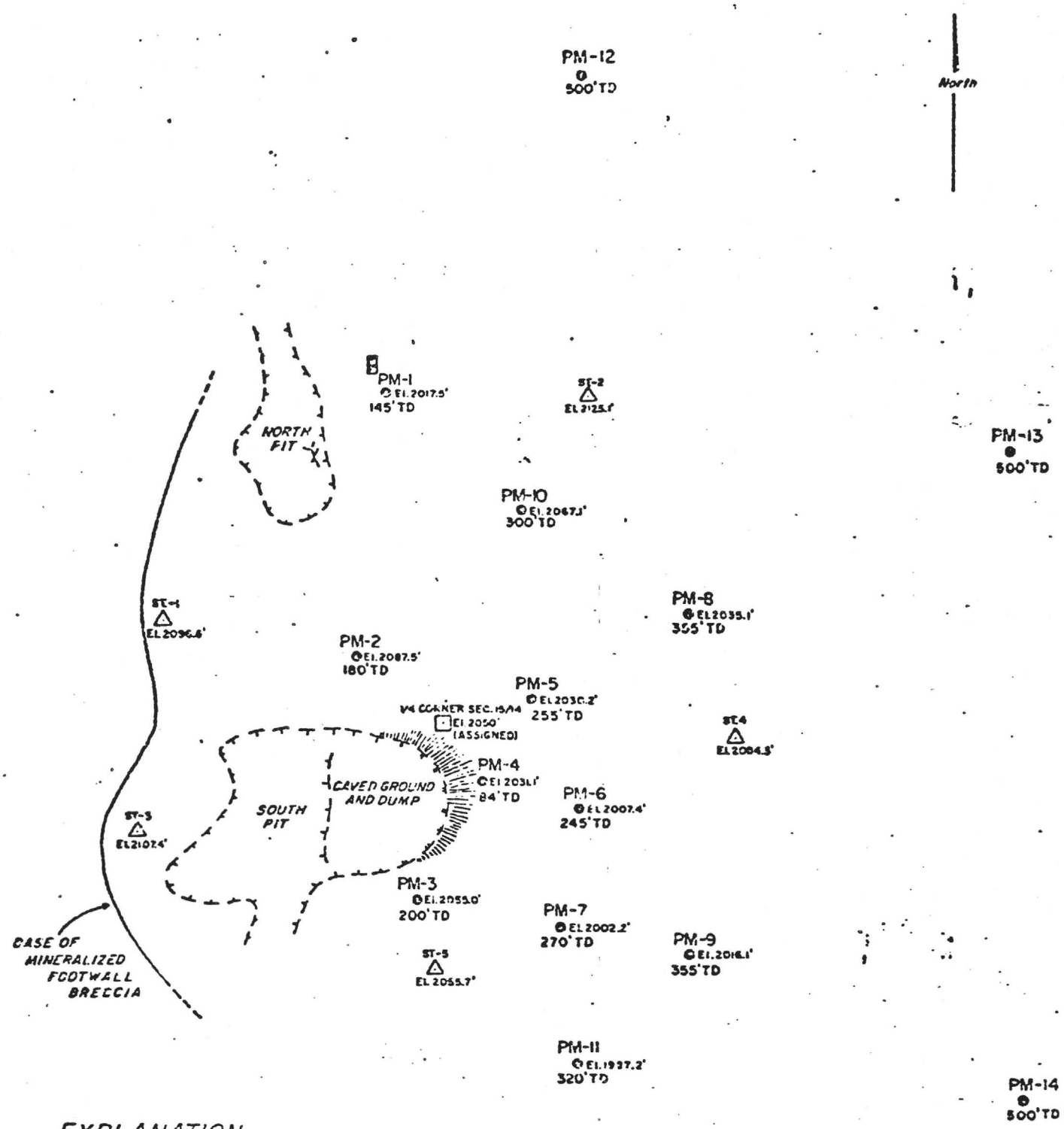
SECTION 1+50N
LOOKING NORTH

1" = 40'

MAY 3: 83

Portland Gold Mine


P-3
P-1
P-2
CAVED GROUND
30°
29°



EXPLANATION

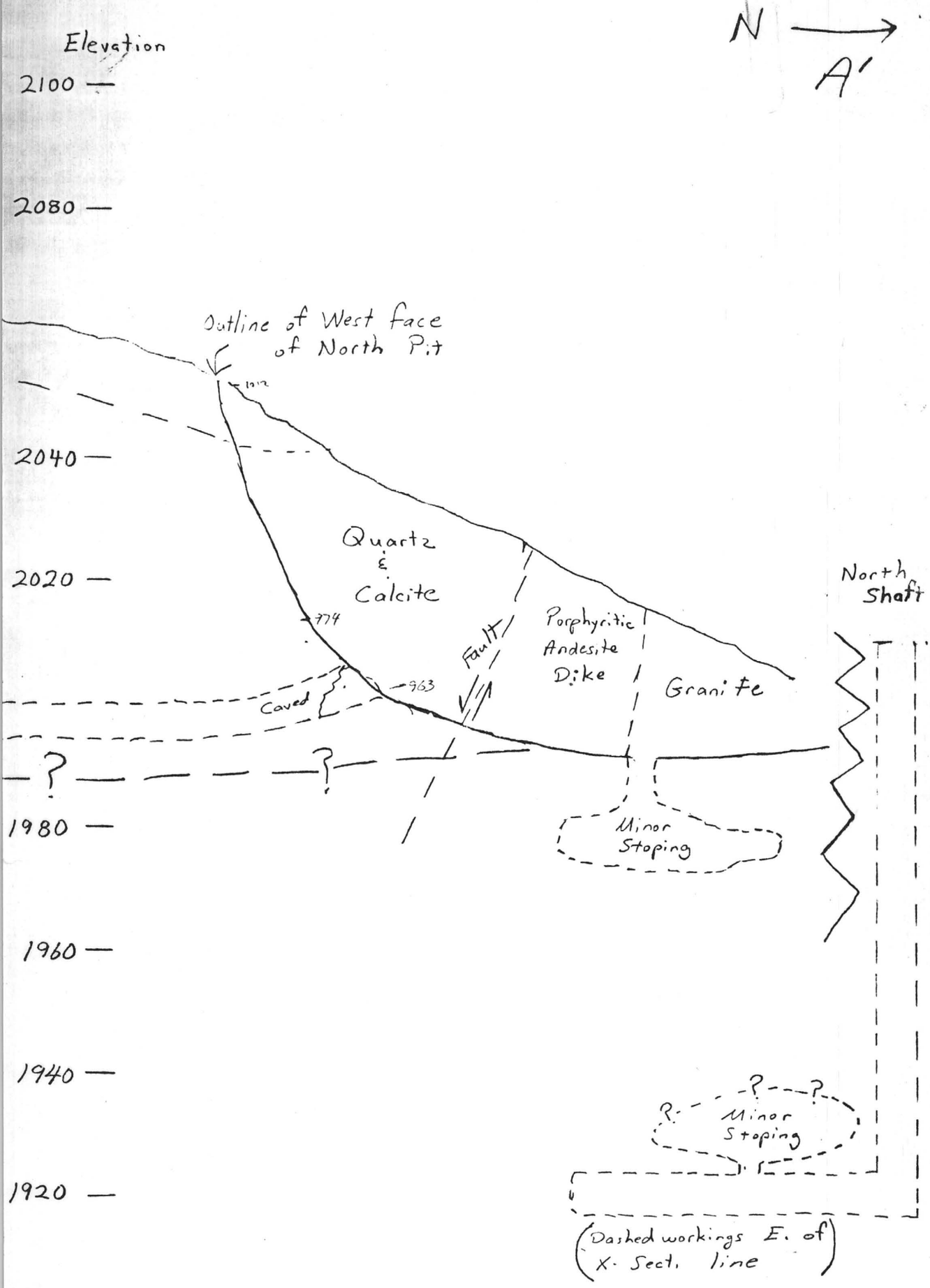
- ASARCO Drill Hole - PM Series
- Triangulation Station

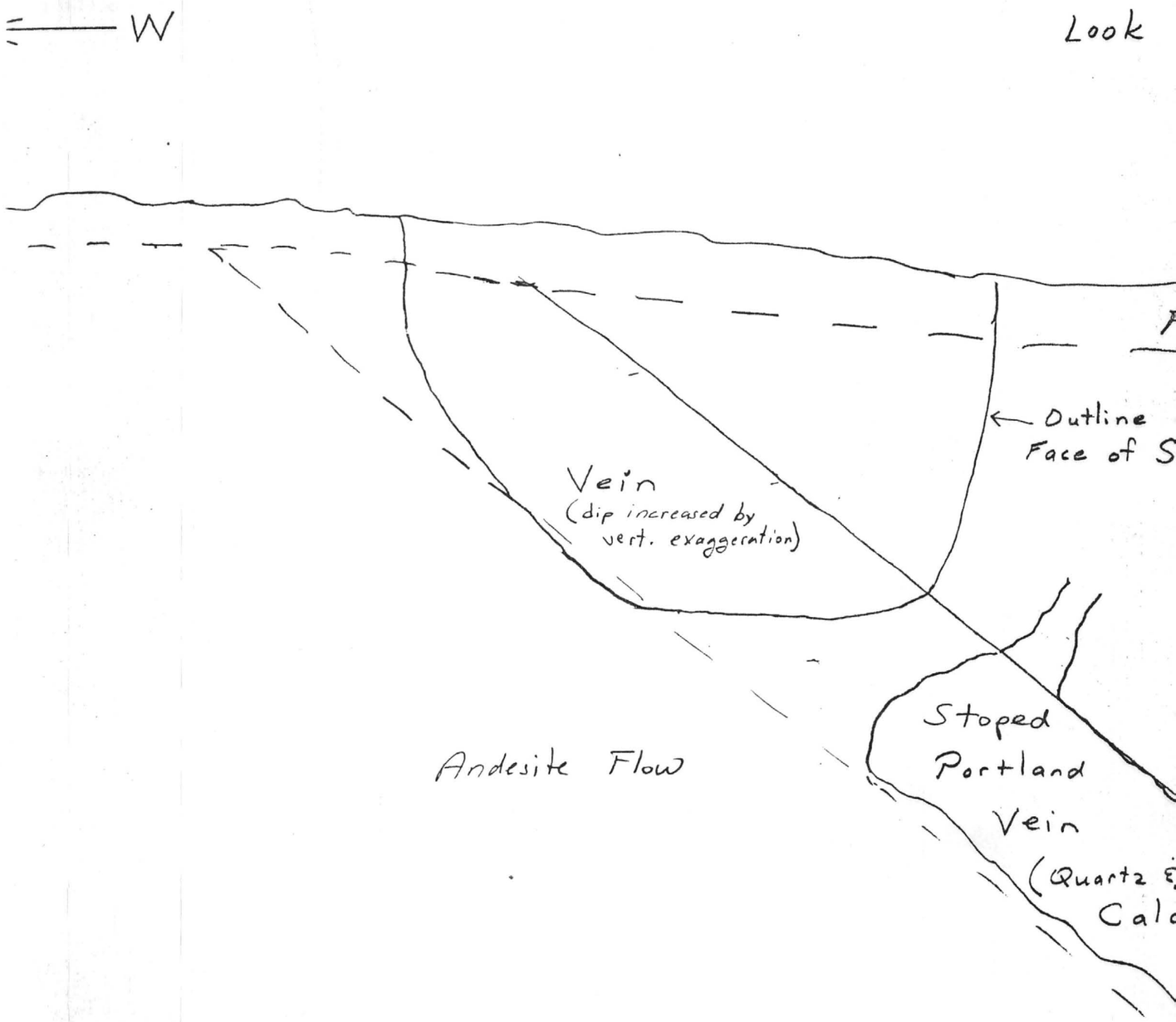
DRILLING PROGRESS MAP

PORTLAND PROJECT
MOHAVE COUNTY, ARIZONA

SCALE: 1" = 200'

0 100' 200'


N
A'
Elevation
2100
2080
2040
2020
1980
1960
1940
1920
Outline of West face of North Pit
1012
Quartz & Calcite
974
963
Caved
Fault
Porphyritic Andesite Dike
Granite
North Shaft
Minor Stoping
Minor Stoping
(Dashed workings E. of X. Sect. line)



Portland Mine - South Orebody

Scale:
Horizontal: 1" = 40'
Verticle: 1" = 20'

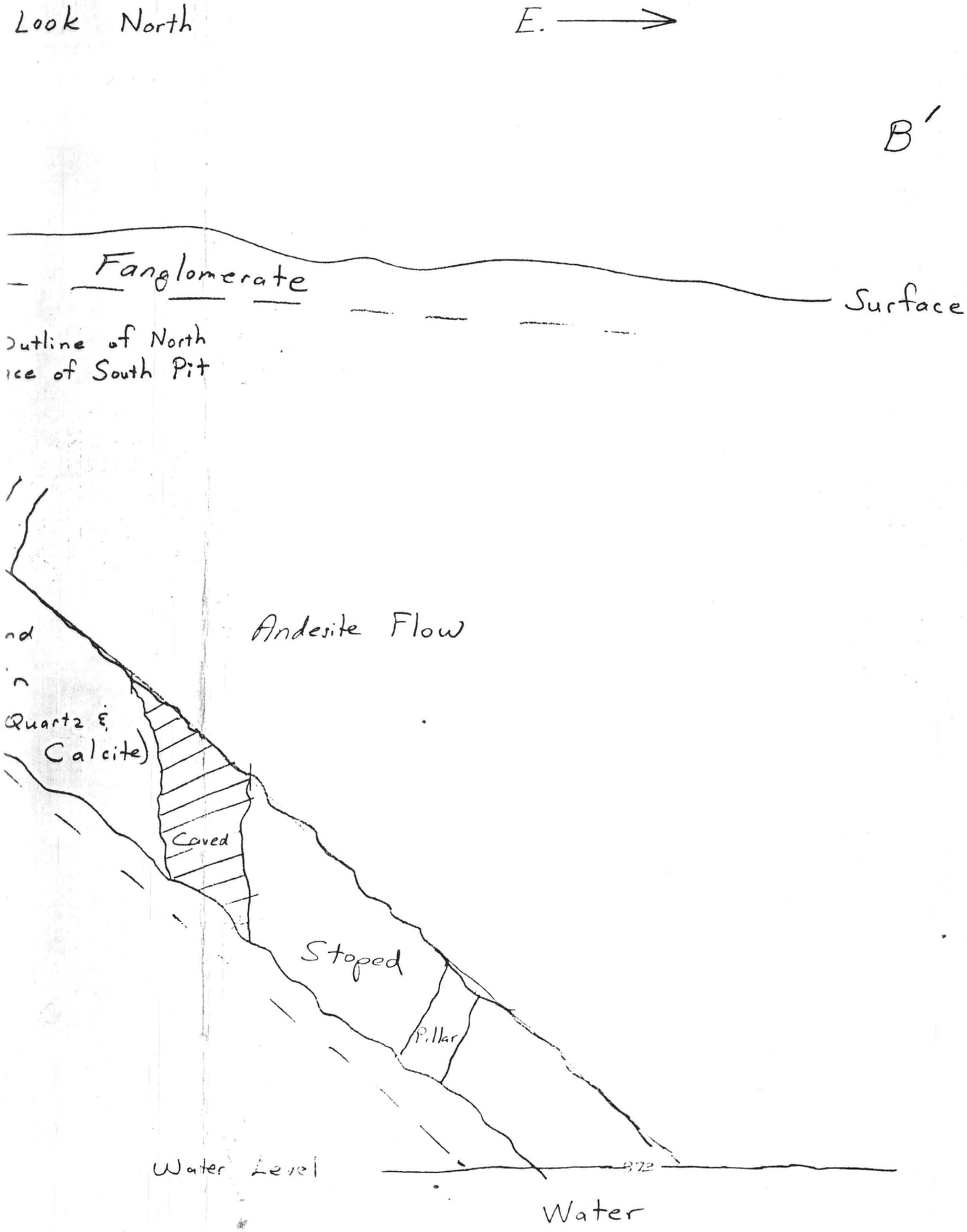
0 20 40 FT.

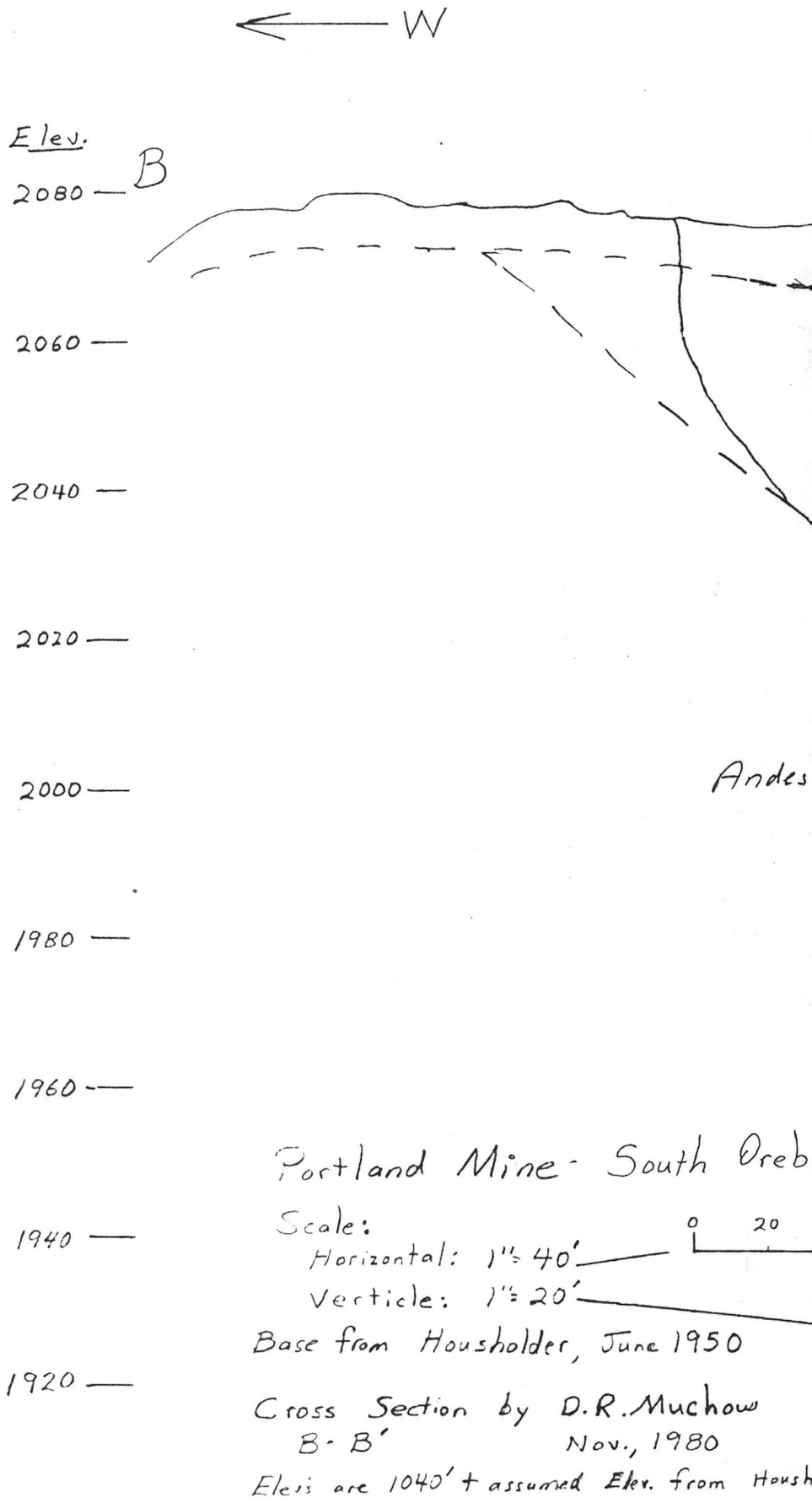
0 10 20 FT.

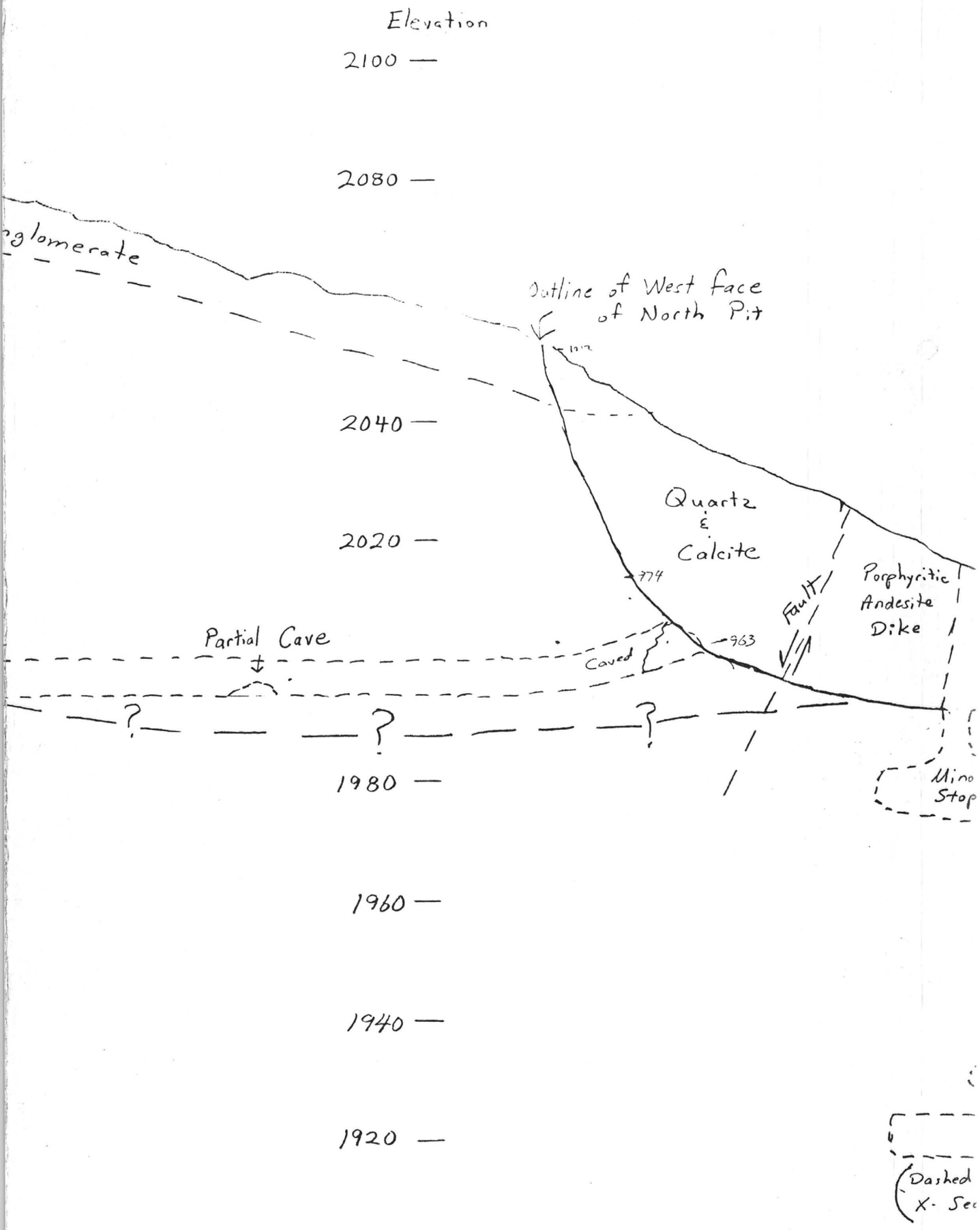
ase from Housholder, June 1950

ross Section by D.R. Muchow
B - B' Nov., 1980

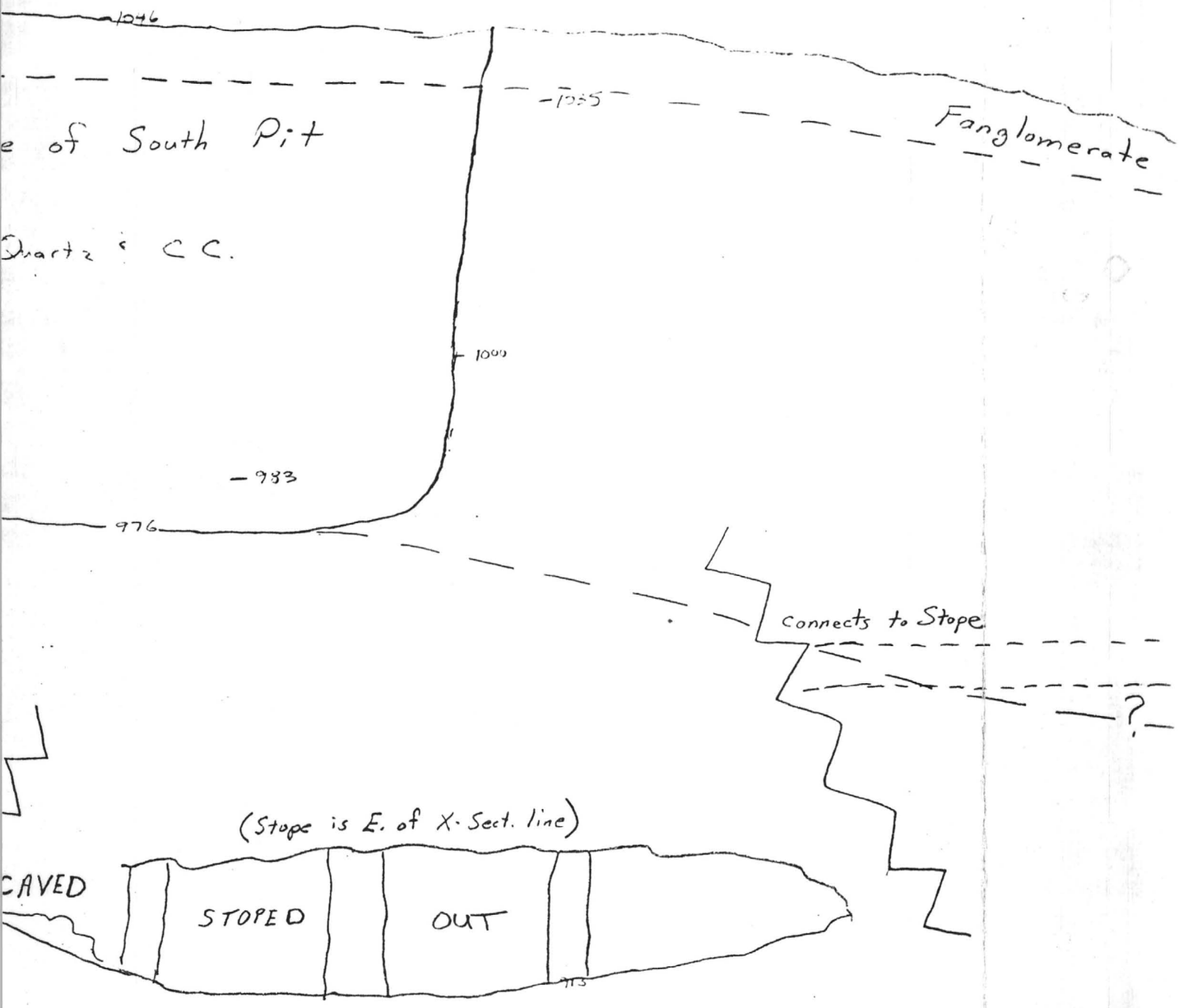
vis are 1010' + assumed Elev. from Housholder.

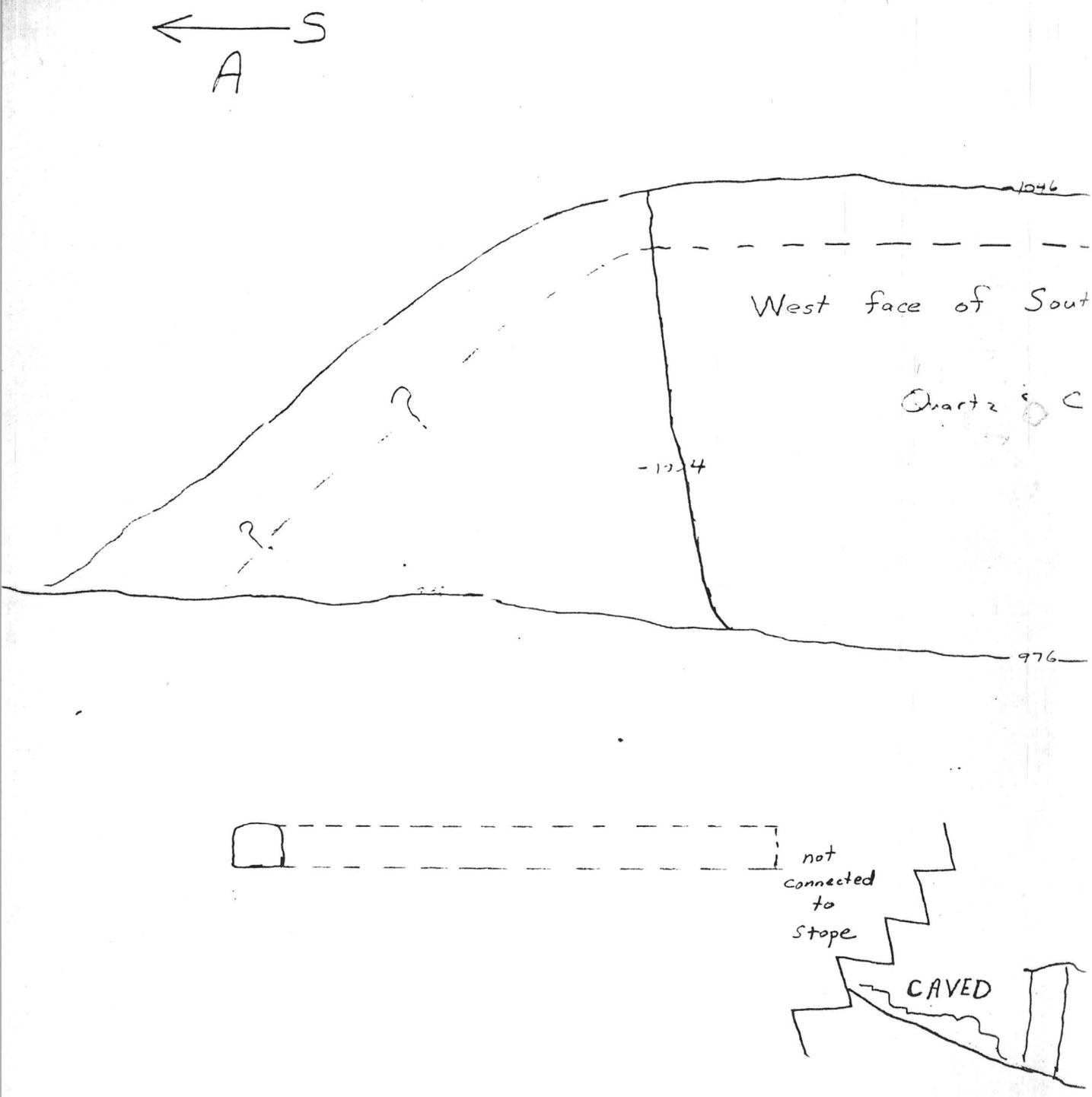

Look North
E.
B'
Fanglomerate
Surface
Outline of North
ice of South Pit
Andesite Flow
Quartz &
Calcite)
Caved
Stoped
Pillar
Water Level
Water


W
Elev.
B
2080
2060
2040
2020
2000
1980
1960
1940
1920
Andes
Portland Mine - South Oreb
Scale:
Horizontal: 1" = 40'
Verticle: 1" = 20'
0 20
Base from Housholder, June 1950
Cross Section by D.R. Muchow
B - B'
Nov., 1980
Elev is are 1040' + assumed Elev. from Housh


Elevation
2100
2080
2040
2020
1980
1960
1940
1920
nglomerate
Outline of West face of North Pit
1112
Quartz & Calcite
774
Fault
Porphyritic Andesite Dike
Partial Cave
Caved
963
Mino Stop
Dashed X-Sec

Look West


1046
e of South Pit
Quartz & C.C.
1055
Fanglomerate
1000
983
976
Connects to Stope
?
(Stope is E. of X-Sect. line)
CAVED
STOPED
OUT
913

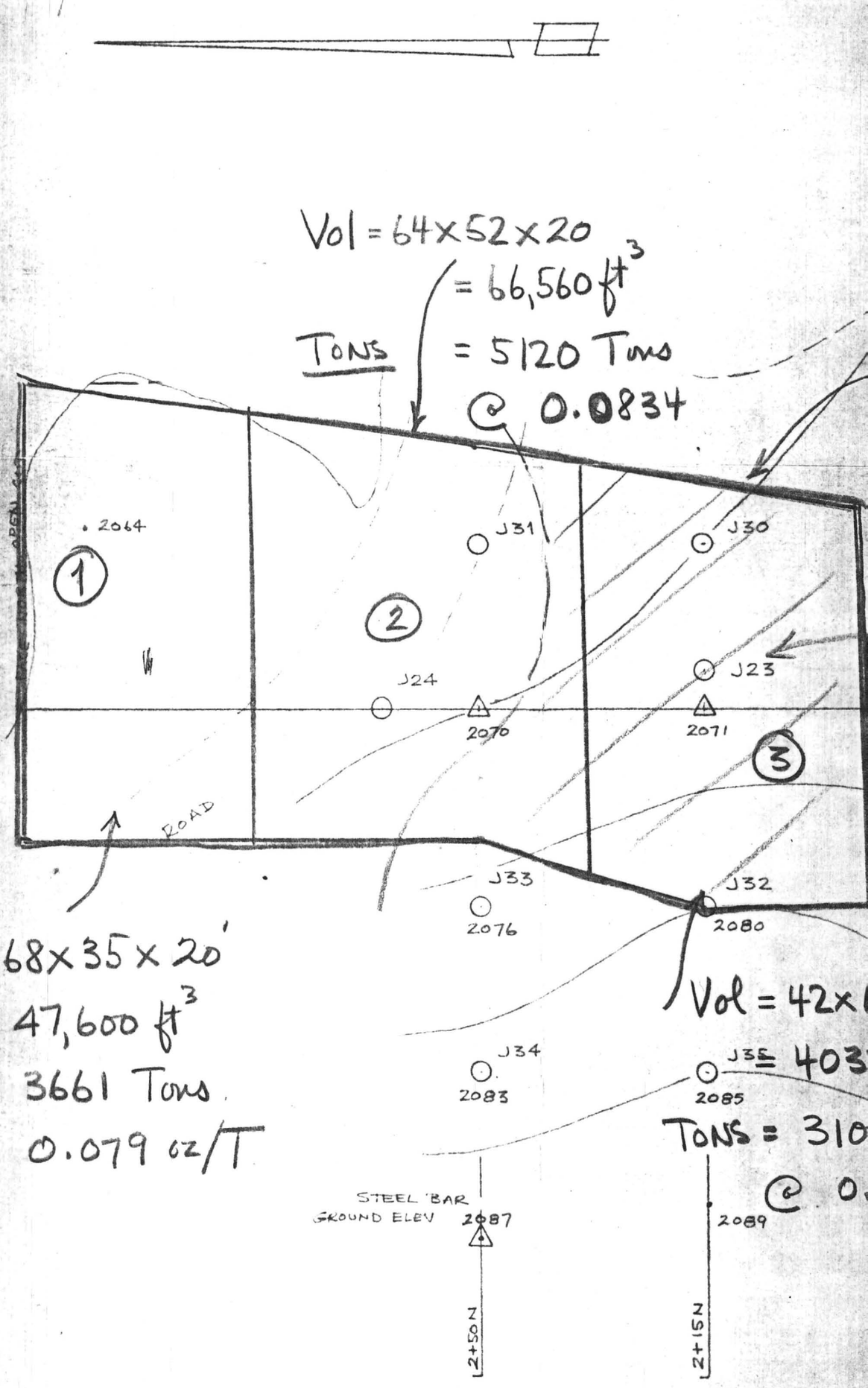


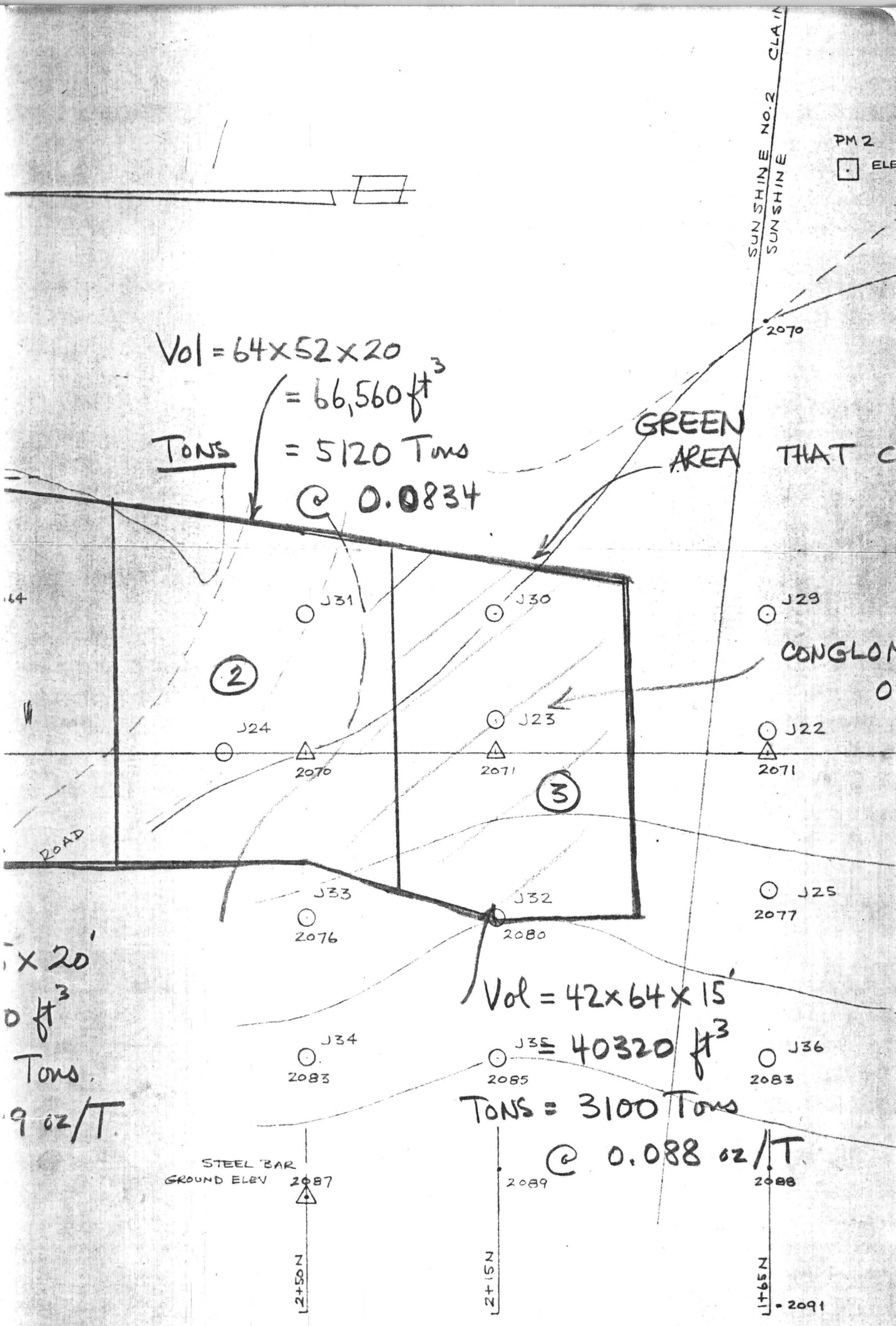
Portland Mine
Cross Section A-A'
by D.R. Muchow
Nov., 1980
Base from Housholder, June, 1950

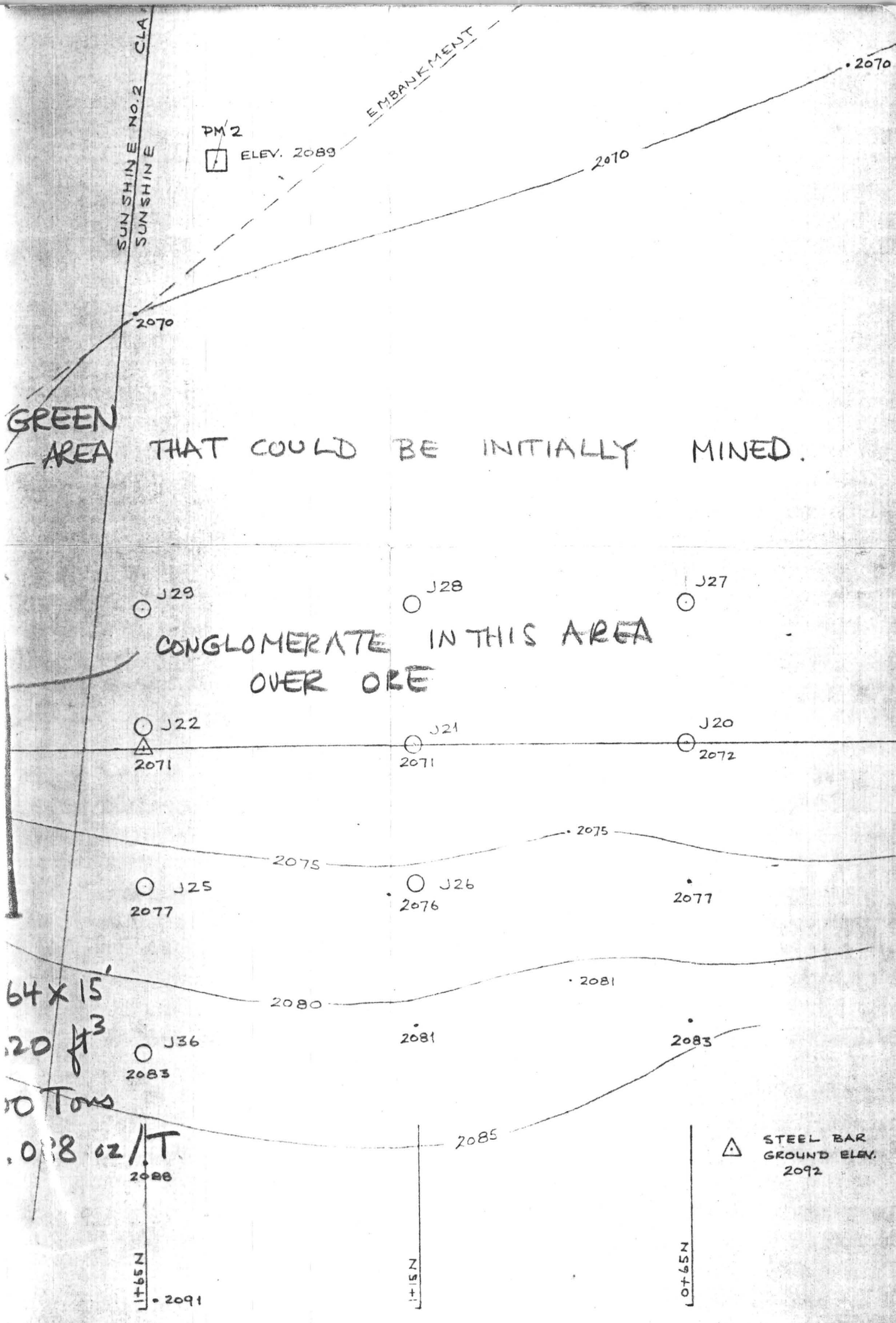
Scale:

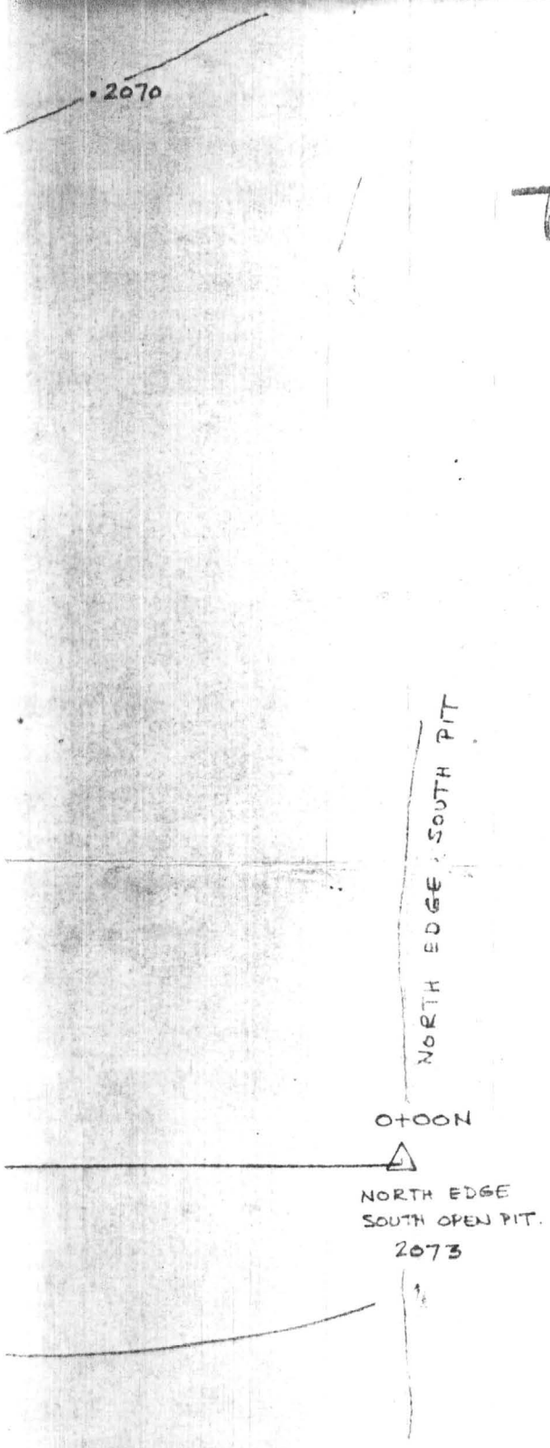
Horizontal: 1" = 40' 0 20 40 FT.

Verticle: 1" = 20' 0 10 20 FT.


Vol = 64 x 52 x 20
= 66,560 ft³
TONS = 5120 Tons
@ 0.0834
2064
1
2
3
J31
J30
J24
J23
2070
2071
ROAD
J33
J32
2076
2080
Vol = 68 x 35 x 20'
= 47,600 ft³
TONS = 3661 Tons
@ 0.079 oz/T
Vol = 42 x
J34
J35
= 403
2083
2085
TONS = 310
@ 0.
STEEL BAR
GROUND ELEV 2087
2089
2+50 N
2+15 N


SUNSHINE NO.2 CLAIM
SUNSHINE
PM 2
2070
Vol = 64x52x20
= 66,560 ft³
TONS = 5120 Tons
@ 0.0834
GREEN AREA THAT C
J31
J30
J29
CONGLOM
O
2
J24
J23
J22
2070
2071
2071
3
ROAD
J33
J32
J25
2076
2080
2077
x 20'
0 ft³
Tons.
9 oz/T.
Vol = 42x64x15'
= 40320 ft³
J34
J35
J36
2083
2085
2083
TONS = 3100 Tons
@ 0.088 oz/T.
STEEL BAR
GROUND ELEV 2087
2089
2088
2+50N
2+15N
1+65N
2091


SUNSHINE NO.2 CLA.
SUNSHINE
EMBANKMENT
PM 2
ELEV. 2089
2070
2070
2070
GREEN
AREA THAT COULD BE INITIALLY MINED.
J29
J28
J27
CONGLOMERATE IN THIS AREA
OVER ORE
J22
2071
J21
2071
J20
2072
2075
2075
J25
2077
J26
2076
2077
64 X 15'
20 ft3
0 Tons
.018 oz/T
2080
2081
J36
2083
2081
2083
2085
2088
STEEL BAR
GROUND ELEV.
2092
1+65 N
2091
1+15 N
0+65 N



TOTAL TONS

① 3660 @ .079

② 5120 @ .083

③ 3100 @ .088

11,880 Tons @ 0.083 oz/T

EL BAR
UND ELEV.
092

0+00N

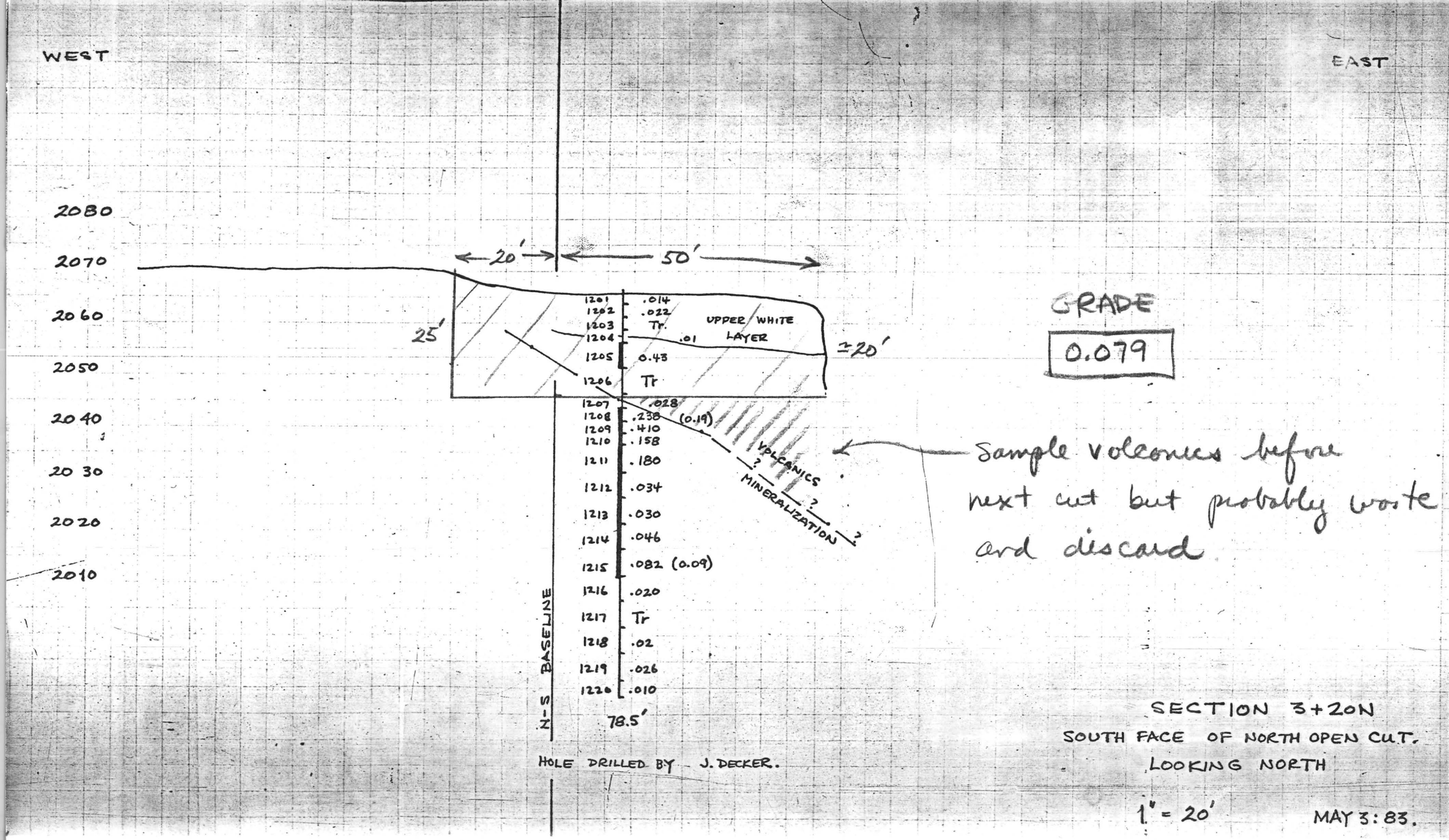
PORTLAND PROPERTY

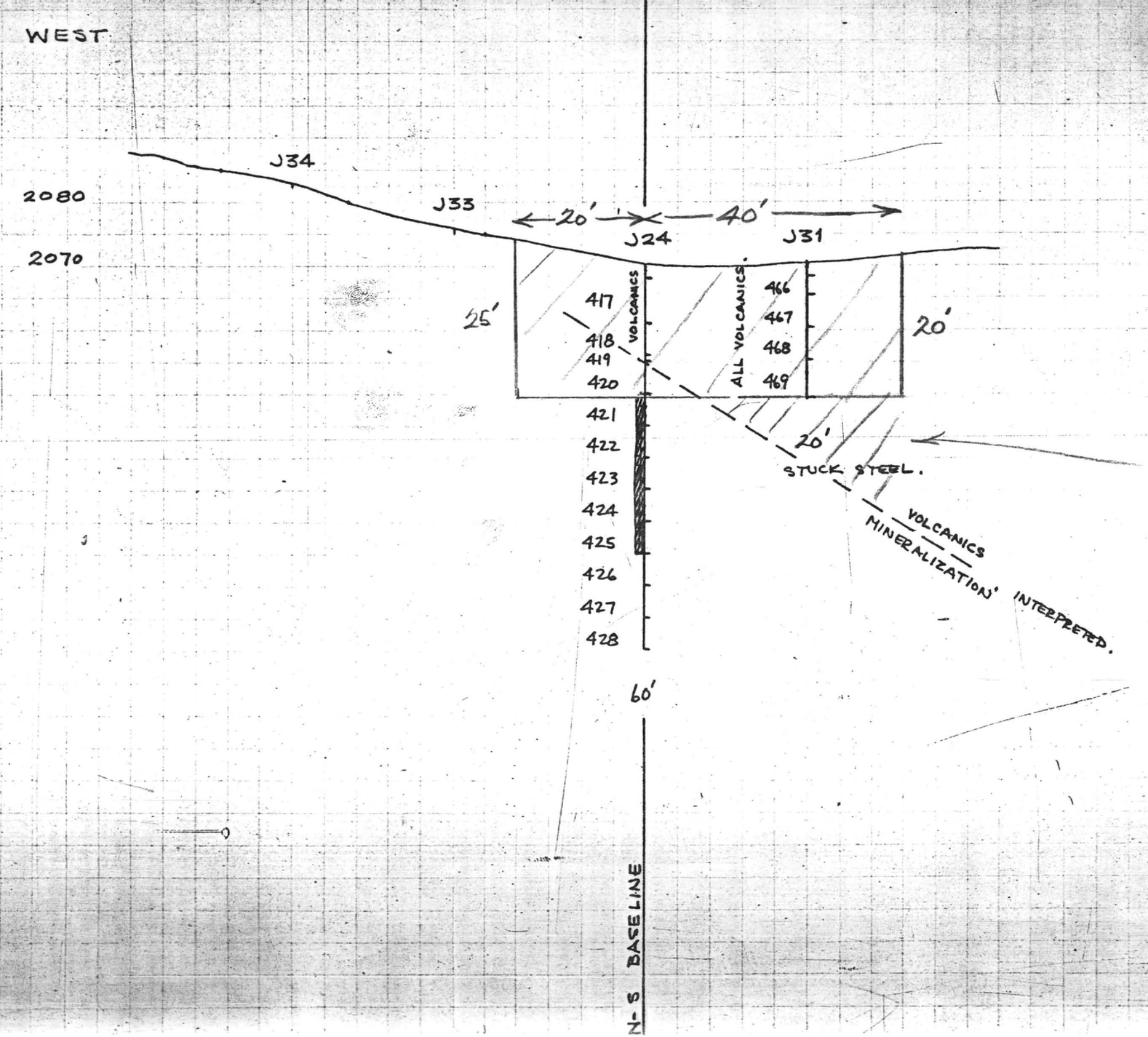
JORINEX EXPLORATION & MINING INC.

DRILL HOLE LOCATIONS
ON TOP OF HILL
BETWEEN
NORTH & SOUTH OPEN PITS

1" = 20'

MAY 3: 83


WEST
EAST
2080
2070
2060
2050
2040
2030
2020
2010
20'
50'
25'
±20'
UPPER WHITE LAYER
1201 .014
1202 .022
1203 Tr.
1204 .01
1205 0.43
1206 Tr
1207 .028
1208 .238 (0.19)
1209 .410
1210 .158
1211 .180
1212 .034
1213 .030
1214 .046
1215 .082 (0.09)
1216 .020
1217 Tr
1218 .02
1219 .026
1220 .010
VOLCANICS
MINERALIZATION
N-S BASELINE
78.5'
HOLE DRILLED BY J. DECKER.
GRADE
0.079
Sample volcanics before next cut but probably waste and discard
SECTION 3+20N
SOUTH FACE OF NORTH OPEN CUT.
LOOKING NORTH
1" = 20'
MAY 3: 83.



GRADE

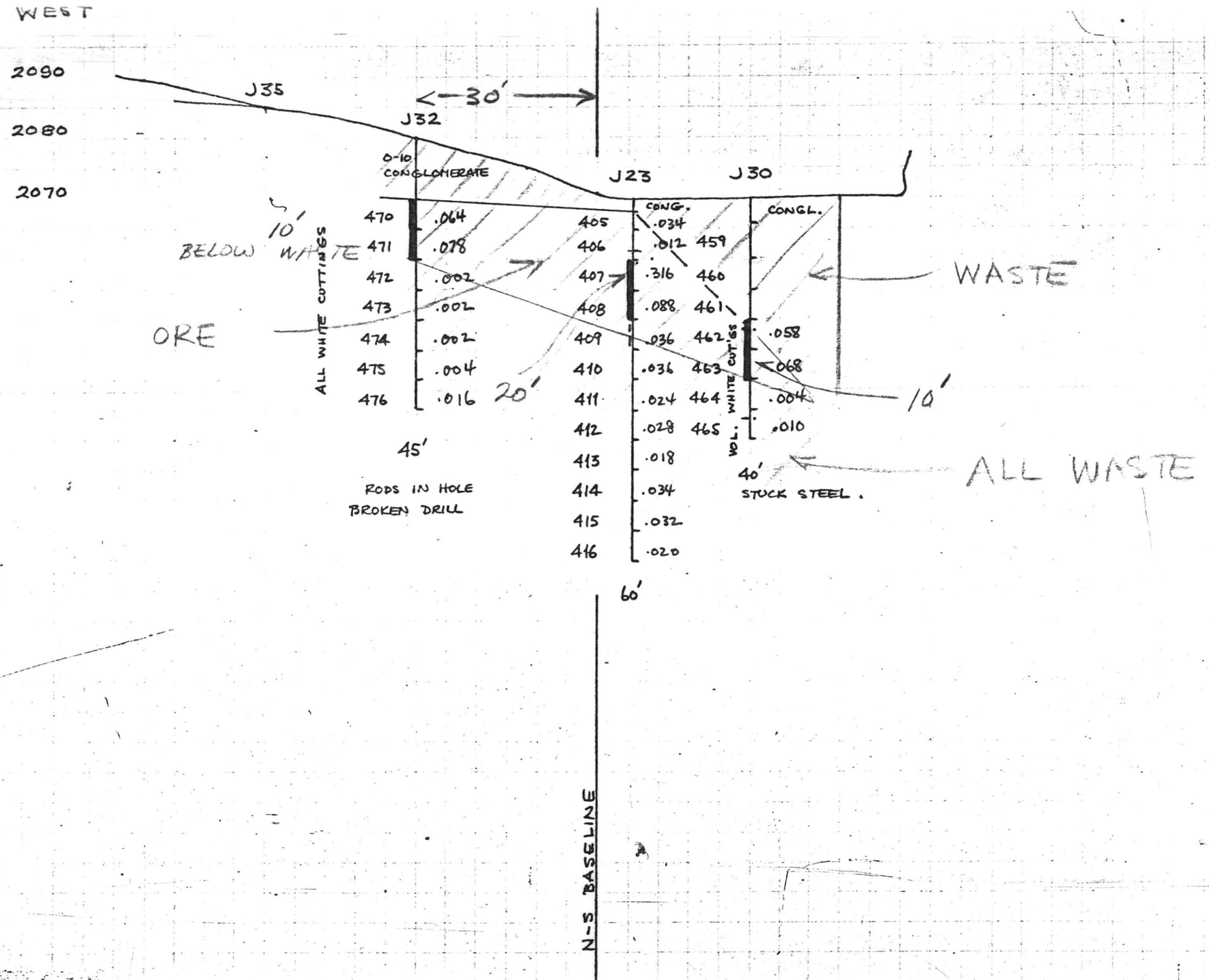
.0834

Sample Volcanics before next cut but probably waste and discard

SECTION 2+50N
LOOKING NORTH

1" = 20'

MAY 3: 83



SECTION 2+15 N
LOOKING NORTH

1" = 20'

MAY 3:83

519-45th St. W. Saskatoon, Sask. S7L-5Z9
Canada
Tel. (306) 664-8922

January 7, 1982

Mr. Pete Drobeck,
Fischer-Watt Mining Co. Inc.
114 Tucker, Suite 2
KINGMAN, Arizona
USA 86401

Dear Pete,

Sorry it took so long to reply to your December 11th letter but I was on holidays. Enclosed are photocopies of assays and sample descriptions of my Portland Mine samples.

Good luck in your continuing ventures.

Yours sincerely,
Cangold Ltd.

Peter A. Fernberg

Peter Fernberg

Univ. W. Ontario
classmate of BAB

PF:wp
Enclosures

Telephone 363-3302

Hand Sample Serial 60612-60632

ASSAY REPORT

UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
G. P. WILLIAMS, Vice President
JAMES G. STRATTON, Secretary
A. S. JOLLIFFE, Treasurer
P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

Mine Cangold Ltd
519-45th St W
Saskatoon, Sask, Canada

RESULTS PER TON OF 2000 POUNDS

Nov 3, 1981

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Per Cent	COPPER Per Cent	INSOL Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
F-3108	Trace	2.0									
F-3109	Trace	5.9									
F-3110	Trace	1.0									
F-3111	none	0.3									
F-3112	Trace	2.4									
F-3113	none	0.8									
F-3114	Trace	0.8									
F-3115	none	0.6									
F-3116	none	2.1									
F-3117	Trace	0.6									
F-3118	0.020	1.2									
F-3119	0.060	0.8									
F-3120	0.180	1.6									
F-3121	0.220	1.4									
F-3122	0.100	2.0									
F-3123	0.320	1.9									
F-3124	0.300	1.2									
F-3125	0.180	1.4									
F-3126	0.130	0.9									
F-3127	0.190	1.7									
F-3128	0.020	0.5									

Portland Mine

CANGOLD LTD.
519 - 45th STREET WEST
Saskatoon, Sask., Canada
S7L 5Z9
Tel (306) 664-8922

No	Description
F 3118	Chip sample across vein, quartz - calcite width 6'9" SHAFT area
F 3119	chip 5'10" approx rt. angle to vein with some foot wall material SHAFT Area
F3120	Main workings — chip 7'8" approx rt. angle to vein, quartz - calcite. Sample from bottom of hanging wall gouge to the floor
F3121	- chip 6', of hanging wall and vein at opening of small drift
F3122	- chip 6' in foot wall zone of vein well brecciated. At end of drift
F3123	- chip 5' down on vein
F3124	- at PORT #19 (FWM) chip rt angle to vein at hanging wall zone. Approx 4 ft width.
F3125	- at PORT #18 chip 6' vertical on vein (not full width of vein)
F3126	- chip 6' ≈ rt. angle to vein close to bottom of large stope
F3127	- chip 5' rt. angle to vein
F3128	- chip grab of host rock

CANGOLD LTD.
519 - 45th STREET WEST
Saskatoon, Sask., Canada
S7L 5Z9
Tel (306) 664-8922

3941 East Miller

Phone 889-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

Portland mine

SAMPLE SUBMITTED BY ASARCO, INC.

DATE March 21, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM 1								
50-60	.006	0.38						
60-65	.010	0.33						
65-70	.009	0.44						
70-75	.026	1.13						
75-80	.022	0.78						
80-85	.018	0.91						
85-90	.041	0.81						
90-95	.014	0.85						
95-100	.009	1.08						
100-105	.026	0.49						
105-110	.014	0.75						
110-115	.059	0.73						
115-120	.132	0.63	✓					
120-125	.026	0.55						
125-130	.028	0.57						
130-135	.013	0.50						
135-140	.018	0.44						
140-145	.035	0.42						

3/21/79

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE March 21, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM 2 70-80	.015	0.43						
80-85	.004	0.17						
85-90	.017	0.50						
90-95	.012	0.60						
95-100	.050	0.64						
100-105	.025	0.56						
105-110	.027	0.56						
110-115	.045	0.56						
115-120	.016	0.52						
120-125	.012	0.54						
125-130	.023	0.55						
130-135	.018	0.37						
135-140	.010	0.45						
140-145	.007	0.47						
145-150	.107	0.63	✓					
150-155	.007	0.64						
155-160	.021	0.80						
160-165	.009	0.65						
165-170	.004	0.11						
170-175	.002	0.24						
175-180	.004	0.26						

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

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TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE March 21, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM 3 80-90	.003	0.35						
90-95	.015	0.57						
95-100	.091	1.06	✓					
100-105	.006	0.89						
105-110	.025	0.62						
110-115	.013	0.22						
115-120	.012	0.27						
120-125	.008	0.38						
125-130	.004	0.36						
130-135	.006	0.37						
135-140	.005	0.29						
140-145	.008	0.14						
145-150	.010	0.44						
150-155	.002	0.24						
155-160	.005	0.22						
160-165	.003	0.19						
165-170	.006	0.20						
170-175	.010	0.15						
175-180	.006	0.34						
180-185	.010	0.24						
185-190	.006	0.22						
190-195	.002	0.05						
195-200	.003	0.14						

CHARGES: 120.75

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 4, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-4 70-80	.003	0.11						
80-84	.013	0.39						

10.50

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 4, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-5 110-115	.005	0.32						
115-120	.011	0.47						
120-125	.069	0.63	✓					
125-130	.078	0.94	✓					
0'{ 130-140	.055	0.63	✓					
140-145	.034	0.40						
145-150	.025	0.45						
150-155	.014	0.40						
155-160	.011	0.59						
160-165	.049	0.42						
165-170	.064	0.37	✓					
170-175	.022	0.44						
X ~~175-180 A~~	~~.009~~ OUT	~~0.31~~						
175-180 B	.016	0.29						
180-185	.017	0.04						
185-190	.003	0.13						
190-195	.007	0.19						
195-200	.011	0.09						
200-205	.003	0.15						
205-210	.004	0.16						
210-215	.006	0.20						
215-220	.008	0.14						
220-225	.003	0.14						

3441 E. [illegible]
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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

APLE SUBMITTED BY ASARCO, INC.

DATE April 4, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-6								
11-20	.004	0.20						
20-30	.002	0.09						
30-40	.003	0.18						
40-50	.003	0.15						
50-60	.001	0.13						
60-70	.002	0.09						
70-80	.001	0.06						
80-90	.001	0.11						
90-100	.001	0.12						
100-110	.005	0.03						
110-120	.004	0.19						
120-125	.027	0.35						
125-130	.054	0.52	✓					
130-135	.057	0.59	✓					
135-140	.159	0.96	✓					
140-145	.107	0.90	✓					
145-150	.037	1.50						
150-155	.022	0.63						
155-160	.015	0.44						
160-165	.012	0.44						
165-170	.004	0.26						
170-175	.005	0.11						
175-180	.006	[illegible]						
180-185	.003	[illegible]						
185-190	.002	[illegible]						

CHARGES $ 131.25

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 4, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-6 190-195	.001	0.14						
195-200	.002	0.09						
200-205	.002	0.12						
205-210	.001	0.11						
210-215	.003	0.11						
215-220	.011	0.11						
220-225	.009	0.22						
225-230	.005	0.26						
230-235	.006	0.17						
35-240	.023	0.44						
240-245	.007	0.04						

CHARGES $ 57.75

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 5, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-7								
130-135	.006	0.23						
135-140	.025	0.49						
140-145	.003	0.17						
145-150	.002	0.14						
150-155	.006	0.21						
155-160	.003	0.45						
160-165	.008	0.62						
165-170	.012	0.51						
170-175	.020	0.26						
175-180	.009	0.32						
180-185	.019	0.41						
185-190	.018	0.25						
190-195	.011	0.16						
195-200	.012	0.20						
200-205	.004	0.23						
205-210	.018	0.46						
210-215	.008	0.30						
215-200	.003	0.25						
220-225	.010	0.26						
225-230	.009	0.31						
230-235	.015	0.22						
235-240	.005	0.27						
240-245	.003	0.15						
245-250	.006	0.33						
250-255	.003	0.27						

CHARGES 131.25

3441 East Miller

Phone 889-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 5, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
M-7 255-260	.004	0.24						
260-265	.003	0.27						
265-270	.002	0.23						

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ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC. DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
M-8 220-230	.002	0.29						
230-240	.002	0.17						
240-250	.004	0.30						
250-260	.008	0.39						
260-265	.001	0.25						
265-270	.014	0.52						
270-275	.005	0.37						
275-280	.001	0.24						
280-285	.002	0.30						
285-290	.001	0.20						
290-295	.002	0.24						
295-300	.001	0.24						
300-305	.001	0.22						
305-310	.006	0.41						
310-315	.005	0.39						
315-320	.006	0.23						
320-325	.003	0.34						
325-330	.002	0.32						
330-335	.008	0.42						
335-340	.005	0.25						
340-345	.006	0.27						
345-350	.007	0.40						
350-355	.002	0.37						

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PH-9 230-240	.002	0.34						
240-250	.006	0.17						
250-260	.002	0.40						
260-270	.003	0.35						
270-275	.002	0.24						
275-280	.005	0.30						
280-285	.002	0.45						
285-290	.004	0.32						
290-295	.002	0.23						
295-300	.002	0.27						
300-305	.002	0.24						
305-310	.003	0.33						
310-315	.001	0.13						
315-320	.006	0.28						
320-325	.001	0.26						
325-330	.003	0.30						
330-335	.011	0.26						
335-340	.001	0.34						
340-345	.001	0.39						
345-350	.005	0.33						
350-355	.004	0.35						

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-10 160-165	.003	0.46						
165-170	.002	0.26						
170-175	.001	0.28						
175-180	.001	0.32						
180-185	.004	0.24						
185-190	.001	0.21						
190-195	.001	0.33						
195-200	.200	0.74	✓					
200-205	.041	0.52						
205-210	.020	0.73						
210-215	.023	0.87		50' @ .051				
215-220	.025	0.89	35' @ .059					
220-225	.040	0.80						
225-230	.066	0.62	✓					
230-235	.034	0.55						
235-240	.030	0.54						
240-245	.031	0.45						
245-250	.016	0.50						
250-255	.006	0.69						
255-260	.010	0.77						
260-265	.005	0.56						
265-270	.004	0.55						
270-275	.003	0.45						
275-280	.002	0.49						
280-285	.003	0.49						

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

• ASSAYERS • CHEMISTS • METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-10 285-290	.003	0.50						
290-295	.012	0.47						
295-300	.003	0.39						

CHARGES 16.50

3411 East Miller

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AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-11 160-165	.001	0.46						
165-170	.003	0.44						
170-175	.002	0.39						
175-180	.001	0.36						
180-185	.002	0.37						
185-190	.003	0.39						
190-195	.002	0.33						
195-200	.002	0.33						
200-205	.003	0.40						
205-210	.002	0.36						
210-215	.004	0.32						
215-220	.001	0.33						
220-225	.004	0.28						
225-230	.003	0.40						
230-235	.001	0.37						
235-240	.004	0.27						
240-245	.002	0.39						
245-250	.002	0.31						
250-255	.003	0.57						
255-260	.001	0.41						
260-265	.002	0.46						
265-270	.003	0.30						
270-275	.001	0.34						
275-280	.003	0.31						
280-285	.002	0.32						

CHARGES: 137.50

3441 East Miller

Phone 850-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS · CHEMISTS · METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE April 19, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-11 285-290	.003	0.39						
290-295	.005	0.27						
295-300	.002	0.28						
300-305	.004	0.38						
305-310	.003	0.32						
310-315	.008	0.38						
315-320	.003	0.22						

CHARGES $ 38.50

3441 East Miller

Phone 8[illegible]-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

AMPLE SUBMITTED BY ASARCO, INC. DATE Aug. 7, 1979

SAMPLE MARKED	GOLD OZ/TON	SILVER OZ/TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
1-12 20-40	.001	0.11						
40-60	Trace	0.05						
60-70	.002	0.24						
70-80	Trace	0.06						
80-90	.001	0.10						
90-100	Trace	0.02						
100-110	.001	0.14						
110-120	.003	0.52						
120-130	.001	0.12						
130-140	Trace	0.06						
140-150	.002	0.28						
150-160	.001	0.13						
160-170	.002	0.21						
170-180	Trace	0.07						
180-190	Trace	0.03						
190-200	.001	0.20						
200-210	.001	0.18						
210-220	.001	0.16						
220-230	.001	0.18						
230-240	.002	0.24						
240-250	Trace	0.09						
250-260	.001	0.20						
260-270	.001	0.13						
270-280	Trace	0.04						
280-290	.001	0.10						

CHARGES $ 137.50

3441 East Miller

Phone [illegible]-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC. DATE Aug. 7, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-12 290-300	Trace	0.05						
300-310	.002	0.22						
310-320	.001	0.19						
320-330	.002	0.23						
330-340	.001	0.13						
340-350	Trace	0.06						
350-360	Trace	0.06						
360-370	Trace	0.03						
370-380	.001	0.10						
380-390	.001	0.13						
390-400	Trace	0.09						
400-410	.001	0.15						
410-420	.001	0.16						
420-430	.002	0.23						
430-440	.003	0.36						
440-450	.001	0.15						
450-460	.002	0.28						
460-470	.001	0.16						
470-480	.002	0.22						
480-490	.004	0.41						
490-500	.001	0.20						

CHARGES $ 115.50

3441 East Miller

Phone 882-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE Aug. 7, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON
PM-13 20-30	.002	0.24					
40-50	.002	0.26					
60-70	.003	0.32					
80-90	.001	0.20					
100-110	.002	0.30					
120-130	.002	0.23					
140-150	.002	0.23					
160-170	.003	0.37					
180-190	.001	0.25					
200-210	.001	0.22					
220-230	.002	0.24					
230-240	.001	0.22					
240-250	.002	0.25					
250-260	.001	0.23					
260-270	.003	0.34					
270-280	.003	0.33					
280-290	.002	0.28					
290-300	.002	0.28					
300-310	.001	0.30					
310-320	.003	0.39					
320-330	.002	0.35					
330-340	.002	0.31					
340-350	.003	0.36					
350-360	.003	0.38					
360-370	.002	0.20					

REGISTERED

3111 East Miller

Phone 620-5757

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC. DATE Aug. 7, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-13 370-380	.001	0.16						
380-390	.001	0.17						
390-400	.002	0.25						
400-410	.001	0.10						
410-420	.001	0.13						
420-430	.002	0.24						
430-440	.001	0.13						
440-450	Trace	0.08						
450-460	.001	0.14						
460-470	.001	0.19						
470-480	Trace	0.09						
480-490	.001	0.16						
490-500	Trace	0.09						

CHARGES $ 71.50

310 East Miller

Phone 889-5787

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85714

SAMPLE SUBMITTED BY ASARCO, INC.

DATE Aug. 7, 1979

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PERCENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON	
PM-14 40-50	.002	0.24						
60-70	.002	0.23						
80-90	.003	0.23						
100-110	.001	0.16						
120-130	.001	0.19						
140-150	.004	0.38						
160-170	Trace	0.02						
180-190	Trace	0.05						
200-210	Trace	0.03						
220-230	Trace	0.09						
240-250	.001	0.19						
260-270	.001	0.11						
280-290	Trace	0.08						
300-310	Trace	0.07						
320-330	.001	0.13						
340-350	.002	0.24						
360-370	.002	0.20						
380-390	.003	0.26						
400-410	.001	0.11						
420-430	.002	0.20						
440-450	.003	0.26						
460-470	.004	0.37						
480-490	.001	0.17						

CHARGES $ 126.50

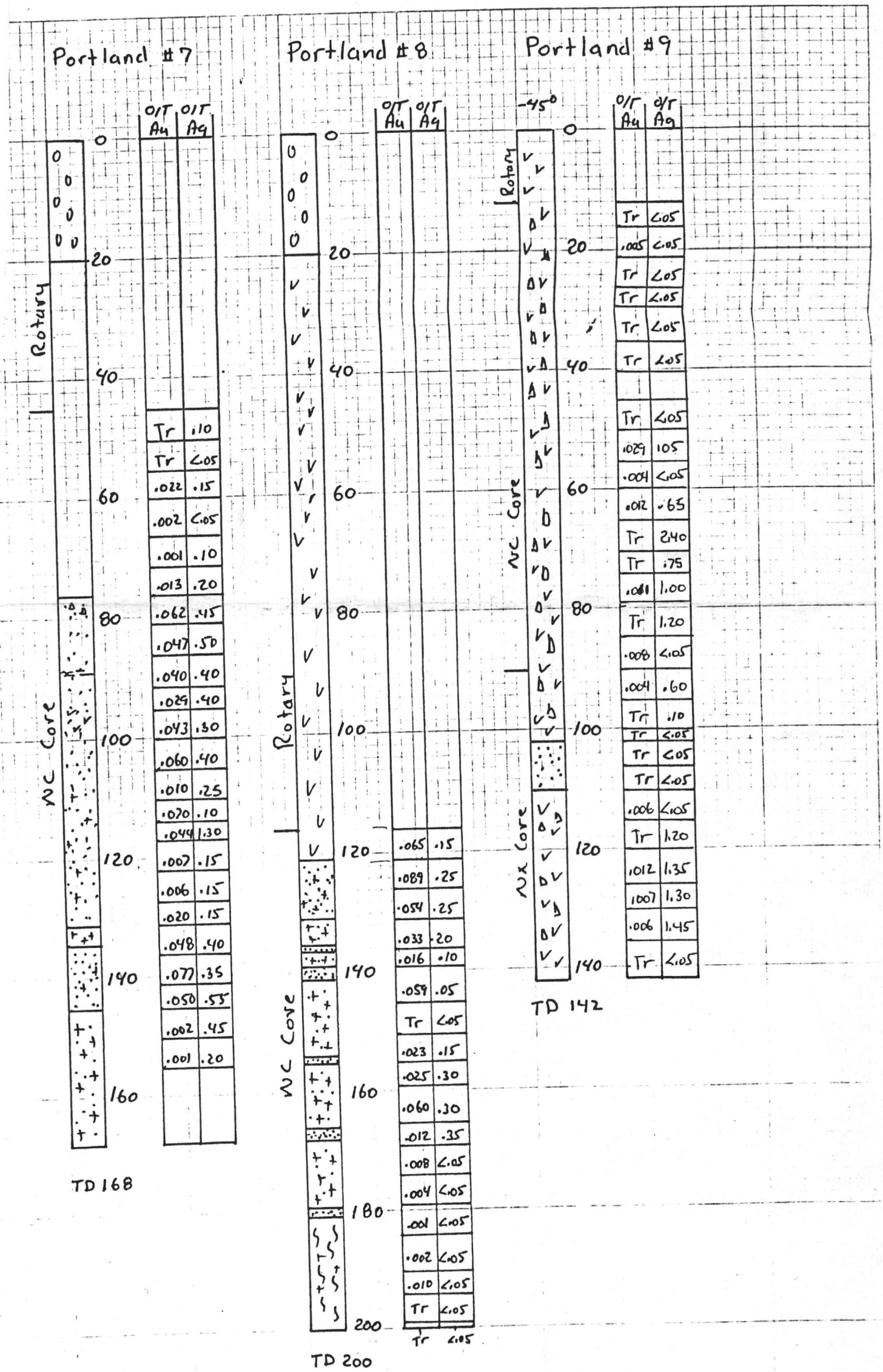

Figure 5c Graphic drill logs with assays Portland drill holes 7, 8 and 9.

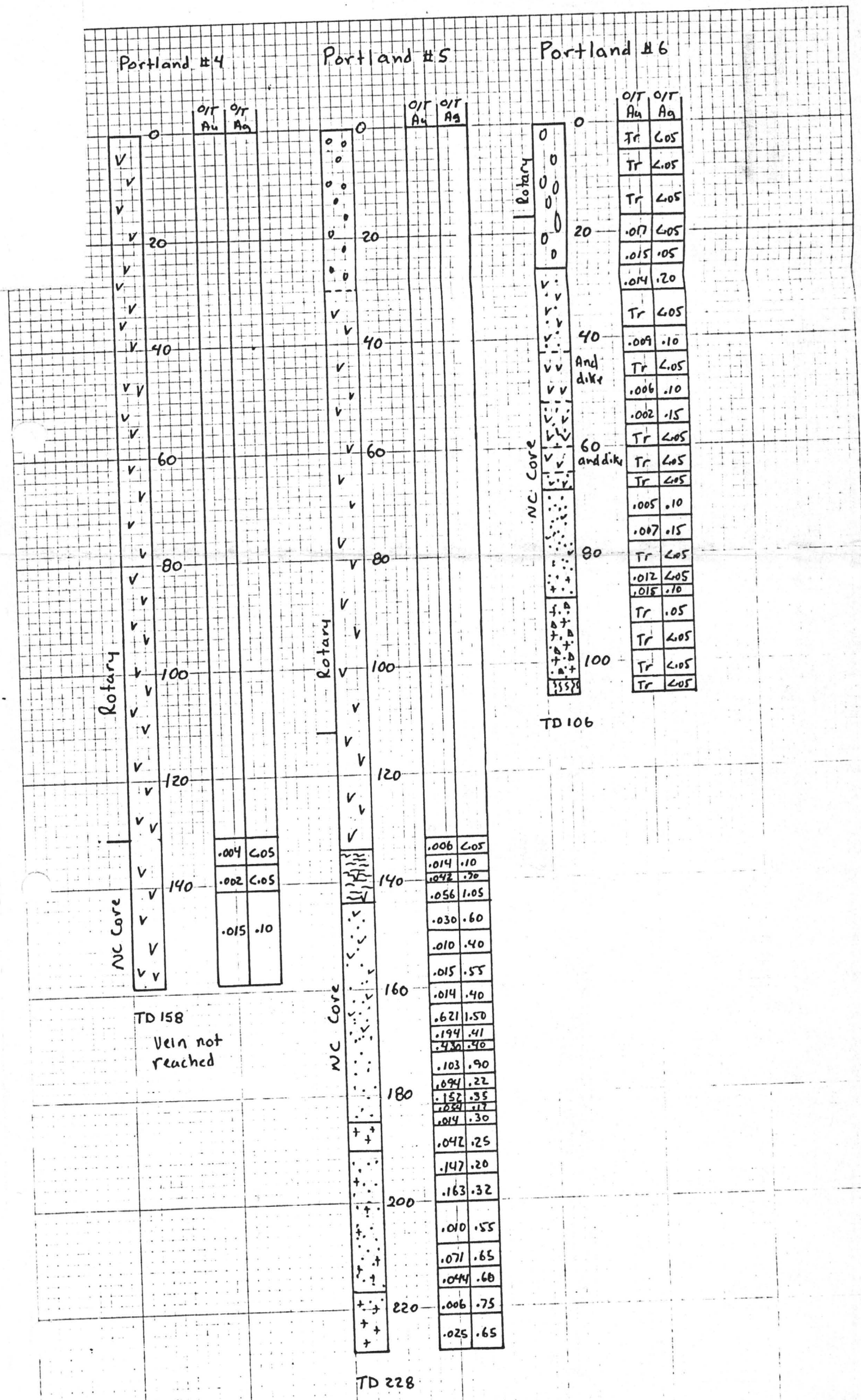

Figure 5b Graphic drill logs with assays Portland drill holes 4, 5 and 6

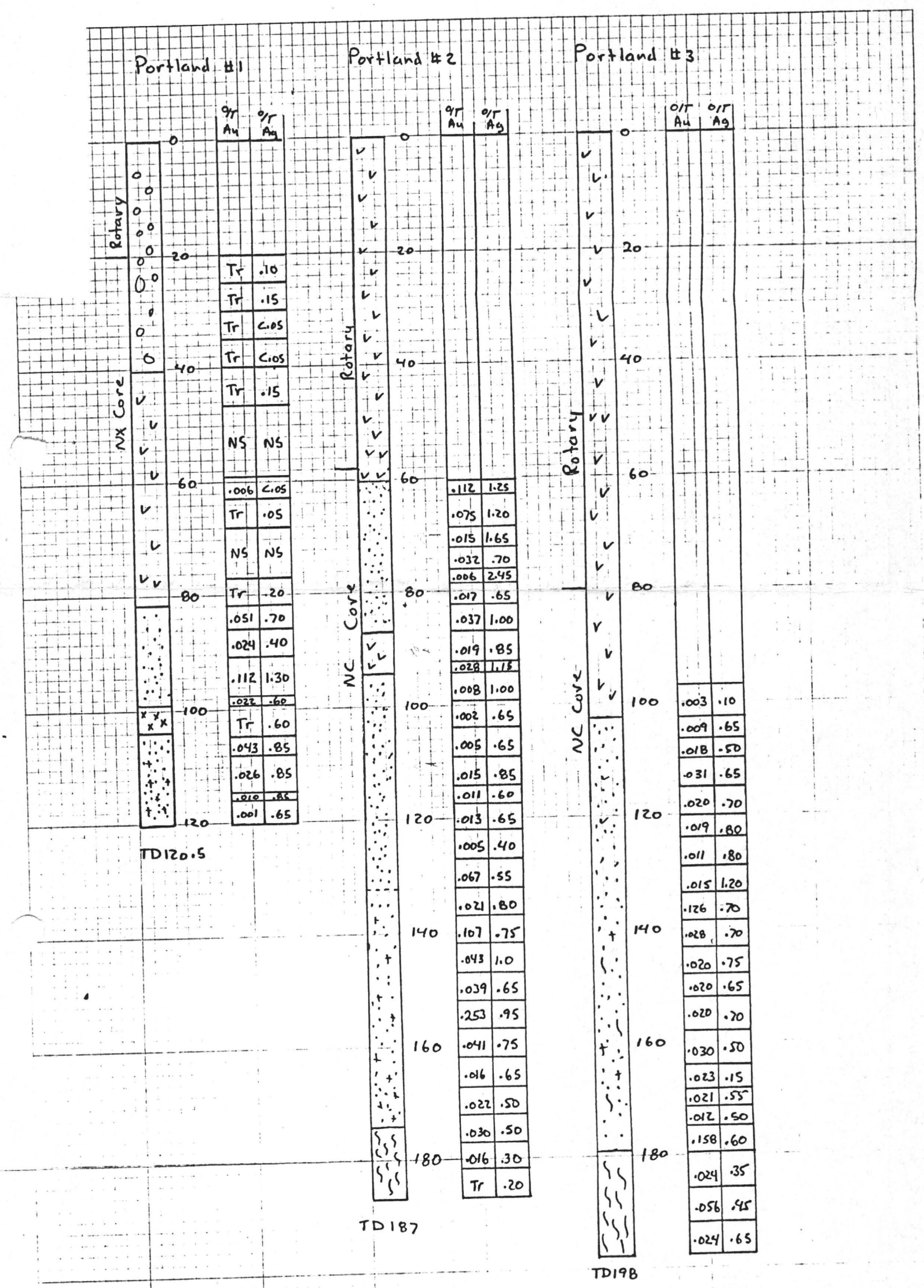

Figure 5a Graphic drill logs with assays Portland drill holes #1, 2, 3.

Fischer-Watt Mining Co. Inc.

ADMINISTRATIVE OFFICE: 114 TUCKER, SUITE 2
KINGMAN, ARIZONA 86401
PHONE: (602) 753-1622

Peter Drobeck
March 15, 1982

RESERVES ESTIMATE
PORTLAND MINE NORTH PIT
MOHAVE COUNTY, ARIZONA

Reserves in a crudely outlined pit in the northern part of the Portland project were estimated using core drilling, percussion drilling, and chip sampling. Results of this estimate indicate there are 43,944 tons of vein averaging .115 o/T Au and containing 5055 oz. Au, which can be mined with less than a 3 to 1 strip ratio.

A cross-sectional method was used for ore reserve calculations. Grade and thickness were calculated for a specific reserve block by weighted averaging of assays from samples bounding the block. These grade and tonnage figures were projected half way to the next cross section. No assays were projected more than 25 feet with the exception of some blocks on the west side of the pit where no sampling was available.

In many of the percussion holes, 10 foot cutting samples included hanging wall andesites and some of the vein's hanging wall. In such cases, the hanging wall andesite was arbitrarily assigned a low gold content between .01 to .03 o/T Au depending on assays of similar rock in surrounding holes. The rest of the gold in the sample was assigned to the vein, thus upgrading this part of the assay value. This resulted in assay values for the vein hanging wall that were similar to values obtained in chip sampling the workings (i.e.; .15 to .30 o/T Au).

In calculating the tonnage of both vein and waste, a factor of 13 ft^3/ton was used, corresponding to a rock density of 2.4 g/cc.

PORTLAND RESERVES SUMMARY

SECTION	TONS	GRADE	OZ. AU
D-D'	4982	.124	615.7
E-E'	8153	.158	1289.2
F-F'	8138	.098	796.1
G-G'	10,643	.080	852.8
H-H'	5954	.118	702.4
I-I'	6074	.132	799.1
TOTAL	43,944	.115	5055.3

WASTE

SECTION	TONNAGE
I-I'	19,924
H-H'	23,029
G-G'	27,962
F-F'	17,828
E-E'	18,883
D-D'	19,861
TOTAL	127,487 tons

TOTAL WASTE	127,487
STRIPPING RATIO	2.9:1

PORTLAND RESERVES

X-Section	Block	Thick	Dip	Strike	Tons	Grade	oz Au
D-D'	A	12	27	40	997	.079	78.7
	A'	9	33	40	456	.079	36.0
	B	19	23	25	840	.135	113.4
	C	19	26	40	1520	.155	235.6
	D	19	20	40	1169	.130	152.0
				TOTAL	4982	.124	615.7
E-E'	A	11	40	30	1015	.217	220.3
	B	19	70	30	3069	.191	585.9
	C	19	20	30	876	.110	96.5
	D	13	30	30	900	.117	105.3
	D'	9	34	30	353	.117	41.3
	E	10	67	30	1546	.122	188.6
	F	9	19	30	394	.130	51.3
				TOTAL	8153	.158	1289.2
F-F'	A	19	28	34	1391	.116	161.4
	A'	15	16	34	314	.116	36.4
	B	19	25	34	1242	.120	149.0
	C	19	29	34	1441	.104	149.6
	D	19	22	34	1043	.067	69.9
	E	10	22	34	575	.127	73.0
	F	10	31	34	811	.083	67.3
	G	10	25	34	654	.062	40.5
	H	10	51	34	667	.073	49.0
				TOTAL	8138	.098	796.1
G-G'	A	14	20	41	226	.086	19.4
	B	19	37	41	2217	.148	328.1
	C	19	22	41	1313	.103	136.4
	D	19	18	41	1078	.058	62.5
	E	19	45	41	2696	.054	145.6
	F	10	22	41	686	.043	29.4
	G	10	43	41	1356	.051	69.1
	H	10	22	41	693	.062	43.0
	I	6	40	41	378	.051	19.3
				TOTAL	10643	.080	852.8
H-H'	A	13	12	33.7	405	.134	54.2
	B	24	30	35	1840	.127	233.6
	C	22	28	35	1658	.109	180.7
	D	17	26	35	1190	.107	127.3
	E	11	20	35	592	.130	77.0
	F	10	10	35	269	.110	29.6
				TOTAL	5954	.118	702.4
I-I'	A	16	35	36	775	.060	46.5
	B	16	50	36	2066	.117	241.7
	C	16	77	36	3233	.158	510.9
			-	TOTAL	6074	.132	799.1

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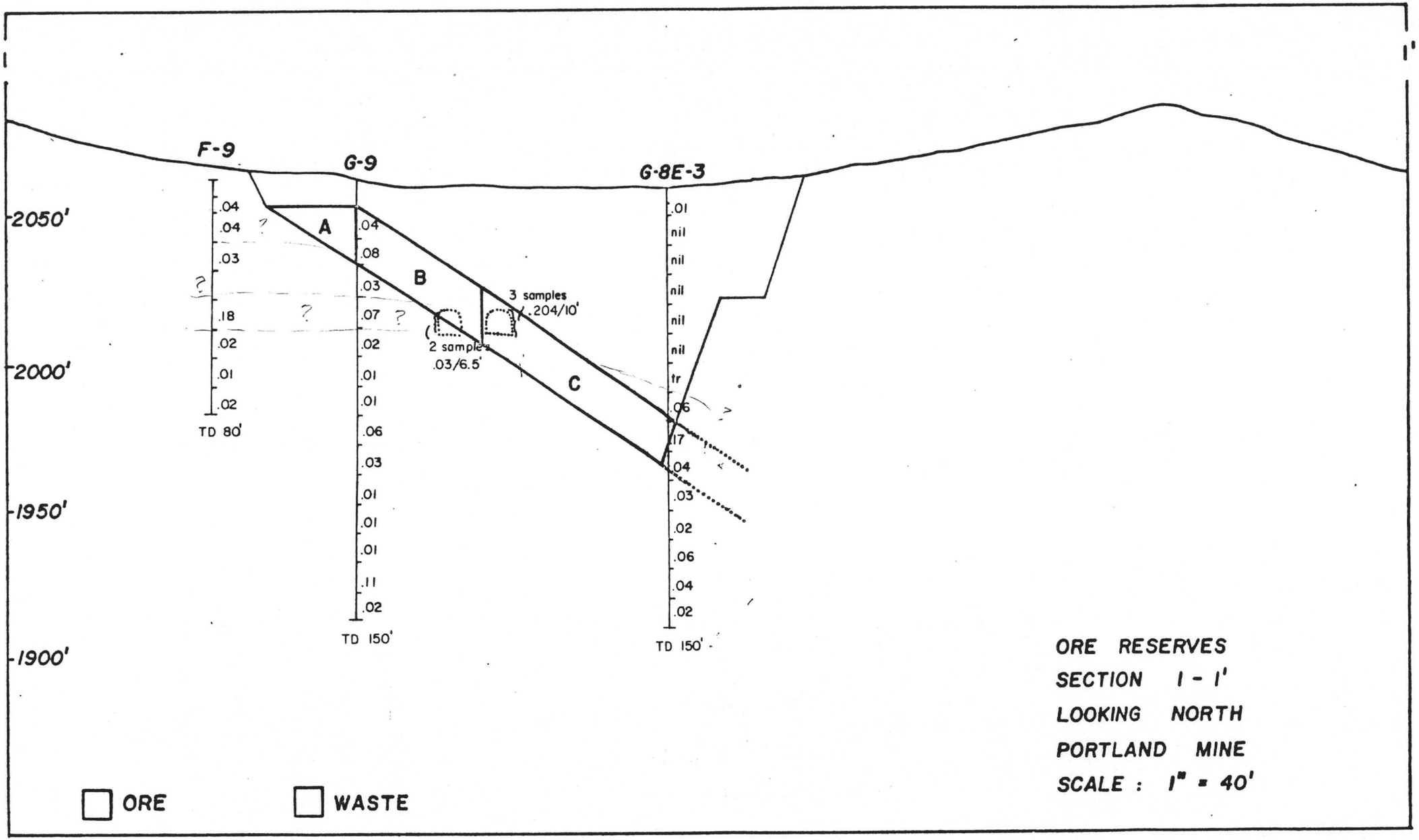
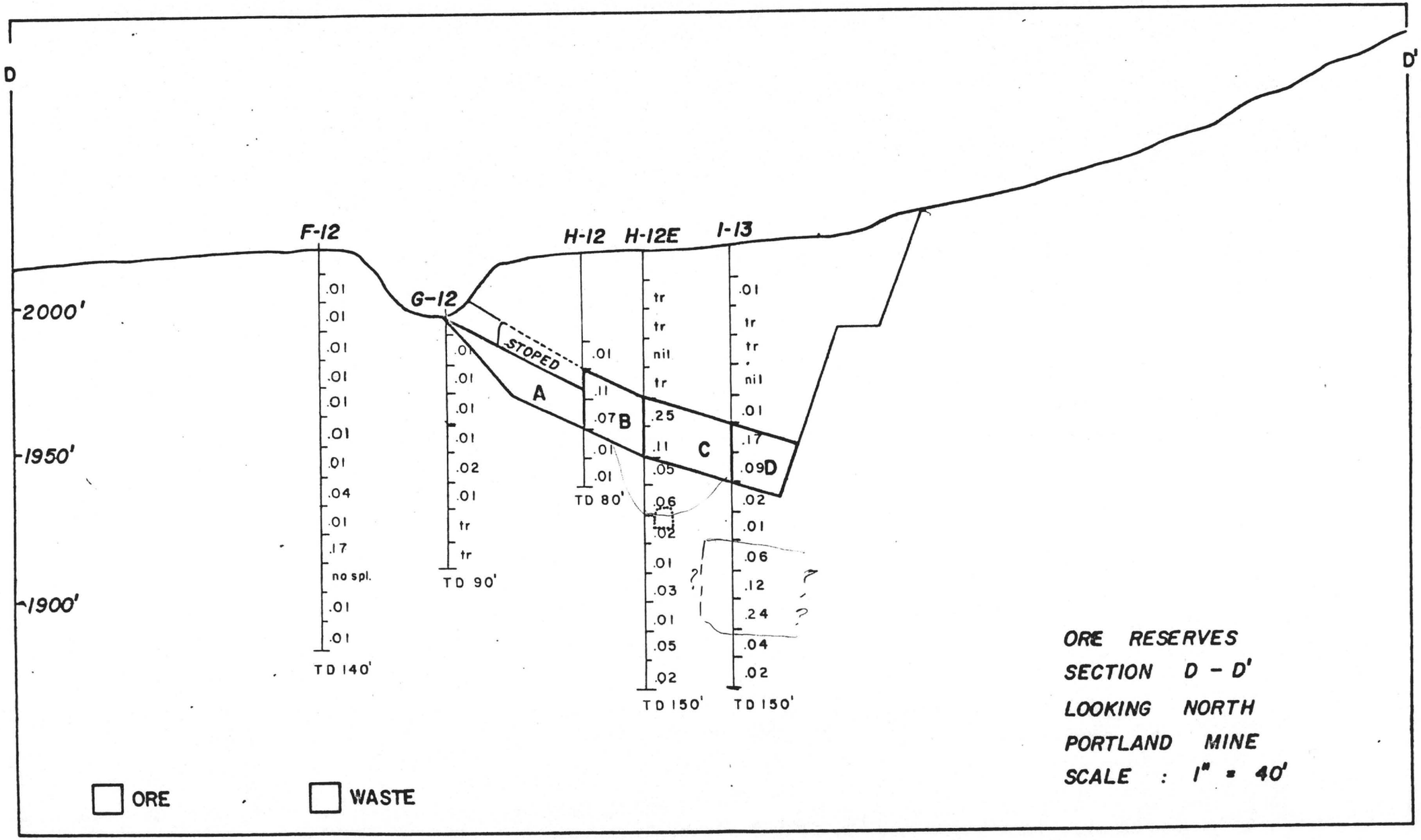
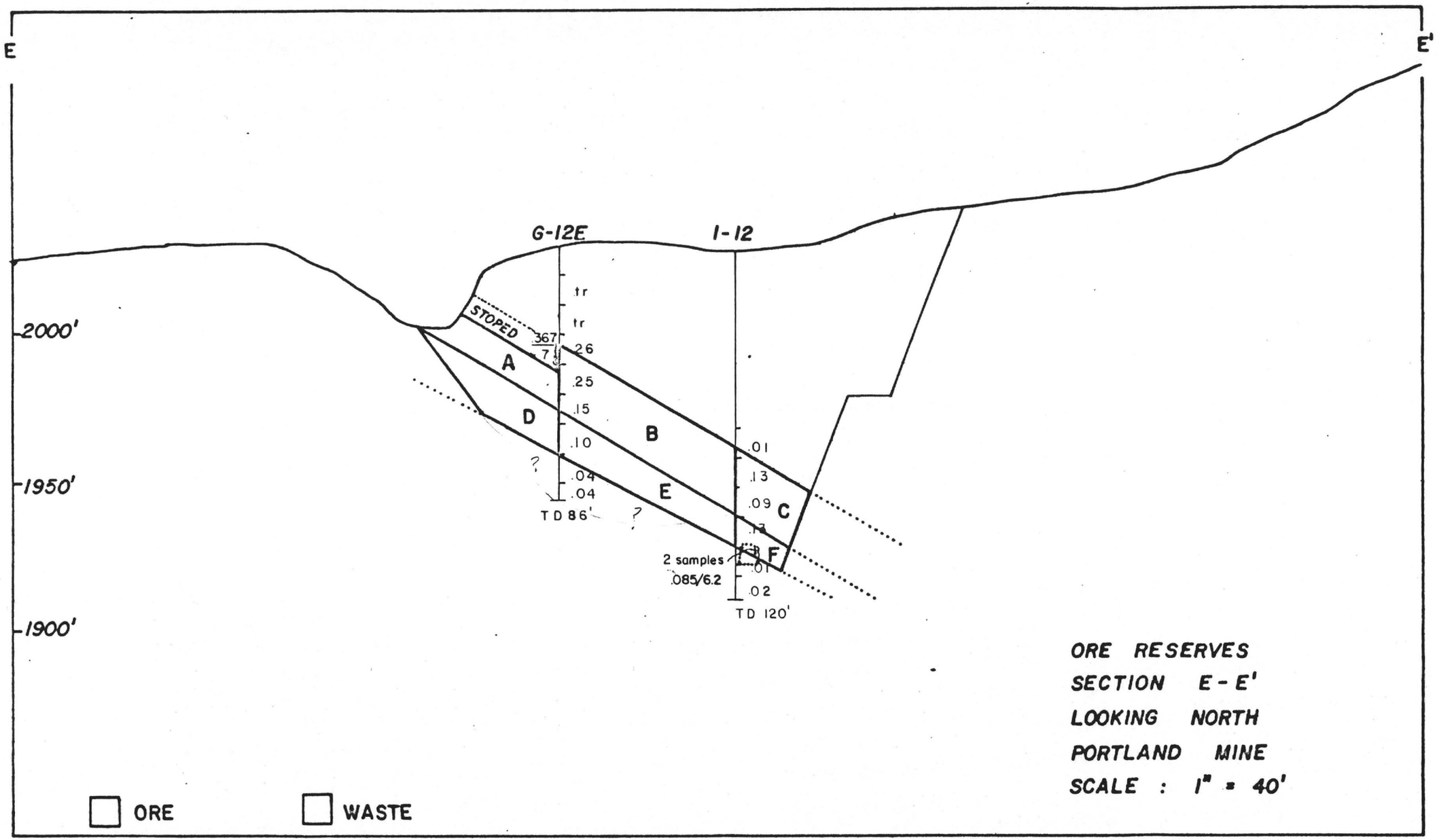
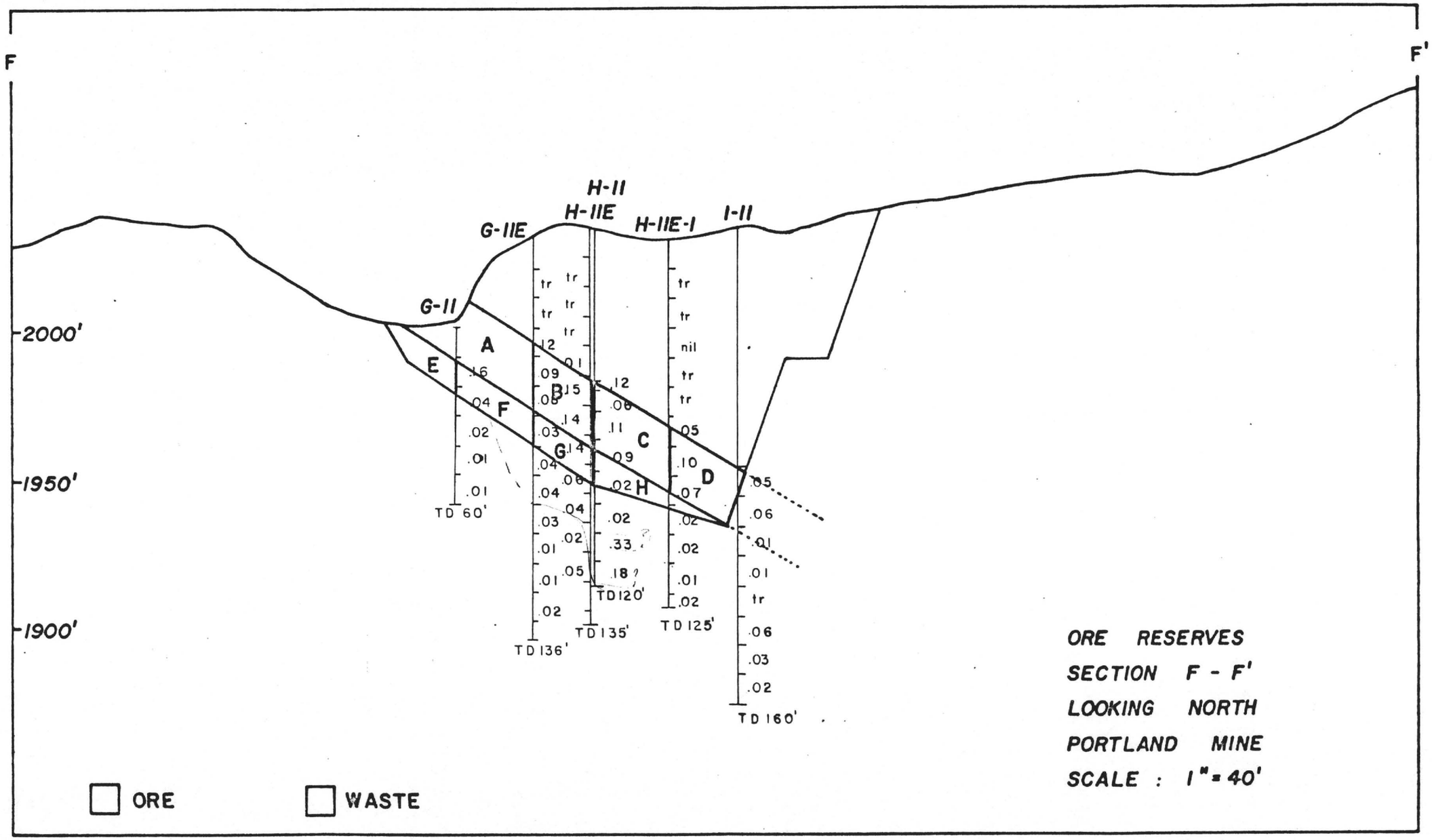
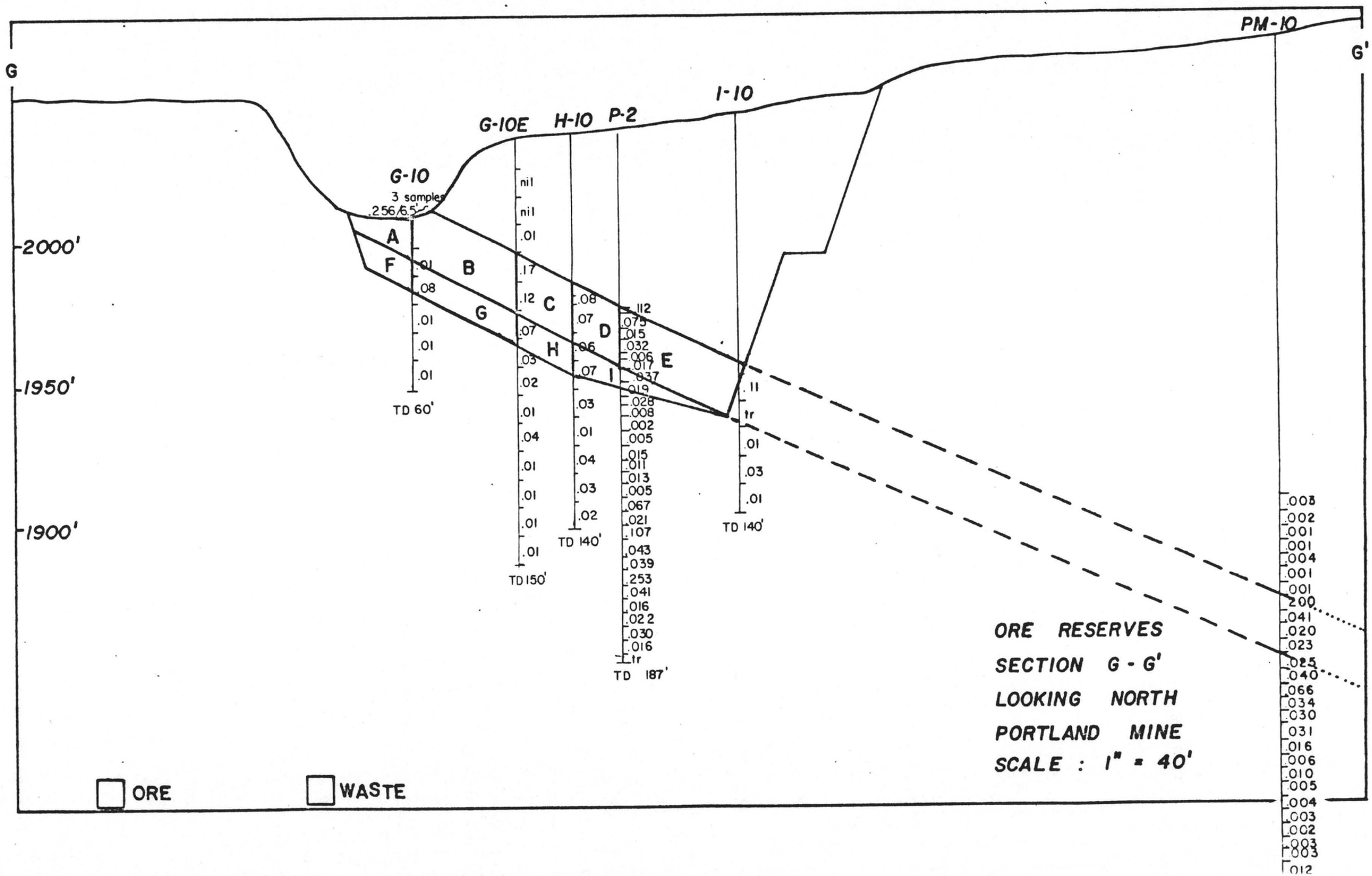
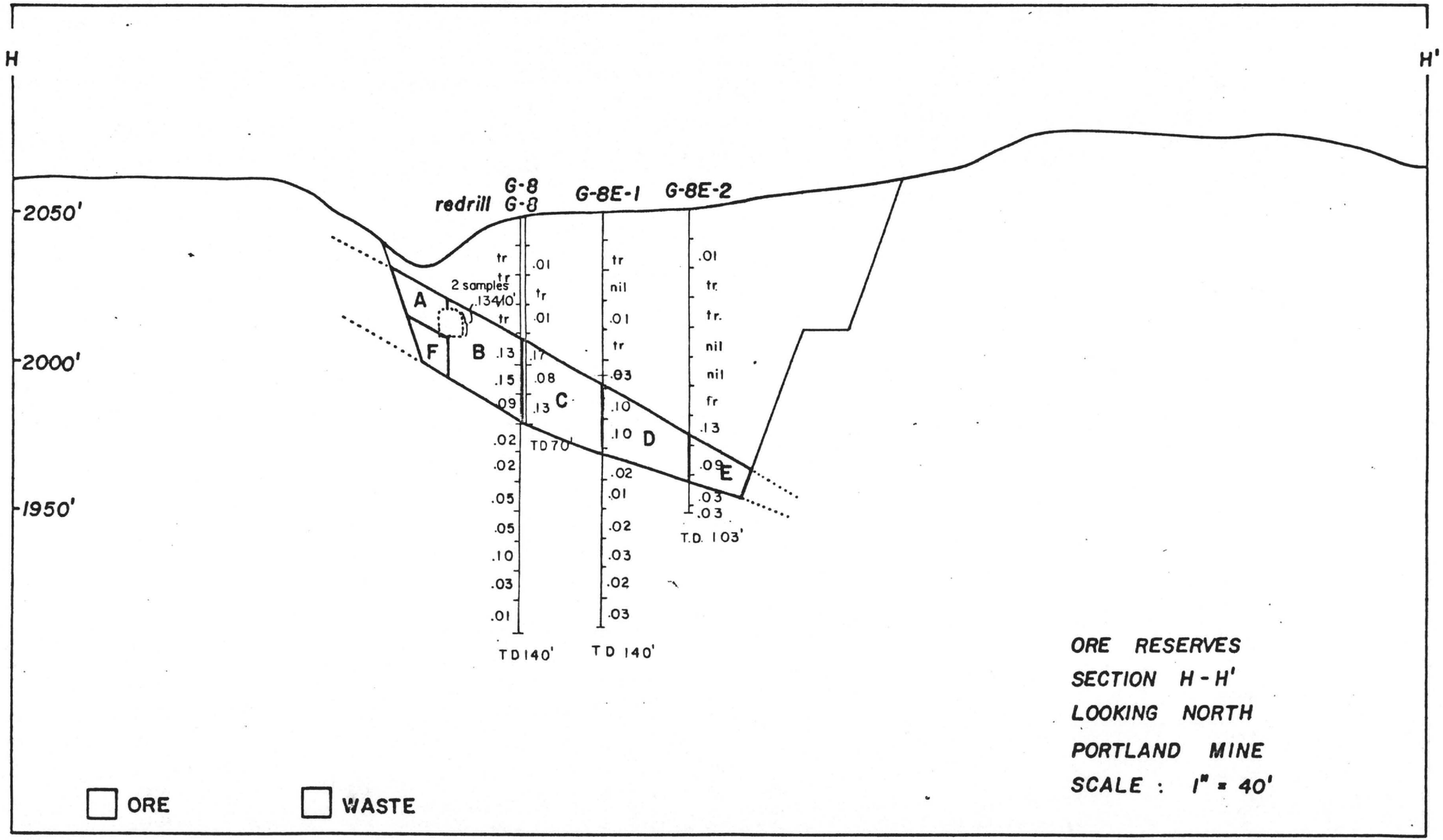

1
1'
F-9
G-9
G-8E-3
2050'
2000'
1950'
1900'
.04
.04
.03
.18
.02
.01
.02
TD 80'
A
B
C
.04
.08
.03
.07
.02
.01
.01
.06
.03
.01
.01
.01
.11
.02
TD 150'
3 samples
.204/10'
2 samples
.03/6.5'
.01
nil
nil
nil
nil
nil
tr
.06
.17
.04
.03
.02
.06
.04
.02
TD 150'
ORE
WASTE
ORE RESERVES
SECTION 1 - 1'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'


D
D'
F-12
G-12
H-12
H-12E
I-13
2000'
1950'
1900'
STOPED
A
B
C
D
.01
.01
.01
.01
.01
.01
.01
.04
.01
.17
no spl.
.01
.01
TD 140'
.01
.01
.01
.01
.01
.02
.01
tr
tr
TD 90'
.01
.11
.07
.01
.01
TD 80'
tr
tr
nil
tr
.25
.11
.05
.06
.02
.01
.03
.01
.05
.02
TD 150'
.01
tr
tr
nil
.01
.17
.09
.02
.01
.06
.12
.24
.04
.02
TD 150'
ORE RESERVES
SECTION D - D'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'
ORE
WASTE


E
E'
G-12E
I-12
2000'
1950'
1900'
STOPED
A
B
C
D
E
F
tr
tr
367
7
.26
.25
.15
.10
.04
.04
TD 86'
.01
.13
.09
.13
.01
.02
TD 120'
2 samples
.085/6.2
ORE
WASTE
ORE RESERVES
SECTION E-E'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'


F
F'
H-11
H-11E
G-11E
H-11E-1
I-11
G-11
2000'
1950'
1900'
A
B
C
D
E
F
G
H
TD 60'
TD 136'
TD 135'
TD 120'
TD 125'
TD 160'
ORE
WASTE
ORE RESERVES
SECTION F - F'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'


G
G'
PM-10
I-10
P-2
H-10
G-10E
G-10
3 samples
.256/6.5'
2000'
1950'
1900'
A
B
C
D
E
F
G
H
I
TD 60'
TD 150'
TD 140'
TD 187'
TD 140'
ORE RESERVES
SECTION G - G'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'
ORE
WASTE


H
H'
2050'
2000'
1950'
G-8
redrill G-8
G-8E-1
G-8E-2
2 samples
.13 4/10'
A
B
C
D
E
F
TD 70'
T.D. 103'
TD 140'
TD 140'
ORE
WASTE
ORE RESERVES
SECTION H - H'
LOOKING NORTH
PORTLAND MINE
SCALE : 1" = 40'

Fischer-Watt Mining Co. Inc.

ADMINISTRATIVE OFFICE: 114 TUCKER, SUITE 2
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FINAL REPORT

on

PORTLAND BOTTLE LEACH TESTS

by

Robert W. Allgood
Mill Superintendent
Mindy, Inc.

to

Perry Durning
Fischer-Watt Mining Co.

September 30, 1981

SUMMARY

Five bottle tests were run on four Portland samples. These samples and tests are listed below.

Test	Sample Designation
A	Port Test #3
B	P-3 138.5-143.5
C	P-5 167
D	P-8 131
E	5:1 composite P-8 131: P-5 167

All samples were crushed to minus 3/8 inch. The leach solution used was 5.0 pounds per ton NaCN and a nominal pH of 9.5-10.0 adjusted with NaOH. The test was conducted on a nominal 1,000 gram sample using a measured 2,000 ml of leach solution. A head sample was carefully split away from the homogenized leach sample. Indicated recoveries are shown in Table 1. Tail and solution assays are used to calculate this value. The metal recovery figure is based on solution assays and head weights only.

COMMENTS

If the indicated recoveries in this report are compared with the preliminary results reported in the earlier memorandum, one notices that there are several discrepancies. These may well be due to problems in obtaining a truly homogeneous sample. Perhaps the most important information then is the metal value recovered. These figures do show the possibility of a commercial operation on a heap leach of this material.

TABLE 1

PORTLAND LEACH TESTS

METALLURGICAL RESULTS

TEST		SAMPLE SIZE (grams)	HEAD ASSAY (oz/T)	HEAD CONTENT (mg)	TAIL ASSAY (oz/T)	TAIL CONTENT (mg)	SOLUTION ASSAY (mg/L)	SOLUTION CONTENT (mg)	INDICATED HEADS (oz/T)	INDICATED RECOVERY (%)	RECOVERY (oz/T)
A	Au	1,011.4	.30	10.40	.110	3.8	2.8	5.6	0.271	59.6	0.161
	Ag	1,011.4	1.58	54.79	1.01	35.02	2.6	5.2	1.16	12.9	0.15
B	Au	1,102.0	.02	0.76	.005	0.19	0.3	0.6	0.021	75.9	0.016
	Ag	1,102.0	.60	22.67	0.43	16.25	4.6	9.2	0.67	36.1	0.24
C	Au	1,046.8	.15	5.38	.081	2.91	1.9	3.8	0.187	56.6	0.106
	Ag	1,046.8	.47	16.87	0.50	17.94	1.8	3.6	0.60	16.7	0.10
D	Au	1,041.2	.08	2.86	.015	0.54	0.4	0.8	0.038	59.7	0.022
	Ag	1,041.2	.37	13.21	0.32	11.42	0.6	1.2	0.35	9.5	0.03
E	Au	1,063.5	.12	4.38	.021	0.76	0.7	1.4	0.059	64.8	0.038
	Ag	1,063.5	.46	16.77	0.15	5.47	0.8	1.6	0.19	22.6	0.04

MINDY INC.

FLOTATION TEST

DATE: 11/18/81

Sample Designation: Port Test 6 #1 Sample No. ____

Point of Addition	Condit. time	Condit. % solids	[illegible]	Agents lbs. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grind *	30 min	67%											
Condition	2 min	30%	7.8	0.10	2 drops								
Rougher Froth	until clean	30%	7.8										

RESULTS

PRODUCT	% weight	Assays Au oz/T	Assays Ag oz/T					% Distribution Au	% Distribution Ag				
Tails	99.7	0.13	0.74					[illegible]	[illegible]				
Ro. Conc	0.3	27.72	13.92					[illegible]	5.4				
Calc. Heads	[illegible]	0.21	0.70										

SCREEN ANALYSES

SCREEN SIZE	TAILS	
+48m	20.8 %	
+65m	11.1	
+100m	11.8	
+200m	12.5	
+325m	4.5	
-325m	39.3	

COMMENTS

4.3 [illegible] % -200m - * [illegible]
[illegible]

BY RW Allgood

MINDY INC.

FLOTATION TEST

D[illegible] /81.

Sample Designation: Port Test B #2 Our [illegible] No.:

Point of Addition	Conditions time	% solids	pH					lbs. per					
Grind	[illegible]	[illegible]											
Conditioner	[illegible]	30	7.8	0.10									
Ro. Flot.	[illegible]	30	7.6		2 dr.								

RESULTS

PRODUCT	% weight	Assays Au %	Ag %				% Distribution Au	Ag				
Tails	99.7	0.08	0.54				[illegible]	64.7				
Ro. Conc.	0.3	1.86	23.55				65.3	35.3				
Calc. Heads	100.0	0.22	0.66									

SCREEN ANALYSES

SCREEN SIZE	TAILS	
+48m	Trace	
+65m	0.3 %	
+100m	1.0	
+200m	17.1	
+325m	0.7	
-325m	78.9	

COMMENTS

79.0 % -200M.

BY R W Allgood

MINDY INC.

FLOTATION TEST

DATE: 11/19/81

Sample Designation: Port Test 6 #3 ur Sampl

Point of Addition	Conditions time	% solids	pH	Reagent Aero 350	Aero 65			per ton					
[illegible]	35 [illegible]	[illegible]											
Conditioner	2 min.	30	8.5	0.10									
Rough Flot	until clean	30	7.8		0.10								

RESULTS

PRODUCT	% weight	Assay Au oz/t	Ag oz/t			% Distribution Au	Ag				
Tails	99.7	0.02	0.46			35.1	[illegible]				
Rough.	0.3	4.72	20.31			67.9	[illegible]				
Calc. Heads		0.25	0.57								

SCREEN ANALYSES

SCREEN SIZE	TAILS
+48m	Trace
+65m	0.5
+100m	1.0
+200m	[illegible]
+325m	22.4
-325m	[illegible]

COMMENTS

88.85% -200m

BY R W Allgood

Portland #1

Interval	ft	Au O/I	Ag O/T
20-25	5	Tr	.10
25-30	5	Tr	.15
30-35	5	Tr	<.05
35-40	5	Tr	<.05
40-46½	6½	Tr	.15
not sampled			
59-63	4	.006	<.05
63-68	5	Tr	.05
not sampled			
77-82	5	Tr	.20
83-86	4	.051 .04	.70
86-90½	4½	.024	.40
90½-97½	7	.112 .04	.30
97½-99	1½	.022	.60
99-104½	5½	Tr	.60
104½-108	3½	.043	.65
108-114½	6½	.026	.65
114½-116	1½	.010	.85
116-120½	4½	.001	.45

Above .04 cut off
15.5' @ .071 Au + .43 Ag

Total Vein
38.5' @ .038 Au + .61 Ag

	FWM Core		FWM Sludge		ASARCO Hammer Chips	
	O/T Au	O/T Ag	O/T Au	O/T Ag	O/T Au	O/T Ag
Andesite	NA	NA	NA	NA	.015	.43
	Tr	.20				
Quartz Calcite Vein	.051	.70	.05	.45	.004	.17
	.024	.40			.017	.50
	.112	1.30	.037	.40	.012	.60
	.022	.60	.031	.55	.050	.64
Rhyolite	Tr	.60	NA	NA		
			.039	.60	.025	.56
Quartz Calcite Vein	.043	.85	.032	.40	.027	.56
	.026	.85			.045	.56
Pegr	.010	.85				
Quartz Calcite Vein	.001	.65	.011	.65	.016	.52

Figure 1 Graphic drill log Compairing assay results from FWM Core hole Portland # 1 and ASARCO hammer drill hole PM # 2

Scale 1" = 10 ft

wpd 2/10/81

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PAGE [illegible]

PROJECT: Portland DDH # [illegible] BEARING: West DIP: [illegible] TD: [illegible]

LOGGED BY: [illegible] DATE: [illegible] SCALE: 1" = 20' CORE SIZE: [illegible]

FOOTAGE

RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
	110								
	131 134	Dense gr frgr [illegible]		122-[illegible]	.006	.15			
		Massive Qtzy 20-30% [illegible] gr Qtz look v. good [illegible] flags at base 6 up 3' & bxdfgr w/ carb cement		120-131	.020	.15			
	145			136-141	.048	.40			
		foliated gfgr w/ CaCO3 stockwork veins 1ins 25% CaCO3 locally banded and oxy most abdt at 150-152, 162-163, 166		130-141	.077	.35			
				141-145	.050	.55			
				145-150	.002	.45			
				150-155	.001	.20			
		TD 168							

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PAGE 1 of 2

PROJECT: Fortune #1 DDH # 7 BEARING: — DIP: 90° TD: 168

LOGGED BY: DATE: 3/13/81 SCALE: 1" = 20' CORE SIZE: NC

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
			Rotary Drilled andesite							
		45	1' Arg sty sheared and porp and sty. sheared w/ hem gouge		45-50	Tr	.10			
		51	Sty sheared and hem shm. std gry-grn. and tan bleached white. v. sty argillic alt		50-55	Tr	<.05			
					55-60	0.022	.15			
					60-66	.002	<.05			
		66	fresh and flow to agglomerate w/ Tr CaCO3 veinlets NO sig alt.		66-71	.001	.10			
		76			71-76	.013	.20			
		79	Qtz (400) HW Vn/bx 10% Qtz, 40% wr frags 50% CaCO3 v. sty hem. Massive Calcite vn w/ 5-10% wr frags local Qtz replaces As <10% v. Tr lim in alt frags.		76-81	.062	.45			
					81-86	.047	.50			
		86	86-89 1' tr alt zone		86-91	.040	.40			
		89	Massive CaCO3 vn w/ 15-25% and frags and rare up to 30% qtz qtz.		91-95	.029	.40			
		98	Massive calcite w/ local intervals of nonmassive - vuggy qtz green qtz. Interval from 105-		95-100	.043	.30			
		104	Massive qtz as above w/ 30% frgn frags local intervals of irregular masses of green qtz. up to 30%.		100-105	.060	.40			
					105-110	.010	.25			
		114	Massive CaCO3 vn w/ 10% frgn frags & massive grn qtz zones at 120, 122, 125, 127, 129		110-115	.070	.10			
					115-117	.049	1.30			
					117-122	.007	.15			

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PAGE 1 of 1

PROJECT: [illegible] DDH # 3 BEARING: Vert DIP: 90° TD: 200

LOGGED BY: [illegible] DATE: 3/13/81 SCALE: 1" = 20' CORE SIZE: NQ

FOOTAGE

RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
-20 -40 -60 -80 -100		Andesite - Porphyry							
		Massive porphyry							
	121	Fault zone [illegible] clay gouge R120. Tr. Vr stgs [illegible]		116-121	.065	.15			
		Massive porphyry [illegible] to 5% vr stgs		121-126	.089	.25			
	126	Gouge zone w/ 20% VSR. Loc Tr arn qtz		126-131	.054	.25			
	131	Porphyry w/ loc [illegible] qtz-carb veins, vis [illegible] alt. Mass have to [illegible] fracture in @ 135.5-136.5 [illegible], 155-155, 166-168, 179.5-181		131-136	.033	.20			
		Outside qtz veins some occasional stringers all that [illegible]		136-139	.016	.10			
				139-145	.059	.05			
				145-150	Tr	<.05			
				150-155	.023	.15			
		Chl alt decreases sig below 165 & qtz is massive and unalt		155-159	.025	.30			
				159-165	.060	.30			
				165-169	.012	.35			
				169-174	.008	<.05			
				174-179	.001	<.05			
	191			179-184	.001	<.05			
		Massive porp w/ no alt & no veining		184-190	.002	<.05			
				190-194	.010	<.05			
				194-199	Tr	<.05			
	200			199-200	Tr	<.05			
		200'							

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PAGE 2

PROJECT: Portland DDH # 9 BEARING: S32W DIP: -45 TD: 142

LOGGED BY: WJD DATE: SCALE: CORE SIZE: NX

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
	20 40 60 80 100											
		142	TD 142									

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PAGE 1

PROJECT: Parland DDH # 9 BEARING: [illegible] DIP: -45° TD: 102

LOGGED BY: DATE: SCALE: 1" = 5' CORE SIZE: [illegible]

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
	20 40 60 80 100		Unconsolidated gravel									
		12' NQ Core	Fotange		12 to 16	Tr	<.05					
					16 to 21	.02	<.05					
					21 to 26	Tr	<.05					
					26 to 29	Tr	<.05					
					29-35	Tr	<.05					
					35-40	Tr	<.05					
		90' NX Core										
			Stgly bx to Cook Std andesite Sharp HW Contact w/ sm		95-100	Tr	0.2					
		102	Massive Mn Calcsum loc sm vugs NO Py. looks pretty attractive		100-102	Tr	<.05					
					102-106	Tr	<.05					
		110			106-110	Tr	<.05					
			Sm massive bx gouge, Cr-D. Stg, Hem on fract		110-115							

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PAGE 1 of 1

PROJECT: Portland DDH # 6 BEARING: ____ DIP: ____ TD: ____

LOGGED BY: ____ DATE: ____ SCALE: ____ CORE SIZE: ____

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
			Rotary drilled, fanglomerate		0-5	Tr	<.05			
					5-10	Tr	<.05			
					10-17	Tr	<.05			
			17 fanglomerate 90% andesite 10% qtz pebbles held by calcite cement		17-22	0.017	<.05			
			26.2 Gray-grn andesite agglomerate w/ 10-20% stockwork qtz & calcite veins. v. stgly blkn to 38' 38 to 42.8 vn is grn qtz & calcite locally vuggy w/ minor hem. stain. poss minor chl alt		22-26.2	.015	.05			
					26.2-31	.014	.20			
					31-38	Tr	<.05			
			42.8 gry massive unmineralized andesite dike or sill		38-42.8	.009	.10			
					42.8-47	Tr	<.05			
			51.5 gray grn and agglomerate as in 26.2-42.8 S=10% qtz & calcite veins w/ minor SIC & FeOx staining		47-51.5	.006	.10			
					51.5-56	.002	.15			
			60 dark gry to red brn porph. and sill no mineralization		56-60	Tr	<.05			
					60-65	Tr	<.05			
			65 gry grn and as in 51.5-60 - w/ stgly SIC & 50% qtz veining		65-67.6	Tr	<.05			
			67.6 Massive qtz-calcite vein w/ 10-30% loc cavities filled w/ qtz or calcite. loc ¼% Sulfides w/ minor feldspar crystals. Some carb replacement textures. This is the best looking vein seen to date. v. stgly blkn from 70 to 79' with gravel bmsal pieces 2'-3' long		67.3-73	.005	.10			
					73-78	.007	.15			
					78-83	Tr	<.05			
			86 As above w/ ptgr frags rather than Tu		83-86	.012	<.05			
			88 ptgr sgl or pebble conl w/ w/ 20% hem clay ground mass and 80% ptgr & ptgn ¼ to 1½" pebbles most pebbles in ½-1" size range. cut by 3" TK cc vn at 93' & stringers at 94.5' and 100, 101-102'		86-88	.015	.70			
					88-93	Tr	.05			
					93-98	Tr	<.05			
			103 pg gn-gr w/ stg foliation w/ typical Sworx Tr qu		98-103	Tr	<.05			
			106 but manganese alteration		103-106	Tr	<.05			
			TD 106							

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PROJECT: Portland DDH # 5 BEARING: — DIP: 90 TD: 228

LOGGED BY: _____ DATE: _____ SCALE: 1" = 20' CORE SIZE: NC Rerun

FOOTAGE

RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION
	120		
		red stgly bkn and	
	128		
		Gry and dike w/ 1" CaCO3 stringer	
	134		
		stgly bkn hem std and w/ stg clay gouge	
	144		
		30-50% cc & qu vein material	
	154		
		70% cc & qu loc stg qu after CaCO3.	
	163		
		gry and w/ 30% CaCO3 un	
	167		
		massive CaCO3 un loc vuggy loc	
		v. stgly bx w/	
		pear w/ <5% cc or qu veining	
		massive CaCO3 & qtz unc w/ up to 15% pear frass	
	216		
		Pear w/ 10-20% CaCO3 vein material	
	228		
		TD 228	

SAMPLE	Au	Ag	Au	Ag	Cu
132-135	.006	<.05			
135-138½	.014	.10			
138½-140	.012	.70			
140-144	.056	1.05			
144-149½	.030	.60			
149½-154	.010	.40			
154-159	.015	.55			
159-163	.014	.40			
163-167	.646	1.50	.596	.90	
167-170	.246	.41	.143	.25	
170-172	.532	.40	.329	.15	
172-176	.113	.90	.094	.70	
176-179	.062	.22	.126	.30	
179-181.5	.145	.35	.158	.35	
181.5-183	.051	.17	.058	.20	
183-185.7	.009	.30	.020	.45	
185.7-191	.035	.25	.054	.35	
191-195	.187	.20	.107	.10	
195-200	.229	.32	.097	.15	
200-208	.020	.55	Tr	.50	
208-212½	.082	.65	.060	.70	
212½-216	.041	.60			
216-221	.006	.75			
221-228	NR				

Fischer-Watt Mining Co. Inc.

PROJECT: Portland DDH # 5 BEARING: — DIP: 90° TD: 228

LOGGED BY: S. Haynes DATE: SCALE: 1" = 20' CORE SIZE: NC

FOOTAGE	RQD % (20 40 60 80 100)	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
			Rotary Andesite									
		112	Styly bkn red andesite HW Rx									
		120										

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PAGE 1 of 1

PROJECT: Portland DDH # 4 BEARING: _____ DIP: -75 TD: 158

LOGGED BY: [illegible] DATE: 3/24/81 SCALE: 1" = 20' CORE SIZE: NC

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
0												
			Rotary									
50												
100												
			Rotary									
150		NC Core	Flowbanded dist. rhyo w/ v sty fract. Core Yellow. v. poor. and sty. and w/ calcite stringers. Lost v. d. rhyo stain. but no ore stage minerals. Fully stoped - barren mineralized.		131-136 136-141 141-158	.004 .02 .05	-.05 -.05 .10					
			TD=158									

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PAGE 2 of

PROJECT: Portland DDH # 3 BEARING: DIP: TD:

LOGGED BY: WPB DATE: 2/6/81 SCALE: 1" = 20' CORE SIZE: NC

FOOTAGE

RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
	110	124 massive whitey tan lt brn calcite w 50% And. wall rk frags. up to 6" across No visible qtz. Calcite xline		124-129	.011	.80			
		138.5 massive white calcite 40% wall rk frags which are 100% peqr & pegn. Minor re fract & and but no visible qtz		129-138.5	.015	1.20			
		143.5		138.5-143.5	.126	.70			
		146 stg & bx & fract peqr w/ Minor qtz-Calcite, unlcts		143.5-148	.028	.70			
		Massive qtz 10% Calcite 90% vein locally vuggy w/ 20% peqr. Vn Shows stg evid & refract & local evid of qtz replacement of Calcite. lt		148-152	.020	.75			
		8 lt zones from 164 to 174.5 w/ v stg 2nd & fracturing		152-158	.020	.65			
				158-161	.020	.70			
			bx vuggy green qtz & calcite	161-168	.030	.50			
				168-171	.023	.15			
		179		171-174.5	.021	.55			
		Stg, bkn & fract peqr & and w/ 10% stockwork Calcite unlcts. minor lt qtz zone 193.5 to 198 TD.		174.5-179.5	.012	.50			
				179.5-186	.158	.60			
				186-192	.024	.35			
		198		192-198	.056	.45			
					.024	.65			

Fischer-Watt Mining Co. Inc.

PAGE _____

PROJECT: Portland DDH # 3 BEARING: _____ DIP: _____ TD: _____

LOGGED BY: WPD DATE: 3/6/81 SCALE: 1" = 20' CORE SIZE: _____

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
			Purple Andesite.							
		Rotary Drilled								
		NC core 3-5/10'	80' Purple andesite w/ narrow 1/16" qtz stringers. but not related to mineralization	80						
			93.5 Grades purple Hw And bx loc gouge zones at 93.5-94, 95-95.5, 96 to 100. End Hw And. 102.8		97-102.8	.003	.10			
		2-3/10'	102.8 Part on. stsly bx and qv cemented loc w/ lim. & colored yel. loc stsly bx. & punky rotted qtz & replaced calcite		102.8-106.8	.009	.65			
			Massive white calcite w/ 30% and. frags. 1/2" to 6" across. v. little void & vs. bx.		106.8-110	.018	.50			
					110-115	.031	.65			
					115-120	.020	.70			
			124		120-124	.014	.80			

Fischer-Watt Mining Co. Inc.

PAGE [illegible]

PROJECT: Portland – DDH # Port #2 BEARING: 0 DIP: 90 TD: 187

LOGGED BY: [illegible] DATE: 1/30/81 SCALE: 1" = 20' CORE SIZE: NC

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
20 40 60 80 100		130	127 Massive white calcite w/ irregular bx zones. 5% qtz. 132 Qtz frags (bx) dust → unit zone. pt wall rk frags (10% of total in bx zones).		127-132	.067	.55					
	100% recov	1-2 frac/ft	Tuff: mixed calcite vn & ptgr w/ minor qtz qtz pt frags 30% of total rx.		132-137	.021	.80		129-132	.020	.20	
					137-142	.107	.75					
		1-5 frac/ft.	144 ptgr fw rx - biotgr w/ 5-25% calcite qtz lunkets. rx more styly frac than above. cut by stockwork lunkets green calcite & qtz.		142-147	.013	.60					
					147-152	.037	.65					
					152-157	.253	.95					
					157-162	.041	.75					
					162-167	.016	.65					
					167-172	.022	.50					
			174 Biotite gneiss w/ < 5% calcite + minor qtz stringers no sig mineral.		172-177	.030	.50					
					177-182	.016	.30					
					182-187	Tr	.20					
			TD 187									

Fischer-Wall Utility Co. Inc.

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PROJECT: _____ DDH # 1 BEARING: _____ DIP: _____ TD: _____

LOGGED BY: _____ DATE: _____ SCALE: 1" = 20' CORE SIZE: NQ

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu
20		Rotary Cuttings	Andesite -							
40										
58' 60	100%	4 frac/ft cc stringers	prop. altered but very coherent volcanics in hanging wall to vein clay gouge with green qtz, very broken zone, probably movement ≅ 50% vein material with lrr green + white qtz zones, brecciated (repeated movement)	prop., rather coherent (1' of bleached andesite then clay	60.5'-63'	.112	1.25			
			72-77' solid qtz vein material 1.5' andesite block in vein, unfractured vein rock		63'-68.5'	.075	1.70			
80			87.5 solid qtz, mostly white, 10% green, cc xls in vugs (late)		68.5-72'	.015	1.65			
			87' vein material (wht qtz) ≅ 80%, and. bx frags 20%	vein	72'-76'	.032	.70			
			87-91' mostly andesite, up to 20% qtz		76'-78.5'	.006	2.15			
			at 91'-10" vein zone (mostly qtz pseudomorphed after cc)	veins 86.5' to 87' cc psuedoed by quartz	78.5-82.5'	.017	.65			
			94'		82.5-87'	.037	1.00			
			99' very brecciated vn material 60% qtz (most after cc.) 30-40% (grey and) 10% greenish		87'-92'	.019	.85			
100			105' all bx vein material (mostly appears to be qtz after cc)		92'-94'	.028	1.15			
			107' brecciated vein (50% frags of andesite) mucho cc blades now qtz.		94'-99'	.008	1.00			
			116.6 vein material less bx than above some green again in (less cc pseudo) mostly wht qtz & CaCO3 1" ft at 116.8' w/gouge.	at 107' first clear sign of p-C fragments	99'-104'	.002	.65			
120		1-3/10ft	127 gray calcite w/ mod to stg bx but well healed by chlor. hem on fracts. occasional wall rx frags. calcite randomly crystal'd. No qtz.		104-109'	.005	.65			
					109-114'	.015	.85			
					114-117.6	.011	.60			
					117.6-122	.013	.65			
					122-127	.005	.40			

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PAGE 1

PROJECT: Portland DDH # Portland #1 BEARING: ____ DIP: ____ TD: ____

LOGGED BY: [illegible] DATE: 1/22/81 SCALE: 1" = 20' CORE SIZE: NX

FOOTAGE	RQD %	FRACTURING	ROCK DESCRIPTION	ALTERATION	SAMPLE	Au	Ag	Pb	Zn	Cu		
0			No Core - Caliche -					Stalk spls	Au	Ag		
	0		Caliche cemented cgl 70% vol rx frags Mostly bnd. to 30% CaCO3. occasional Qu frags loc vugs lined w/		NO sample							
20												
24	75%				20-25	Tr	.10					
29	60				25-30	Tr	.15					
	90				30-35	Tr	<.05					
39					35-40	Tr	<.05					
	100	Stgly bkn >10 frac/ft	40.4 Stgly frox std and prob. wea. appear locally wea. poss flt zone	Mod clay alt	40-46½	Tr	.15					
47	100	1-3 fract/ft	Andesite - purple amyloidal w/ sm amygdols qtz < 1/8" ½% ¼-⅜" plag phenos cut by several barren 1/8" CaCO3 stringers	Fresh	Not sampled	/	/					
53	100	gouge	59 Fit gouge - v. stgly bx & frox std w/ minor qtz orig poss ash tuff 63		59-63	.006	<.05					
63					63-68	Tr	.05					
	100	1-5/ft	Arg to grd. Minor qtz calcite stringers. abdt thin gouge seams. This may be a dike or a sill although its not clear cut		Not sampled	/	/					
73	100%	gouge	76 Hw clay fault seam w/ v. stg clay deg. and shp surfaces; reddish color 82		72-82	Tr	.20		Sludge			
80.5	80%	>10/ft	Hw qtz vn. v. stgly slc and bx & massive comb qtz. Mostly green qtz. v. sty post mineral fltings on vn. all calcs that was present leached out. Abd frags make up 20-30% of vein interval. v. poor core recovery	Vein .07 oz/T Au .89 oz/T Ag	82-86	.051	.70	82-90	.05	.45	20-30% qu	
					86-90½	.024	.40	90-95	.037	.40	20-30% qu	
90.5	21%				90½-97½	.112	1.30	95-100	.031	.55		
97.5					97½-99	.022	.60	No spl				
99	66%		99 Sing grained porphyritic rhyolite w/ loc stg slc Minor qtz seams		99-101½	Tr	.60	101.5-105	.051	.60		
105	100%	108	Qtz yellow qtz trn w/ pseudo replace by CaCO3		101½-108	.041	.85	105-108	.032	.40	30% qu 20-30% qtz	
108	50%	>10/ft 114.4	Mx qtz yel w/ pf rx frags. qtz 40% - peg 60%		108-114.2	.026	.85	113-114				
113	100%	116	lens qu qtz ~~no qu~~ w/ minor qtz vn.		114.2-116	.010	.85	114-120	.011	.65		
116	50%	>10/ft 120.5	Mt Qu & pt qtz frags 50% qu @ 20-70% to C.A. rx v. stgly bkn.		116-120.5	.001	.65					
120.5	TD		TD									

Drill prob.

Portland # 8

Interval	#	Au oz/T .04	Ag oz/T
116-121	5	0.065	0.15
121-126	5	0.089	0.25
126-131	5	0.054	0.25
131-136	5	0.033	0.20
136-139	3	0.016	0.10
139-145	6	0.059	0.05
145-150	5'	Tr	<.05
150-155	5'	0.023	.15
155-159	4	0.025	.30
159-165	6	.060	.30
165-169	4	.012	.35
169-174	5'	.008	<.05
174-179	5'	.004	<.05
179-184	5'	.001	<.05
184-190	6'	.002	<.02
190-194	4'	.010	<.05
194-199	5'	Tr	<.05
199-200	1'	Tr	<.05

Above .04 Cutoff

15' of .069 Au + .22 Ag

ENTIRE VEIN

49' of .044 Au + .17 Ag

Portland # 7

Interval	ft	Au oz/T	Ag oz/T
45-50	5	Tr	0.10
50-55	5	Tr	<.05
55-60	5	0.022	0.15
60-66	6	0.002	<.05
66-71	5	0.001	0.10
71-76	5	0.013	0.20
76-81	5	0.062	0.45
81-86	5	0.047	0.50
86-91	5	0.040	0.40
91-95	4	0.029	0.40
95-100	5	0.043	0.30
100-105	5	0.060	0.40
105-110	5	0.010	0.25
110-113.5	3.5	0.070	0.10
113.5-117	3.5	0.044	1.30
117-122	5	0.007	0.15
122-127	5	0.006	0.15
127-131	4	0.020	0.15
131-136	5	0.048	0.40
136-141	5	0.077	0.35
141-145	4	0.050	0.55
145-150	5	0.002	0.45
150-155	5	0.001	0.20

Above .04 cutoff
41' of .044 Au + .44 Ag

ENTIRE VEIN
69' of .038 Au + .38 Ag

Above .04 cutoff *
14' of .058 Au + .42 Ag

Portland #6

Interval	ft	Au o/t	Ag o/t
0-5	5	Tr	<.05
5-10	5	Tr	<.05
10-17	7	Tr	<.05
17-22	5	.017	<.05
22-26.2	4.2	.015	.05
26.2-31	4.8	.014	.20
31-38	7	Tr	<.05
38-42.8	4.8	.009	.10
42.8-47	4.2	Tr	<.05
47-51.5	4.5	.006	.10
51.5-56	4.5	.002	.15
56-60	4	Tr	<.05
60-65	5	Tr	<.05
65-67.3	2.3	Tr	<.05
67.3-73	5.7	.005	.10
73-78	5	.007	.15
78-83	5	Tr	<.05
83-86	3	.012	<.05
86-88	2	.015	.10
88-93	5	Tr	.15
93-98	5	Tr	<.05
98-103	5	Tr	<.05
103-106	3	Tr	<.05

61.8' of .004 Au + .07 Ag

Portland # 5

Interval	ft	Au oz/t	Ag oz/t
132-135	3	.006	<.05
135-138½	3½	.014	.10
138½-140	1½	.042	.70
140-144	4	.056	1.05
144-149½	5½	.030	.60
149½-154	4½	.010	.40
154-159	5	.015	.55
159-163	4	.014	.40
163-167	4	.621	1.50
167-170	3	.194	.41
170-172	2	.430	.40
172-176	4	.103	.90
176-179	3	.094	.22
179-181.5	2.5	.152	.35
181.5-183	1.5	.054	.17
183-185.7	2.7	.014	.30
185.7-191	5.3	.042	.25
191-195	4	.147	.20
195-200	5	.163	.32
200-208	8	.010	.55
208-212½	4.5	.071	.65
212½-216	3.5	.044	.60
216-221	5	.006	.75
221-228	NA		

5.5' of .052 Au + .95 Ag

ENTIRE VEIN

77.5' of .102 Au + .54 Ag

53' of .137 Au + .52 Ag

Portland # 3

Interval	ft	Au o/T	Ag o/T
97-102.8	5.8	.003	.10
102.8-106.8	4	.009	.65
106.8-110	3.2	.010	.50
110-115	5	.031	.65
115-120	5	.020	.70
120-124	4	.019	.50
124-129	5	.011	.80
129-133.5	4.5	.015	1.20
133.5-138.5	5	.126	.70
138.5-143.5	5	.028	.70
143.5-148	4.5	.020	.75
148-152	4	.020	.65
152-156	4	.020	.70
156-164	8	.030	.50
164-168	4	.023	.15
168-171	3	.021	.55
171-174.5	3.5	.012	.50
174.5-179.5	5	.158	.60
179.5-186	6.5	.024	.35
186-192	6	.056	.45
192-198	6	.024	.45

5' of .126 Au + .70 Ag

ENTIRE VEIN

93.2' of .035 Au + .64 Ag

17.5' of .033 Au + .46 Ag

Portland # 2

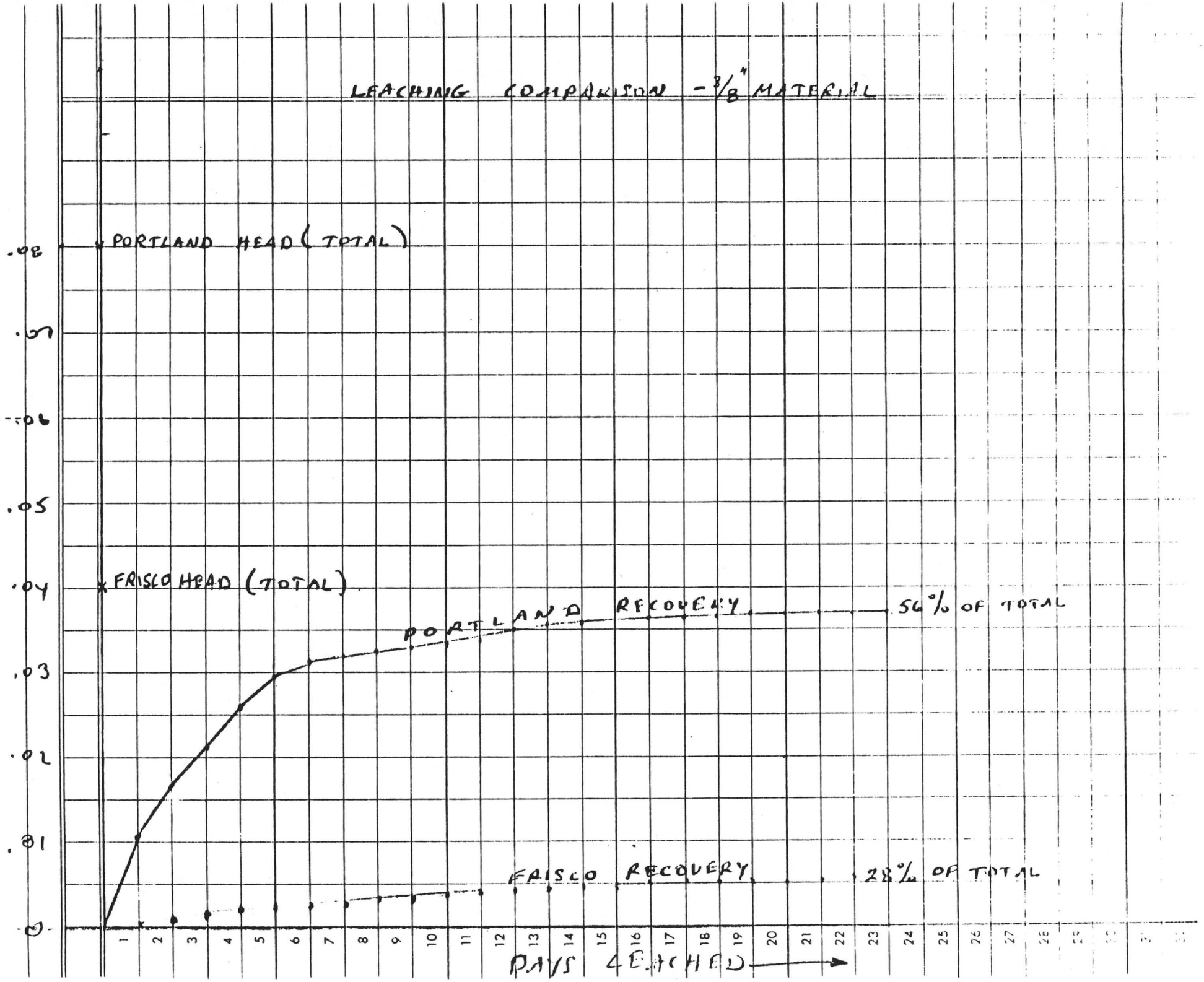
Interval	ft	Au oz/T	Ag oz/T
60½ - 63	2½	.112	1.25
63 - 65½	5½	.075	1.20
65½ - 72	3½	.015	1.65
72 - 76	4	.032	.70
76 - 78½	2½	.006	2.45
78½ - 82½	4	.017	.65
82½ - 87	4½	.037	1.50
87 - 92	5	.019	.65
92 - 94	2	.023	1.15
94 - 99	5	.008	1.00
99 - 104	5	.002	.65
104 - 109	5	.005	.65
109 - 114	5	.015	.85
114 - 117.6	3.6	.011	.60
117.6 - 122	4.4	.013	.65
122 - 127	5	.005	.40
127 - 132	5	.067	.55
132 - 137	5	.021	.50
137 - 142	5	.107	.75
142 - 147	5	.043	1.00
147 - 152	5	.039	.65
152 - 157	5	.253	.95
157 - 162	5	.041	.75
162 - 167	5	.016	.65
167 - 172	5	.022	.50
172 - 177	5	.030	[illegible]
177 - 182	5	.016	.30
182 - 187	5	Tr	.20

Above .04 Cutoff
5' @ .086 Au + 1.22 Ag

ENTIRE VEIN
116.5' @ .046 Au + .82 Ag

Above .04 Cutoff
35' @ .082 Au + .78 Ag

FOR CONTINUATION OF RECORD
WITHOUT REWRITING NAMES
TEAR OFF AT PERFORATION



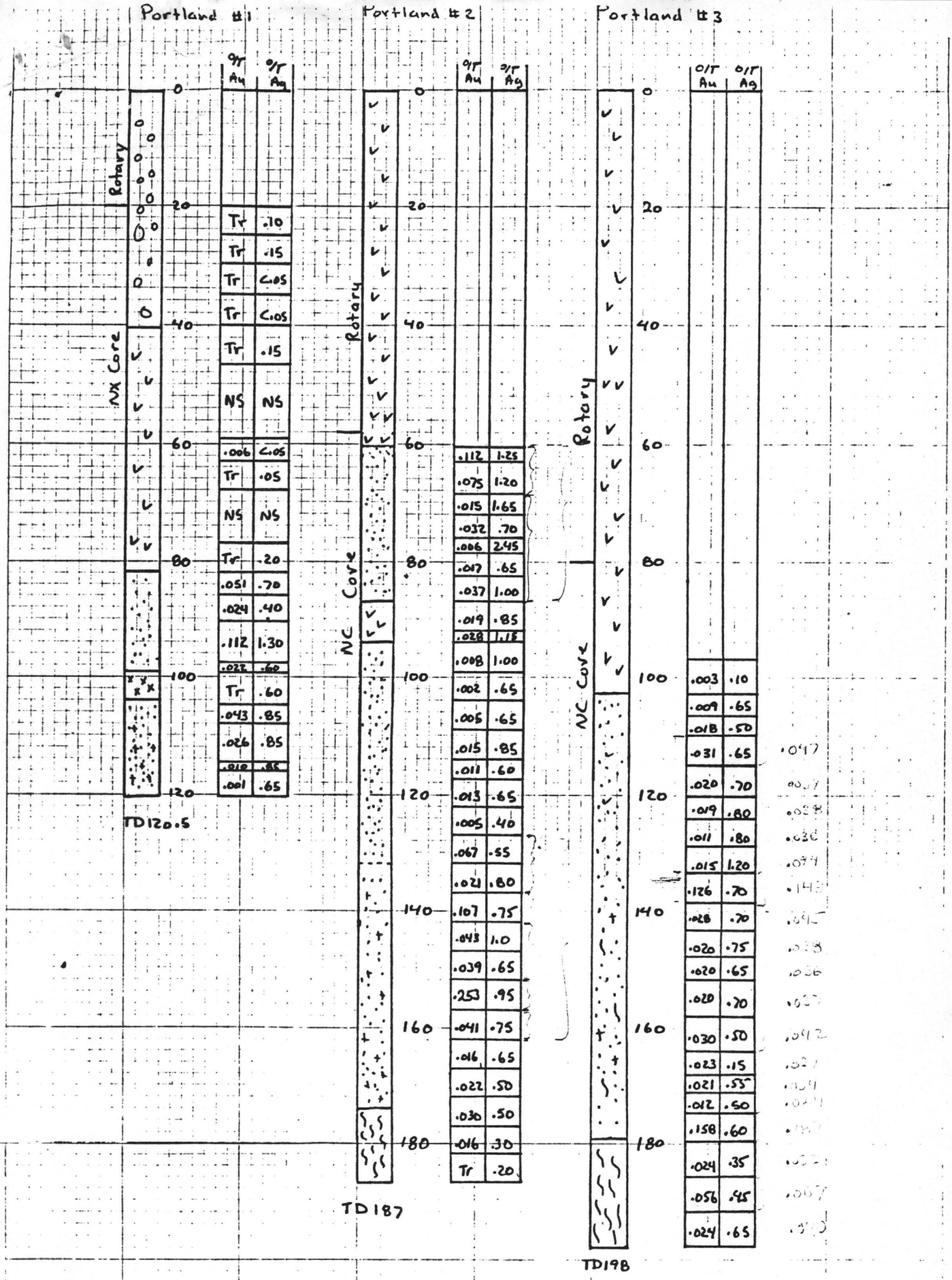


figure Graphic drill logs with assays Portland drill holes #1, 2, 3.

fanglomerate Rhyolite Vein Andesite Granite Gneiss

Scale 1" = 10ft.

wpl 2/10/81

Chester F. Millar

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P.O. Box 1809
Riviera, Arizona 86442

PORTLAND MINE

ECONOMIC CALCULATIONS

SUMMARY REPORT

PORTLAND MINE REPORT

MARCH 1982 C. F. MILLAR

The Portland Mine is situated at Elev. 2000' in Sec's 14 & 15, T23N R21W of Mohave County, Arizona. Three key claims (Sunshine) are patented and owned c/o S. L. Clark, 3955 Maple Tree Drive Anaheim Calif. Fischer-Watt Mining Co. Inc and Canadian Natural Resources leased the property 12/15/80 and after doing some work, optioned it to C. F. Millar 10/30/81.

During 10/81 thru 2/82, Millar drilled 67 percussion holes totalling 7161 feet and leach-tested two samples of crushed ore. The cost of this work, including assaying, engineering, etc. was $58,874.

The accompanying reports include plans and sections of a proposed open pit on the North end of the main vein, together with relevant assays and estimated economics for mining and heap leaching material from that pit. A smaller amount of ore could be open pitted on the South end of the main vein, but including this would not alter the basic economics very much and so this area was not examined in the same detail. The leach tests of the harder ore in the South pit area showed significantly lower recoveries, as well.

The method used to calculate ore and waste quantities within the proposed open pit was by first calculating approximate maximum ore/waste ratios for various grades of ore (based on expected costs) and applying this to the ore zone for approximate dimensions; determining the weighted thickness and grade within the approximate pit boundaries; and finally calculating final quantities based on 60° wall slopes in rock plus access ramps, etc.

Ore grade was calculated using a .05 g/ton cut-off and compiling an average thickness and average grade, then using this throughout the pit area for volume calculations. The alternative approach of going half way out from each specific drill hole assay thickness was not used since it was felt that the variable nature of this type of deposit calls for a more statistical method than this latter approach utilizes. The dilution factor used was 40% which is quite conservative, however the ore zone dips 30°, is about 20 feet thick, and drilling and blasting was chosen over ripping for reasons of grade control, all of which tend to increase dilution when mining with large machinery. Assays of Millar percussion holes were used only, although a few earlier holes penetrated the zone in question and gave somewhat lower values.

The costs of mining the proposed pit coupled with crushing and heap leaching were estimated by basing the equipment on airtrac drilling, 3½ cy rubber tired loading, 35 ton hauling, and three stage crushing for a final product of minus 1/4 inch. The poor access and distance from service centers had an influence in the estimates. (It was assumed the Parks Dept. would not allow access to be re-established from Katherine Landing).

Recovery of gold by heap leaching was estimated at 75% which is higher than either of the preliminary tests showed, however it was felt that the considerably smaller sized particles and longer leach time associated with the economic estimate would give a considerable improvement over the minus 3/8 inch sizes used in the preliminary tests. It is also common to find that actual assays exceed drill assays to a certain degree. More leach testing should be done before production decisions could be made.

In conclusion, the results of all of this indicate the deposit is uneconomic based on current conditions. Even without royalties or purchase prices for the property, it would appear that gold would have to sell for around $400 an ounce just to break even. The relatively high capital input, considered against the overall potential, does not in the opinion of the writer, compare very favourably with other open pit [illegible] deposits.

C. A. McMillan

PORTLAND ECONOMICS

C. F. Millar
March 1982

1. Cost of work - Nov/81 thru Feb/82 :

Mobilization	$1480.00
Drilling 7161 FT	26700.00
Leach test - assays	342.00
- labour	2080.
- chemicals	100.
Office + Overhead	1200.
Assays incl. freight	6760.
Supervision	5800.
Property payment	10000.
Engineering	4412.
Total cost Millar's work	$58,874.00

2. Estimated economics re open pit mining, fine crushing, and heap leaching the 83,660 tons @ 0.088 oz/ton :

Stripping 368,900 tons waste @ $1.50	$550,000.
Mine & stockpile 83,660 tons ore @ 1.80	150,000.
Reclaim & 3-stage crush " " 6.00	500,000.
Heap leach incl. plastic " " 2.50	210,000.
Mobilization	30,000
Assays + engineering	150,000
Site prep. + services	50,000
Royalty @ 75% recovery & $350 Au.	100,000
Property purchase price	250,000.
total	$1,990,000.
Recovery @ $300 Au (75% of 0.088/ton)	1,660,000
" @ $400 " "	2,200,000
" @ 500 " "	$2,760,000

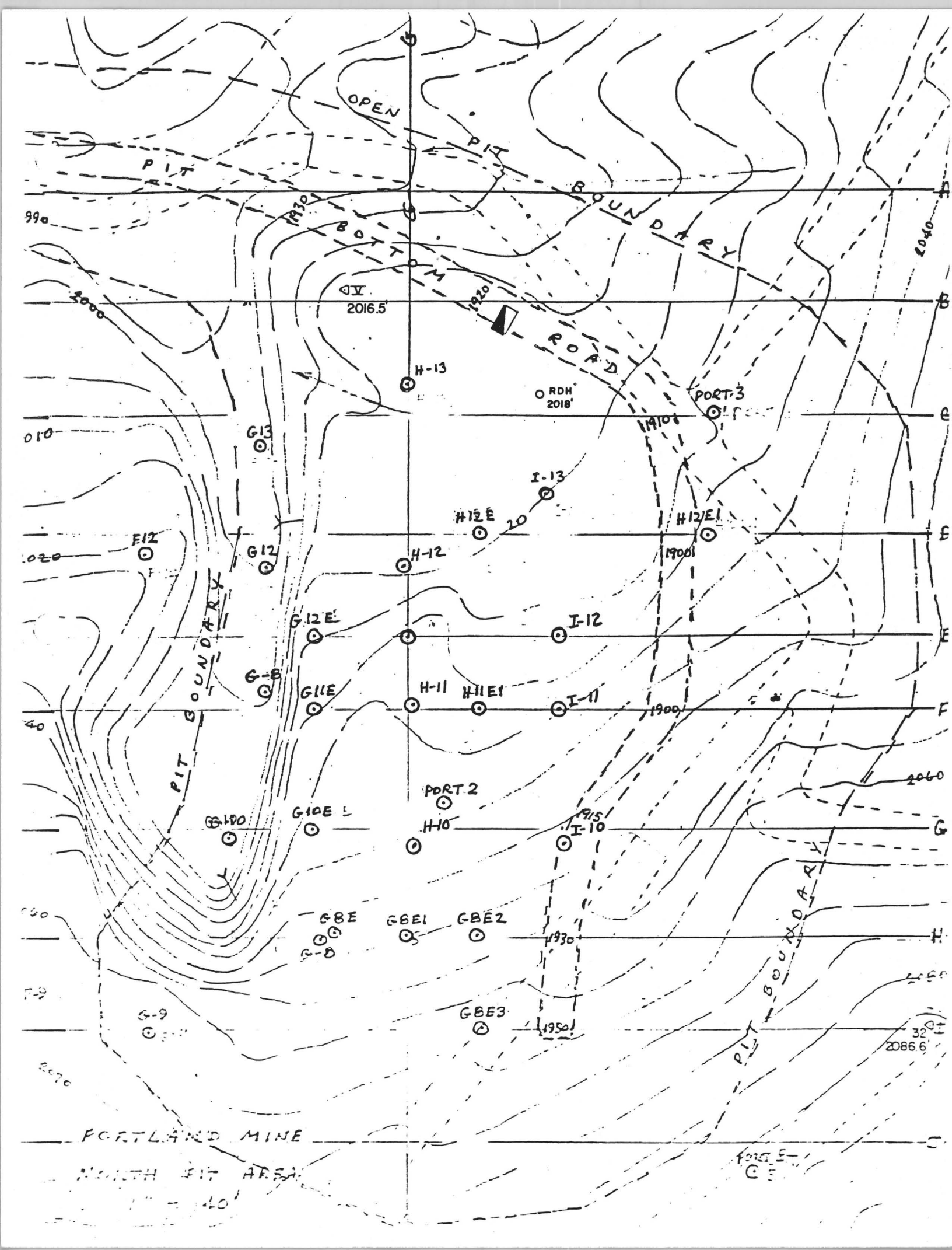
Conclusion : Gold prices would have to approach $500/oz. to make the project reasonably profitable.

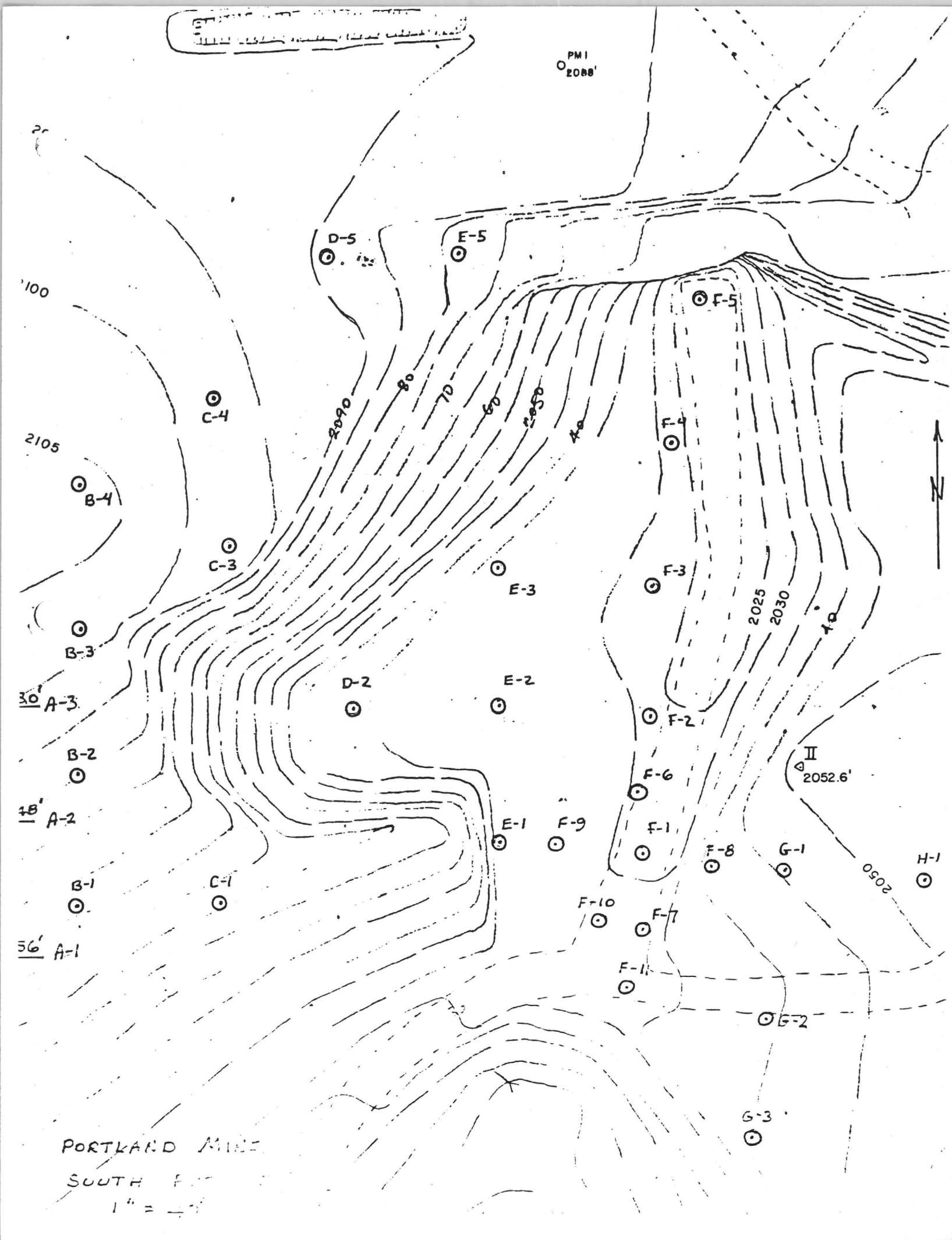
PORTLAND DRILLING ASSAYS

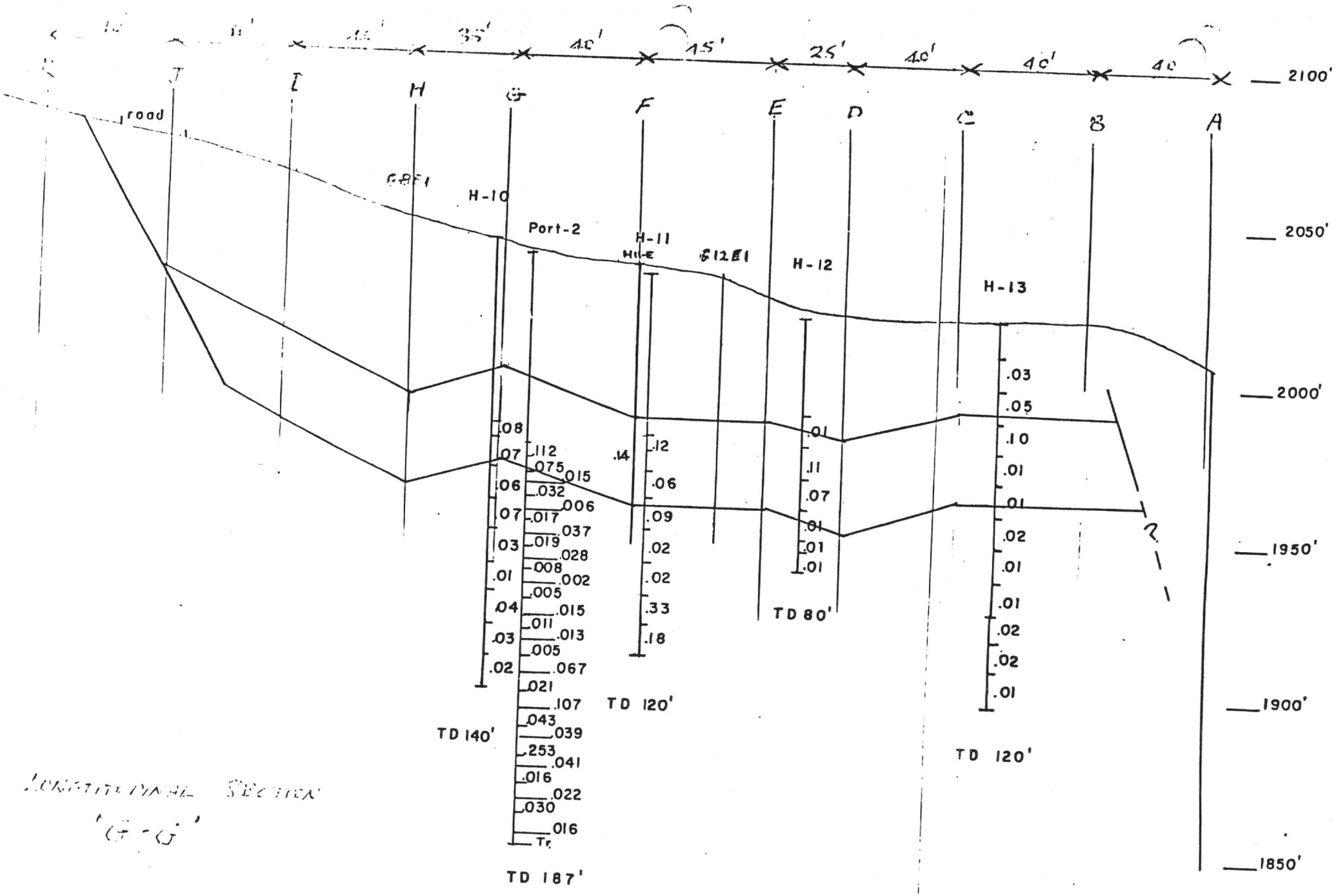
Hole	Depth	Date	Hole	Depth	Date	Hole	Depth	Date
A1	75	11/17/81	F9	80	12/29/81	H 11	0-50	1/26/82
A2	65	"	F10	140	12/17/81	"	50-120	11/30/81
A3	70	"	F11	160	"	H 11E	120	1/19/82
B1	100	"	F12	140	12/29/81	H 11E1	125	"
B2	90	"	G 1	5-30	1/26/82	H 12	0-30	1/26/82
B3	100	"	"	30-70	11/23/81	"	30-80	11/30/81
B4	80	"	G 2	140	12/23/81	H 12E	150	2/19/82
C1	80	"	G 3	160	"	H 12E1	170	2/19/82
C3	100	11/23/81	G 8	70	12/29/81	H 13	120	12/23/81
C4	100	"	G 8E	140	2/11/82	I 7	130	2/11/82
D2	40	"	G 8E1	140	"	I 10	0-80	1/26/82
D5	100	"	G 8E2	103	"	"	80-140	11/30/81
E1	30	"	G 8E3	150	"	I 11	0-80	1/26/82
E2	40	"	G 9	150	12/29/81	"	80-160	11/30/81
E3	20	"	G 10	60	12/23/81	I 12	0-60	1/26/82
E5	130	"	G 10E	160	2/11/82	"	60-120	11/30/81
E12	148	2/19/82	G 11	60	12/23/81	I 13	150	12/29/81
F1	50	"	G 11E	136	2/11/82	J 1	90	12/29/81
F2	50	"	G 12	90	12/23/81	K 1	90	"
F3	110	"	G 12E	86	2/19/82	L 1	120	"
F4	60	"	G 13	93	12/23/81	M 1	80	"
F5	110	"	G 14	140	2/19/82	N 1	140	"
F6	140	12/17/81	H 1	10-80	1/26/82	O 1	130	"
F7	30	"	"	80-90	11/23/81			
F8	140	"	"	90-120	11/30/81	TOTAL HOLES -		67
F9	140	"	H 10	0-57	1/26/82			
			"	57-140	11/23/81	TOTAL FOOTAGE -		7161 FT.

Section	Hole#	Int.	Assay	IxA.	Section	Hole#	Int	Assay	IxA
C-C	H13	20	.075	1.50	G-G	G10E	10	.080	0.80
					"	H10	30	.067	2.00
D-D	H12	20	.090	1.80	"	I10	10	.110	1.10
"	H12E	20	.180	3.60					
"	I13	20	.130	2.60	H-H	G8	30	.127	3.80
"	H12E1	10	.080	0.80	"	G8E	30	.123	3.70
"	G12E	40	.190	7.60	"	G8E1	20	.100	2.00
					"	G8E2	20	.110	2.20
E-E	I12	30	.117	3.50					
					I-I	G9	10	.080	0.80
F-F	G11	10	.160	1.60	"	G8E3	20	.115	2.30
"	G11E	30	.097	2.90					
"	H11	30	.093	2.80	TOTALS		480		54.30
"	H11E	30	.143	4.30	AVGE		21.8	.113	2.47
"	H11E1	20	.085	1.70	DILUTION		8.2	.020	0.16
"	I11	20	.055	1.10	TOTAL		30.0		2.63

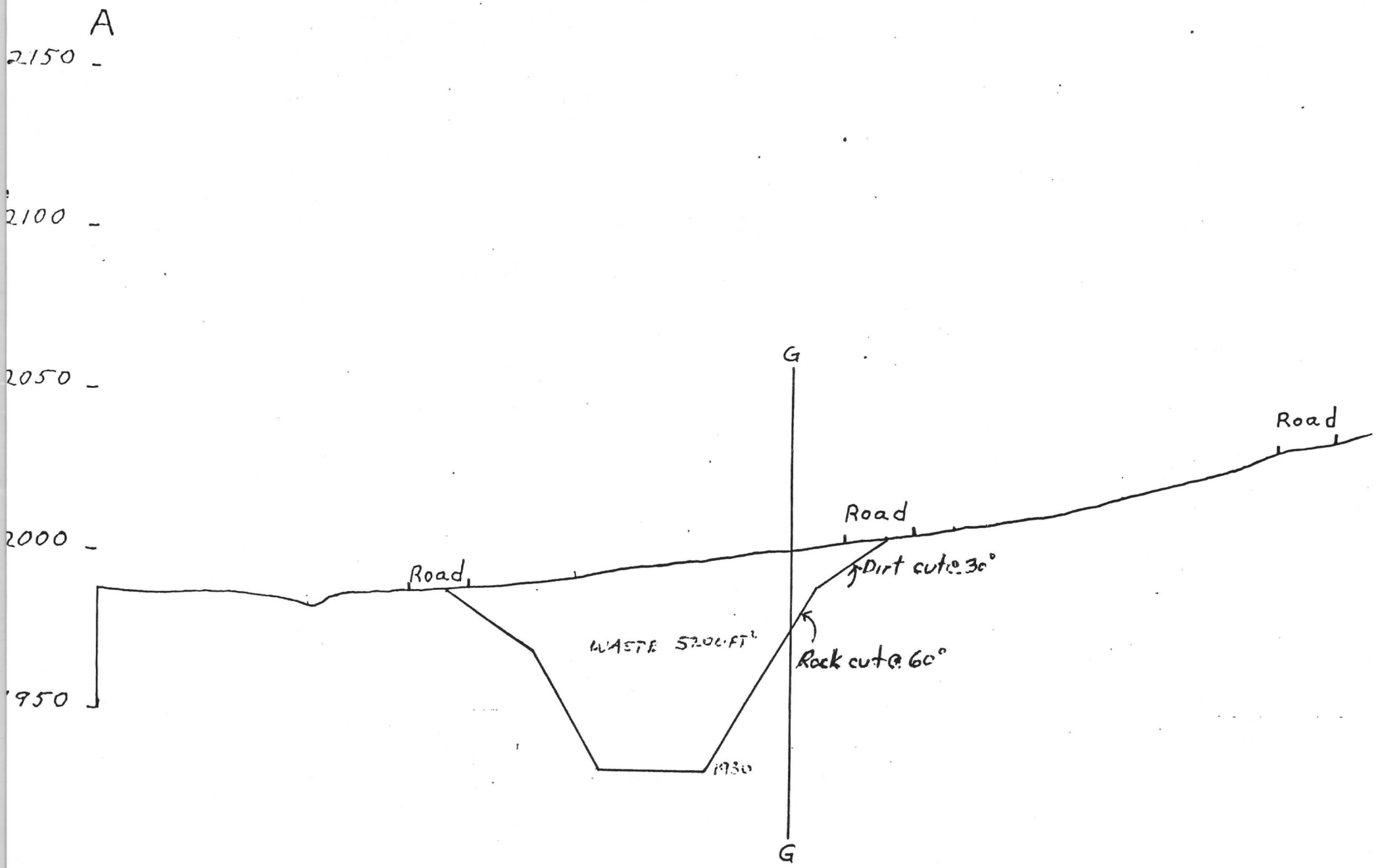
AVERAGE - 30.0' .088 [illegible]


OPEN PIT
PIT BOUNDARY
BOTTOM
ROAD
2016.5'
H-13
RDH
2018'
PORT-3
G13
I-13
H12E
H12E1
F12
G12
H-12
G12E
I-12
G-8
G11E
H-11
H11E1
I-11
PIT BOUNDARY
PORT 2
G10D
G10E
H10
I-10
GBE
GBE1
GBE2
G-8
G-9
GBE3
2086.6'
PORTLAND MINE
NORTH PIT AREA

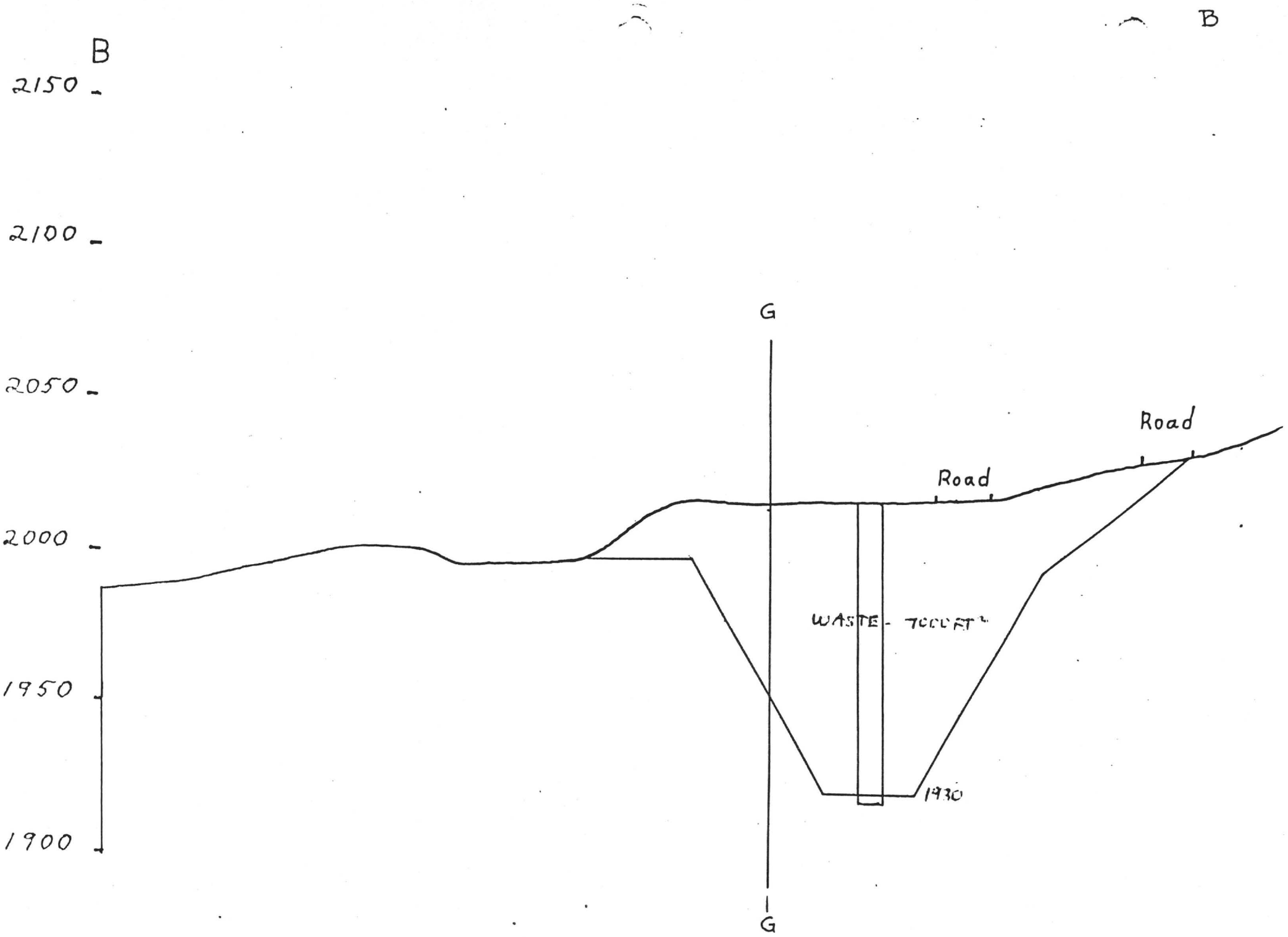

PM I
2088'
D-5
E-5
F-5
C-4
F-4
B-4
C-3
E-3
F-3
B-3
D-2
E-2
F-2
A-3
B-2
A-2
F-6
II
2052.6'
E-1
F-9
F-1
F-8
G-1
H-1
B-1
C-1
F-10
F-7
A-1
F-11
G-2
G-3
2090
80
70
60
2050
40
2025
2030
40
2050
2105
N
PORTLAND MINE
SOUTH
1" =



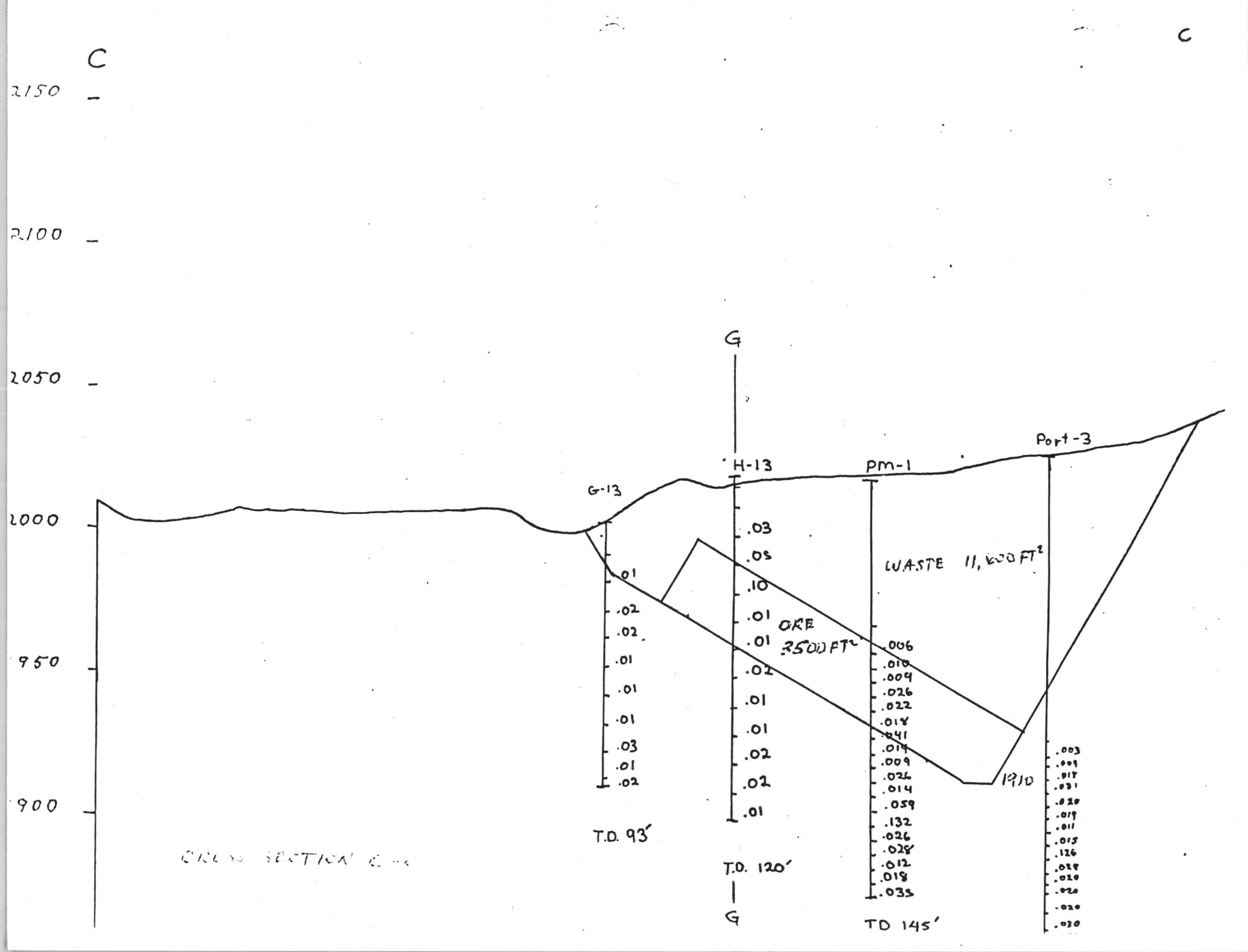
LONGITUDINAL SECTION
'G-G'

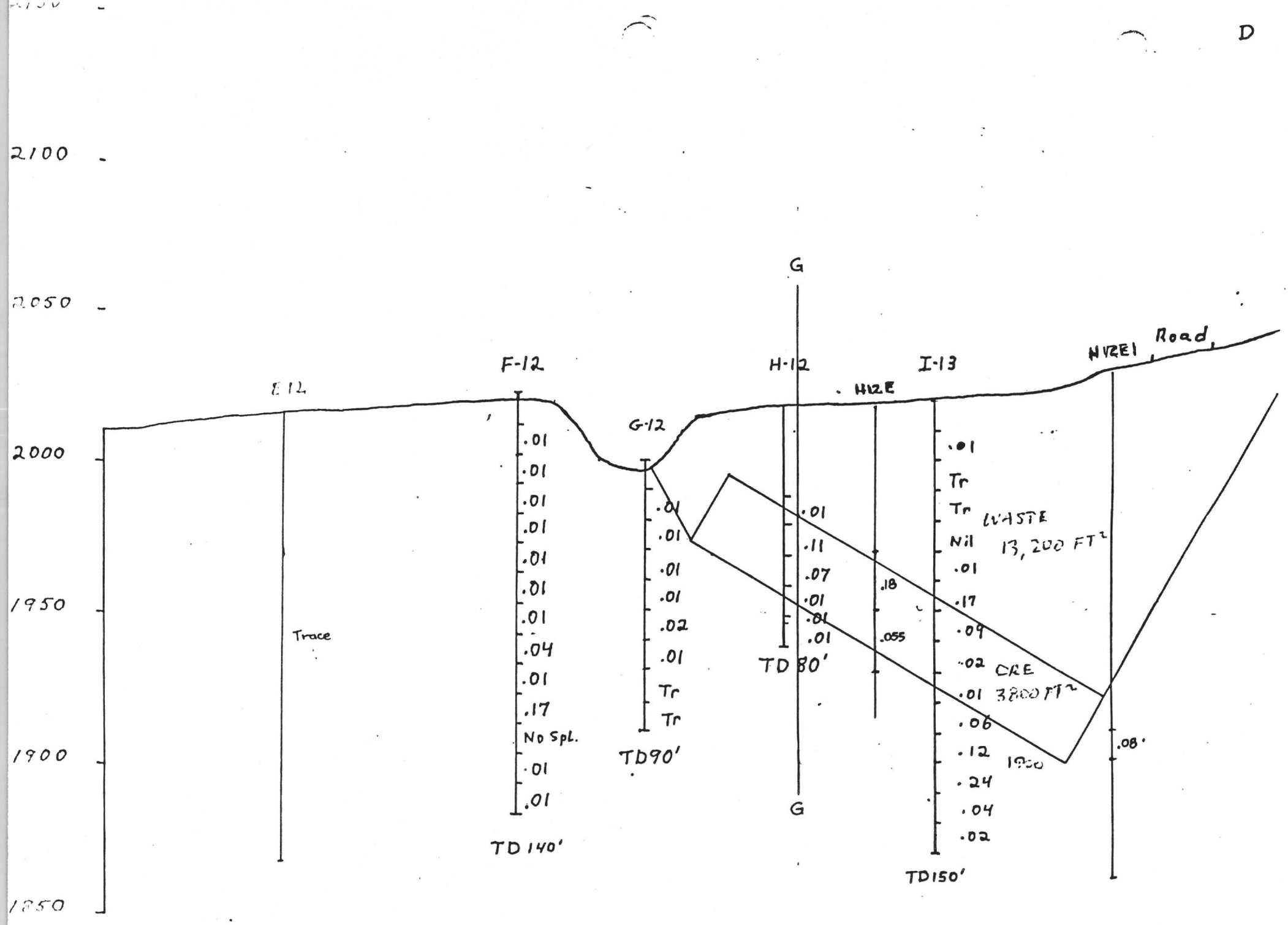


CROSS SECTION A-A'



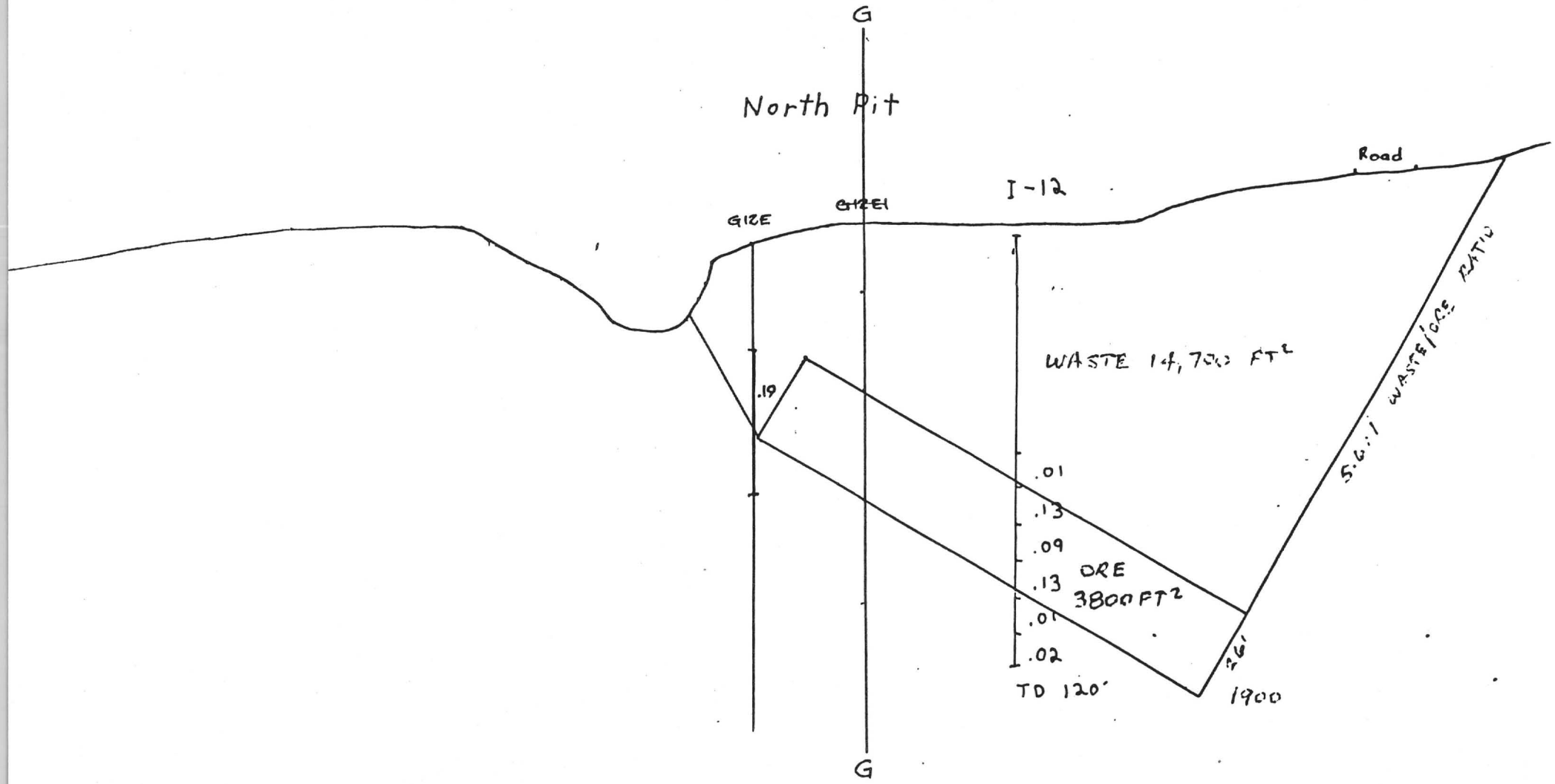
CROSS SECTION B-B'


C
C
2150
2100
2050
2000
950
900
G
G
G-13
H-13
PM-1
Port-3
.01
.02
.02
.01
.01
.01
.03
.01
.02
.03
.05
.10
.01
.01
.02
.01
.01
.02
.02
.01
ORE
3500 FT²
WASTE 11,600 FT²
.006
.010
.009
.026
.022
.018
.041
.014
.009
.026
.014
.059
.132
.026
.028
.012
.018
.035
1910
.003
.009
.017
.031
.020
.019
.011
.015
.126
.028
.020
.020
.020
.020
T.D. 93'
T.D. 120'
TD 145'
CROSS SECTION



CROSS SECTION D-D'

E

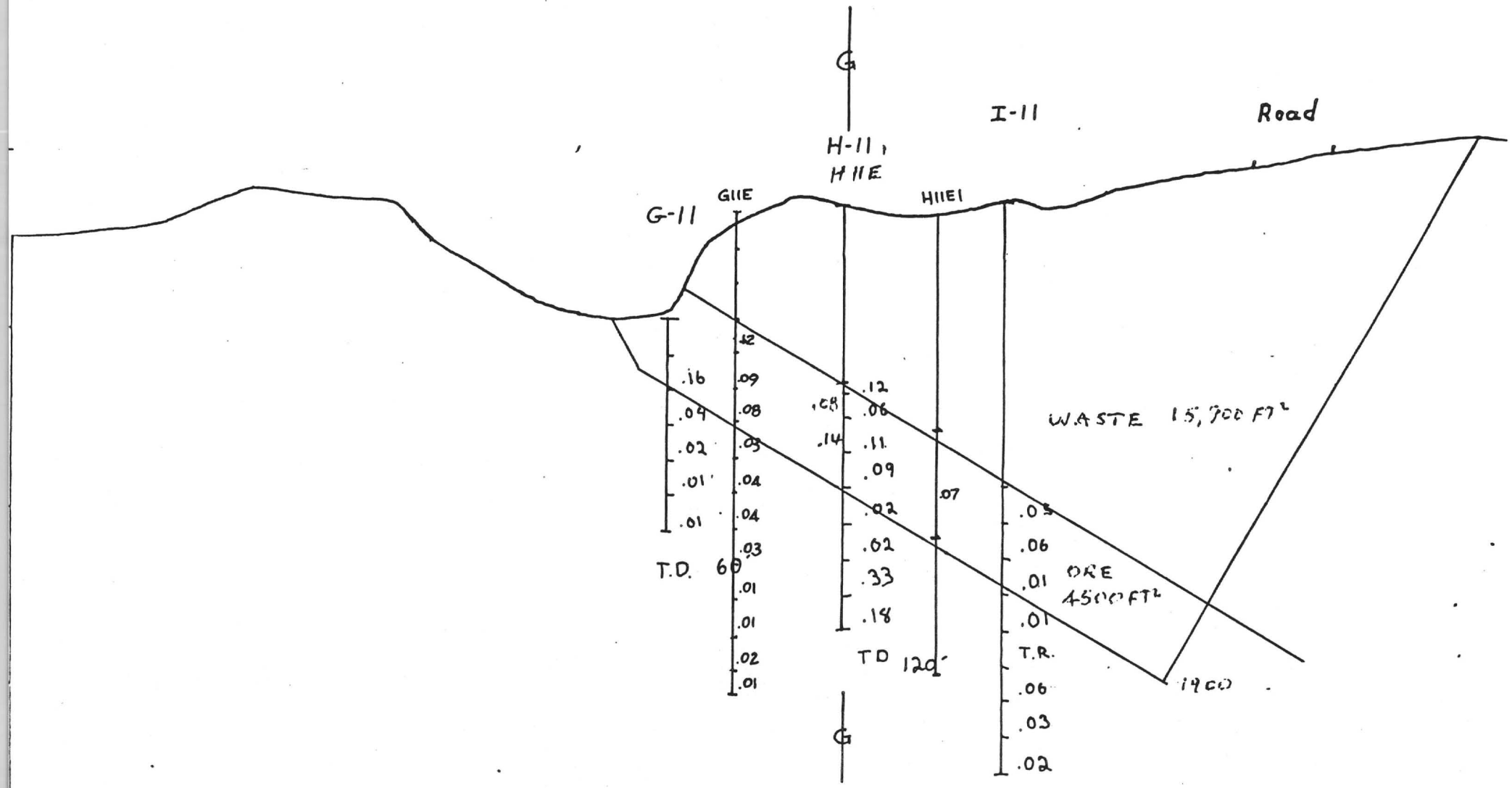


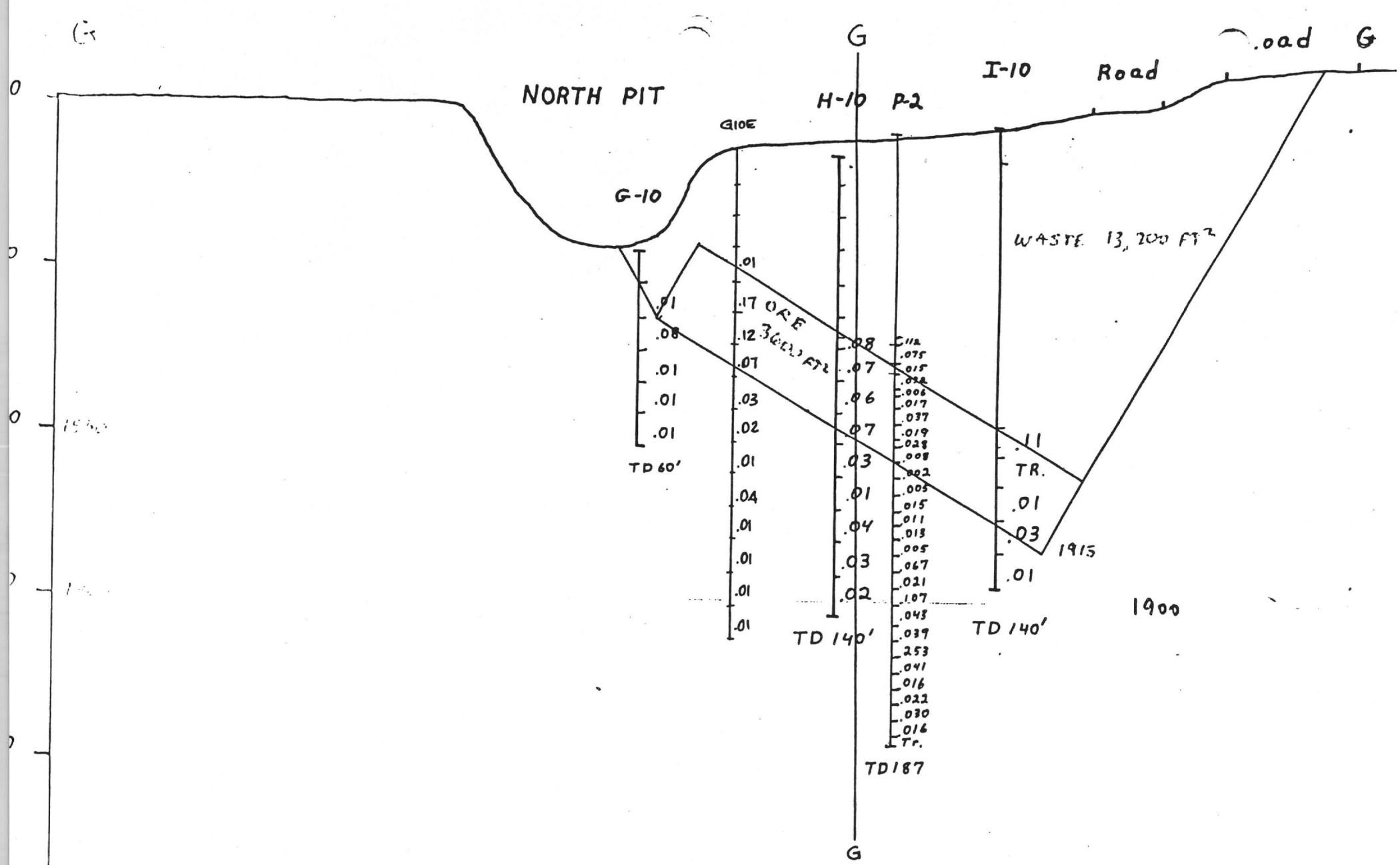
CROSS SECTION E-E'

F

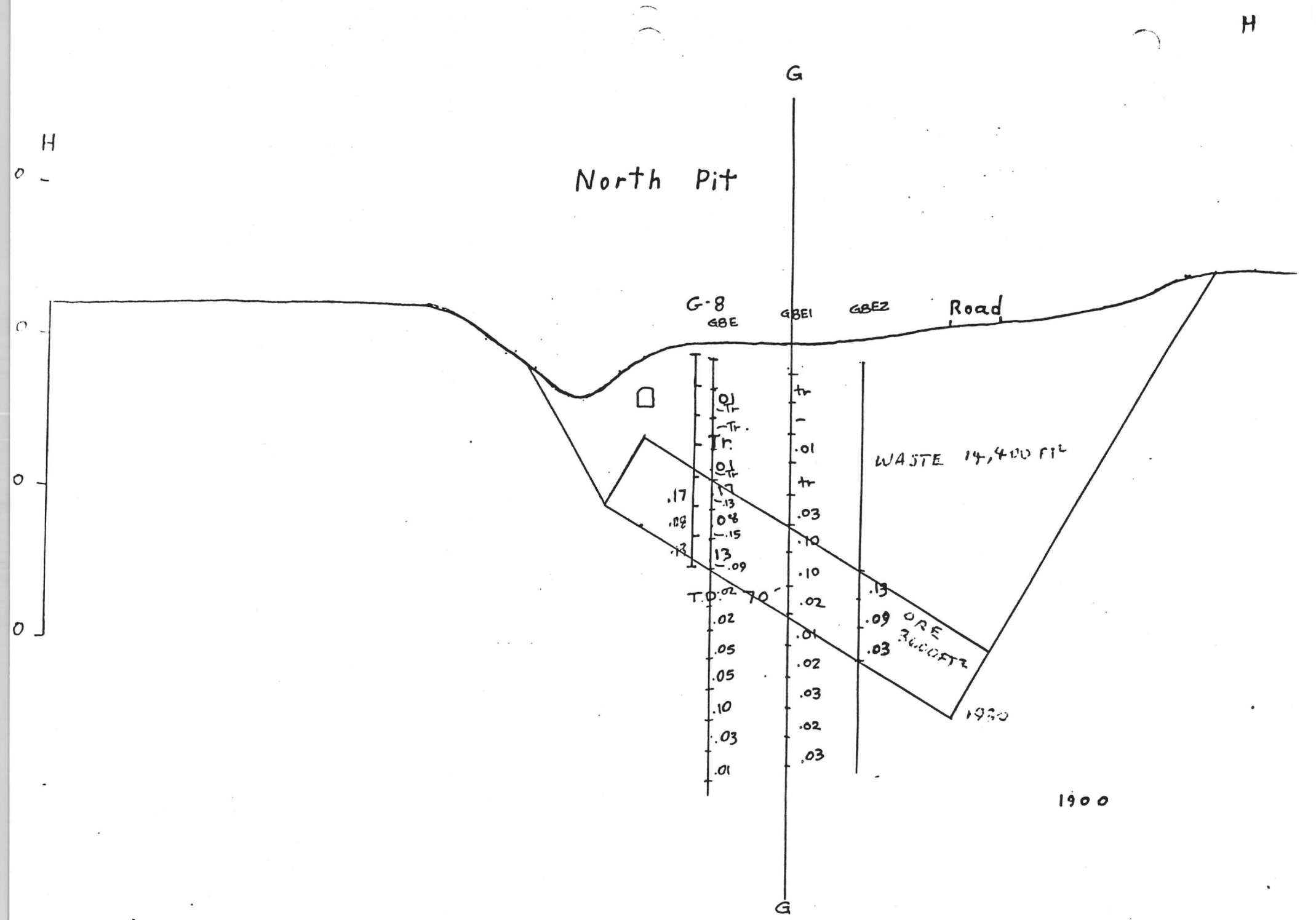
F

North Pit

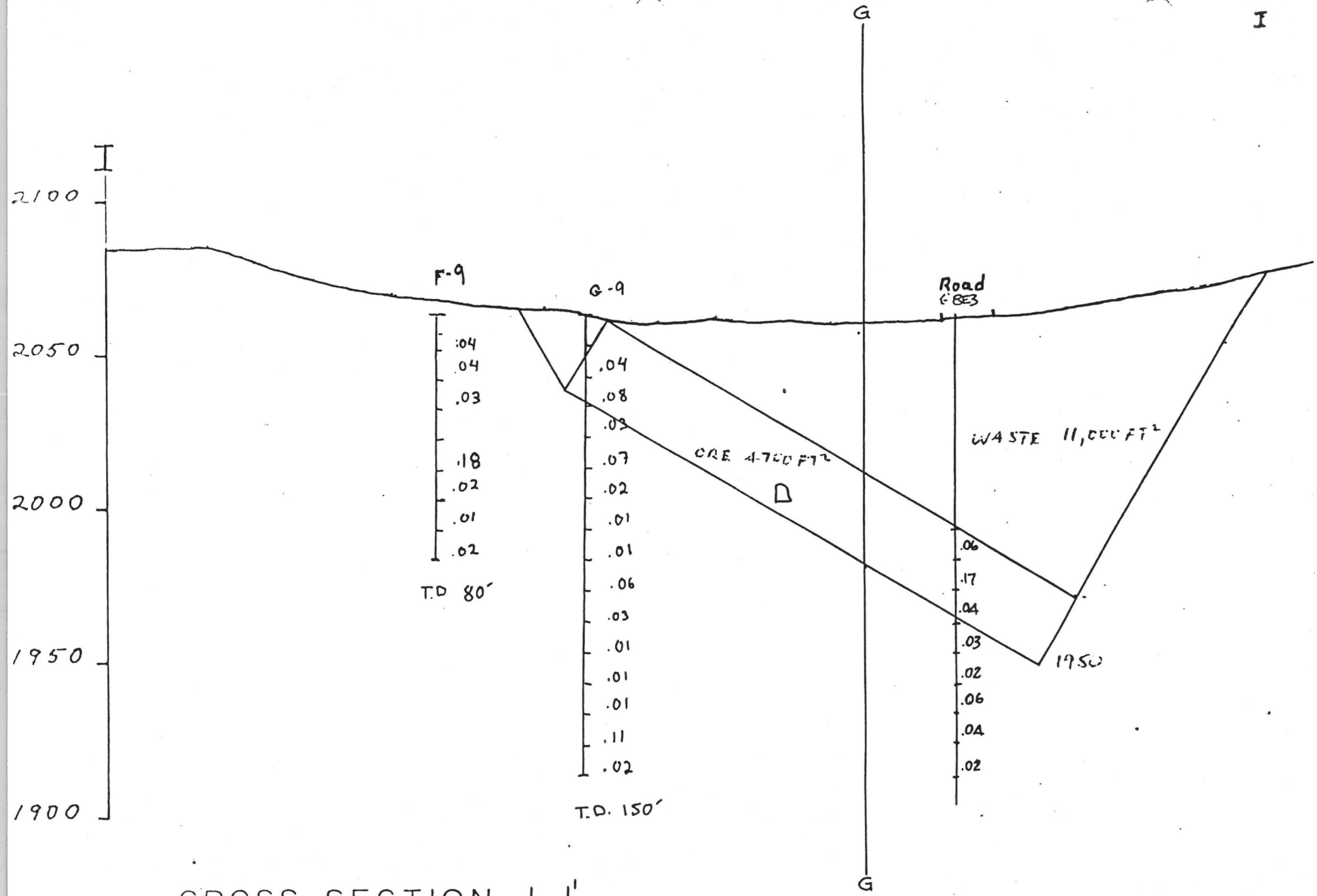

G
I-11
Road
H-11,
H11E
G11E
H11E1
G-11
.16
.04
.02
.01
.01
T.D. 60'
.12
.09
.08
.03
.04
.04
.03
.01
.01
.02
.01
.08
.14
.12
.06
.11
.09
.02
.02
.33
.18
TD 120'
.07
.05
.06
.01
.01
T.R.
.06
.03
.02
WASTE 15,700 FT²
ORE
4500 FT²
1900
G



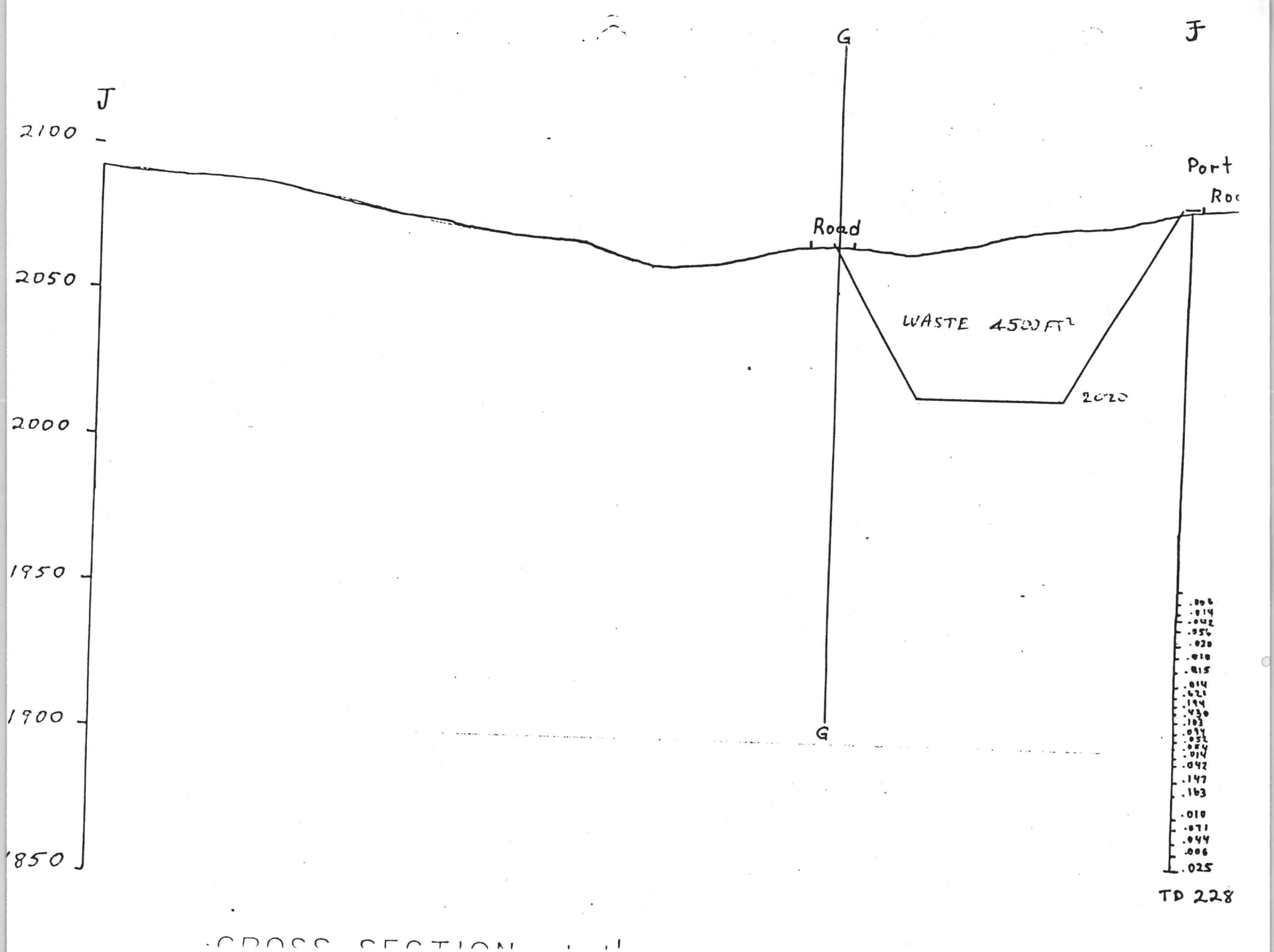
CROSS SECTION G-G'
LOOKING NORTH



CROSS SECTION H-H'



CROSS SECTION I-I'
LOOKING NORTH


J
G
J
2100
2050
2000
1950
1900
1850
Port
Road
Road
WASTE 4500 FT²
2020
G
TD 228

PORTLAND MINE

ORE AND WASTE QUANTITY CALCULATIONS

SECTION	DISTANCE BETWEEN	ORE AREA	AVERAGE AREA	ORE TONS	WASTE AREA	AVERAGE AREA	WASTE TONS
-A		0			500	(ROAD CUT	30,000)
	40		0	0		2850	9120
A		0			5200		
	40		0	0		6100	19520
B		0			7000		
	40		1750	5600		9300	29760
C		3500			11600		
	40		3650	11680		12400	39680
D		3800			13200		
	25		3800	7600		13950	27900
E		3800			14700		
	45		4150	14940		15300	55080
F		4500			15900		
	40		4050	12960		14550	46560
G		3600			13200		
	35		3600	10080		13800	38640
H		3600			14400		
	40		4150	13280		12700	40640
I		4700			11000		
	40		2350	7520		7750	24800
J		0			4500		
						2250	7200
TOTALS				83660			368,900

Chester F. Millar

(602) 758-2640

P.O. Box 1809
Riviera, Arizona 86442

PORTLAND MINE

MILLAR DRILL ASSAYS

NOV/81 - FEB/82

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date February 19, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5344	P282/E12:						
	10-20	0.01					
	20-30	0.01					
	30-40	0.01					
	40-50	Trace					
	50-60	0.01					
	60-70	Trace					
	70-80	Trace					
	80-90	Trace					
	90-100	Trace					
	100-110	Trace					
	110-120	Trace					
	120-130	Trace					
	130-140	Trace					
	140-148	Trace					
	P282/G-12E						
	10-20	Trace					
	20-30	Trace					
	30-40	0.26					
	40-50	0.25					
	50-60	0.15					
	60-70	0.10					
	70-80	0.04					
	80-86	0.04					
	P282/G-14:						
	10-20	0.01					
	20-30	Trace					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
Certificate No. 6258
Claude Eugene McLean, Jr.
Date Signed
Arizona, U.S.A.

Arizona Testing Laboratories

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ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5344	P282/G-14:						
	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					
	P282/H-11E:						
	10-20	Trace					
	20-30	Trace					
	30-40	Trace					
	40-50	0.01					
	50-60	0.15					
	60-70	0.14					
	70-80	0.14					
	80-90	0.06					
	90-100	0.04					
	100-110	0.02					
	110-120	0.05					
	P282/H-11E1:						
	120-130	0.02					
	130-140	0.01					

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ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5344	P282/H11E1:						
	10-20	Trace					
	20-30	Trace					
	30-40	Nil					
	40-50	Trace					
	50-60	Trace					
	60-70	0.05					
	70-80	0.10					
	80-90	0.07					
	90-100	0.02					
	100-110	0.02					
	110-120	0.01					
	120-125	0.02					
	P282/H-12E:						
	10-20	Trace					
	20-30	Trace					
	30-40	Nil					
	40-50	Trace					
	50-60	0.25					
	60-70	0.11					
	70-80	0.05					
	80-90	0.06					
	90-100	0.02					
	100-110	0.01					
	110-120	0.03					
	120-130	0.01					
	130-140	0.05					
	140-150	0.02					

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Date February 19, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5344	P282/H-12E1:						
	90-100	Trace					
	100-110	Nil					
	110-120	0.02					
	120-130	0.08					
	130-140	0.04					
	140-150	0.03					
	150-160	0.03					
	160-170	0.03					

Respectfully submitted,

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date February 11, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5303	P282/G-8E 10-20	Trace					
	20-30	Trace					
	30-40	Trace					
	40-50	0.13					
	50-60	0.15					
	60-70	0.09					
	70-80	0.02	0.076				
	80-90	0.02					
	90-100	0.05					
	100-110	0.05					
	110-120	0.10					
	120-130	0.03					
	130-140	0.01					
	P282/G-8E1						
	10-20	Trace					
	20-30	Nil					
	30-40	0.01					
	40-50	Trace					
	50-60	0.03					
	60-70	0.10	0.10				
	70-80	0.10					
	80-90	0.02					
	90-100	0.01					
	100-110	0.02					
	110-120	0.03					
	120-130	0.02					
	130-140	0.03					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date February 11, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5303	P282/G-8E2:						
	10-20	0.01					
	20-30	Trace					
	30-40	Trace					
	40-50	Nil					
	50-60	Nil					
	60-70	Trace					
	70-80	0.13	0.11				
	80-90	0.09					
	90-100	0.03					
	110-103	0.03					
	P282/G-8E3:						
	5-10	0.01					
	10-20	Nil					
	20-30	Nil					
	30-40	Nil					
	40-50	Nil					
	50-60	Nil					
	60-70	Trace					
	70-80	0.06					
	80-90	0.17					
	90-100	0.04	0.06				
	100-110	0.03					
	110-120	0.02					
	120-130	0.06					
	130-140	0.04					
	140-150	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5303	P282/G-10E:						
	10-20	Nil					
	20-30	Nil					
	30-40	0.01					
	40-50	0.17					
	50-60	0.12	0.12				
	60-70	0.07					
	70-80	0.03					
	80-90	0.02					
	90-100	0.01					
	100-110	0.04					
	110-120	0.01					
	120-130	0.01					
	130-140	0.01					
	150-160	0.01					
	P282/G-11E:						
	10-20	Trace					
	20-30	Trace					
	30-40	0.12					
	40-50	0.09					
	50-60	0.08	0.066				
	60-70	0.03					
	70-80	0.04					
	80-90	0.04					
	90-100	0.03					
	100-110	0.01					
	110-120	0.01					
	120-130	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

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For Red Dog Mining Company
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Riviera, Arizona 86442

Date February 11, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5303	P282/G-11E:						
	130-136	0.01					
	P282/I7:						
	10-20	Trace					
	20-30	Trace					
	30-40	Nil					
	40-50	Nil					
	50-60	Nil					
	60-70	Nil					
	70-80	Nil					
	80-90	Nil					
	90-100	0.01					
	110-110	Trace					
	110-120	0.08	Nil				
	120-130	0.14					

Respectfully submitted,

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date January 26, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION		OZ. PER TON		PERCENTAGES			
			GOLD	SILVER	COPPER			
5041	P1181/G1:	5-10	0.04					
		10-20	Trace					
		20-30	Trace					
	P1181/H1:	10-20	Trace					
		20-30	Trace					
		30-40	Nil					
		40-50	Trace					
		50-60	Trace					
		60-70	Trace					
		70-80	0.02					
	P1181/H10:	10-20	Trace					
		20-30	Trace					
		30-40	Trace					
		40-50	Trace					
		50-57	0.03					
	P1181/H11:	10-20	Trace					
		20-30	Trace					
		30-40	Trace					
		40-50	0.01					
	P1181/H12:	10-20	Trace					
		20-30	Trace					
	P1181/I10:	10-20	Trace					
		20-30	0.01					
		30-40	0.01					
		40-50	0.01					

Respectfully submitted,
ARIZONA TESTING LAB

Claude E. McLean, Jr.

Registered Assayer
Certificate No.
Date Signed
ARIZONA, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date January 26th 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION		OZ. PER TON		PERCENTAGES			
			GOLD	SILVER	COPPER			
5041	P1181/I10:	50-60	Trace					
		60-70	Trace					
		70-80	0.01					
	P1181/I11:	10-20	0.01					
		20-30	0.01					
		30-40	Trace					
		40-50	Trace					
		50-60	Trace					
		60-70	Trace					
		70-80	0.04					
	P1181/I12:	10-20	Trace					
		20-30	Trace					
		30-40	Trace					
		40-50	Nil					
		50-60	Trace					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

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Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 29, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4673	P1281/F-9: ?						
	5-10	0.04					
	10-20	0.04	0.073				
	20-30	0.03					
	40-50	0.18					
	50-60	0.02					
	60-70	0.01					
	70-80	0.02					
	P1281/F-12:						
	10-20	0.01					
	20-30	0.01					
	30-40	0.01					
	40-50	0.01					
	50-60	0.01					
	60-70	0.01					
	70-80	0.01					
	80-90	0.04					
	90-100	0.01					
	100-110	0.17					
	110-120	No sample maybe Dec 17			120-130 ≈ 0.25		
	120-130	0.01					
	130-140	0.01					
	P1281/G-8:						
	10-20	0.01					
	20-30	trace					
	30-40	0.01					
	40-50	0.17	0.127				
	~~50-60~~	~~0.08~~					
	60-70	0.13					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Certified Assayer
CERTIFICATE NO. 6258
CLAUDE EUGENE MCLEAN, JR.
Signed 12/29/81
ARIZONA, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 29, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4673	P1281/G-9						
	10-20	0.04					
	20-30	0.08					
	30-40	0.03	0.055				
	40-50	0.07					
	50-60	0.02					
	60-70	0.01					
	70-80	0.01					
	80-90	0.06					
	90-100	0.03					
	100-110	0.01					
	110-120	0.01					
	120-130	0.01					
	130-140	0.11					
	140-150	0.02					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Registered Assayer
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CLAUDE E. MCLEAN

Claude E. McLean, Jr.

Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 29, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4609	P1281/K-1:						
	10-20	0.02					
	20-30	0.02					
	30-40	trace					
	40-50	trace					
	50-60	trace					
	60-70	trace					
	70-80	trace					
	80-90	0.03					
	P1281/L-1:						
	10-20	trace					
	20-30	trace					
	30-40	trace					
	40-50	nil					
	50-60	nil					
	60-70	0.01					
	70-80	trace					
	80-90	trace					
	90-100	nil					
	100-110	0.02					
	110-120	0.01					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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6258
CLAUDE EUGENE
McLEAN, JR.
Date Signed 12/29/81
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Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 29, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4609	P1281/M-1:						
	10-20	nil					
	20-30	0.01					
	30-40	nil					
	40-50	0.01					
	50-60	nil					
	60-70	nil					
	70-80	trace					
	P1281/N-1:						
	10-20	nil					
	20-30	trace					
	30-40	nil					
	40-50	trace					
	50-60	nil					
	60-70	nil					
	70-80	nil					
	80-90	nil					
	90-100	nil					
	100-110	nil					
	110-120	nil					
	120-130	nil					
	130-140	nil					
	P1281/O-1:						
	90-100	0.17	0.13				
	100-110	0.09					
	110-120	0.03					
	120-130	0.03					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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Date Signed 12/29/81
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Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4609	P1281/G-2:						
	10-20	0.02					
	20-30	0.01					
	30-40	0.01					
	40-50	0.01					
	50-60	0.01					
	60-70	0.01					
	70-80	0.02					
	80-90	0.03					
	90-100	0.05					
	100-110	0.03					
	110-120	0.02					
	120-130	0.01					
	130-140	0.01					
	P1281/G-3:						
	10-20	0.01					
	20-30	0.01					
	30-40	Trace					
	40-50	0.01					
	50-60	Trace					
	60-70	Trace					
	70-80	Trace					
	80-90	0.02					
	90-100	0.01					
	110-110	0.07	0.065				
	110-120	0.06					
	120-130	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4609	P1281/G-3:						
	130-140	0.04					
	140-150	0.01					
	150-160	Trace					
	P1281/G-10:						
	10-20	0.01					
	20-30	0.08					
	30-40	0.01					
	40-50	0.01					
	50-60	0.01					
	P1281/G-11:						
	10-20	0.16	0.10				
	20-30	0.04					
	30-40	0.02					
	40-50	0.01					
	50-60	0.01					
	P1281/G-12:						
	10-20	0.01					
	20-30	0.01					
	30-40	0.01					
	40-50	0.01					
	50-60	0.02					
	60-70	0.01					
	70-80	Trace					
	80-90	Trace					
	P1281/G-13:						
	10-20	0.01					
	20-30	0.02					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

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Date December 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4609	P1281/G-13:						
	30-40	0.02					
	40-50	0.01					
	50-60	0.01					
	60-70	0.01					
	70-80	0.03					
	80-90	0.01					
	90-93	0.02					
	P1281/H-13:						
	10-20	0.03					
	20-30	0.05	0.075				
	30-40	0.10					
	40-50	0.01					
	50-60	0.01					
	60-70	0.02					
	70-80	0.01					
	80-90	0.01					
	90-100	0.02					
	100-110	0.02					
	110-120	0.01					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4515	P1281:						
	50-60	0.04					
	60-70	0.03					
	120-130	0.25	may be Dec 29 Fil 110-120				
	P1281/F-6:						
	5-10	0.47 (33%)					
	10-20	0.09					
	20-30	0.05	0.004				
	30-40	0.04					
	40-50	0.03					
	50-60	0.03					
	60-70	0.01					
	70-80	0.02					
	80-90	0.07					
	90-100	0.02					
	100-110	0.02					
	110-120	0.01					
	120-130	0.03					
	130-140	0.11					
	P1281/F-7:						
	10-20	0.02					
	20-30	0.05					
	P1281/F-8:						
	10-20	0.01					
	20-30	0.12					
	30-40	0.21					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE No. 6258
CLAUDE EUGENE MCLEAN JR.
Date Signed 12/17/81
ARIZONA, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4515	P1281/F-8:		0.12				
	40-50	0.11					
	50-60	0.04					
	60-70	0.03					
	70-80	0.02					
	80-90	0.04					
	90-100	0.02					
	100-110	0.01					
	110-120	0.03					
	130-140	0.26					
	P1281/F-9: ?						
	0-5	0.12					
	5-10	0.07	0.08				
	10-20	0.05					
	20-30	0.03					
	30-40	0.03					
	40-50	0.02					
	70-80	0.01					
	80-90	0.02					
	90-100	0.02					
	100-110	0.02					
	110-120	0.02					
	120-130	0.01					
	130-140	0.01					
	P1281/F-10:						
	10-20	0.15					
	20-30	0.03					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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Post Office Box 1809
Riviera, ARizona 86442

Date December 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4515	P1281/F-10:						
	30-40	0.03					
	40-50	0.02					
	50-60	0.02					
	60-70	0.02					
	70-80	0.01					
	80-90	0.05					
	90-100	0.02					
	100-110	0.01					
	110-120	0.01					
	120-130	0.01					
	130-140	0.06					
	P1281/F-11:						
	5-10	0.08					
	10-20	0.01					
	20-30	0.05					
	30-40	0.03					
	40-50	0.02					
	50-60	0.02					
	60-70	0.03					
	70-80	0.10					
	80-90	0.01					
	90-100	0.03	0.047				
	100-110	0.05		0.045			
	110-120	Trace					
	120-130	0.05					
	130-140	0.07					
	140-150	0.05					
	150-160	0.01					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 30, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4247	P1181/H-1:						
	90-100	0.01					
	100-110	0.01					
	110-120	0.05					
	P1181/H-11						
	50-53	0.12	0.091				
	53-60	0.06					
	60-70	0.11					
	70-80	0.09	0.095				
	80-90	0.02					
	90-100	0.02					
	100-110 ½	0.33					
	110-120	0.18					
	P1181/H-12						
	30-40	0.01					
	40-50	0.11					
	50-60	0.07					
	60-70	0.01					
	70-72	0.01					
	72-80	0.01					
	P1181/ I-10						
	90-100	0.11					
	100-110	trace					
	110-120	0.01					
	120-130	0.03					
	130-140	0.01					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 30, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4247	P1181/ I-11						
	80-90	0.05	0.055				
	90-100	0.06					
	100-110	0.01					
	110-120	0.01					
	120-130	trace					
	130-140	0.06					
	140-150	0.03					
	150-160	0.02					
	P1181/ I-12						
	60-70	0.01					
	70-80	~~0.13~~					
	80-90	0.09	0.117				
	90-100	0.13					
	100-110	0.01					
	110-120	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
Certificate No. 6258
Claude Eugene McLean, Jr.
Date Signed 11/30/81
Arizona, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4201	P-1181/D-2:						
	5-10	0.06					
	10-20	0.03	0.06				
	20-30	0.09					
	30-40	0.03					
	P-1181/E-1:						
	5-10	0.10					
	10-20	0.03					
	20-30	0.03					
	P-1181/E-2:						
	2-10	0.07					
	10-20	0.03					
	20-30	0.03					
	30-40	0.02					
	P-1181/E-3:						
	5-10	0.04					
	10-20	0.02					
	P-1181/F-1:						
	5-10	0.19					
	10-20	0.24	0.177				
	20-30	0.10					
	30-40	0.03					
	40-50	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Registered Assayer
CERTIFICATE NO. 6258
CLAUDE E. McLEAN

Claude E. McLean, Jr.

Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4201	P-1181/F-2:						
	5-10	0.07					
	10-20	0.03					
	20-30	0.02					
	30-40	0.03					
	40-50	0.02					
	P-1181/F-3:						
	5-10	0.07					
	10-20	0.10	0.073				
	20-30	0.05					
	30-40	0.03					
	40-50	0.02					
	50-60	0.02					
	60-70	0.02					
	70-80	0.02					
	80-90	0.01					
	90-100	0.02					
	100-110	0.01					
	P-1181/F-4:						
	5-10	0.02					
	10-20	0.03					
	20-30	0.08					
	30-40	0.03					
	40-50	0.02					
	50-60	0.02					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO. 6258
CLAUDE EUGENE MCLEAN JR.
ARIZONA, U.S.A.

Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, AZ. 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4201	P-1181/F-5:						
	10-20	0.01					
	20-30	0.04					
	30-40	0.02					
	40-50	0.02					
	50-60	0.02					
	60-70	0.04					
	70-80	0.01					
	80-90	0.02					
	90-100	0.03					
	100-110	0.01					
	P-1181/G-1:						
	30-40	0.01					
	40-50	0.10					
	50-60	0.03					
	60-70	0.02					
	P-1181/H-1:						
	80-90	0.05					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

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ARIZONA

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4116	P-1181/C-3:						
	5-10	0.04					
	10-20	0.04					
	20-30	0.06					
	30-40	0.04					
	40-50	0.03					
	50-60	0.02					
	60-70	0.02					
	70-80	0.02					
	80-90	0.02					
	90-100	0.02					
	P-1181/C-4:						
	10-20	0.03					
	20-30	0.04					
	30-40	0.02					
	40-50	0.02					
	50-60	0.02					
	60-70	0.02					
	70-80	0.02					
	80-90	0.02					
	90-100	0.02					
	P-1181/D-5:						
	10-20	0.01					
	20-30	0.01					
	30-40	0.01					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Registered Assayer CERTIFICATE NO. 2118 CLAUDE EUGENE MCLEAN, JR. Signed ARIZONA, U.S.A.

Claude E. McLean, Jr.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4116	P-1181/D-5:						
	40-50	0.02					
	50-60	0.02					
	60-70	0.03					
	70-80	0.02					
	80-90	0.02					
	90-100	0.03					
	P-1181/E-5:						
	5-10	0.02					
	10-20	0.02					
	20-30	0.02					
	30-40	0.02					
	40-50	0.03					
	50-60	0.02					
	60-70	0.02					
	70-80	Trace					
	80-90	0.01					
	90-100	0.01					
	100-110	0.01					
	110-120	0.01					
	120-130	0.01					
	P-1181/H-10:						
	57-60	0.08					
	60-70	0.07	0.07				
	70-80	0.06					
	80-90	0.07					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

ARIZONA, U.S.A.

Arizona Testing Laboratories

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For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 23, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4116	P-1181/H-10:						
	90-100	0.03					
	100-110	0.01					
	110-120	0.04					
	120-130	0.03					
	130-140	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO
6258
CLAUDE EUGENE
McLEAN, JR.
Date Signed
ARIZONA, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4054	P-11-6-81/A-1:						
	5-10	0.01					
	10-20	0.01					
	20-30	0.01					
	30-40	0.01					
	40-50	0.01					
	50-60	0.01					
	60-70	trace					
	70-75	0.03					
	P-1181/A-2:						
	5-10	0.01					
	10-20	0.05					
	20-30	0.05					
	30-40	0.02					
	40-50	0.01					
	50-60	0.01					
	60-65	0.01					
	P-1181/A-3:						
	5-10	0.01					
	10-20	0.02					
	20-30	0.02					
	30-40	0.02					
	40-50	0.02					
	50-60	0.13	0.10				
	60-70	0.07					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean Jr.

Claude E. McLean, Jr.

Registered Assayer
Claude E. McLean Jr.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4054	P-1181/B-1:						
	5-10	0.09					
	10-20	0.03					
	20-30	0.02					
	30-40	0.02					
	40-50	0.04					
	50-60	0.02					
	60-70	0.02					
	70-80	0.01					
	80-90	trace					
	90-100	nio					
	P-1181/B-2:						
	5-10	0.02					
	10-20	0.05					
	20-30	0.03					
	30-40	0.04					
	40-50	0.02					
	50-60	0.01					
	60-70	0.02					
	70-80	0.01					
	80-90	trace					
	P-1181/B-3:						
	5-10	0.04					
	10-20	0.06	0.042				
	20-30	0.03					
	30-40	0.04					
	40-50	0.01					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

Registered Assayer
6213
CLAUDE EUGENE McLEAN, JR.
Date Signed 11/17/81
ARIZONA, U.S.A.

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date November 17, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4054	P-1181/B-3:						
	50-60	trace					
	60-70	trace					
	70-80	0.02					
	80-90	0.09					
	90-100	0.01					
	P-1181/B-4:						
	5-10	0.03					
	10-20	0.02					
	20-30	0.01					
	30-40	0.03					
	40-50	0.01					
	50-60	trace					
	60-70	0.02					
	70-80	0.01					
	P-1181/C-1:						
	5-10	trace					
	10-20	0.01					
	20-30	0.03					
	30-40	0.02					
	40-50	0.01					
	50-60	0.02					
	60-70	0.02					
	70-80	0.02					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

Chester F. Millar

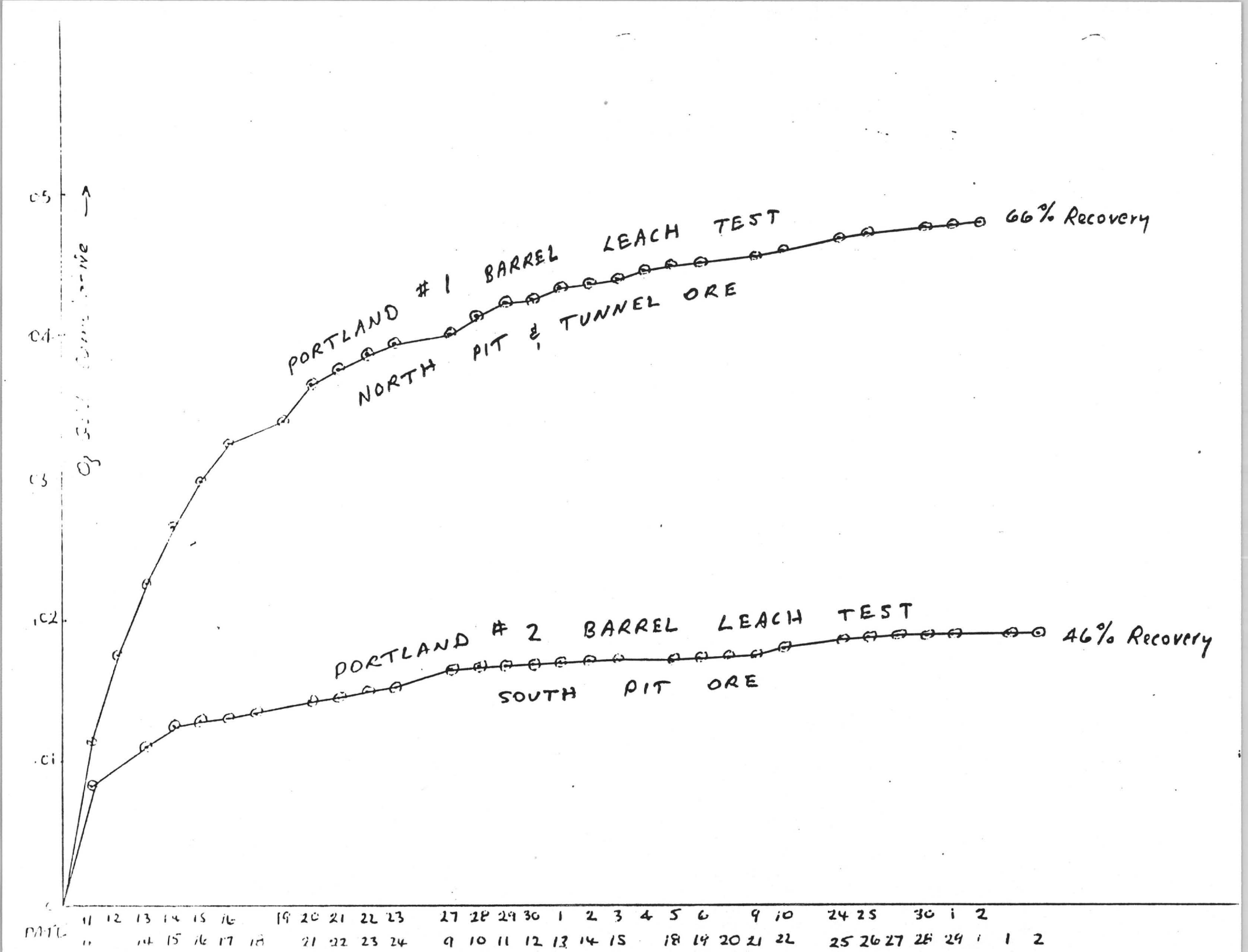
(602) 758-2640

P.O. Box 1809
Riviera, Arizona 86442

PORTLAND MINE

BARREL LEACH TESTS

1981 - 1982


PORTLAND # 1 BARREL LEACH TEST
NORTH PIT & TUNNEL ORE
66% Recovery
PORTLAND # 2 BARREL LEACH TEST
SOUTH PIT ORE
46% Recovery
.05
.04
.03
.02
.01
DATE

PORTLAND #1 BARREL LEACH TEST

Oct - Dec/81

615 lbs ore from tunnel walls etc (Hi-grade)
Crushed to -3/8"
(Sample was markedly softer than Frisco or Port. South pit ore)

Date	Weight	Assay	Oz. Au	Cumulative Oz.
10-11-81	48.8 lbs	0.480	.01171	.01171
-12	34.9	.340	.00593	.01764
-13	45.3	.220	.00498	.02262
-14	48.8	.160	.00390	.02653
-15	59.3	.110	.00326	.02978
-16	80.2	.066	.00265	.03243
	~~41.8~~			
-19	48.3	.077	.00161	.03404
-20	73.2	.069	.00252	.03657
-21	41.8	.054	.00113	.03769
-22	41.8	? .046 ~~.058~~	? .00100	.03870
-23	34.9	.048	.00071	.03941
-27	38.3	.041	.00076	.04017
-28	41.8	.067	.00140	.04157
-29	34.9	.034	.00059	.04216
-30	20.9	.027	.00028	.04244
11-1	111.6	.021	.00117	.04361
-2	20.9	.017	.00018	.04378
-3	13.9	.025	.00017	.04396
-4	97.6	.013	.00063	.04459
-5	62.7	.014	.00044	.04503
-6	31.4	.014	.00022	.04525
-9	62.7	.014	.00044	.04569
-10	31.4	.015	.00023	.04592
-24	48.8	.036	.00088	.04680
-25	62.7	.015	.00047	.04727
-30	73.2	.014	.00051	.04778
12-1	20.9	.013	.00014	.04792
-2	24.4	.010	.00012	.04804 oz.

Final tails .09 oz/Au for 615 lbs = .02461 oz

Add recovered Au = .04804 oz

TOTAL AVAILABLE .07264 oz

% RECOVERY = 66%

Arizona Testing Laboratories

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

For: Red Dog Mining Co.
Post Office Box 1809
Riviera, Arizona 86442

Date: October 19, 1981

Lab. No.: 3687

Sample: Solutions

Marked: See Below

Received: 10/19/81

Submitted by: Same

REPORT OF LABORATORY TESTS

Sample Marked		troy oz/ton of solution Gold
Frisco	10/11/81	0.16
	10/12/81	0.087
	10/13/81	0.071
	10/14/81	0.051
	10/15/81	0.038
	10/16/81	0.025
Portland	10/11/81	0.48
	10/12/81	0.34
	10/13/81	0.22
	10/14/81	0.16
	10/15/81	0.11
	10/16/81	0.066

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Robert J. Drake

Arizona Testing Laboratories

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

For: Red Dog Mining Co.
Post Office Box 1809
Riviera, Arizona 86442

Date: November 2, 1981

Lab. No.: 3877

Sample: Solutions

Marked: See Below

Received: 11/2/81

Submitted by: Same

REPORT OF LABORATORY TESTS

Sample Marked		troy oz/ton of solution Gold	
Portland	10-19-81	0.077	41.83 lbs sol'n
	10-20-81	0.069	73.2
	10-21-81	0.054	41.83
	10-23-81	0.048	~~41.83~~ 34.86
	10-27-81	0.041	~~34.86~~ 38.34
	10-28-81	0.067	~~38.34~~ 41.83
	10-29-81	0.034	34.83
	10-30-81	0.027	20.91
Frisco	10-19-81	0.033	31.37
	10-20-81	0.028	48.8
	10-21-81	0.015	30.37
	10-22-81	0.016	103.24
	10-23-81	0.007	27.83
	10-27-81	0.025	41.83
	10-28-81	0.015	59.26
	10-29-81	0.009	48.50
	10-30-81	0.008	37.60

Portland 11-1 11.55 lbs Soln
20.91
13.94

Frisco 11-1 20.91 lbs
13.94 lb.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Robert J. Drake

Arizona Testing Laboratories

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

For: Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date: November 23, 1981

Lab. No.: 4205

Sample: Solutions

Marked: See Below

Received: 11/23/81

Submitted by: Same

REPORT OF LABORATORY TESTS

Sample Marked		troy oz/ton of solution Gold
Portland,	11/1/81	0.021
	11/2/81	0.017
	11/3/81	0.025
	11/4/81	0.013
	11/5/81*	-----
	11/6/81*	-----
	11/9/81*	-----
	11/10/81	0.015
Frisco,	11/1/81	0.008
	11/2/81	0.008
	11/3/81	0.010
	11/4/81	0.008
	11/5/81	0.007
	11/6/81*	-----
	11/9/81	0.008
	11/10/81	0.008

*Sample leaked during transportation.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Robert J. Drake

Arizona Testing Laboratories

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

For: Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date: December 8, 1981

Lab. No.: 4393

Sample: Solutions

Marked: see below

Received: 12-7-81

Submitted by: same

REPORT OF LABORATORY TESTS

Samples Marked		Gold, troy oz/ton of solution
Frisco:	11-25-81	0.038
	11-30	0.022
	12-1	0.016
	12-2	0.009
Hayden,	11-25-81	0.14
	11-30	0.12
	12-1	0.080
	12-2	0.071
	12-3	0.079
Portland,	11-24-81	0.036
	11-25	0.015
	11-30	0.014
	12-1	0.013
	12-2	0.010

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Steven Hankins

Steven Hankins

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date December 8, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
4382	~~Hayden Hill Heads~~	~~0.08~~	~~0.40~~				
	~~Frisco Tails~~	~~0.04~~	~~0.10~~				
	Portland Tails	0.08	0.35				

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Portland #2 Barrel Leach Test

450 lbs of hard ore from south pit crushed to -3/8"

Date	weight	Assay	Oz. Au	Cumul. Oz.
12-11-81	139.4 lbs	0.120 g/ton	.00837	.00837
-14	167.3	.036	.00301	.01138
-15	142.9	.019	.00136	.01274
-16	38.3	.006	.00012	.01285
-17	41.8	.021	.00044	.01329
-18	38.3	.020	.00038	.01367
-21	45.3	.024	.00054	.01422
-22	27.9	.027	.00038	.01459
-23	27.9	.023	.00032	.01491
-24	20.9	.020	.00021	.01512
1-9-82	73.2	.038	.00139	.01651
-10	24.4	.013	.00016	.01667
-11	10.5	.017	.00009	.01676
-12	13.9	.016	.00011	.01687
-13	41.8	.010	.00021	.01708
-14	34.9	.007	.00012	.01720
-15	52.3	.005	.00013	.01733
-18	55.8	.004	.00011	.01745
-19	24.4	.007	.00009	.01753
-20	17.0	.012	.00010	.01763
-21	6.9	.011	.00003	.01766
-22	13.9	.011	.00008	.01846
-25	59.3	.007	.00021	.01867
-26	20.9	.006	.00006	.01873
-27	17.0	.007	.00006	.01879
28	41.8	.004	.00008	.01887
29	24.4	.003	.00005	.01892
2-1-82	41.8	.004	.00008	.01900
2	24.9	.002	.00010	.01910
TAILS	450.0	.100	.02250	.04160

100 .02250 .04160

Recovery = .01910 / .04160 = 46%

Arizona Testing Laboratories

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

For: Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date: January 20, 1982

Lab. No.: 4977

Sample: Solutions

Marked: See Below

Received: 1/20/82

Submitted by: Same

REPORT OF LABORATORY TESTS

Samples Marked	troy oz/ton of solution Gold
Portland #2	
12/11/81	0.12
12/14/81	0.036
12/15/81	0.019
12/16/81	0.006
12/17/81	0.021
12/18/81	0.020
12/21/81	0.024
12/22/81	0.027
12/23/81	0.023
12/24/81	0.020
1/9/82	0.038
1/10/82	0.013
1/11/82	0.017
1/12/82	0.016
1/13/82	0.010
1/14/82	0.007
1/15/82	0.005
1/18/82	0.004
1/19/82	0.007

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Robert J. Drake

Arizona Testing Laboratories

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

For: Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date: February 3, 1982

Lab. No.: 5193

Sample: Solutions

Marked: See Below

Received: 2/3/82

Submitted by: Same

REPORT OF LABORATORY TESTS

Sample Marked	troy oz/ton of solution Gold
Portland #2:	
1-20-82	0.012
1-21-82	0.011
1-22-82	0.011
1-25-82	0.007
1-26-82	0.006
1-27-82	0.007
1-28-82	0.004
1-29-82	0.003
2-1-82	0.004
2-2-82	0.006

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Arizona Testing Laboratories

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

For Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date February 4, 1982

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5211	Arabian	Trace	Trace				
	Hayden Hill screened	0.01	0.15				
	Hayden Hill Tails	0.02	0.40				
	Portland #2 Tails	0.10	0.35				

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
Certificated
6259
Claude Eugene McLean Jr.
Date Signed
Arizona, U.S.A.

Arizona Testing Laboratories

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

For: Red Dog Mining Company
Post Office Box 1809
Riviera, Arizona 86442

Date: January 20, 1982

Lab. No.: 4977

Sample: Solutions

Marked: See Below

Received: 1/20/82

Submitted by: Same

REPORT OF LABORATORY TESTS

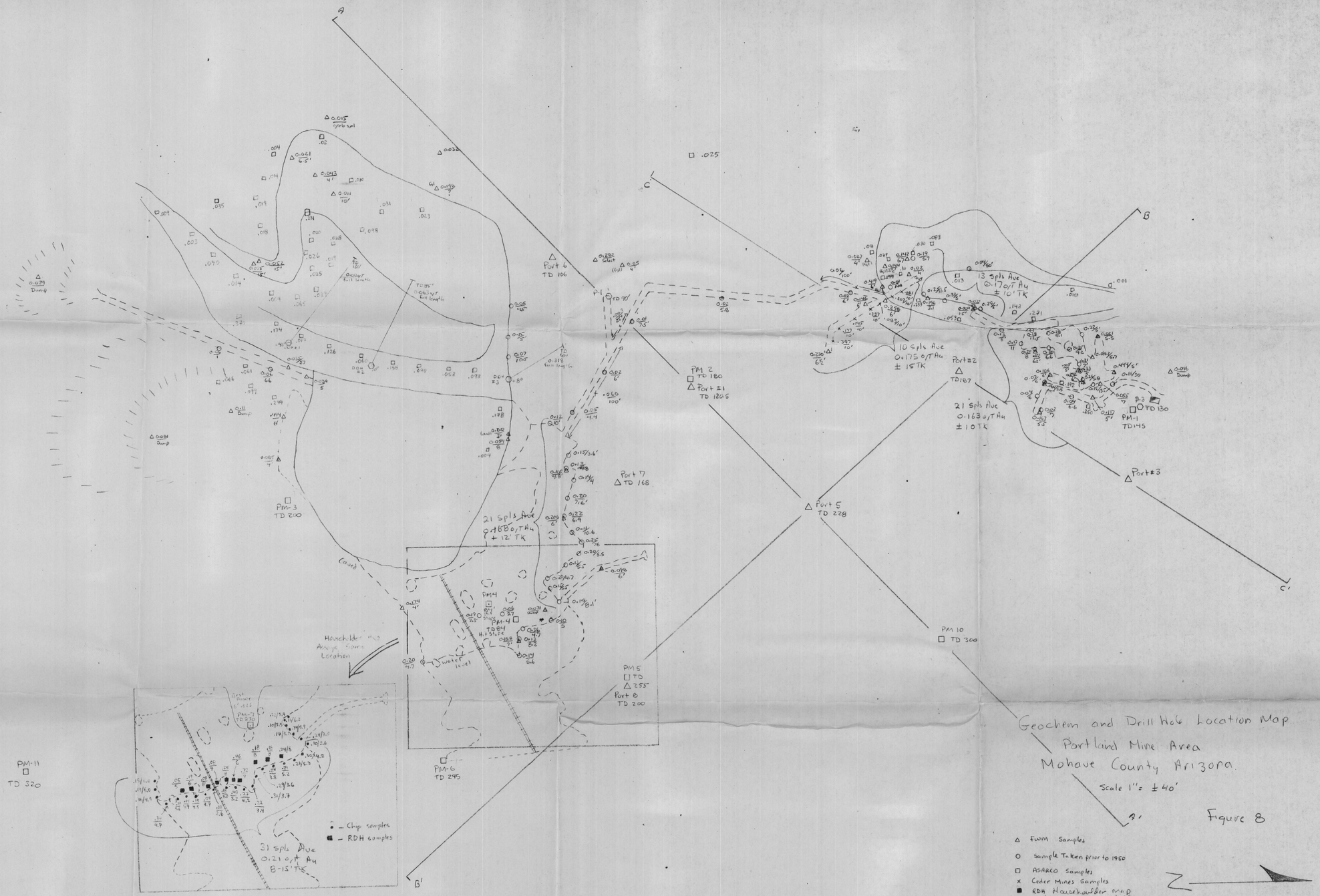
Samples Marked	troy oz/ton of solution Gold
Portland #2	
12/11/81	0.12
12/14/81	0.036
12/15/81	0.019
12/16/81	0.006
12/17/81	0.021
12/18/81	0.020
12/21/81	0.024
12/22/81	0.027
12/23/81	0.023
12/24/81	0.020
1/9/82	0.038
1/10/82	0.013
1/11/82	0.017
1/12/82	0.016
1/13/82	0.010
1/14/82	0.007
1/15/82	0.005
1/18/82	0.004
1/19/82	0.007

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Robert J. Drake

Robert J. Drake



Geochem and Drill Hole Location Map
Portland Mine Area
Mohave County Arizona
Scale 1" = ± 40'

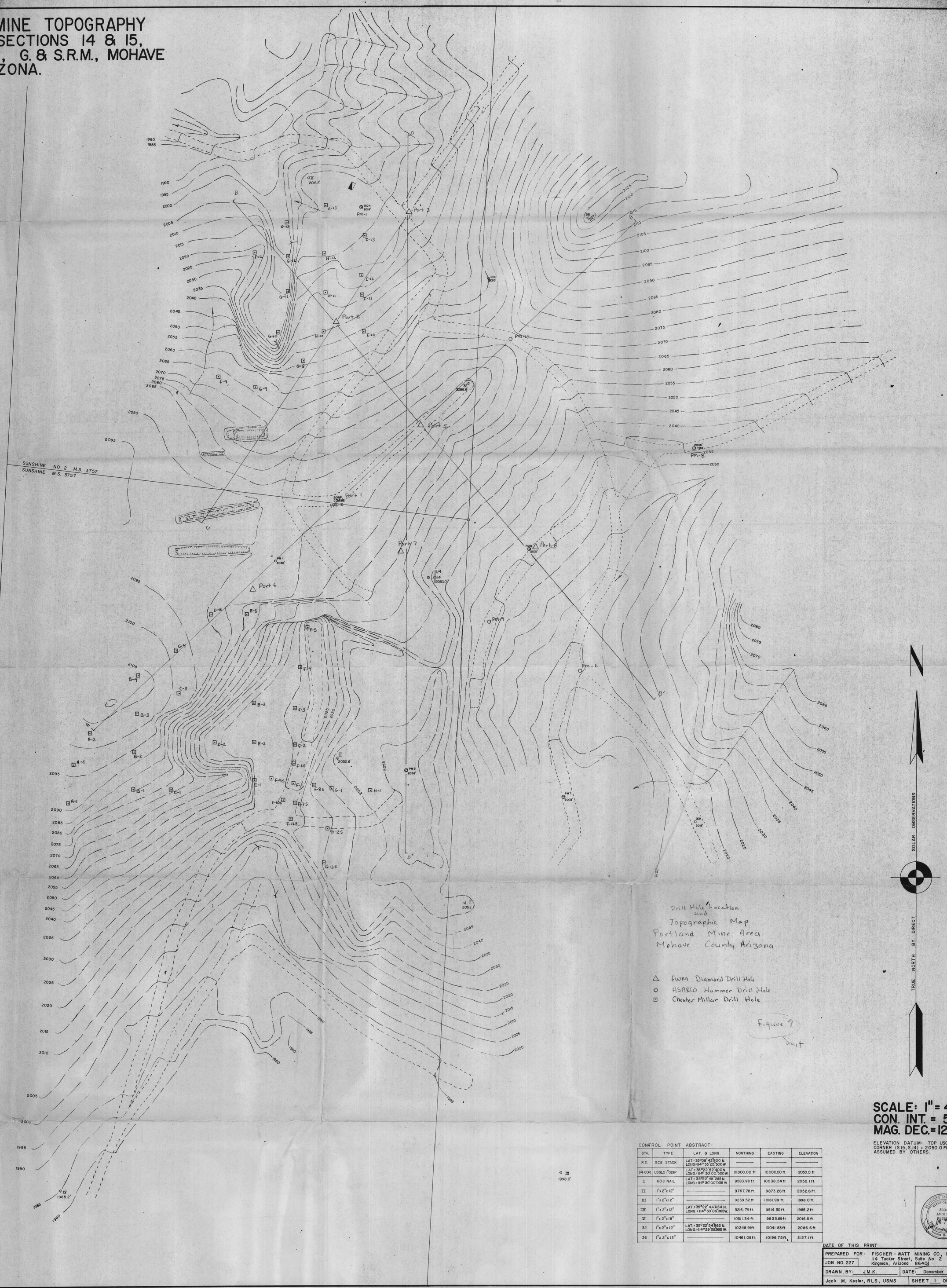
Figure 8

△ FWM Samples
○ Sample Taken prior to 1950
□ ASARCO Samples
x Cedar Mines Samples
■ RDH Householder map
• Chip Samples Householder map
P-1 ○ 1974 Drill holes Cedar Mines
PM-1 □ ASARCO Hammer Drill hole
.107 / ? o/T Au / sample interval
Port#1 △ FWM Drill Holes

N

wpd 12/3/80
wpd 3/27/81

PORTLAND MINE TOPOGRAPHY
SITUATE IN SECTIONS 14 & 15,
T.23N., R.21W., G. & S.R.M., MOHAVE
COUNTY, ARIZONA.



Drill Hole Location
and
Topographic Map
Portland Mine Area
Mohave County Arizona

△ FWM Diamond Drill Hole
○ ASARCO Hammer Drill Hole
⊡ Chester Millar Drill Hole

Figure 9
omit

SCALE: 1" = 40'
CON. INT. = 5'
MAG. DEC. = 12°35'E.

ELEVATION DATUM: TOP USGLO 1/4 CORNER (S.15, S.14) = 2050.0 FEET ASSUMED BY OTHERS.

CONTROL POINT ABSTRACT:

STA.	TYPE	LAT. & LONG.	NORTHING	EASTING	ELEVATION
R.O.	S.C.E. STACK	LAT.=35°08'43.800 N. LONG.=114°36'25.300 W.	———	———	———
1/4 COR.	USGLO 1"DIP	LAT.=35°22'52.400 N. LONG.=114°30'00.500 W.	10000.00 ft.	10000.00 ft.	2050.0 ft.
I	60d NAIL	LAT.=35°22'48.285 N. LONG.=114°30'00.035 W.	9563.98 ft.	10038.54 ft.	2052.1 ft.
II	1"x 2"x 12"	———	9767.78 ft.	9873.26 ft.	2052.6 ft.
III	1"x 2"x 12"	———	9239.52 ft.	10161.99 ft.	1998.0 ft.
IV	1"x 2"x 12"	LAT.=35°22'44.354 N. LONG.=114°30'06.365 W.	9216.79 ft.	9514.30 ft.	1985.2 ft.
V	1"x 2"x 18"	———	10511.34 ft.	9833.69 ft.	2016.5 ft.
32	1"x 2"x 12"	LAT.=35°22'54.862 N. LONG.=114°29'59.365 W.	10248.91 ft.	10041.83 ft.	2086.6 ft.
36	1"x 2"x 12"	———	10461.08 ft.	10196.75 ft.	2127.1 ft.

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
8904
JACK M. KESLER
Arizona U.S.A.

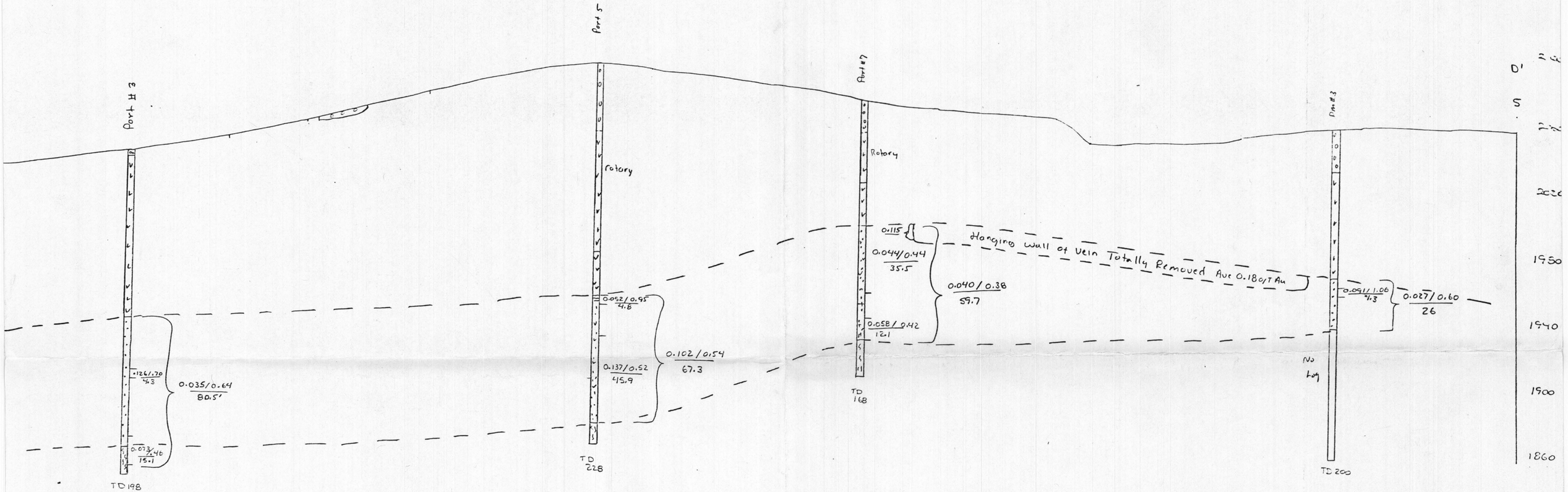
DATE OF THIS PRINT:

PREPARED FOR: FISCHER-WATT MINING CO., INC.
114 Tucker Street, Suite No. 2
Kingman, Arizona 86401

JOB NO. 227

DRAWN BY: J.M.K. DATE: December 25, 1980

Jack M. Kesler, R.L.S., USMS SHEET 1 OF 1



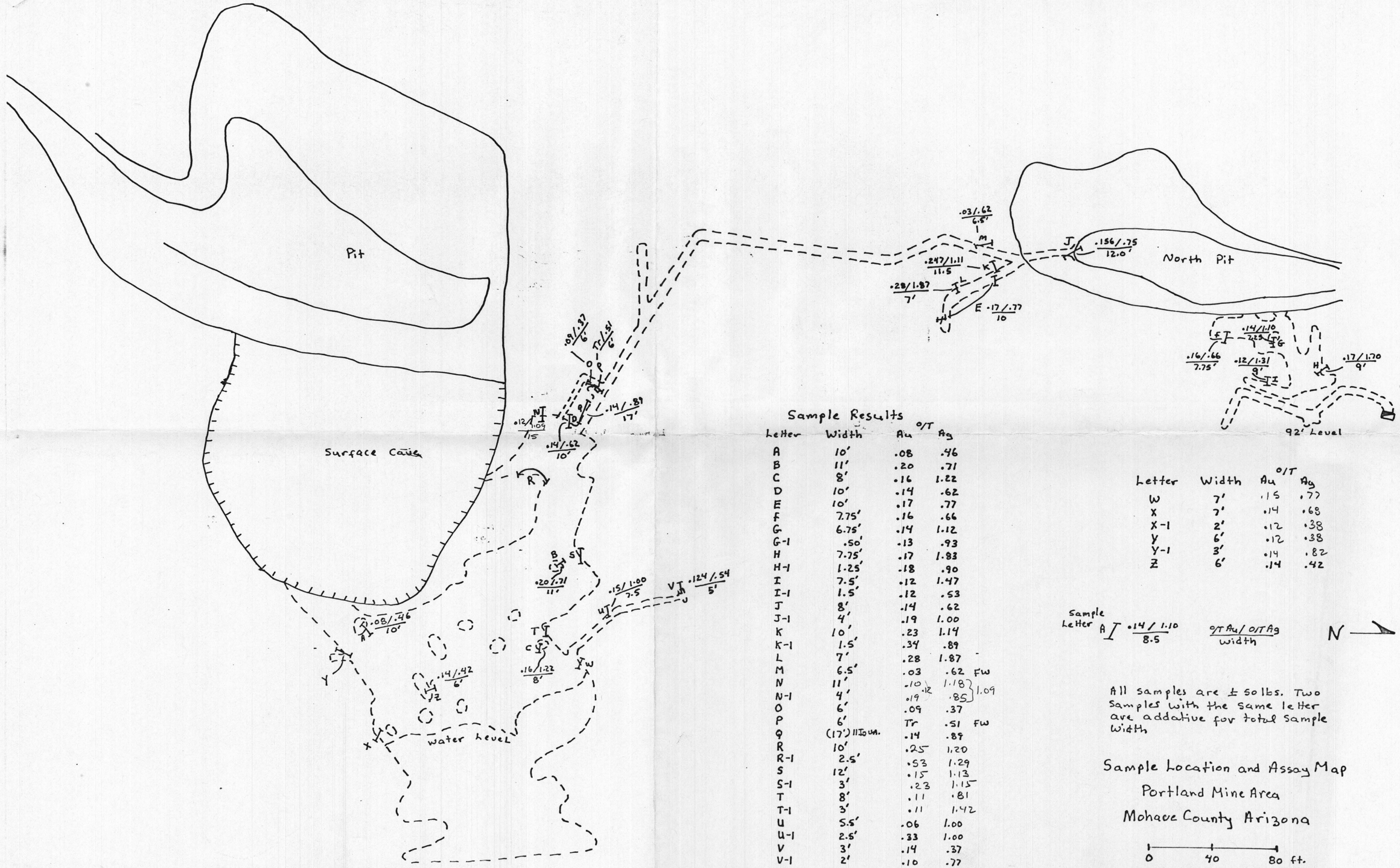
Portland Mine
Cross Section D-D'
Looking East

0.069/0.65
35

0/T Au / 0/T Ag

0 40'

Figure 6d



Sample Results

Letter	Width	Au	Ag
A	10'	.08	.46
B	11'	.20	.71
C	8'	.16	1.22
D	10'	.14	.62
E	10'	.17	.77
F	7.75'	.16	.66
G	6.75'	.14	1.12
G-1	.50'	.13	.93
H	7.75'	.17	1.83
H-1	1.25'	.18	.90
I	7.5'	.12	1.47
I-1	1.5'	.12	.53
J	8'	.14	.62
J-1	4'	.19	1.00
K	10'	.23	1.14
K-1	1.5'	.34	.89
L	7'	.28	1.87
M	6.5'	.03	.62 FW
N	11'	.10 .12	1.18 1.09
N-1	4'	.19	.85
O	6'	.09	.37
P	6'	Tr	.51 FW
Q	(17') 11 Iowa.	.14	.89
R	10'	.25	1.20
R-1	2.5'	.53	1.29
S	12'	.15	1.13
S-1	3'	.23	1.15
T	8'	.11	.81
T-1	3'	.11	1.42
U	5.5'	.06	1.00
U-1	2.5'	.33	1.00
V	3'	.14	.37
V-1	2'	.10	.77

Letter	Width	Au	Ag
W	7'	.15	.77
X	7'	.14	.68
X-1	2'	.12	.38
Y	6'	.12	.38
Y-1	3'	.14	.82
Z	6'	.14	.42

Sample Letter A .14 / 1.10 / 8.5 — O/T Au / O/T Ag / width

N

All samples are ± 50lbs. Two samples with the same letter are addative for total sample width

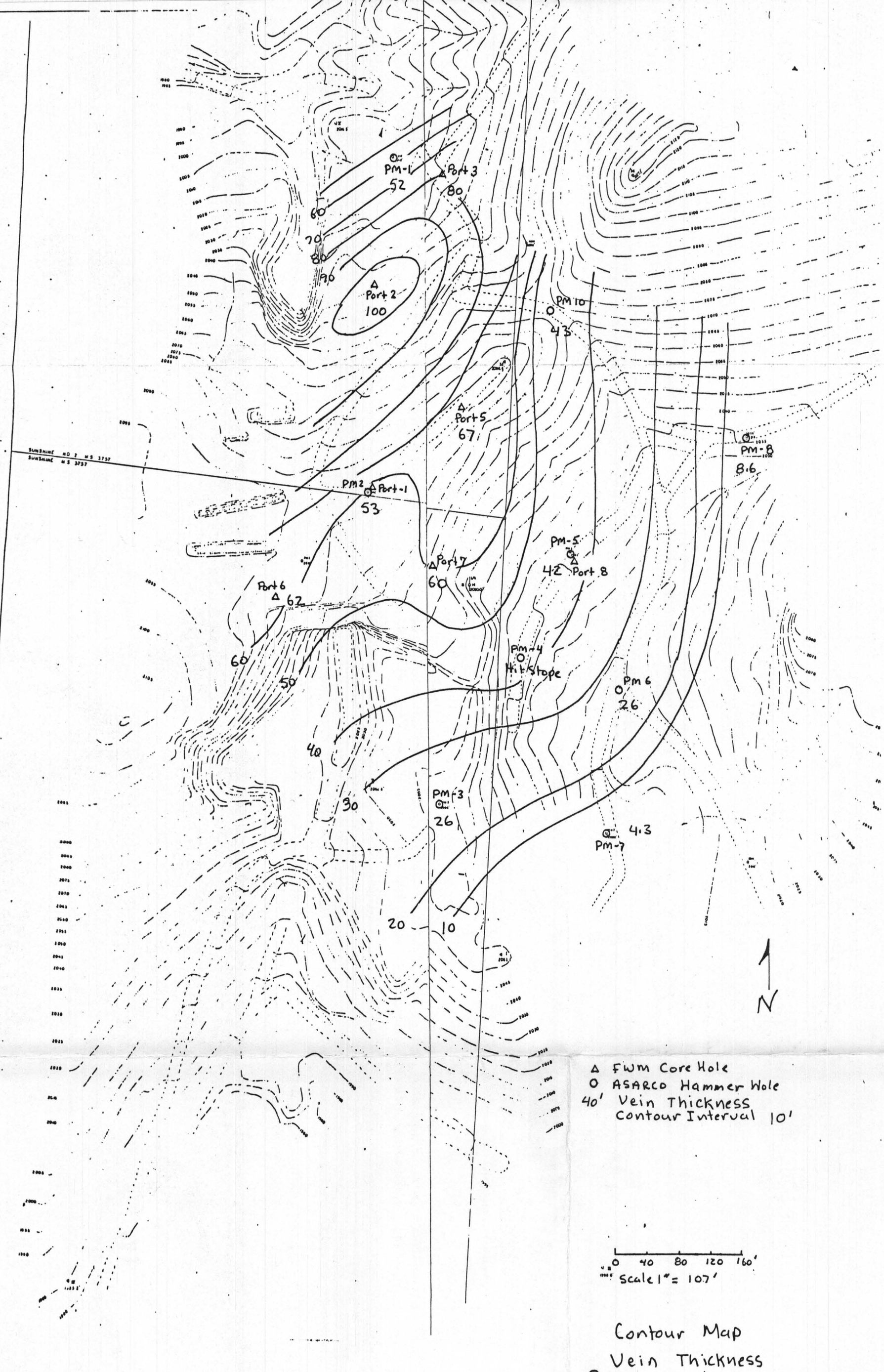
Sample Location and Assay Map

Portland Mine Area

Mohave County Arizona

0 40 80 ft.

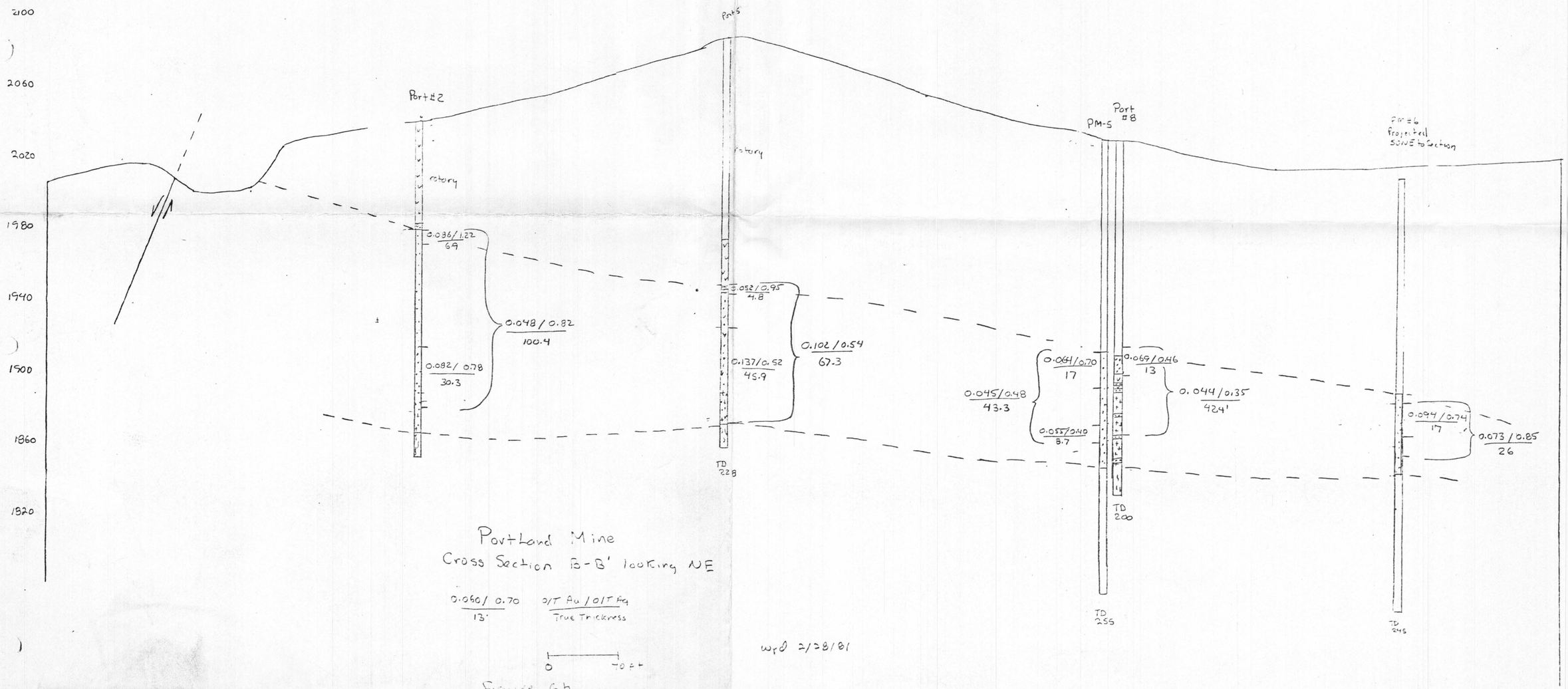
WPD 11/7/91



Δ FWM Core Hole
O ASARCO Hammer Hole
40' Vein Thickness
Contour Interval 10'

0 40 80 120 160'
Scale 1" = 107'

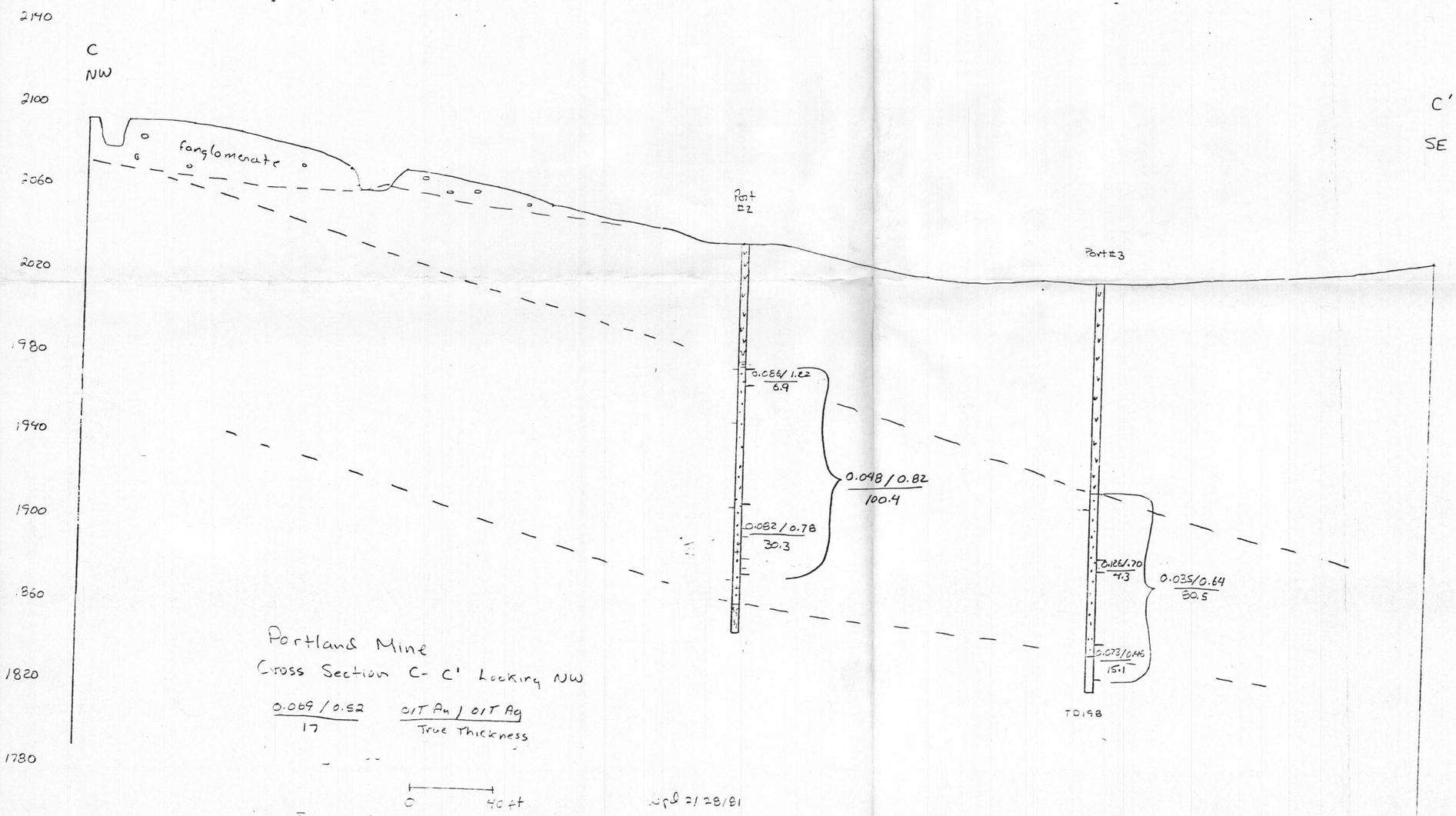
Contour Map
Vein Thickness
Portland Mine Area
Mohave County Arizona
Figure 9



Portland Mine
Cross Section B-B' looking NE

wpd 2/28/81

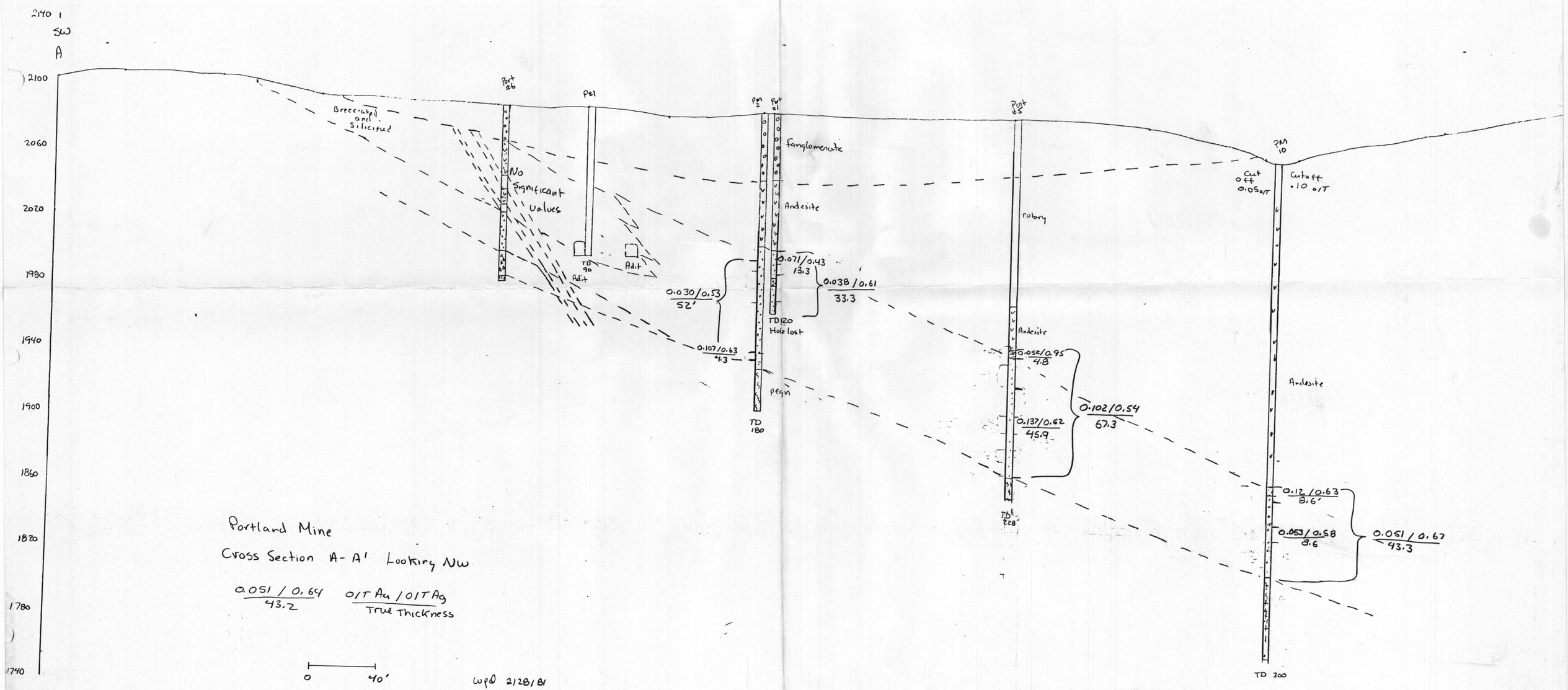
Figure 6b



Portland Mine
Cross Section C- C' Looking NW

upd 2/28/81

Figure 6-2



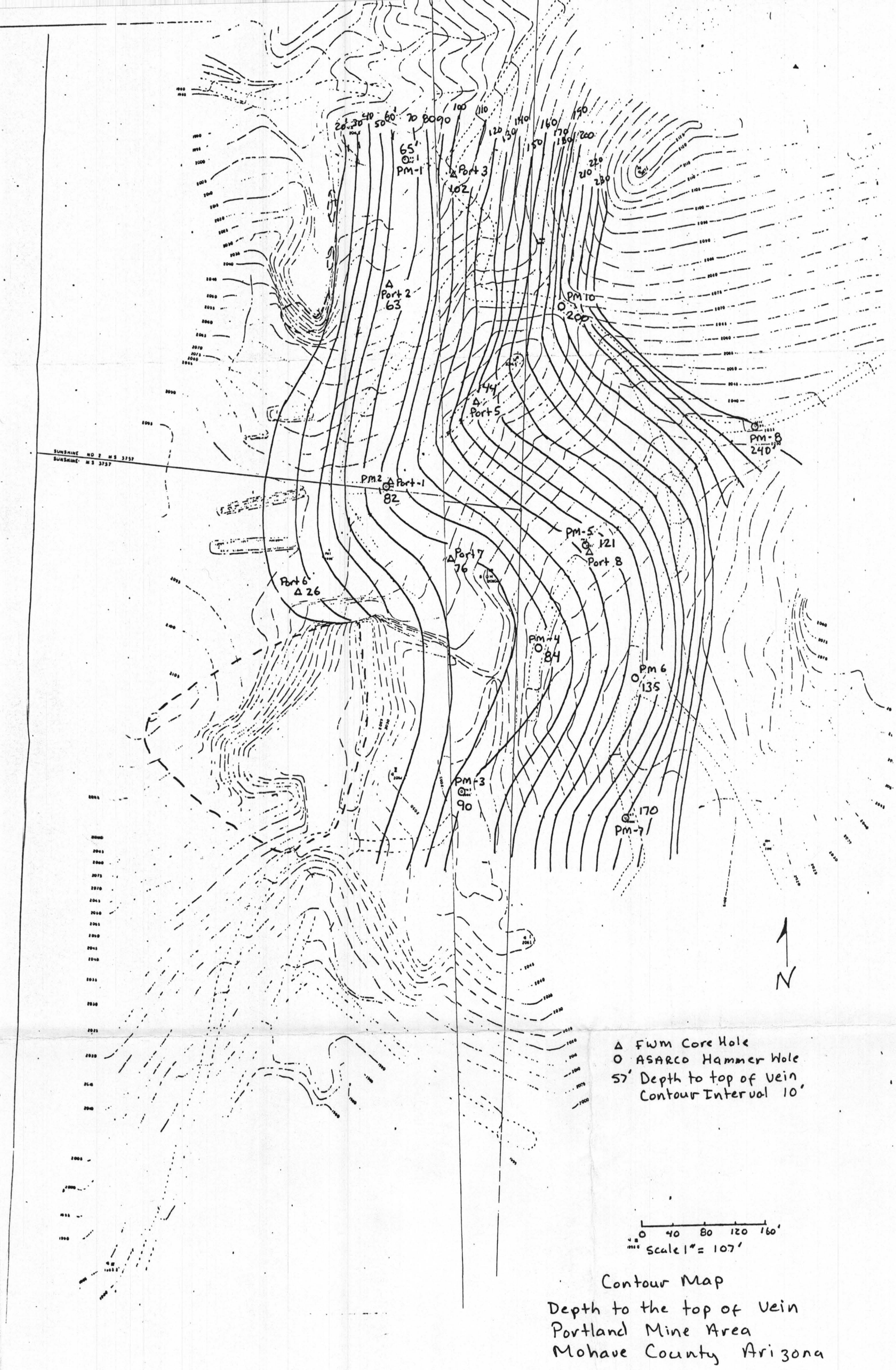
Portland Mine

Cross Section A-A' Looking NW

0.051 / 0.64 (43.2) — 0/T Au / 0/T Ag — True Thickness

wpd 2/28/81

Figure 6a



Contour Map
Depth to the top of Vein
Portland Mine Area
Mohave County Arizona

Figure 10