

REPORT  
on the  
ALICE MINE  
by  
W. S. SHAFFER  
1933

Report furnished by W. S. Shaffer, Idaho Springs, Colorado.

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COLORADO SCHOOL OF MINES  
GOLDEN, COLORADO

## THE ALICE MINE

The Alice Mining Property, located about 11 miles Northwest of Idaho Springs, Colorado, consists of some 800 acres of mineral land. This acreage was originally located and patented as placer claims, but later, supplemental patents were secured covering all veins known to exist to the date of placer patent, thus removing all chances of future litigation in this direction. Water rights covering the use of the waters of Fall River, Fall Creek and Silver Creek have been properly adjudicated and good title to the entire property can be delivered.

In the early days of the district, placer mining on the westerly section of the G. B. Harris Placer disclosed a mineralized porphyry bed rock underlying the entire area exposed by this work, roughly 300 X 250 feet, but exposed the limits of this porphyry in the easterly side only. Testing proved this porphyry bed rock to be commercial ore and for a number of years a 27 stamp amalgamation mill operated profitably on this easily mined oxidized surface ore. Some time in the nineties a jig mill was erected to treat the sulphide ores, a tunnel was driven into this ore body at an average depth of 125 feet below the surface and attempts made to mine and mill the ore at a profit, but this mill, following the lead-zinc practice in the Joplin District, was not a commercial success; however, the mill building was substantially constructed, is in fairly good condition today and sufficient to house a three to five hundred ton amalgamation, concentration, flotation mill.

About 1908, the Alice Development Company was formed to test out the ore along the lines of the then modern practice using amalgamation and table concentration. Messrs. Arthur H. Roller and W. L. Shaffer were the engineers in charge of this operation and used a portion of the old mill for their tests, installing a five stamp battery, with automatic head sampler, plates and a card table in addition to the crushing equipment in the building. A water power plant in the mill furnished power for operating the testing plant and an air compressor. With this equipment they mined the areas indicated on accompanying Plat No. 1 weighed the ore into the mill, took an automatic head sample of the feed, ran the output from the stamps over the plates and thence to the card table. The bullion from the plates was sold to the U.S. Mint and the concentrates sold to the sampler or smelter. The original settlement sheets on these lots are now available for examination. Plat No. 1 shows the location, tonnage and assay value of each of the lots tested at that time.

On this series of tests nearly 600 tons of ore were mined and milled. The assays of the automatic samples of the mill feed averaged 0.168 oz. gold; 0.886 oz. silver, and 0.38% copper, or a total content in the 600 tons of 98.74 oz. gold; 518.79 oz. silver, and 4463 lbs. copper. The total recovery by amalgamation and concentration was all that could be expected, but some 21.26 oz. gold; 194 oz. silver and 3039 lbs. copper were in a low grade concentrate on which the smelting and freight charges were prohibitive; present day milling and metallurgy will recover 85 or 90% of the gross values in this ore in a form on which further treatment and marketing costs will be negligible. The gross value of the ore as shown by the Roller-Shaffer tests exceeds \$4.00 per ton even at present day prices, and should show over \$2.00 per ton profits above mining and milling costs on a large scale production basis. At the present time there is exposed in the neighborhood of one million tons above the tunnel level; while a winze sunk 75 or 80 feet below the tunnel is in ore its entire depth and as this ore body, as exposed, will make 8000 tons for each foot in depth, another half million tons can be considered as assured.

A tunnel 2500 feet long driven from the Fall River side will cut this ore body some four or five hundred feet below the present tunnel. The U. S. Geological Survey Bulletin No. 94 describes a somewhat similar ore body in this property some 1500 feet southwest of the present workings and float similar to the oxidized ore is in evidence for a distance of 3000 feet or more to the Northeast.

This property is for sale for \$300,000.00 on reasonable terms; another \$200,000.00 should install a 300 ton mill and equip the mine. On a basis of \$2.00 profit per ton this total amount together with interest at 6 % would be paid off in less than 3 1/2 years, with an additional 6 1/2 year life for the mine without mining below the present tunnel level.

A considerable area should prove to be profitable placer ground, but as no tests have been made on this, the matter is only mentioned as a possible additional asset; the U.S.G.S. Bulletin No. 94 estimating the production from the hillside placer as about \$80,000.00.

An examination of this property was made by the engineers of the U. S. Geological Survey about 1911 and their findings are published in Professional Paper No. 94; page 98 describes the type of mineralization and its occurrence; page 120 the placer operations which disclosed the present ore body, while pages 323 to 326 contain geological details, a complete description of the ore body as then developed, together with references to sampling results and assays.

#### SUMMARY OF MILL RUNS

From points in Alice Mine indicated on Blue Print mill heads were sampled by automatic sampler, bullion from amalgamation sold to U. S. Mint and concentrates sold to smelter. Grinding was done by stamps, 16 to 20 mesh screen on battery, testing done during the summer of 1908.

##### LOT # 1.

88 tons,	Assay 0.145 oz. gold;	1.00 oz. silver	0.42% copper
Total contents	12.76 " "	88.00 " "	845. lbs. "
Actual returns from Amalgamation and concentration:			
Bullion	6.94 oz. gold;	11.30 oz. silver;	
Conc. (12,960)	<u>3.63</u> " "	<u>38.23</u> " "	<u>272</u> lbs. copper.
Total Recovery	10.57 " "	49.53 " "	272 " "
Recovery Per T.	0.12 " "	0.56 " "	3.04 " "

##### LOT # 2.

39.46 tons,	Assay 0.12 oz. gold;	1.06 oz. silver;	1.96% Cu.
Total content	4.73 " "	41.82 " "	726. lbs. Cu.
Actual returns from Amal. and Concentration:			
Bullion	2.36 oz. gold;	5.82 oz. silver;	
Conc. (12,240lbs)	<u>1.53</u> " "	<u>30.60</u> " "	<u>490</u> lbs. Cu.
Total Recovery	<u>3.89</u> " "	<u>36.42</u> " "	<u>490</u> " "
Recovery Per T.	0.10 " "	0.90 " "	12 " "

##### LOT # 3.

240.5 tons,	Assay 0.19 oz. gold;	1.00 oz. silver;	0.30% Cu.
Total contents,	45.69 " "	240.50 " "	1143. lbs. "
Actual returns from Amalgamation and Concentration:			
Bullion	30.48 oz. gold;	20.10 oz. silver;	
Conc. (\$1,480lbs.)	<u>6.97</u> " "	<u>73.77</u> " "	<u>1296</u> lbs. Cu.
Total Recovery	<u>37.45</u> " "	<u>93.87</u> " "	<u>1296</u> " "
Recovery Per T.	0.16 " "	0.40 " "	5.1 " "

SUMMARY CONTINUED.

LOT # 4.

133.1 tons, Assay	0.17 oz. gold;	0.83 oz. silver;	0.35% Cu
Total content,	22.62 " "	109.14 " "	931. lbs. "
Actual returns from Amalgamation and Concentration:			
Bullion	13.38 oz. gold;	6.95 oz. silver;	
Conc. (38,270)	5.93 " "	31.56 " "	727. lbs. Cu
Total Recovery	<u>19.31</u> " "	<u>38.51</u> " "	<u>727</u> " "
Recovery Per T.	0.15 " "	0.30 " "	5.5 " "

LOT # 5.

86.3 tons, Assay	0.15 oz. gold;	0.45 oz. silver;	0.30% Cu.
Total content,	12.94 " "	30.84 " "	517. lbs. "
Actual returns from Amalgamation and Concentration:			
Bullion	7.67 oz. gold;	4.60 oz. silver;	
Conc. (16,020)	3.20 " "	20.02 " "	320 lbs. Cu.
Total Recovery	<u>10.87</u> " "	<u>24.62</u> " "	<u>320</u> " "
Recovery Per T.	0.12 " "	0.30 " "	3.7 " "

COMBINING THE ABOVE LOTS.

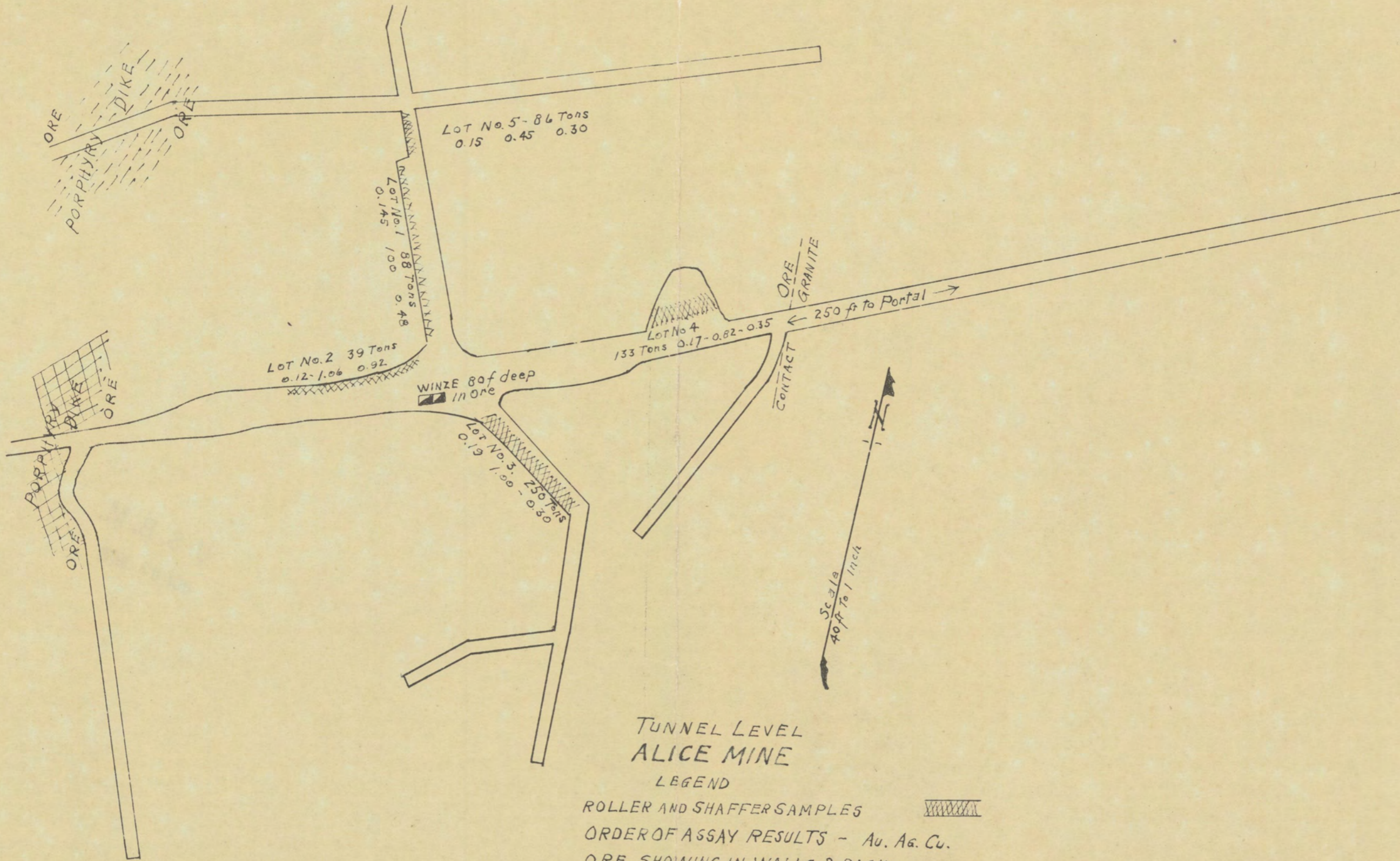
Lot #1. 88. T	12.76 oz. gold;	88.00 oz silver;	845 lbs. Copper.
" #2. 39.46"	4.73 " "	41.82 " "	726 " "
" #3. 240.50"	45.69 " "	240.50 " "	1443 " "
" #4. 133.10"	22.62 " "	109.14 " "	931 " "
" #5. 88.30"	12.94 " "	30.84 " "	518 " "
TOTALS 587.36"	<u>98.74</u> " "	<u>510.30</u> " "	<u>4463</u> " "
Assay per ton.	0.168" "	0.886 " "	0.38% "

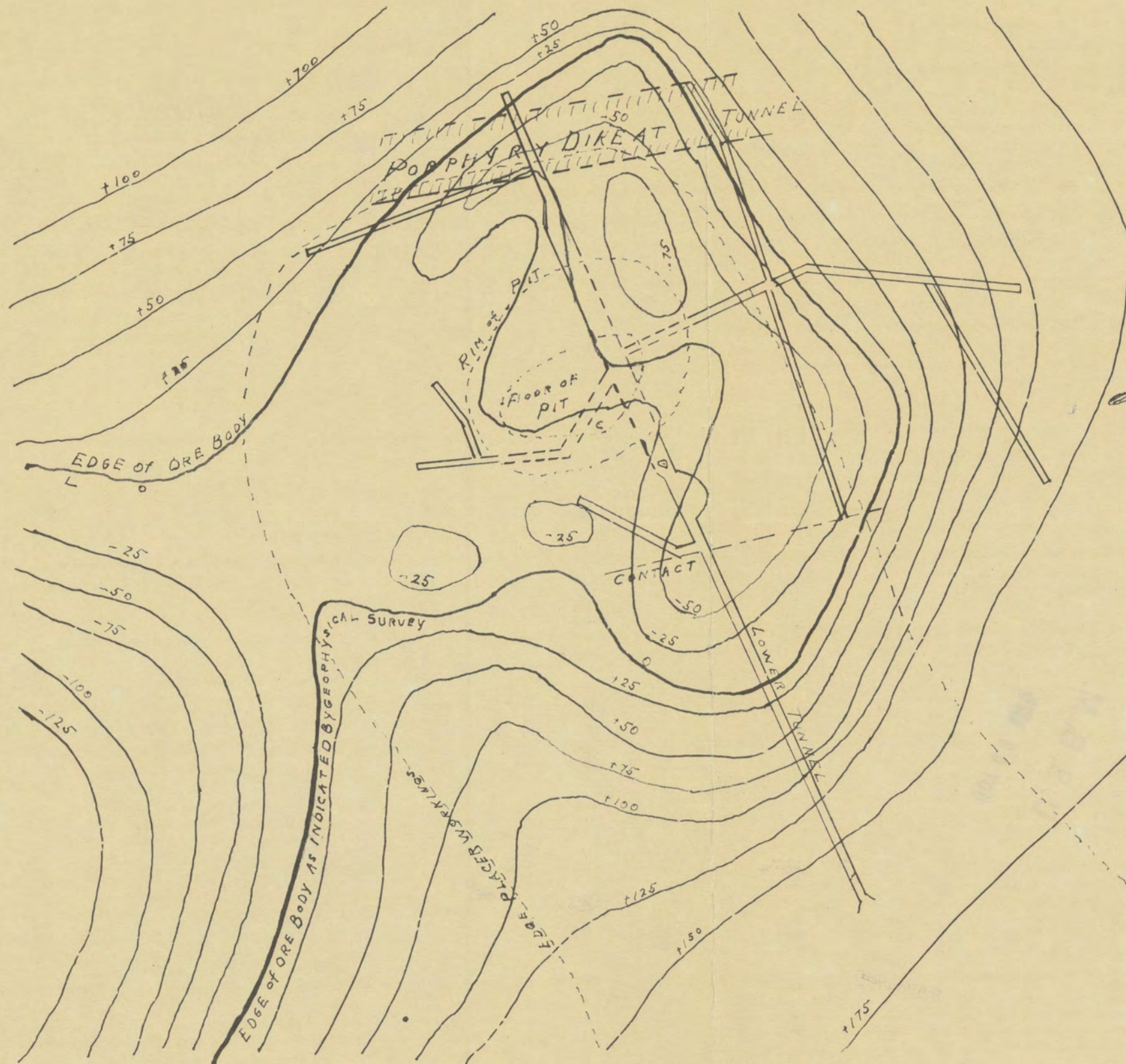
RECOVERED FROM THE ABOVE 5 LOTS.

	GOLD		Oz. P.T.	SILVER		COPPER		lbs.
	Total oz.	% Total		Total	% Total	Oz. P.T.		
Bullion (Plates)	60.38	61.60	0.103	48.73	9.40	0.08		
(In traps)	6.87	5.90	.01					
	<u>67.25</u>	<u>67.50</u>	<u>0.113</u>	<u>48.73</u>	<u>9.40</u>	<u>0.08</u>		
Concentrates (70.5 tons)	21.26	21.50	0.035	194.18	37.40	0.32		3039
TOTAL RECOVERY	88.51							
(Amal. & Tables)	87.96	89.00	0.148	242.91	46.80	0.40		3039

The 70% tons of concentrates from the above 587.36 tons crude ore gave an average assay of 0.30 oz. gold; 2.77 oz. silver; 2.17% copper; and while the gross value would exceed \$700., this entire amount would be consumed by hauling, freight and smelter charges. N.H.

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Scale  
80 FEET TO 1 INCH

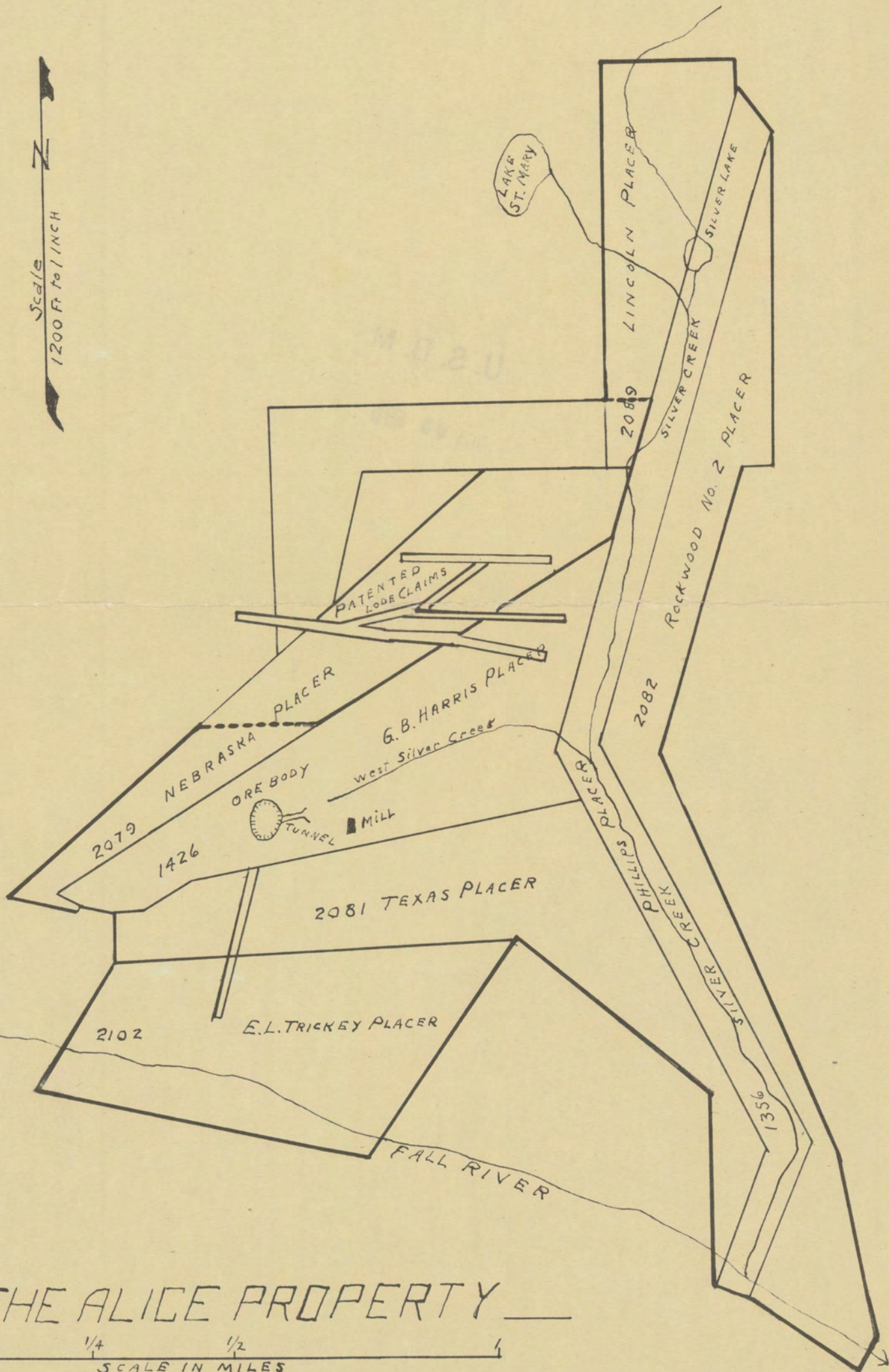
GEOPHYSICAL SURVEY  
ALICE MINE

C.S.M. CLASS IN  
ELECTRICAL PROSPECTING  
DR. PIRSON IN CHARGE  
10-14-1933.

ORE in LOWER TUNNEL WORKINGS  
Indicated by     

Traced by G.T. COOK. 2-19-36.

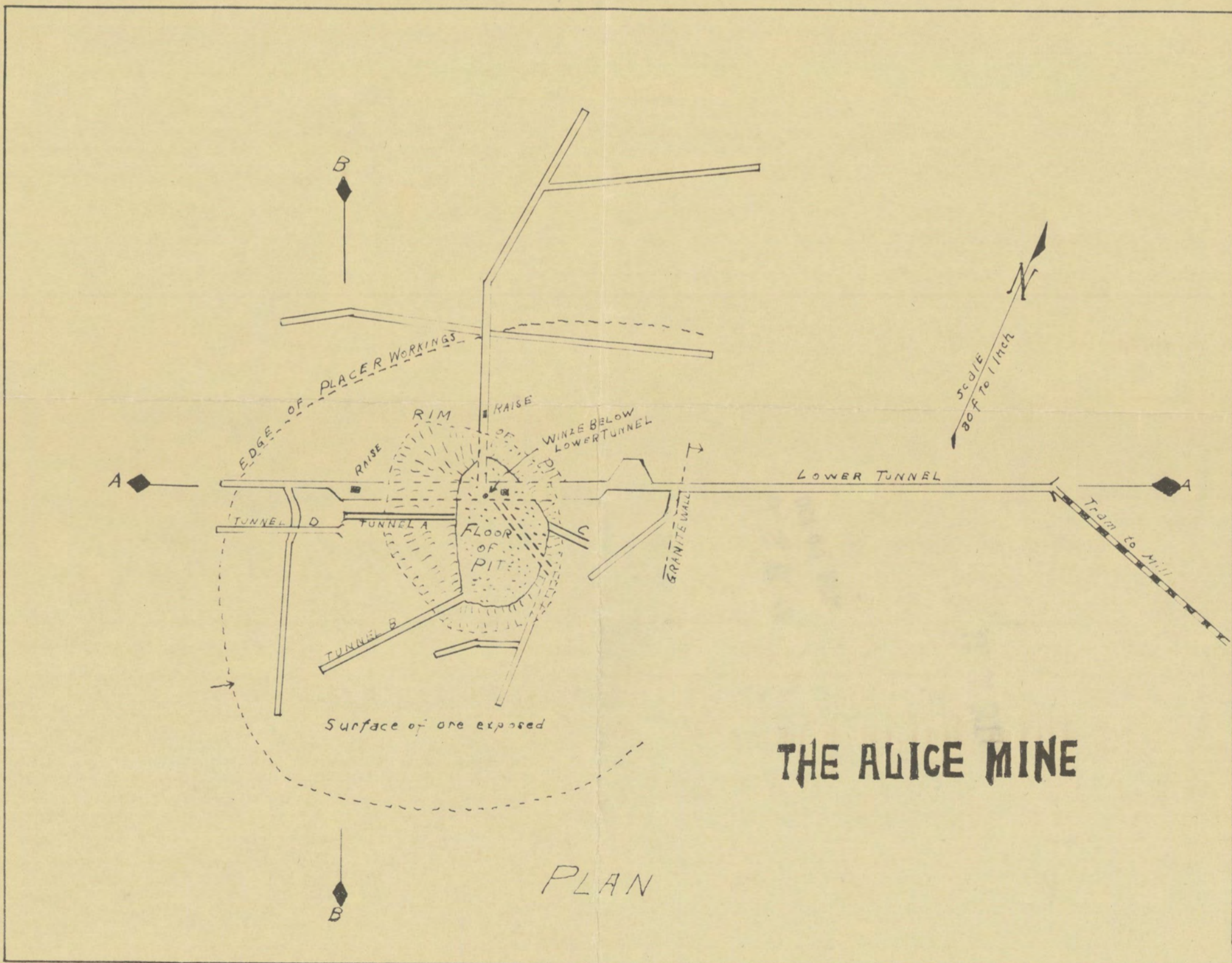
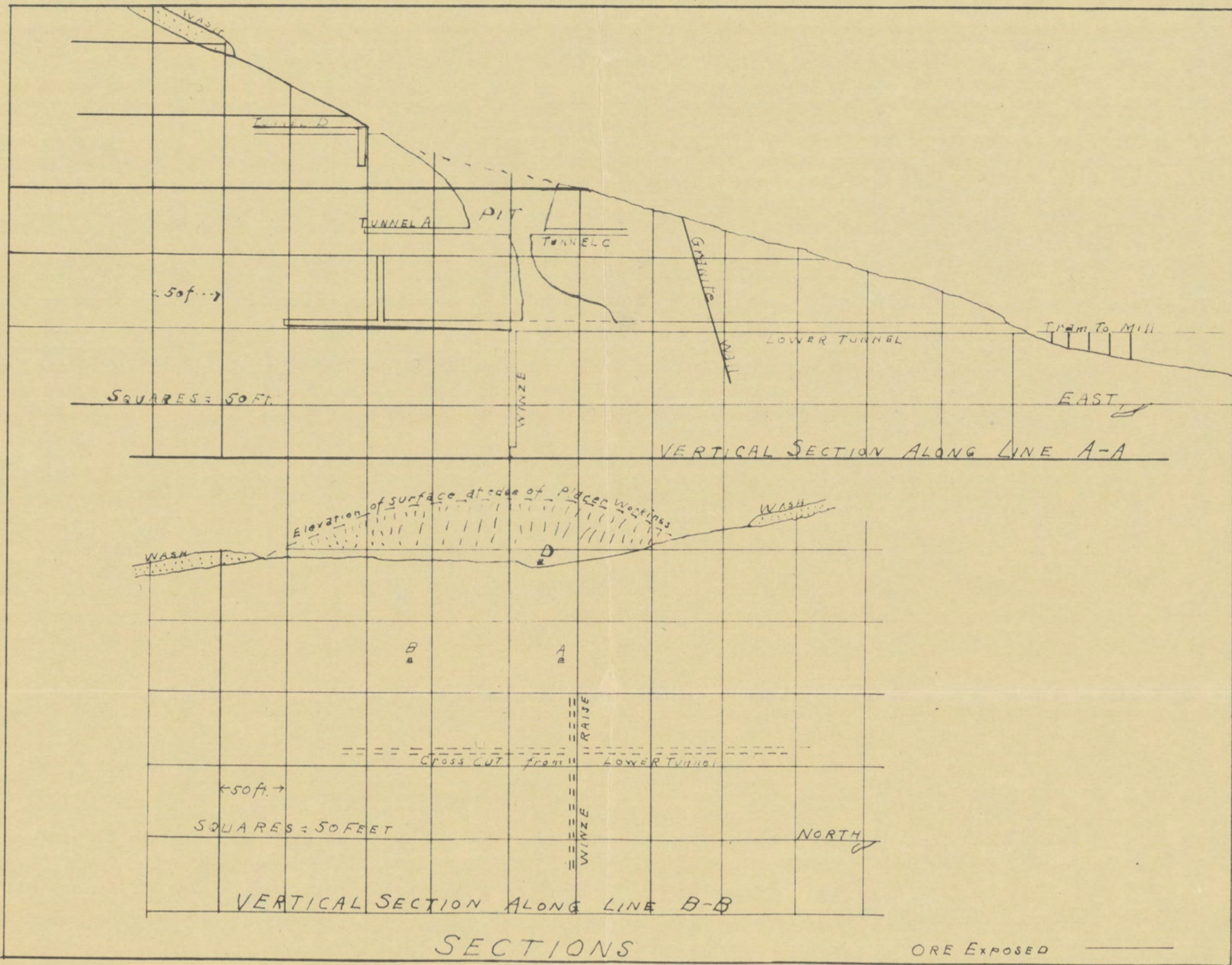
Scale  
1200 Ft. to 1 INCH



THE ALICE PROPERTY

0 1/4 1/2 1  
SCALE IN MILES

Traced by  
G.T. COOK.



Traced by G. T. Cook 2-21-30