2700 0002

ITEM

LAKE RANGE MINING COMPANY

Pyramid Lake Indian Reservation
WASHOE County, Nevada

AN APPRAISAL

David LeCount Evans April 7, 1967

2700 0002

I N D E X

Written Text

Illustrations

Property Leased by

LAKE RANGE MINING COMPANY

Pyramid Lake Indian Reservation
Washoe County, Nevada

AN APPRAISAL

Foreword:

The property was examined at the request of Mr. Robert Jackson of New York City. Four days were spent in the field and one day has been required to assemble data and complete illustrative material.

Conclusions:

Better mineralization is confined to one fissure vein system, of only moderate width, with maximum traceable length of 1100 feet. Indicated value of mineralization does not appear economic.

Other possibilities, in the granite intrusive, unleased area of the west half of section 14, do not indicate a large tonnage-low grade reserve. Values of possible interest would there, too, be confined to narrow, fissure-type structures.

Recommendations:

The property is not recommended.

Proceedures:

A reconnaissance of the property was made on March 31, 1967, with Mr. Stroud and Mr. Taylor of the Lake Range Company. Surface mapping was started on April 3, snow conditions having prevented progress on April 1 and 2. Geological mapping and sampling were continued in the granite area (shown in brown) on April 4. Field studies were completed on April 6, with mapping and sampling in the Anderson vein area in the east half of section 14, and further observations in the west half of the same section.

Samples taken on April 4 were sent to Metallurgical Laboratories of San Francisco, on the same evening. Assay returns were received, by telephone, on April 6.

Additional samples cut on April 6, in view of the discouraging returns from the April 4 lot, were not sent for assay. Values, reported by owners, for samples cut by Joseph P. Alcorn, engineer for Lake Range (refer to our plats E and F) have been accepted and used, herein, for purposes of calculation.

All field observations were located by Brunton compass intersection, using a photostatic enlargement (1" = 2000' to 1" = 260') of the U.S.G.S. 7½" sheet, "Dove Creek Quadrangle". Intersections proved highly satisfactory.

Location:

With reference to our Plat A, Index Map, the Lake Range property lies on the northeast shore of Pyramid Lake, within the Indian reservation. Distance from Reno, Nevada, is 70 miles, via U.S. 40 to Wadsworth, thence 16 miles to Nixon, via Nevada highway 34, and another 6 miles to the Pyramid Lake road. Branches from the turnoffroad occur at 12 miles from highway #34, a right road leading two miles up-canyon to the Anderson vein area, and left road continuing around the mountain to the Lower Tunnel area.

Mineralization lies in section 14, Township 25 North, Range 22 East, Washoe County, Nevada.

General and Limiting Conditions:

Access:

14 miles of good, though slightly -corduroy, road connect the property with Nevada highway 34, a paved road. Nearest rail-spur would be at Wadsworth, 36 miles distant.

Water Supply:

A water supply is reported from gravels, one mile north of property. No detailed study has been made.

Mill Sites:

Mill sites are available; tailings must be impounded.

Climate:

Climate is arid. Precipitation amounts to 5 to 7 inches of moisture per year. A year-round operation would be assured.

Terrain:

Elevations at lake, Lower Tunnel, and Anderson shaft are 3800, 4200 and 5075 feet, respectively. Slopes are precipitous. 875 feet of back is indicated above the Lower Tunnel.

Power:

There are no lines in the area.

Supplies:

The nearest supply-center is Reno, 70 miles distant.

Legal Title:

The mineralized area falls within the bounds of the Pyramid Lake (Paiute) Indian Reservation.

Copies of corresponcence, at hand, indicate that the Tribal

Council, as of October 21, 1966, leased the 320 acres of the east half of section 14, Township 25 North, Range 22 East, to the Lake Range Mining Company, (Incorporated in Nevada on April 13, 1965).

The lease required an annual rental of $1 per acre and a minimum annual royalty of $1500, both paid in advance. It has also been reported that a 12½% royalty on production is a requirement and that the lease is valid for five years.

History of Property and District:

The property, I have been advised, was discoverd in the early 1920's by a Mr. Red Anderson, who minedin the Anderson Shaft area on the Anderson vein. Lake Range's prospectus indicates that Anderson mined about 1500 tons of lead ore of unknown value. Mr. Stroud reports that Anderson concentrated on lead, giving little thought to silver bi-values.

In 1933 a Colorado group, sons supported by an affluent father, acquired a lease, and drove the 900 feet of Lower Tunnel, apparently on the strength of 'shows' in the granite area (see Plats B, C, and D). The tunnel encountered some mineralization according to Mr. Stroud.

In 1947 a Mr. Richard McCulloch obtained a lease but neither he, nor later,his widow did any work. Sub-lessees, according to Mr. W. H. Stroud, shipped 96 tons, in 1949, to the Selby smelter; net smelter returns are said to have been $2100, or approximately $22 per ton.

in 1954-1955 Mr. Stroud took a sub-lease from Mrs. McCulloch but the collaboration ended in failure. It has been said that Mrs. McCulloch would not accept her share of the financial responsibility.

As reported above, in October 1966 the Lake Range Mining Company negotiated the current lease arrangement.

Neither the property or area have had enough of a production record to be mentioned in the MINERAL RESOURCES OF WASHOE COUNTY, published by the Nevada Bureau of Mines in 1947. This might be considered significant.

Geology:

Foreword:

The property hasbeen represented as a series of fissure veins, three accessible, and eight in all. One fissure vein was described as having fifty feet of width. V alues were purported to run from $2 to $200 per ton. An average of five samples cut from Anderson workings, by Lake Range, averaged $42 per ton. Veins were said to cut through andesite and rhyolite volcanic flow rocks, and refernces were made to stocks of granite and diorite which had intruded the flows.

On the basis of this week's mapping the geology is further summarized as follows:

Rock Types:

Andesite and rhyolite flows do dominate the area and a plug of porphyrytic granite occurs in the northwest quarter of section 14, just above the Lower Tunnel. With reference to attached maps, granite is shown in brown and all volcanics in light green.

Except where effected by the granitic intrusives, b leached by mineralizing solutions, or decomposed by surface weathering, volcanics provide hard, fresh, dark-colored exposures, and bedding or layering is not uncommon.

The color of the granitic area changes from light buff to gray. Rock is a porphyrytic-type granite with coarse feldspars standing out sharply in a siliceous, darker gray groundmass. Feldspars have been changed to sericite.

Underlying granite has provided a sandy to fine, gravelly soil and gentler slopes, except, where strengthened by shearing and mineralization in the central area, above the Lower Tunnel, where granite faces are abrupt. Note the circularity of area for the brown, granite area on Plat C. The mean diameter is 900 feet.

Other rock types, all the product of the water of old Lake Lahontan or the more recent Pyramid Lake stage, are not discussed herein. These consist of marl, conglomerate and finely-sorted sand units.

Structure:

Unless locally distorted the general trend of volcanic beds across section 14 is about N55°E with dip 70° to the southeast. Trends, therefore, are parallel to the Anderson vein trend, but slightly inclined to the vein and principal fracture allignments of the porphyrytic granite area.

The only vein with continuity is the Anderson structure, which strikes N52°E from its center of better development at the Anderson shaft and has a suggested length of about 1100 feet. Of this 1100 feet, 494 feet (from sample 3786 northeast to sample 3787) is better established than the 606 feet from sample 3786 to the few weak showings, due west of the 5273 foot hill. Further continuations were not indicated by this rapid field reconnaissance.

One must add to the record two other 'shows', due west and within 50 feet of the Anderson shaft, despite their one 'spot' occurrence; considerable waste occurs between showings but the possibility of parallel units suggests the use of the term, "system".

The Anderson structure has 6 feet of width at the shaft, 8 feet at its northeast limit, and "stringer" characteristics over 8 feet of extent at its southwest extremity.

In the northeast quarter of the northeast quarter of section 14, note the small closure, north of the cabin shown at the side of the access road. Reference is made to the 2000 scale Plat B. The crest of this closure and ridge is in fresh, hard rhyolite; slightly down slope and more or less curving with the trend of the contour is a broad surface area, characterized by rotten andesite, some bleaching, scattered oxidation, and other disintegration. Where opened by several pits the zone appears shallow and without any structural control. This report rejects the area as a vein possibility. Only by sharply curving the Anderson trend or by displacing the trend with a fault, could this area and the sharp Anderson structure be tied together. It has been concluded that this thin area of oxidation and disintegration is the product of weathering on an old surface, and not the result of mineralization.

At a point 416 feet at about N55°W from the Anderson "Diggins", note, in orange, a second vein structure, close to the granite contact, with strike of N32°E and vertical dip. Width of mineralization amounts to 12 feet. Length could be followed for only less than 100 feet.

Considering the granite area, attention is called to the 6 feet of structure, dipping 69 degrees to the southeast, with strike of N76°E. This, it is evident, is parallel to a series of fractures in the buff-colored area. The abrupt swing of these fractures to about N10° E, parallel to the west contact of the granite with volcanics, is marked.

With reference to our Plat D, a cross-section through the granite area, the study is strictly interpretive. The section implies slight collapse. With any assay support, at all, it had been planned to pursue this possibility, because of the reserve probabilities such a structure would supply. The lack of good values leaves this interpretation a matter for conjecture.

In brief, the structural picture becomes a dominant northeast allignment of beds, paralleled by a few widely spaced and not too-strong fissure vein possibilities, cutting obliquely through beds and intrusive granite, because of their steeper dips.

Alteration:

The Anderson vein is marked by 6 feet of white vein (considered the product of bleaching of the original volcanic rock) and the dark, fresh andesite beyond vein walls. Values appear to be relegated to mineralized fractures, cutting up through the alteration, and roughly parallel to bordering fractures which mark the limits of the vein. Such has probably necessitated much hand-sorting or "cobbing" to sort out material of value for shipping.

The conversion of original feldspars to sericite (white mica) in the porphyrytic-granite area signifies the effective alteration of this unit, probably, through hydrothermal processes.

Mineralization:

Possible Ore-Sources

Indicated is a dominantly-lead ore, with bi-values in silver and gold. The examination of Anderson vein material indicated nothing of significance in this heavily oxidized material.

However, in the porphyrytic-granite area, and in that portion, selectively colored on maps in 'ochre', narrow, well developed openings with regular trend and dip are considered true fissure-veins. One such vein, with perhaps two feet of width, at the northwest end of sample 3781, carries an intergrowth of dark, calcite rhombs and the flat plates of cerrusite, a lead carbonate.

Except for heavy disseminations of fine pyrite in the volcanics, adjacent to the granite contact, no other sulphides or adjustments of an original sulphide were noted.

Gangue Mineralization:

The Anderson vein, it is believed, carries some calcite with the possible cerrusite which must account for high local lead values in the zone of oxidation.

The 12 feet of vein, northwest of the Anderson vein, is almost massive, white to gray calcite.

The buff-colored zone of the granite area might well be discussed under "alteration". Much of the rock is soft from decomposition; sericite accompanies much of the material. Too, color, softness and taste indicate that abundant, white sulphates have been deposited in cracks and as coatings throughout the fractured granite. Calcite (in a few cases black in color) is the dominant

gangue mineral, reaching a peak of development in the two feet of calcite-filled structure, striking north and south, at the zones south limit. The vein is massive calcite, and some of the calcite crystals have diameters exceeding six inches.

Naturally, all veins and areas of broader alteration and mineralization are heavy with brown iron oxide. Coatings of black manganese oxide are common.

Development:

Except for the Anderson workings, the Lower Tunnel, and a few bull-dozed or handcut trenches, the property is without systematic development.

Our Plat E, prepared by Lake Range personel, shows the 90 feet of Anderson shaft, levels at 26 feet and 90 feet, and minor stoping. Total work, less stoping, amounts to 152 feet. Lake Range estimates that 1500 tons of rock were removed from stopes.

Our Plat C shows the 'dashed' trend of the Lower Tunnel, reported to have a total length of 900 feet. Cubication of the dump and its three petrographic units indicates that the operator was in Lake beds and conglomerate for about 450 feet, volcanics for the next 350 feet, and on the contact between volcanics and granite for the final 100 feet. Much of the initial 450 feet is in very poor condition and the tunnel was not entered. The 'arc', for the last 450 feet, is on the basis of a description by Mr. Stroud.

Samples:

Samples taken during the course of this examination are tabulated as follows:

Samp	Oz. Au	Value	Oz. Ag	Value	% Lead	Value	Total Value	Comments
3780	0.015	$0.52	1.54	$1.98	1.66%	$4.55	$7.05	*
3781	Traces		0.22	0.28	0.15		0.28	*
3782	Trace		0.18	0.23	0.12		0.23	*
3783	Trace		0.04	0.05	0.01		0.05	*
3784	Trace		0.22	0.28	0.05		0.28	*
3785	Trace		0.17	0.22	0.08		0.22	*
3786	Not sent for assay							*
3787	Not sent for assay							*
3788	Not sent for assay							*

* Turn to page 8 for sample descriptions

*3780	Across 6 feet of vein structure in the northeast corner of the granite mass.
3781	Overall cut across zone of fracturing and alteration in the granite mass, above Lower Tunnel; 3781 is the southeast 100 feet.
3782	Same line as 3781; central 100 feet.
3783	Same line as 3781; northwest 100 feet.
3784	235 feet southwest of sample 3783; cut across 50 feet of fracturing in granite at granite-volcanic contact.
3785	Grab sample of material on dump of Lower Tunnel, representing heavy iron oxide and rock fragments, produced by drifting along granite contact in Lower Tunnel. 80 pounds of sample quartered down.
3786	Six feet of cut across Anderson vein, exposed at Anderson shaft.
3787	Eight feet of cut across Anderson vein in cut 494 feet northeast of the Anderson shaft.
3788	Twelve feet of cut across calcit veins northwest of Anderson shaft and close to granite contact.

For Lake Range sample results reference is made to our attached Plats E and F.

Ore Reserves:

The property is without ore reserves.

Cost Analysis:

Without an ore reserve possibility of sufficient size and grade to justify even small-company interest, there is no reason or basis for a cost analysis. Such analyses are only for purposes of showing the economic possibilities of an established or indicated target.

Lake Range, however, has indicated in its prospectus an anticipated net profit of $10 per ton, after deducting $30 in costs and royalties from a $40 gross ore value.

The following rough calculation is included to suggest that there is a difference of opinion, and that mineralization in the Anderson area can be uneconomic.

Therefore:

1. Assuming a simple mining or 'high grading' of ore, on a low tonnage per day, without mill, systematic development, and other mining effort;

2. accepting the Lake Range saples, averaging 0.092 ounces of gold, 16.2 ounces of silver and 6.3% lead, with total gross value of $41.56, as the average value to be mined and shipped;

3. and, planning the direct shipping of ore to smelter without hand-sorting or any other form of classification, we have:

Gross value per ton to Smelter:	$41.56
Smelter will pay:	35.89
On basis of an average schedule for Au, Ag, and Pb (see reference below)	
Less treatment charge of $12.50/T	23.39
Less Freight of $7.39 per ton	$16.00
NET SMELTER RETURNS	$16.00
Less Operating Charges	11.88

Mining	$7.50
Some develop	1.25
Maintenance	1.00
Supervision & Engineering	1.50
Freight to rail	0.63
	$11.88

Rough net before royalty	$ 4.12
12½% royalty on gross value	5.19
Profit or Loss	($1.07)

Reference: Denver Equipment Company's MINERAL PROCESSING FLOW SHEETS (1962) "Typical Smelter Schedules", p.279. Lead Smelter.

Recapitulation:

Apparent possible ore reserves would be limited to the dimensions of the Anderson vein, as mapped, and for convenient development to the depth of the Lower Tunnel, 1100 feet of length, 7 feet of width, and 875 feet of back (using a factor of 11.8 cubic feet per ton) amounts to 570,000 tons. For a one hundred ton operation such would assure 16 years of life. This is not in the category of even a small company operation on $40 ore.

Surface averages for samples cut across the altered zone, above the Lower Tunnel, must eliminate this possibility which, as a mass, could have developed about 8,000,000 tons, to the level of the Lower Tunnel.

Any values in the altered mass are, apparently, limited to the occasional narrow fissures which typify the unit. The granite itself is without value. Even enrichment which would be normal expectancy to and above the water table would be confined and limited to the fissures. Enriched, occasional fissures would not bring the entire mass to economic grade.

<u>The property is without attraction.</u>

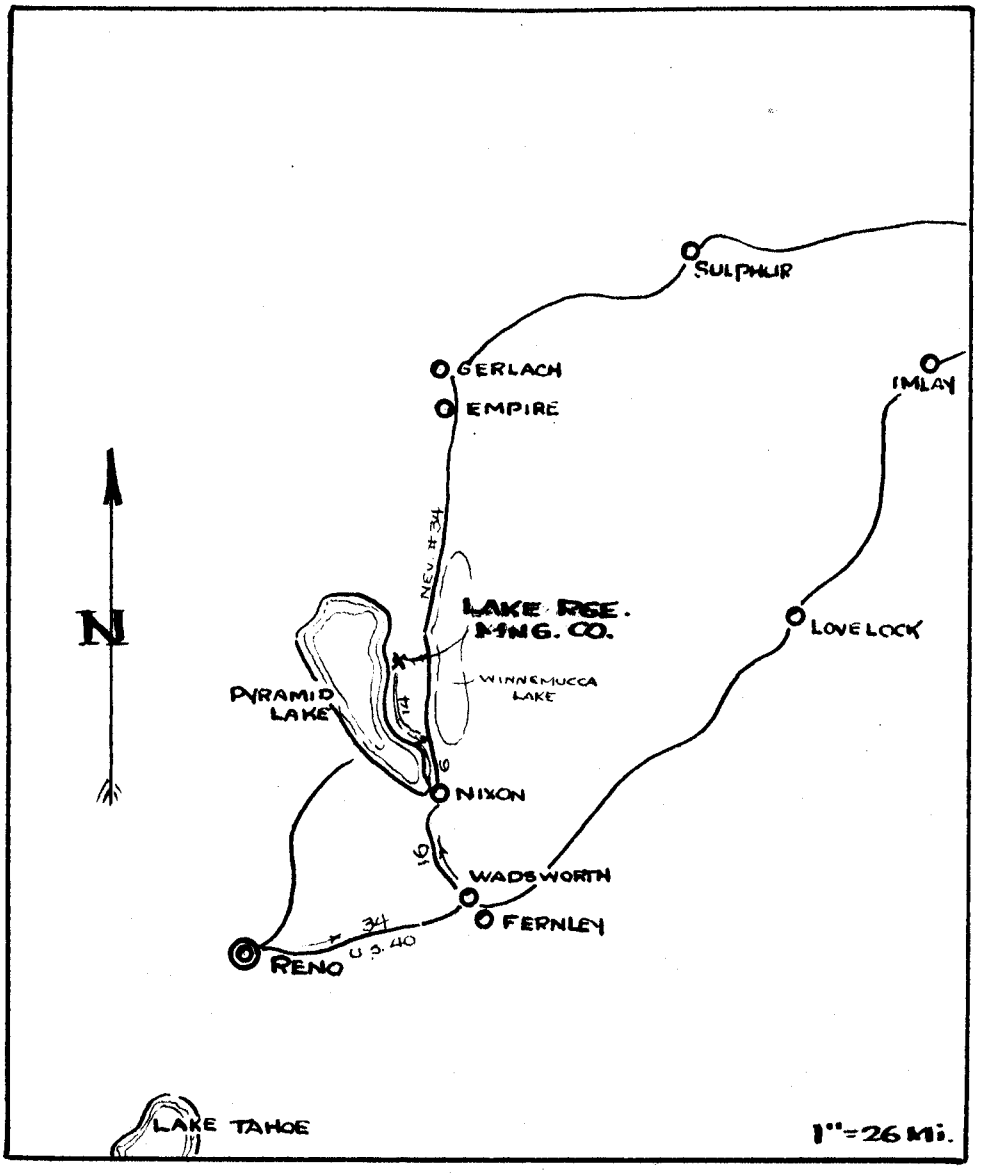
Respectfully submitted,

David LeCount Evans

April 7, 1967

1700 Royal Drive,
Reno, Nevada.

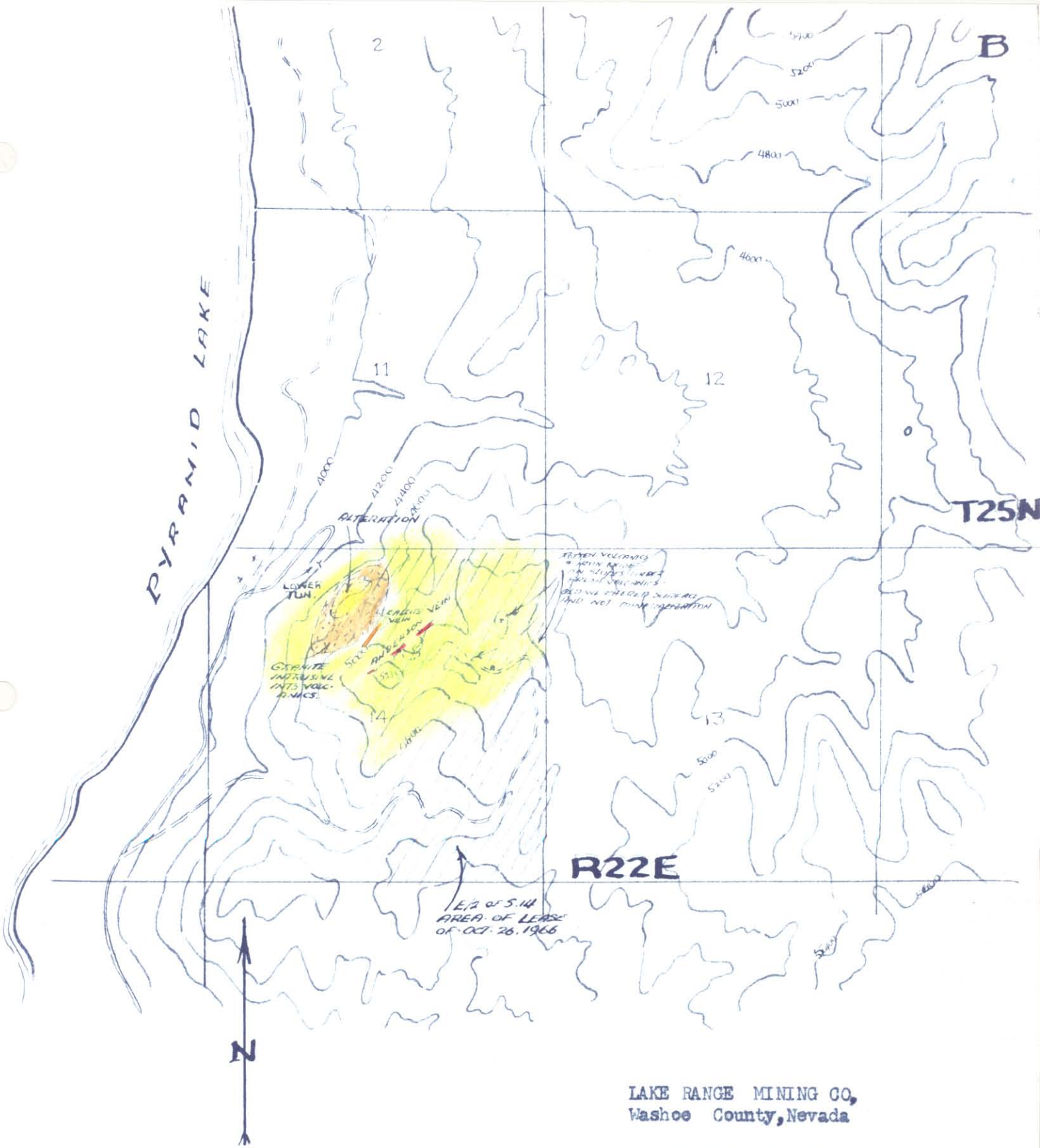
A



LAKE RANGE MINING CO.
Washoe County, Nevada

INDEX MAP

David LeCount Evans — April 7, 1967
Cons. Geologist — Reno, Nevada



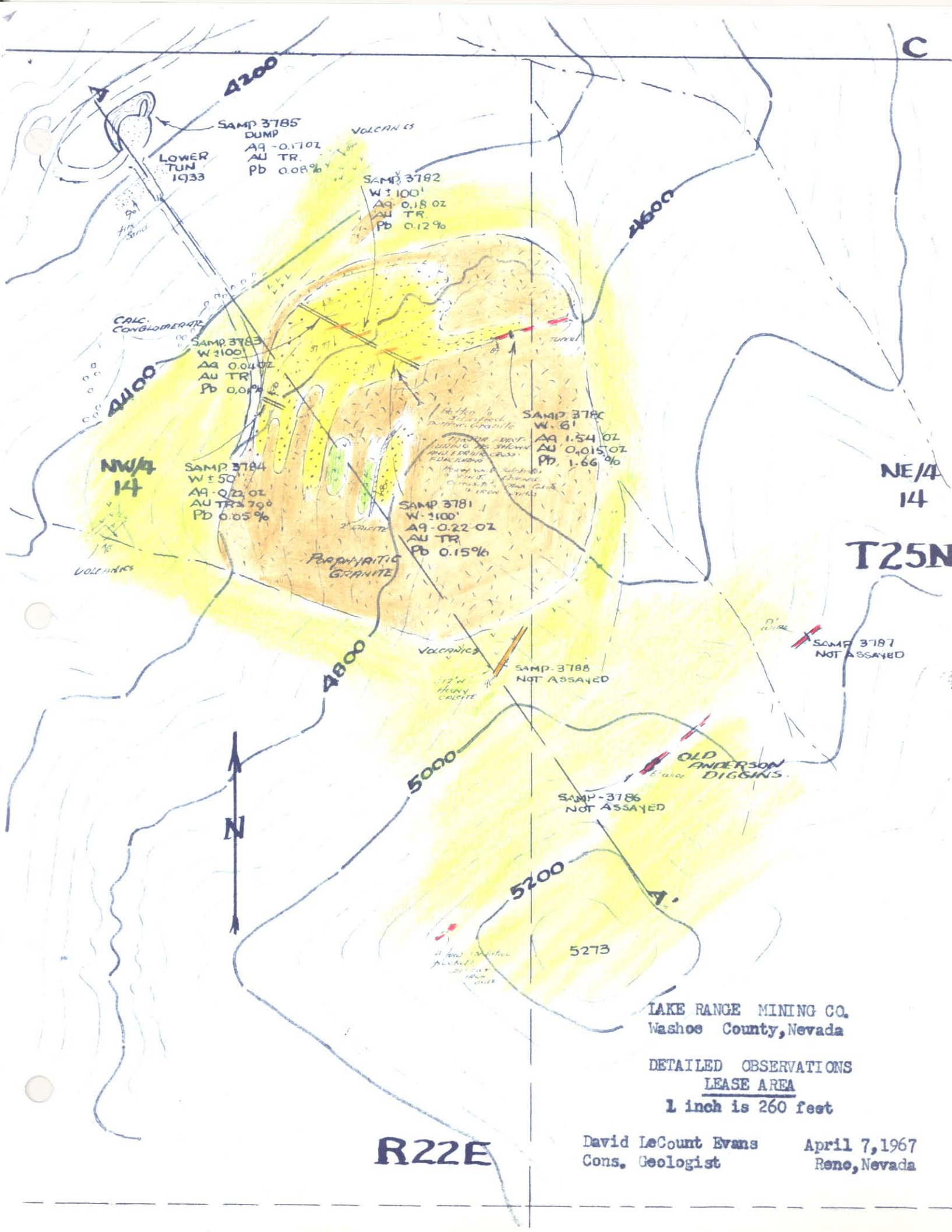
LAKE RANGE MINING CO,
Washoe County, Nevada

GENERAL DETAIL
REGIONAL AREA

1 inch is 2000 feet

David LeCount Evans
Cons. Geologist

April 7, 1967
Reno, Nevada



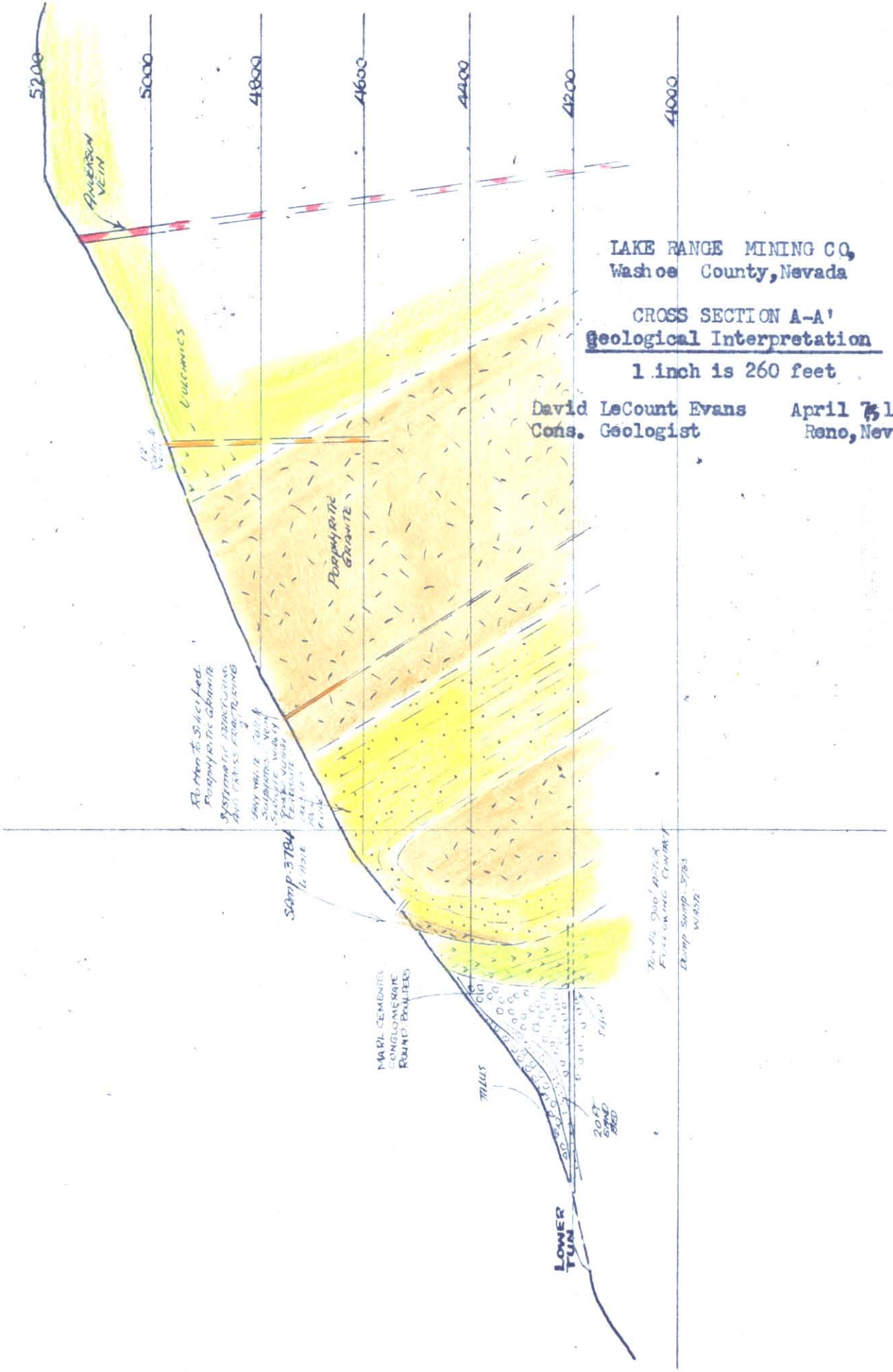
LAKE RANGE MINING CO.
Washoe County, Nevada

DETAILED OBSERVATIONS
LEASE AREA
1 inch is 260 feet

David LeCount Evans
Cons. Geologist

April 7, 1967
Reno, Nevada

D

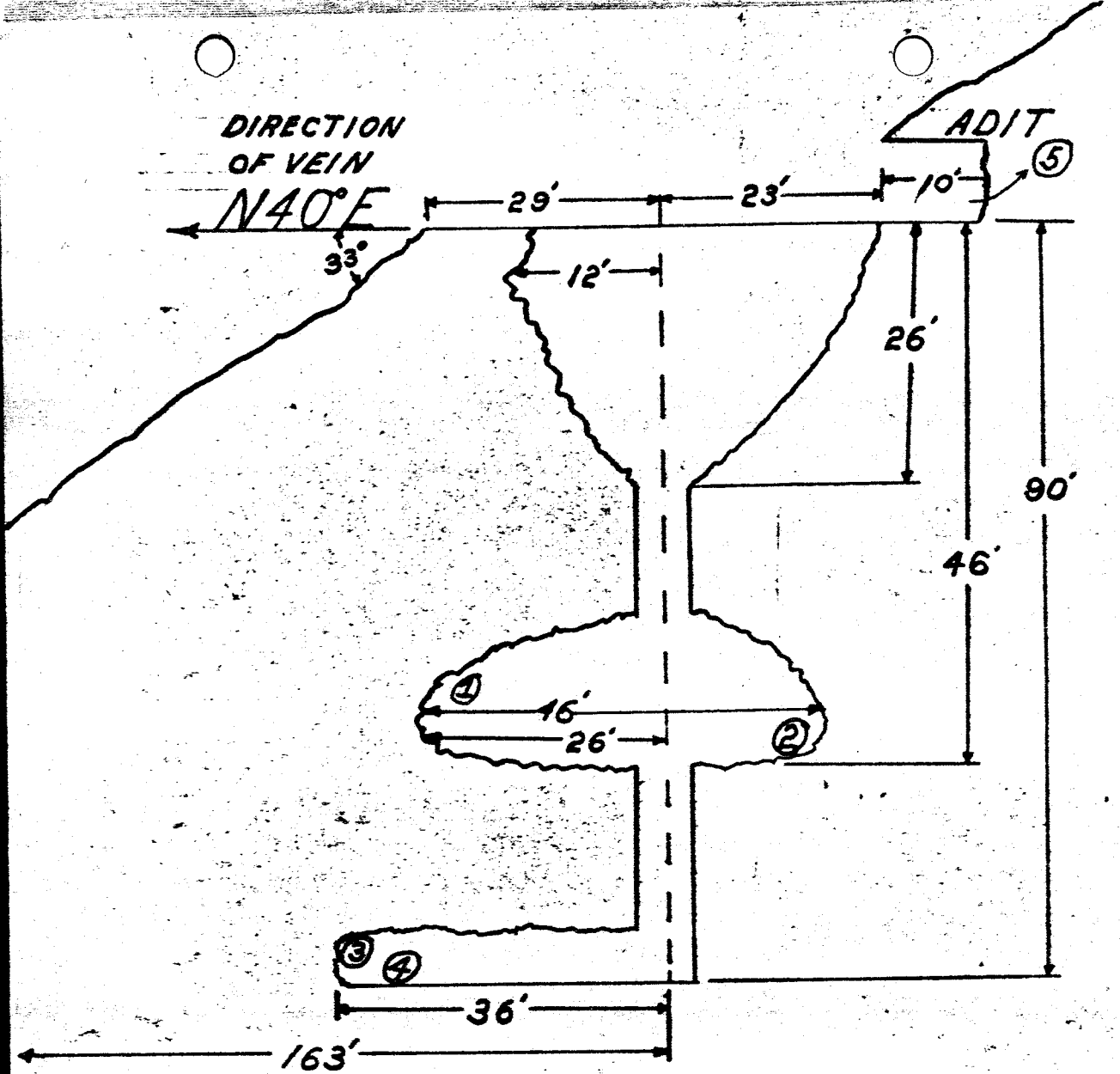


LAKE RANGE MINING CO,
Washoe County, Nevada

CROSS SECTION A-A'
Geological Interpretation

1 inch is 260 feet

David LeCount Evans April 7, 1967
Cons. Geologist Reno, Nevada



NOTE: AVERAGE WIDTH OF WORKINGS 8' - NO WORTHY TIMBER

ASSAY NO'S (1) - (5)

PYRAMID MINE

MAPPED: NOV. 5, 1966

SCALE: 1" = 20'

PREPARED BY: J. P. Allen

F

Nevada Assay Office

675 LESTER AVE.

Reno, Nevada

FRANK W. JONES
Assayer-Chemist

November 11, 1966

Phone
329-4080

ASSAY CERTIFICATE FOR: Lake Range Mining Co., Reno, Nev

NO.	SAMPLE	GOLD OZ./TON	SILVER OZ./TON	Lead %	%	%	%	%
	1	0.18	30.2	10.6				$78.50
	2	0.05	2.9	2.1				$12.07
	3	0.12	23.1	8.0				$59.08
	4	0.04	6.6	3.0				$19.32
							Average	$42.24

Nevada Assay Office

675 LESTER AVE.

Reno, Nevada

358 8110

FRANK W. JONES
Assayer-Chemist

August 11, 1966

Phone
329-4080

ASSAY CERTIFICATE FOR: Badger Mining Co., Reno, Nev.

NO.	SAMPLE	GOLD OZ./TON	SILVER OZ./TON	Lead %	%	%	%	%
	Pyramid 5	0.07	18.1	7.8				
							Gold	3.50
							Silver	22.86
							Lead	20.00
						Total	per ton	46.36

2700 0002

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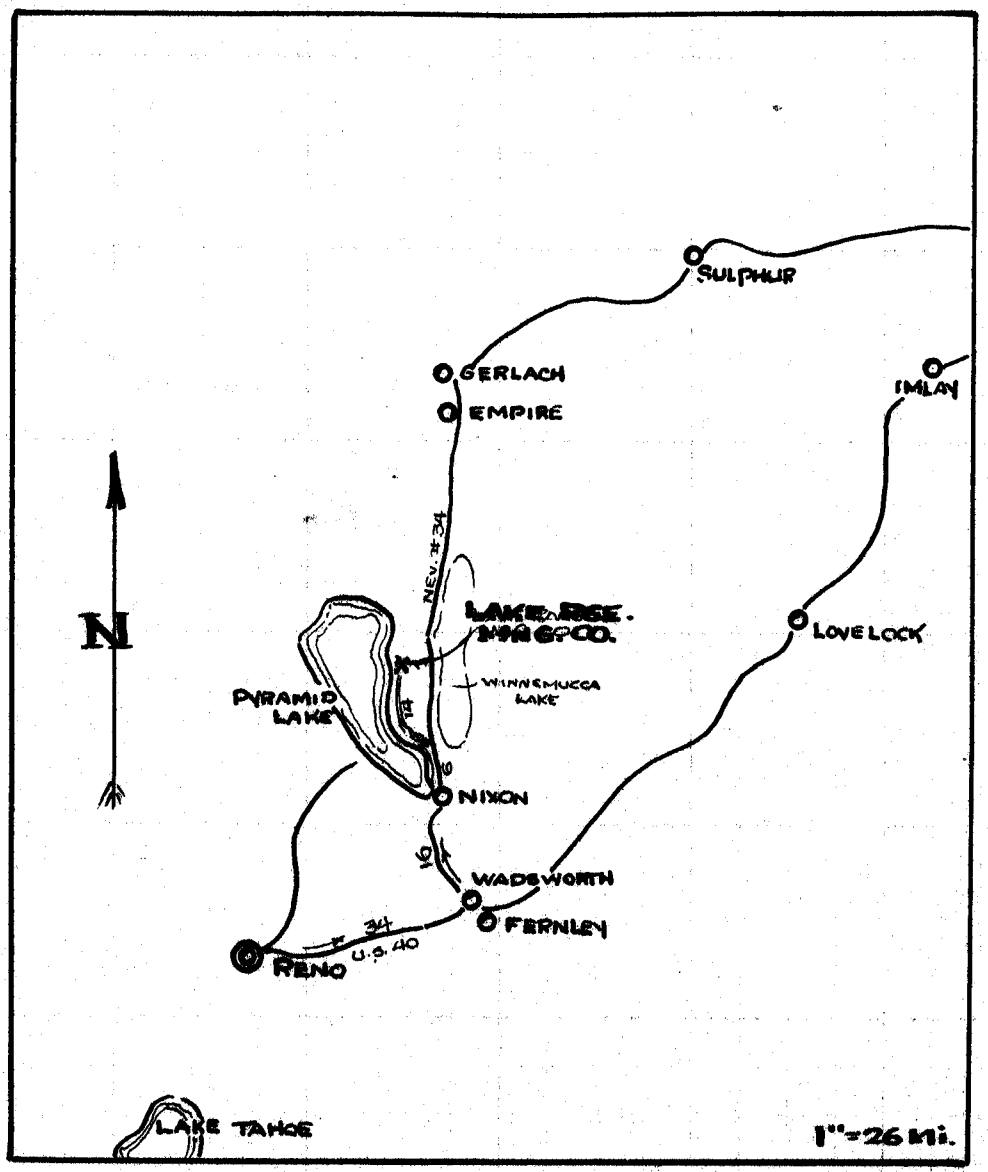
WAG

ITEM 92

176

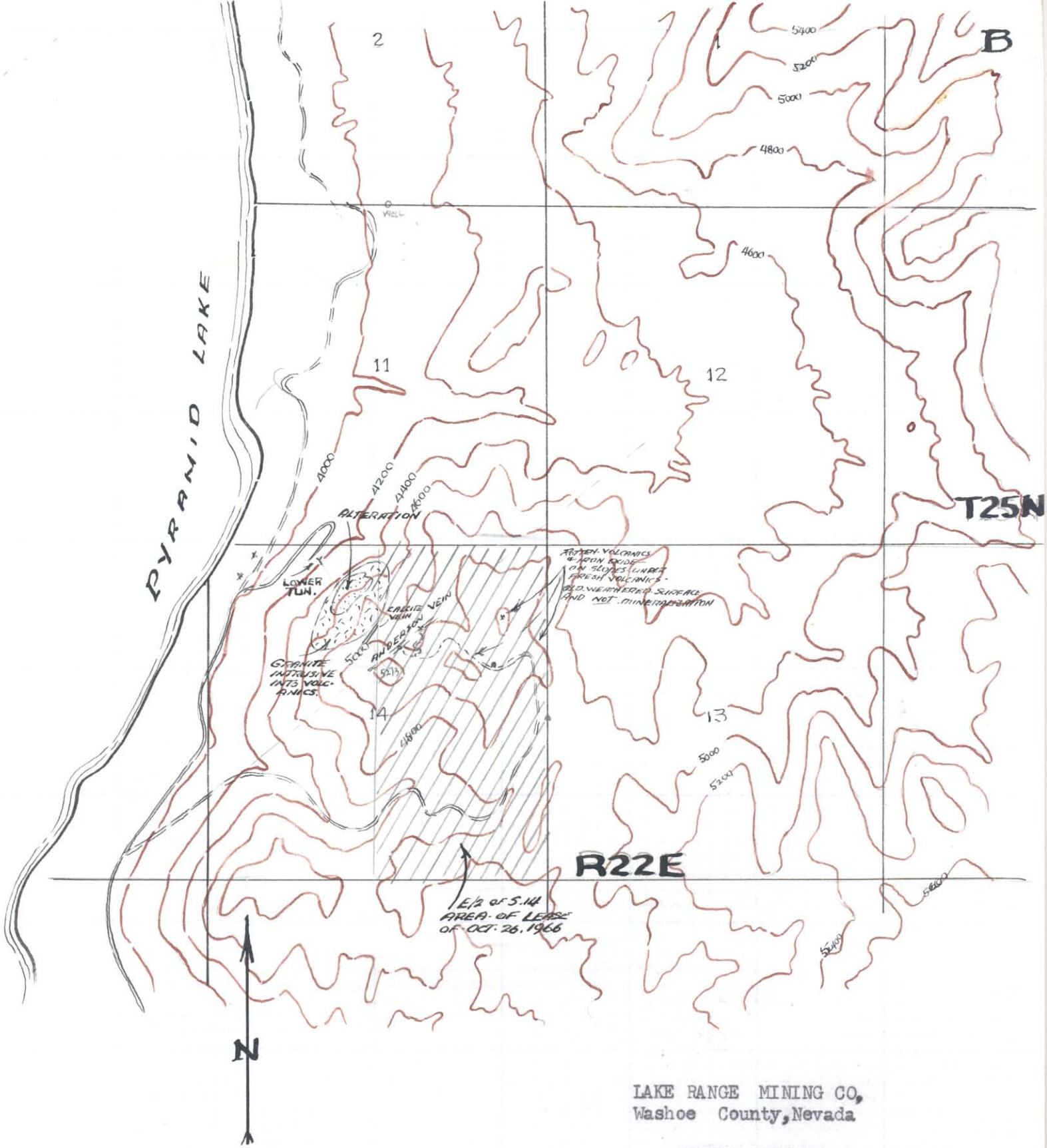


LAKE RANGE MINING CO.
Washoe County, Nevada

INDEX MAP

David LeCount Evans
Cons. Geologist

April 7, 1967
Reno, Nevada



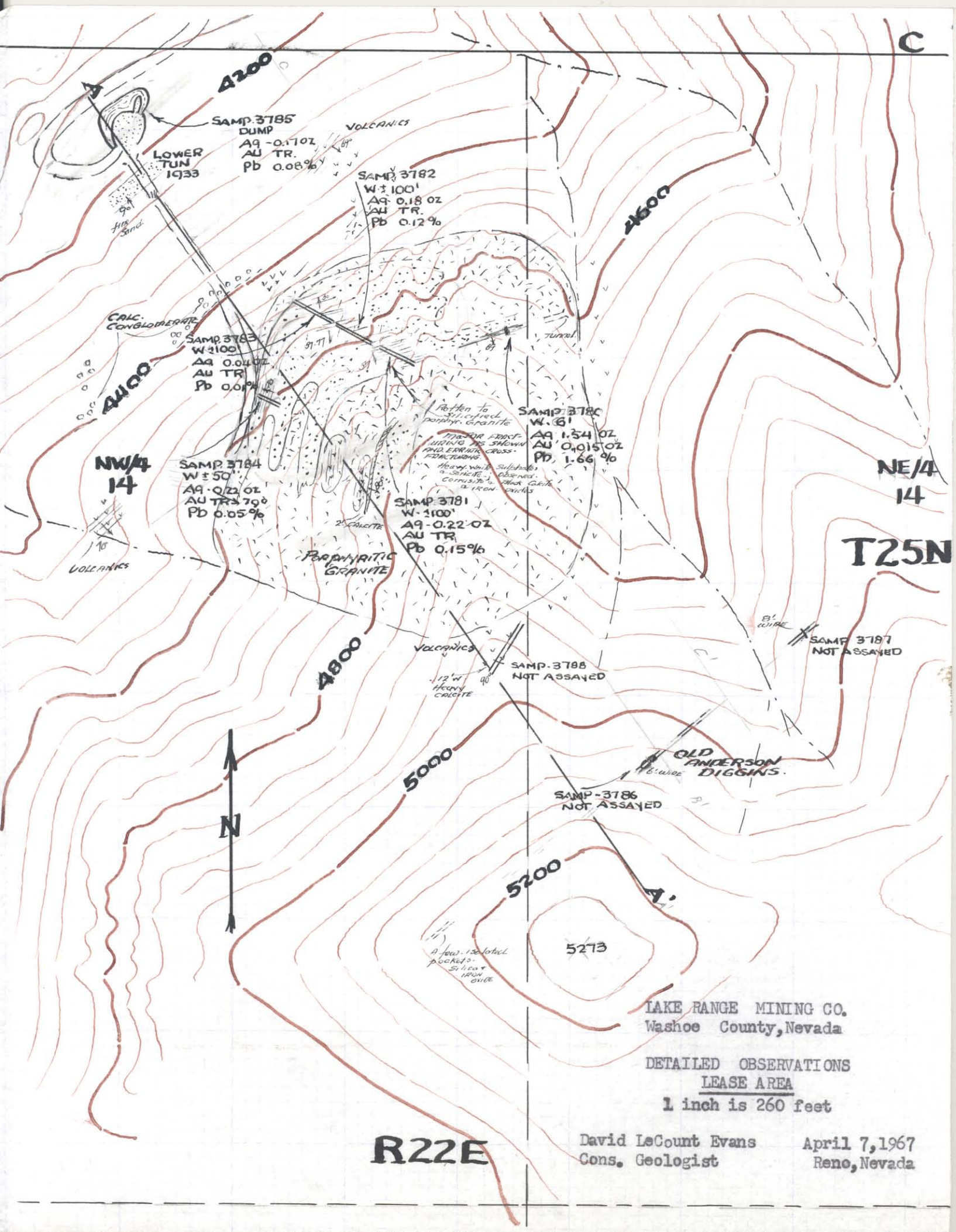
LAKE RANGE MINING CO,
Washoe County, Nevada

GENERAL DETAIL
REGIONAL AREA

1 inch is 2000 feet

David LeCount Evans
Cons. Geologist

April 7, 1967
Reno, Nevada



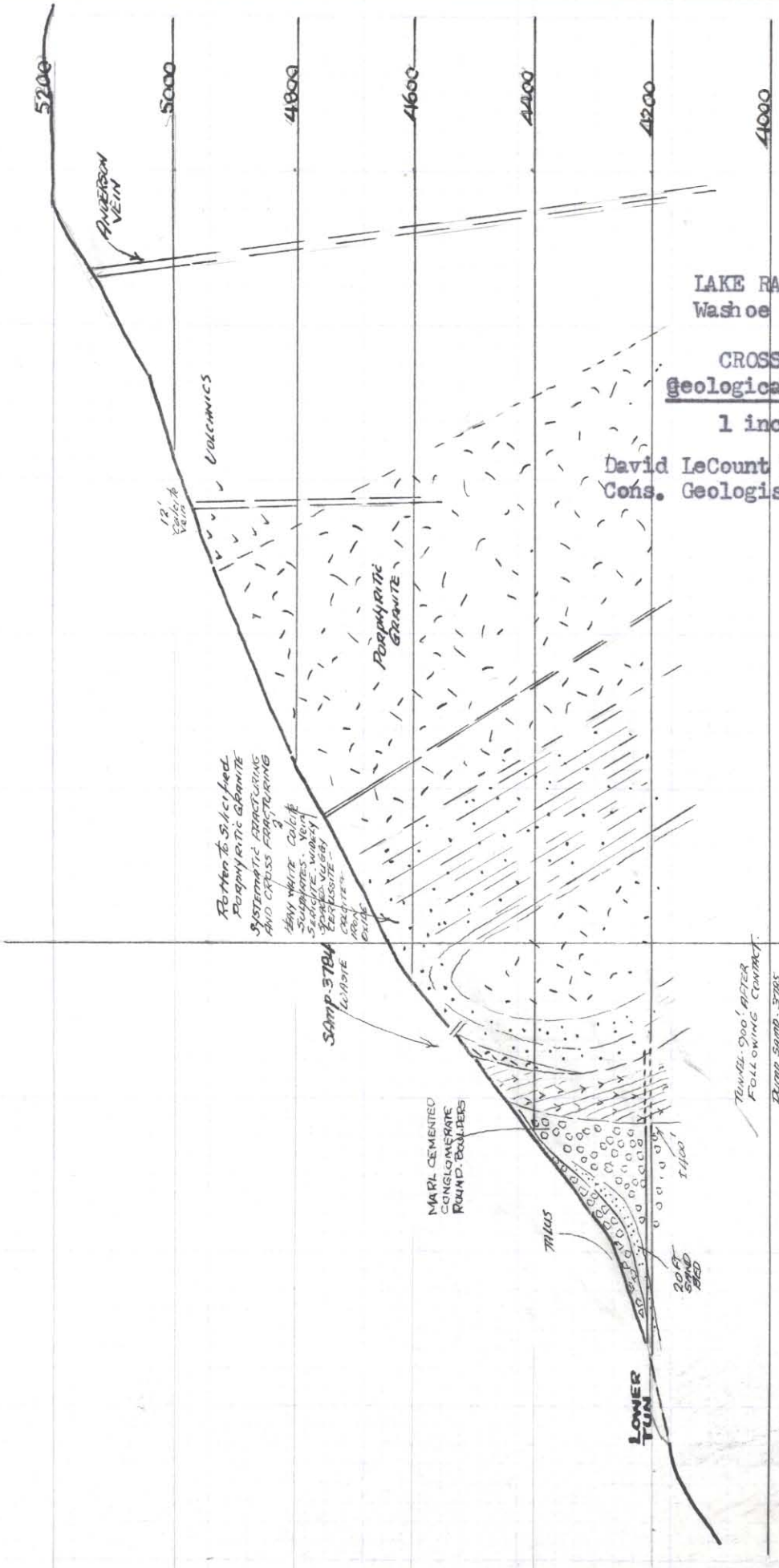
LAKE RANGE MINING CO.
Washoe County, Nevada

DETAILED OBSERVATIONS
LEASE AREA
1 inch is 260 feet

David LeCount Evans
Cons. Geologist

April 7, 1967
Reno, Nevada

D



LAKE RANGE MINING CO,
Washoe County, Nevada

CROSS SECTION A-A'
Geological Interpretation

1 inch is 260 feet

David LeCount Evans April 7, 1967
Cons. Geologist Reno, Nevada