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PRINTED: 04/29/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: NORTHERN STAR

ALTERNATE NAMES:
LOMALINA MINE
SHIRT TAIL MINE
COPPER PENNEY

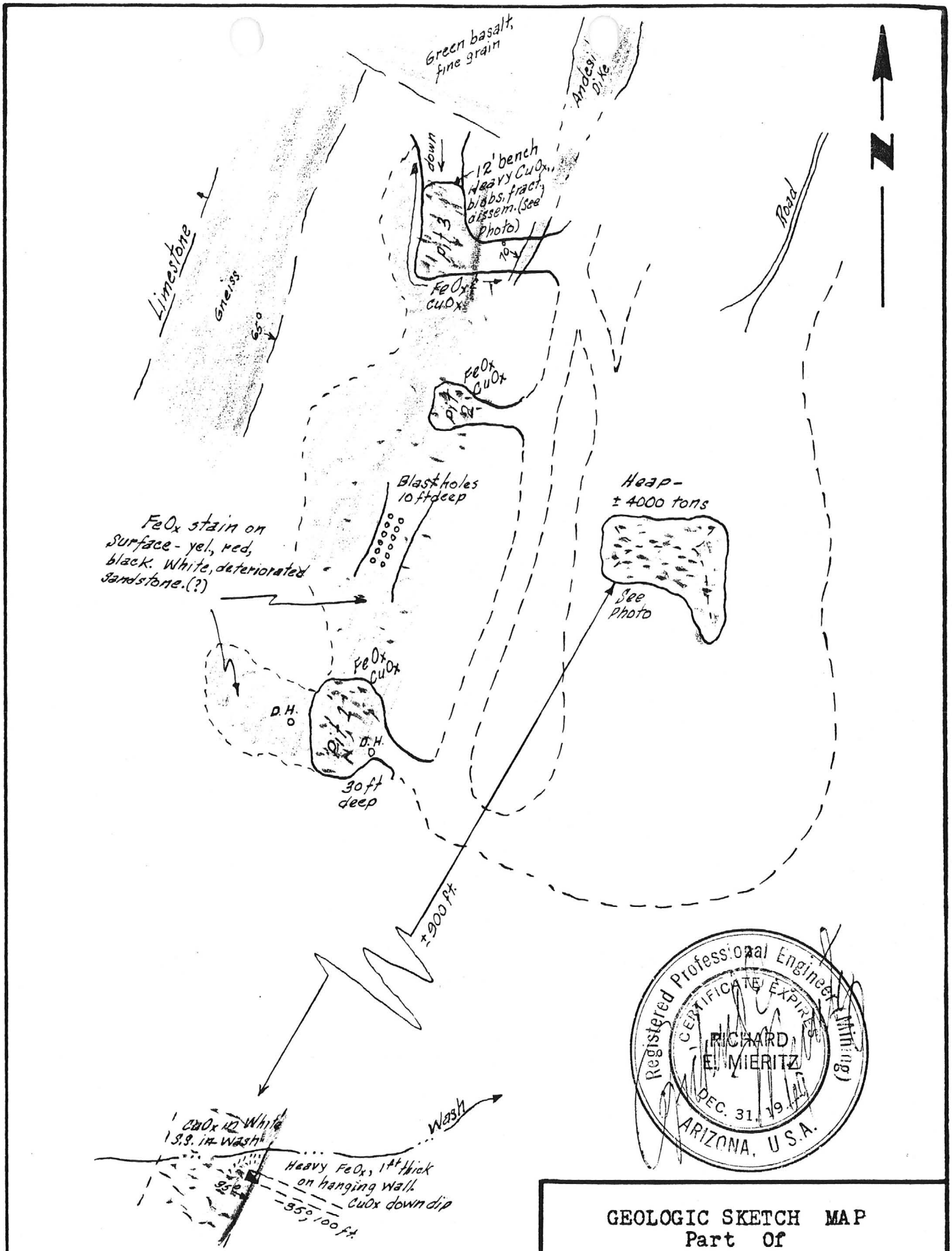
LA PAZ COUNTY MILS NUMBER: 265

LOCATION: TOWNSHIP 10 N RANGE 16 W SECTION 35 QUARTER N2
LATITUDE: N 34DEG 10MIN 09SEC LONGITUDE: W 113DEG 53MIN 47SEC
TOPO MAP NAME: SWANSEA - 15 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:
COPPER OXIDE

BIBLIOGRAPHY:
AZBM FILE DATA
ADMMR NORTHERN STAR GROUP MINE FILE
AZ GEOLOGICAL SOCIETY - 1980 FALL FIELD TRIP,
P 4 (ADMMR GEOLOGY FILE)



GEOLOGIC SKETCH MAP
Part Of
NORTHERN STAR CLAIMS
Yuma County, Arizona

Scale: 1"= 100 ft.

Feb., 1969 R.E. Mieritz

Map 3

NORTHERN STAR GROUP REFERENCES La Paz YUMA COUNTY

MILS Sheet sequence number 0040270306

Arizona Geological Society - 1980 field trip p. 44 - Geology file

NORTHERN STAR MINE (Group) YUMA COUNTY

Called to see Mr. John Cagle of the Copper Penny Mng. Co but he was gone to the mine. Mr. Townsend a well driller, who said he finished another well for John Cagle, Mgr. Copper Penny Mining Co. but didn't get much watter. He says this is the third well Mr. Cagle has drilled. All of them hardly supply enough water for the anticipated leach capacity. GW WR 6/12/70

John Cagle, Supt. for Copper Penny Co. has 5 men preparing a leaching operation on the Northern Star Copp er property. GW qr 7/1/70

It is reported that the Copper Penny has closed due to the lack of water for leaching. WR GW 10-,16-70

KP WR 6/5/79 - Joe Wilkins of Gulf (Gulf Minerals?) has completed 4,000 feet of drilling on the Shirtail Mine Near Swansea, Yuma Co. 7/9/79 a.p.

SHIRT TAIL MINE YUMA COUNTY

Lelon Noblitt, Freeman Lomelina, Ray Thomas, and Dale Lomelina, all associated in developing a mine and leaching operation at above mine lying between the Planet Ranch and Swansea. (Freeman Lomelina since dec'd).
On February 16, 1968, visited property, two drop cuts were broken up and unsuccessful attempt was made to leach the ore in place. Later ore was removed and placed on a pile and is now being heap leached. Exploration is being carried on by drilling hundred foot deep hole with pneumatic drill equipment. Previous day officials of Bagdad Copper Co. inspected property.

CLH Conf. 2/15/16, 1968

Five persons were developing and exploring Shirt Tail Mine - doing some leaching of copper ore when operations were stopped in mid-February when two of the partners were killed in an airplane accident.

CLH Quarterly Report 4/1968

Visited Shirt Tail Mining Co. (Lomalina Mine) No one on the property. Mr. Patterson at Mineral Hill said Lomelina decided to mine near Quartzsite - did not know what property.

FTJ WR 6/14/68

Drove to Shirt Tail mine and found rather extensive working. Some was scattered over several claims, some real good copper showing in fracture zones. Understood small operation on high grade, 2-3 to 5 men. No men working the day I was there.

KNG 10/1968

[redacted]

Same as northern Yuma Co. - see file 4/70

+ John Soldier
2/24/67
"no reply"

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

FILED
MAR 17 1967

Mine Northern Star Date February 16, 1967

District Santa Maria, near Swansea, Yuma County Engineer Lewis A. Smith

Subject: Visit and conference with Lelon Noblitt, owner; John Soldier, 490 S. 3rd St., Blythe, optionee and operator, Freeman and Bale Lomelino, Blythe, optionee and operator.

Work: considerable bulldozer stripping has been done since the last visit over a length of 400 feet and a width of 75-100 feet. This work uncovered an area showing 1½ - 4% copper, (average grade 3% Cu.). This seems to be highly altered, bedded material near a porphyritic dike (?). The principal alteration is iron oxides and chlorite. Recently the Lomelinos blasted about 10,000 tons of this ore over a length of 100 feet or more and to a depth of 15-20 feet. This will be leached in place and the pregnant solution collected in a dirt tank lined by plastic sheeting (polyethyline). The precipitation vat consists of 10 redwood compartments 5 feet wide, 3 feet deep, and 12 feet long interconnected in a block 50 feet long and 12 feet wide, but staggered a little vertically so as to use gravity flow from No. 1 to No. 10 vats. The water from No. 10 will be recharged with H_2SO_4 and used to leach with again. The acid: copper ratio is 1¼ - 1 1/8 to one pound of copper when it enters to leach pile. Water recovery may be slow at first while the selected area is saturated. It then should flow reasonably well. The rock bottom should readily seal itself under acid attack. Some of the better ore seems to be well silified and it tends to get relatively higher relief upon being weathered and eroded. A market for cement copper is available. The muck is moved with a Cat and an International 620, T-6 skid shovel (front loader with ripper arms on the back, a wagon drill, etc.).

active Mine List 4/1967 - 4 men
" " " Nov. 1967 - 4 men

Visit with Freeman and Bale Lomelino 6/15/67

Freeman present address is Box 409, Parker. (old address was Blyth, Calif.) John Soldier is no longer with the Lomelinos.

The leaching in place proved unsuccessful (see report of Feb. 16, 1967) since only a small portion of the solution was recovered due to the ready permeability of the intensely sheared zone that contains the mineralized material. It is now planned to drill some test holes to see how much reserve can be developed. The proposed vat-leaching plant would be erected only if adequate reserves are present. Various samplings of blast holes show a zone that average about 2.5 to 3.0 percent copper. The material leached quite well. According to the Lomelinos there was about 10,000 tons broken for the "in-place" leaching, some cement copper was made.

MEMO LAS 6/15/67

A group of which Freeman Lomelino, Sen Frank Thompson and Leon Noblitt, all of Parker, are members, is erecting a copper leaching plant at the Northern Star property, northeast of Parker and near the Swansea Mine. None of these men could be located for an interview.

ASMOA Meeting Robt. F. Playter 10/12/67

NORTHERN STAR GROUP

SANTA MARIA DISTRICT
YUMA COUNTY

Visit and Conference with Lelon Noblitt, Parker, 6/10/65

Since the last visit the open cut at the north end of the claims had been cleaned out and in the face a few feet of copper oxidized ore showed up more clearly. Noblitt said that William Wray, Parker, would like to lease the claims and was trying to finance the work he wants to do. Noblitt also stated that a 4-foot sample across the cut face ran 4.5 percent copper and 88 percent silica. The ore appears to extend westward for some distance, as indicated by float and an alteration zone.

MEMO LAS 6/10/65.

Interviews with Joe Graves (Congdon & Carey) and Lelon Noblitt at the Parker Motel, and later visit to claims.

Graves reported that the principal rock that occupies the central basin in the center of the claims is gneiss. Other observers had called this silicified limestone and porphyry. The gneiss is capped on both sides of the basin by limestone that is blocked into several units by transverse fractures and in the northern half by a possible thrust. Graves suggested that the thrust plate dips flatly to the SW and that the ore zone could possibly be in this zone. He added that his mapping in the district had shown other thrust faults of some magnitude.

He also revealed that a survey party was locating claims north of the Northern Star and east of the Mineral Hills. They were apparently working for Vernon Pick, Pick Mining Company, 9051 E. Iliss, Denver Colorado. Later an interview was held with Pick but he was not talking yet. Pick previously had made much money out of uranium.

MEMO - LAS 2-10-66

Mr. Joe Graves, Field Engineer of Congdon and Carey of Denver, was in and reported that they had not found enough at the Northern Star Group to proceed further.

LAS WR 4/1/66

Conference with Leon Noblitt, owner in Parker, 10/14/66

Noblitt is doing his assessment work by making a long bulldozer cut on the ore zone so as to clear the outcrop for some more thorough sampling.

MEMO LAS 10/14/66

Leon Noblitt said that Pick Mining Co. had examined his Northern Star Claims, SW of Swansea, but did not follow up.

LAS MEMO 10/14/66

T.T.J. Oct '69

1

ARIZONA DEPARTMENT OF MINERAL RESOURCES
Mineral Building, Fairgrounds
Phoenix, Arizona

1. Information from: James E Hall 943-3118
   Address: 119 - W Hatcher Rd. Phx
2. Mine: Noblith Northern Star 3. No. of Claims - Patented —
   Unpatented 26
4. Location: NE Bouse 28 mi. 3 mi west. Swansea
5. Sec 34 Tp 10N Range 16W 6. Mining District
7. Owner: Lelon Noblith
8. Address: Parker
9. Operating Co.: Ch. Penny Mines Inc
10. Address: 3345 - Wilshire Blvd. Suite 311 LA 90005
11. President: Sidney G Bergman 12. Gen. Mgr.: John Cagle
13. Principal Metals: Cu Tp4's - 14. No. Employed:
15. Mill, Type & Capacity: leaching - Vat.
16. Present Operations: (a) Down ☐ (b) Assessment work ☐ (c) Exploration ☐
    (d) Production ☐ (e) Rate _____ tpd.
17. New Work Planned:
18. Miscl. Notes: Formly - Shirtail Mining Co. Plan to make Cement Copper.

Apr. 27, 1970 — Heard they were drilling well for water

Active Mine List 3/70 sheet. - John Cagle.

Date: 7-7-69 T. T. Johnson
(Signature) (Field Engineer)

ARIZONA DEPARTMENT OF MINERAL RESOURCES
Mineral Building, Fairgrounds
Phoenix, Arizona

1. Information from: Clif Russell (Has lease on property)
   Address: 10234 - N 16th Dr. -
2. Mine: Shirttail
3. No. of Claims - Patented
   Unpatented 26 shirttail -
4. Location: 2 mi. NW of Swansea Mine
5. Sec ____ Tp ____ Range ____
6. Mining District
7. Owner: L Knoblet - Lelon Noblitt
8. Address: Earp Ariz Cal.
9. Operating Co.: Shirttail Mining Co
10. Address:
11. President:
12. Gen. Mgr.:
13. Principal Metals:
14. No. Employed:
15. Mill, Type & Capacity:
16. Present Operations: (a) Down ☐ (b) Assessment work ☐ (c) Exploration ☑
    (d) Production ☐ (e) Rate ____ tpd.
17. New Work Planned:
18. Miscl. Notes:
    Tried leaching under Lomolinas' direction.
    Mr Russell has Canadian Co. examining property - with idea of a drilling program.

Visited the ~~Shirt Tail Mine~~ - no activity FTJ WR 10/17/69

Date: 4-24-69 F. T. Johnson
(Signature) (Field Engineer)

This is Northern Star Group as per FTJ 4/1970

NORTHERN STAR (f) LA PAZ

A

RECONNAISSANCE REPORT

of the

GEOLOGY, MINERALIZATION

and

EXPLORATION POSSIBILITIES

on the

NORTHERN STAR PROPERTY

Yuma County, Arizona

LA PAZ

by

R. E. Mieritz
Mining Consultant

Phoenix, Arizona

February 22, 1969

TABLE of CONTENTS

NORTHERN STAR CLAIMS
Yuma County, Arizona

INTRODUCTION

At the request of Mr. Sherwood B. Owens, Tucson, Arizona, the writer examined the Northern Star group of unpatented mining claims located in Sec. 34, T. 10 N., R. 16 W., of the Gila and Salt River Base and Meridian in Yuma County, Ariz.

The purpose of the examination was to evaluate the present merit of the property and determine whether geologic possibilities might exist in sufficient degree to explore and develop the copper occurances to adequate volume and to carry forward into an operation of a size or capacity suited to a developed reserve.

CONCLUSIONS

The brief examination afforded the writer sufficient information to conclude the following:

(1) That copper oxide mineralization does exist on the property and is associated with a strong persistant structure,
(2) One of several occurances is presently quite limitedly explored surface-wise by three open pits from which good oxide copper bearing material has been mined,
(3) The strong long strike length structure provides a good target for exploration on surface and by drilling,
(4) It is thought that an initial exploration and development program could indicate upwards of a half million tons of mineralized material containing 1.0% plus copper content,
(5) Adequate geologic mapping and study must be done and would indicate other mineralization within the claims which should be explored, and,
(6) Open pit mining can be considered in any operation plan.

PROPERTY, LOCATION and ACCESSIBILITY

The Northern Star copper lode claims number 26, all are unpatented and all are apparently in good legal standing although they have not been surveyed, but are contiguous as a group. (See Claim Map)

These claims are located in Sec. 34, T. 10 N., R. 16 W., G. & S. R. B. & M. in Yuma County, Arizona, about 5 miles south of Bill Williams River, southeast of Buckskin Mtns and about 27 miles by road east of Parker, Arizona, a small town on the Colorado River and Southern Pacific Railroad.

Access to the property from Parker is over a Yuma County graveled road leading northeast from Parker on the southeast side of the cotton gin located on the main street of Parker. This road leads to Alamo Crossing (Bill Williams River) and on up to Yucca and Kingman or south to Wendem, Arizona. At times, this road to Alamo Crossing (eastward from the property) is not passable due to rain washouts.

The property turnoff is 27 miles from Parker over this Yuma County road. The western end of the Northern Star claims parallels and borders this road. Unless rains cause some washout of the mine road, the trip can be made by auto, otherwise a pickup is recommended.

Ranchers Metals, a 900 ton crude ore perday copper leaching operation, about 7 miles northwest of the Northern Star property, utilizes about 12 miles of the Parker-Alamo Crossing road to truck their acid, scrap iron, aluminum and precipitate.

FACILITIES

No electric power is available on the property, however, a high transmission line is approximately six miles distant to the west. No water is developed on the property although it is thought that well water could be developed about ½ to 3/4 of a mile to the east of the present workings.

A 3 inch natural gas line which services Parker, crosses the property. Except at road crossings, it lies on the surface and is a "branch" from the large "main" between Aguila and Kingman.

HISTORY and DEVELOPMENT

There is some evidence of old workings, in particular an inclined shaft which was sunk on a strong wall containing iron oxide. This work was probably done in search of gold. It is the same hanging wall of the copper oxide zone which is developed on the surface by pits and is some 800 feet distant along the strike. (See Geologic Sketch Map)

The most recent developments are the three surface pits from which approximately 4,000 tons of an excellent grade of ore has been mined and "heaped". (See Photo)

This property was under lease to a "partnership" not too long ago but it came to an abrupt end when the two partners were killed in an airplane accident. During their being however, the operators mined and "heaped" an estimated 4,000 tons and accomplished some production -- it is said about 14 tons of precipitate were produced. The "heap" (see photo) is still very much "alive" with "gree color", as well as some brown to red iron oxide which may also carry copper which is not discernible to the eye.

REGIONAL GEOLOGY

The regional rocks, 5 to 10 miles of the property, include sediments as limestone, shales and sandstones and igneous rocks as lavas, precambrian gneiss, schist, andesite dikes and granite. (See Location & Geology Map).

LOCAL GEOLOGY and MINERALIZATION

The claims have within their areas the same above mentioned rock types but no attempt was made to map them except in the immediate area of the one copper oxide occurance no partly developed by a limited amount of workings. (see Geological Sketch Map).

Of the several copper oxide occurances within the property, only one was mapped by the writer so as to provide some information as to the mode and type of mineralization present and to serve as a guide when future complete geological mapping is commenced.

Copper oxide mineralization occurs in a zone which has an apparent, surface-wise, continuous N. 10° E. strike length of at least 1200 feet and possibly more with an apparent dip of about 35° to the east. Its hanging wall is defined at only two points about 900 feet apart, (in the most northern pit and in the inclined shaft to the south). This hanging wall is recognized by a heavy, 2 to 6 inch thick red-brown iron oxide seam. Heavy concentrations of copper oxide minerals occur below the hanging wall. Dispersed copper oxide mineralization as blobs, veinlets, fracture fillings and disseminations continue away from the hanging wall for about 70 feet on the surface (about 50 feet normal to dip) where visible. The footwall of this zone has not been clearly defined nor really exposed. It is thought that the footwall may well be irregular, perhaps of an assay definition.

Copper minerals within the zone include malachite with minor amounts azurite, chrysocolla and perhaps tennorite and some cuprite. The host rock for the most part appears to be of igneous orign with some clay seams and an altered gneiss which apparently underlies the strong mineralized zone as shown on the included Geologic Sketch Map. Andesite dikes, unmineralized, are exposed in close proximity with the mineralized zone and no doubt are related to the sone of mineralization.

Grade-wise, the writer would estimate the zone to average about 1.0% copper. No pit wall or pit bottom were sufficiently clean for the writer to attempt sampling at this stage. Large bulk sampes would be required.

EXPLORATION POSSIBILITIES

The mode and type of copper mineralization exhibited in the

strong structural zone examined geologically suggests the possibility of down dip continuance of the copper mineralization, oxides and perhaps sulphides at some depth. (See Photo of Pit showing the blue and green color of the oxide minerals.)

The structure and copper mineralization are also present in the -35° incline located some 900 feet from the site of the most eastern present working. This is the only down dip penetration of the structure which has any depth.

With such evidence exhibited, a program of closely spaced vertical drill holes utilizing a "cheap cost" per foot drilling unit (rotary or percussion) is justified and a definite requirement towards determining a reserve and the grade of such reserve.

The visualized exploratory program includes a line of holes paralleling the strike of the zone and about fifty feet east of the hanging wall of the zone. Such holes should be drilled to a depth of 100 to 125 feet. A paralleling line of holes should also be drilled approximately 100 feet east of the assumed hanging wall of the zone. Such holes should reach a depth of 175 to 200 feet. A fifty foot spacing along the strike should be maintained and if the mineralization is too great in variance, the spacing should be reduced to 25 feet--where needed or required.

Such a proposed drilling program would approach an expenditure of $35,000.00 or more and could indicate 500,000 tons of material of economical grade. This is but a cost of 7¢ per ton indicated. This total expenditure includes drilling cost, sampling, assaying, supervision and sundry expenses.

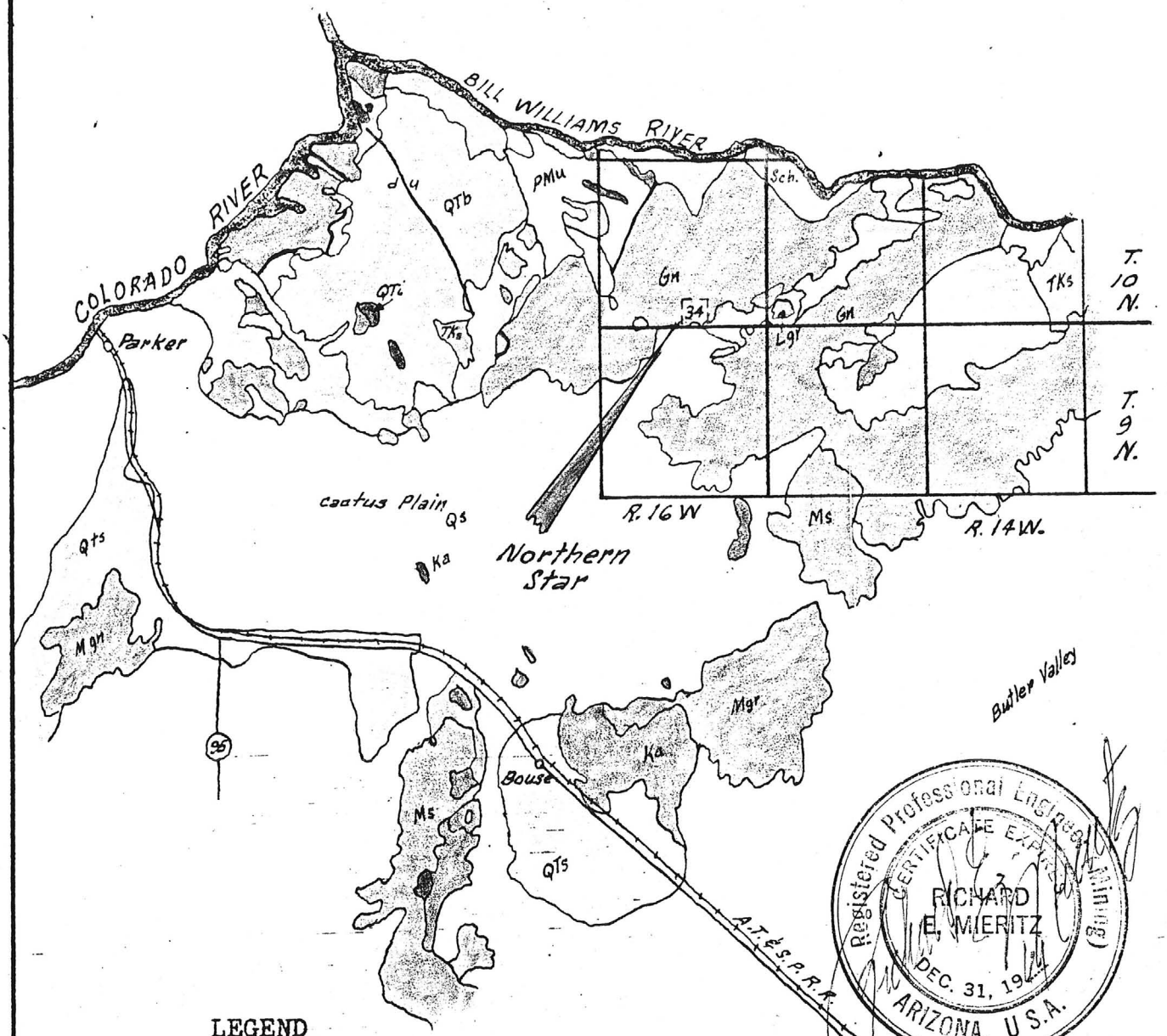
Indications are that a 1% copper or better grade for the indicated zone is a very strong possibility.

Detailed geologic surface mapping of the area is also most desireous and can be carried forward simultaneous with the drilling program.

Respectfully submitted,

R. E. Mieritz,
Mining Consultant,
Phoenix, Arizona.

February 22, 1969



LEGEND

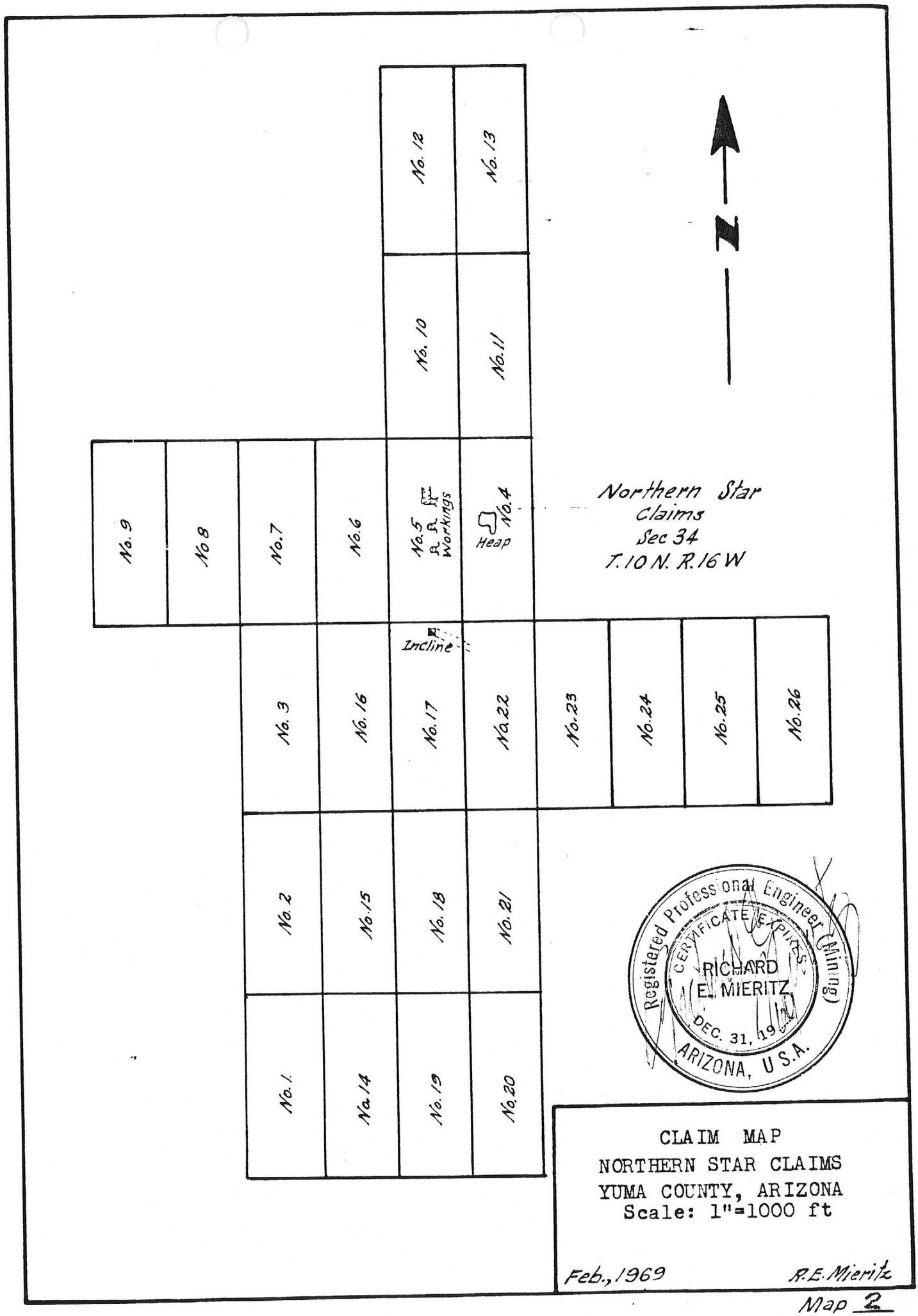
Qs	Gravel, sand, silt.
QTs	Gravel, sand, silt.
Qb	Basalt.
QTb	Basalt.
QTc	Rhyolite to Basalt dikes.
TKs	Sandstone, shale, congloerate.
Lr	Rhyolite to Andesite dikes.
Lgr	Granite and related igneous rocks.
Kc	Dikes and plugs.
Ka	Andesite.
Mgr	Granite & related igneous rocks.
Ms	Sandstone, shale, conglomerate. Locally metamorphosed.
PMu	Shale, quartzite, limestone.
Sch.	Schist (Precambrian)
Gn	Gneiss.

Registered Professional Engineer (Mining) CERTIFICATE EXPIRES RICHARD E. MIERITZ DEC. 31, 19 ARIZONA, U.S.A.

GEOLOGIC MAP
Portion of
YUMA COUNTY, ARIZONA
Scale: 1"= 6 miles

Feb., 1969 R.E. Mieritz

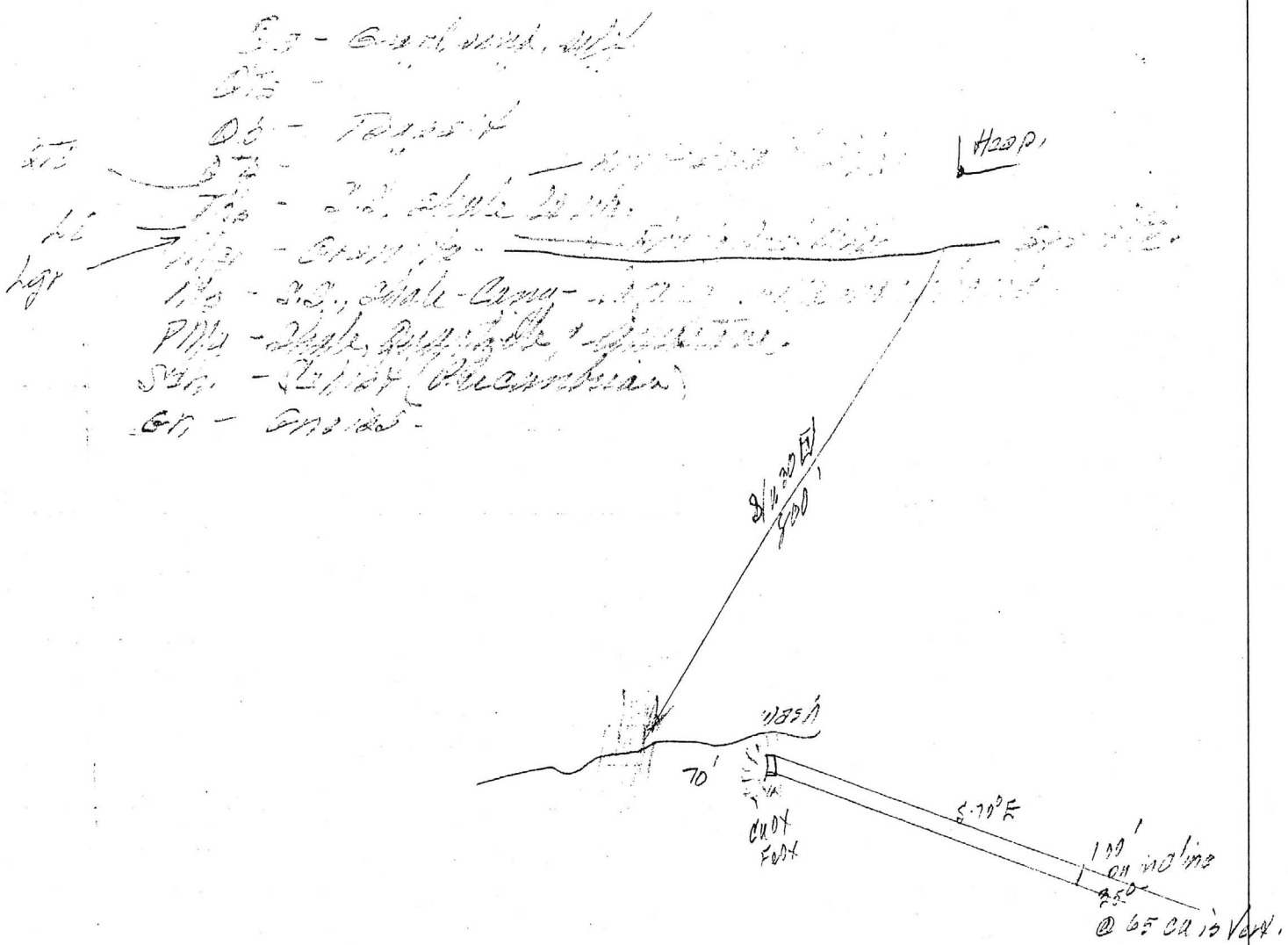
Map 1



CLAIM MAP
NORTHERN STAR CLAIMS
YUMA COUNTY, ARIZONA
Scale: 1"=1000 ft

Feb., 1969 R.E. Mieritz

Map 2



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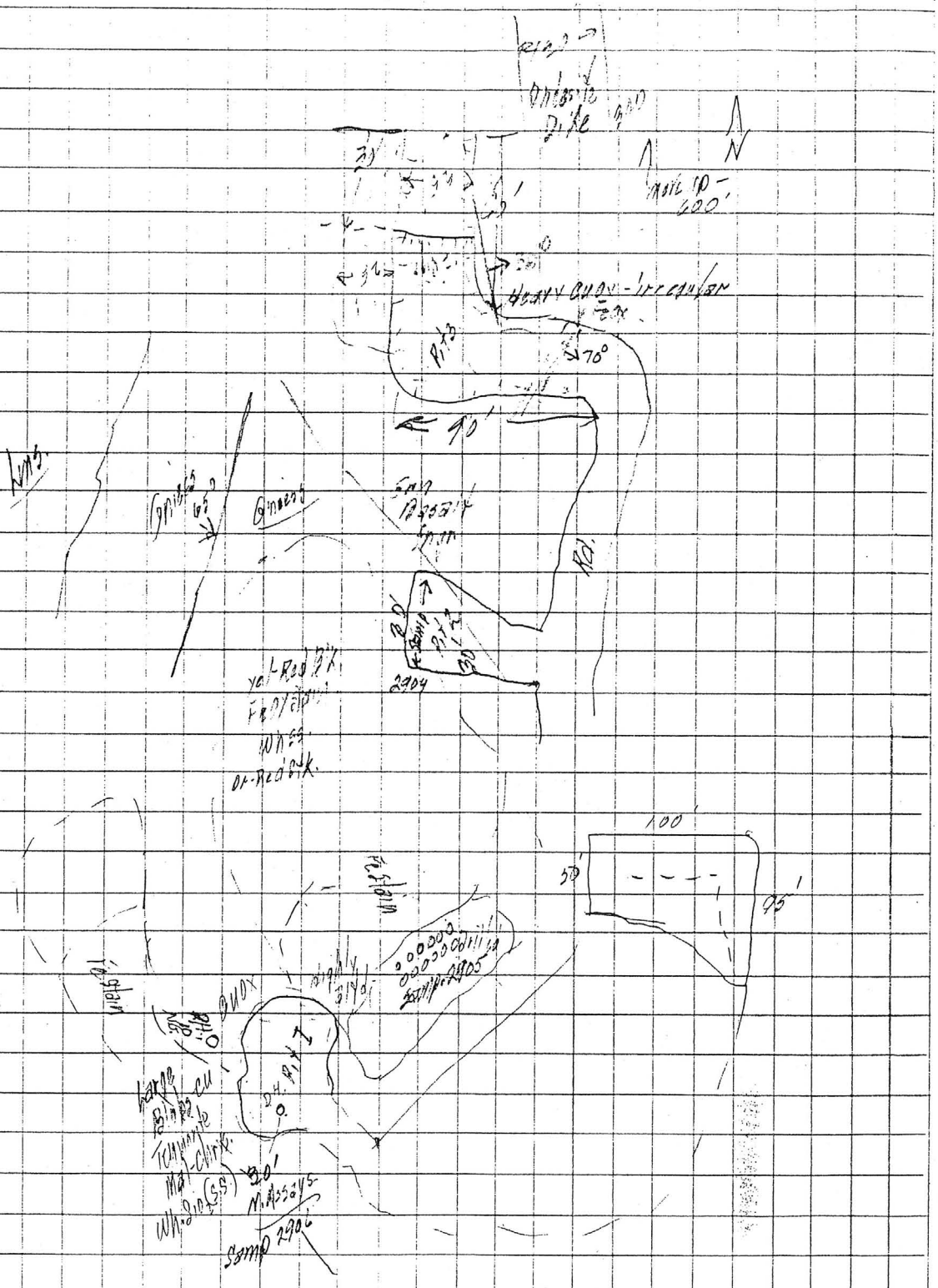
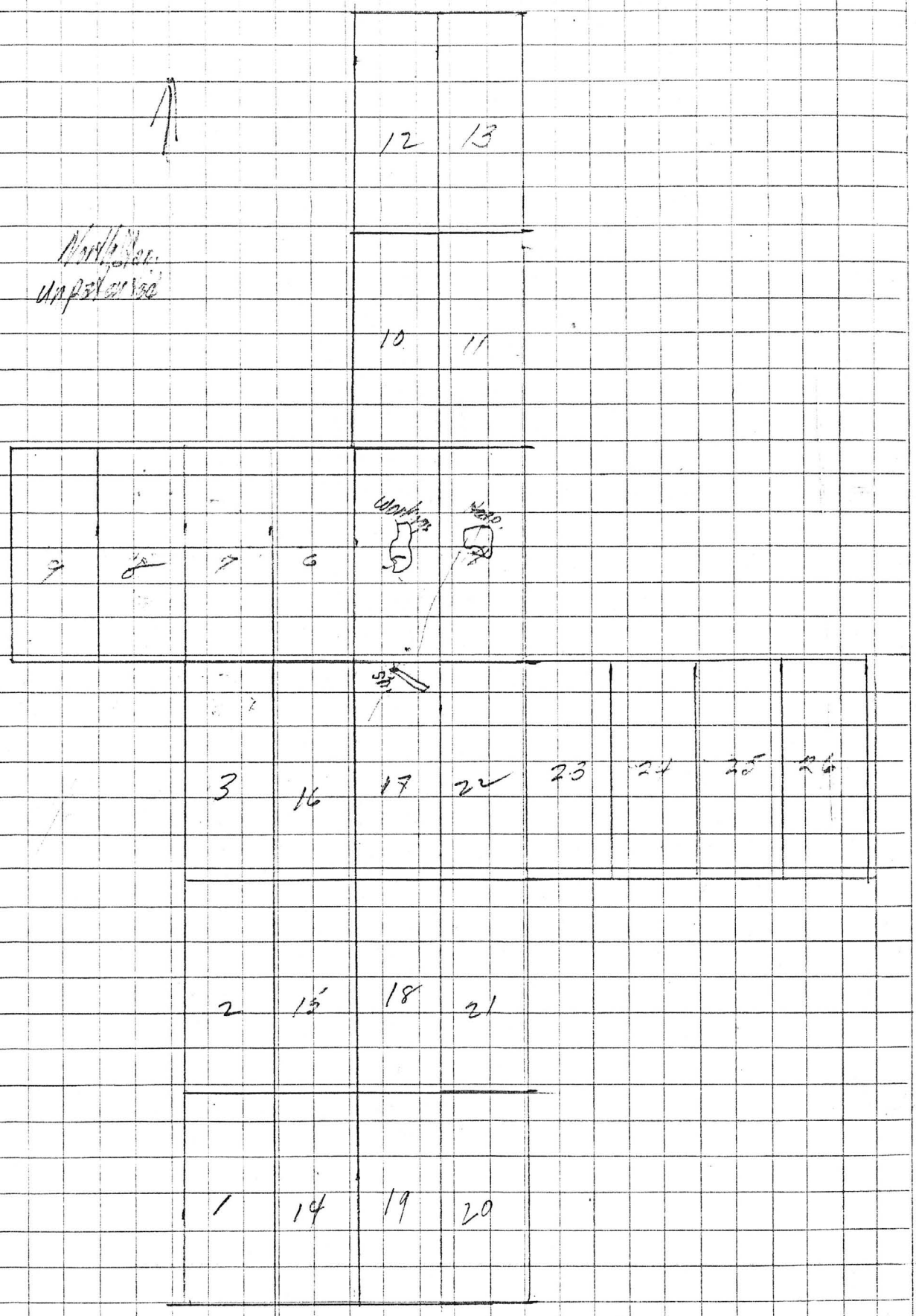
Northern Star

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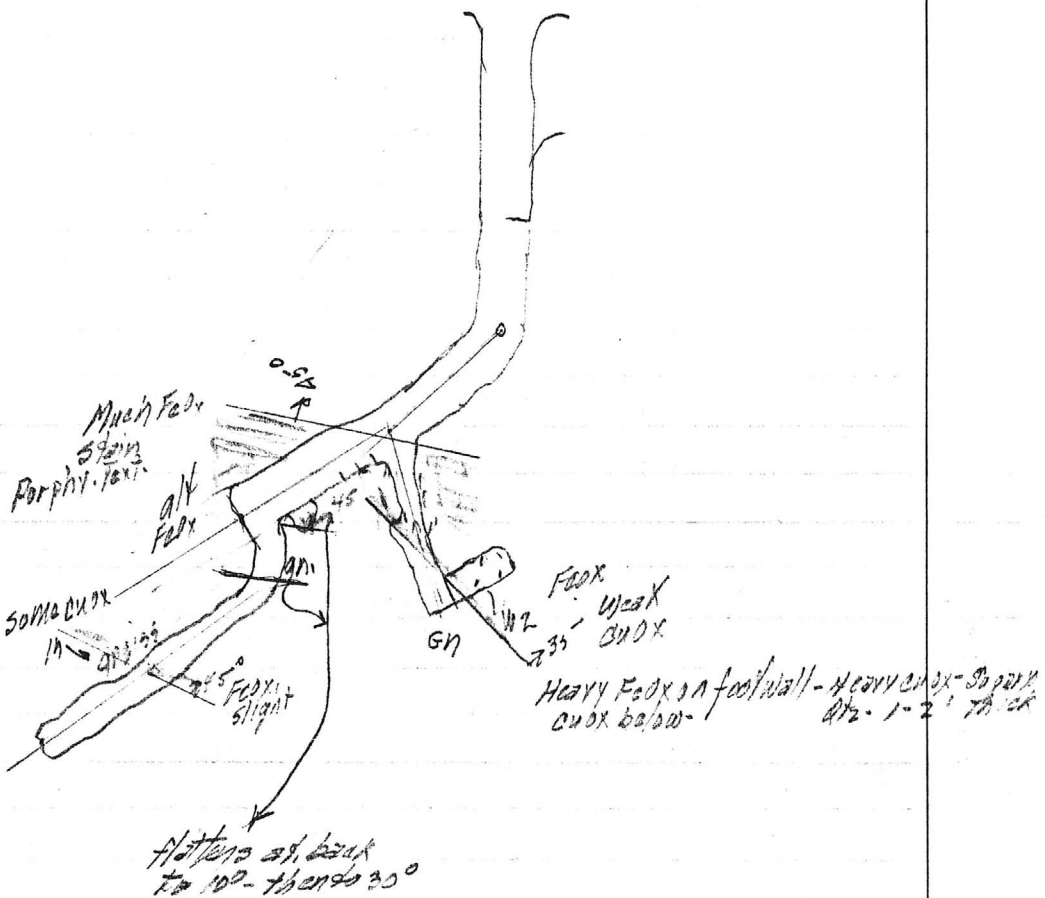
1" = 40'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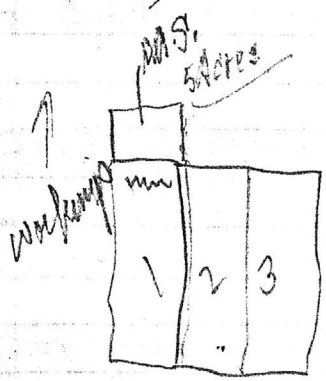
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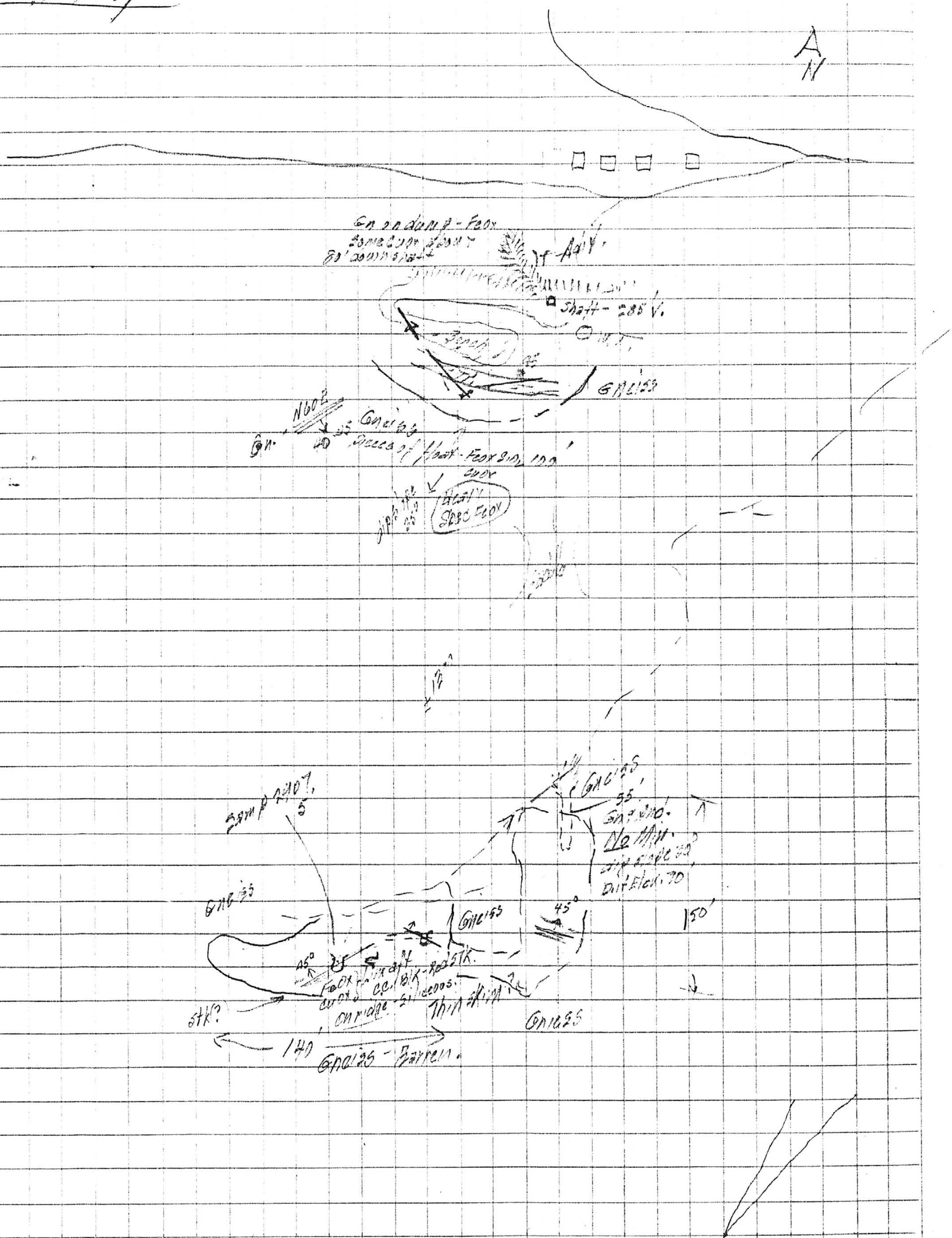
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DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Northern Star Group Date October 15, 1964

District Santa Maria District, Yuma Co. Engineer Lewis A. Smith

Subject: Mine visit with Lelon Noblitt, Box 1601, Parker, owner.

Access: 28 miles of graded road (Parker to Swansea).

3

Property: 41 claims (unpatented) Doc. 146, p. 439)

Location: Sec. 34, T. 10 N., R. 16 W., 3 miles W. of Swansea

Owner: Lelon Noblitt, Box 1601, Parker

Minerals: Copper and iron.

Work: The principal work is on the N.S. No. 1 where a 90 foot inclined shaft was sunk on the contact between "greenstone" and "porphyry." This is reported to average about 3 percent in copper (by Noblitt). 600 feet northwest and along the same contact is an open cut 30-40 feet long, 8 feet or more wide and 12 feet deep at the face. This starts in highly chloratized limestone (greenstone on map) and continues in the "porphyry." A 215 foot inclined diamond drill hole was sunk recently but failed to contact ore, since it is south of the main mineralized fracture that trends N 45° W. and is nearly vertical. There are several location pits that are 4 x 6 x 10 feet. An access road extends from the shaft area southeastward one and one-half miles, to the Swansea-Parker road.

Geology: The claims are largely covered by limestone, a portion of which is strongly silicified so as to make it appear to be gneiss or porphyry. A triangular area on both sides of the line between claims 1 and 9, is intensely chloritized. This was called "greenstone," but the presence of fossil limestone bedding in places indicates that the rock may have originally been limestone. Where transverse fractures cross this triangle and a strong shear zone, the best copper values appear to be present. The limestone area is crossed by several such transverse fractures that caused a considerable variance in dip in the resultant blocks. For instance on N.S. Nos. 42 and 11, three such faults cut the oblong limestone area into three segments each of which now form three buttes. The south block dips 65 degrees, the middle block dips 55 degrees and the north block 45 degrees, all to the SE. This oblong unit is surrounded by an intensely silicified rock called a "porphyry" by one observer, that shows some evidence of limestone "ghost" structure. This is stained brick red and canary yellow by limonite on the fracture planes, and in a very thin halo around the rock fragments. Within the fragments (less than 1/8" of halo) fresh pyrite is prevalent in small disseminated grains. Some pyrite grains locally, showed a typical dark yellowish cast that could indicate some included chalcopyrite, but many did not show this. This material should be assayed for gold. The strong surface iron staining lies in a belt 50 to 150 feet wide, and at least 2000 feet long and largely lies NW of the three buttes of limestone. The wider portions consist of tongues of oxidation extending out along the three transverse fractures that cut the limestone into the three buttes. No limestone croppings were seen south of buttes as the valley fill becomes much thicker here. SE of the three buttes, and forming a much wider belt along the SE border of the claims the limestone is considerably thicker. This covers portions of N.S. No. 44, 45, 13, 14, 8-10 and 17 & 18. A portion of this branches northwestward along a crescent shaped border and then turns northeastward in a finger-like body 3000 feet long and up to 300 feet wide. The main belt on N.S. 2, 7-10 in places is more than 900 feet wide. In

Northern Star Group (continued)

claims 7 and 8 (southwest halves) a tongue of "porphyry" 600-800 feet wide projects northeastwardly into the main limestone belt. In N.S. 1, 16-17 another tongue of "porphyry" and "greenstone," in about equal distribution separates the finger (northwest) from the main limestone belt. The "greenstone" occupies the SE half of the tongue and the "porphyry" the northwest half. The "greenstone" appears to butt against "porphyry" on the northeast under gravels. Farther east an ovate limestone remnant crops out. The contact between the "greenstone" and "porphyry" appears to be well sheared and the shears are mineralized. The so-called "porphyry" excluding the iron stained and highly silicified belt northwest of the buttes, is a banded rock that resembles a gneiss, but which shows a ghost bedding that could be due to alteration of a thin bedded limestone. According to Rogers the cut at his claims in this material, shows some bands of limestone that are not converted. Some observers called this rock a "gneiss," but some local owners think it is altered limestone.

The brief visit (4hours) gave the impression that the better copper mineralization is largely in N.S. No. 1 where the shear is crossed by transverse fractures that are closer together than elsewhere in the claims. The most prominent copper mineral seems to be malachite, with some cuprite. Generally in the Swansea area the mineral deposits are replacements of limestone in or adjacent to shears or faults particularly where they intersect. The limestone usually is severely altered in the mineralized zones by chloritization and silicification. The same general mineralization pattern appears to continue at least as far as the Swansea and W as far as Mineral Hills.

A

RECONNAISSANCE REPORT

of the

GEOLOGY, MINERALIZATION

and

EXPLORATION POSSIBILITIES

on the

NORTHERN STAR PROPERTY

Yuma County, Arizona

by

R. E. Mieritz
Mining Consultant
Phoenix, Arizona

February 22, 1969

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NORTHERN STAR CLAIMS
Yuma County, Arizona

INTRODUCTION

At the request of Mr. Sherwood B. Owens, Tucson, Arizona, the writer examined the Northern Star group of unpatented mining claims located in Sec. 34, T. 10 N., R. 16 W., of the Gila and Salt River Base and Meridian in Yuma County, Ariz.

The purpose of the examination was to evaluate the present merit of the property and determine whether geologic possibilities might exist in sufficient degree to explore and develop the copper occurances to adequate volume and to carry forward into an operation of a size or capacity suited to a developed reserve.

CONCLUSIONS

The brief examination afforded the writer sufficient information to conclude the following:

(1) That copper oxide mineralization does exist on the property and is associated with a strong persistant structure,
(2) One of several occurances is presently quite limitedly explored surface-wise by three open pits from which good oxide copper bearing material has been mined,
(3) The strong long strike length structure provides a good target for exploration on surface and by drilling,
(4) It is thought that an initial exploration and development program could indicate upwards of a half million tons of mineralized material containing 1.0% plus copper content,
(5) Adequate geologic mapping and study must be done and would indicate other mineralization within the claims which should be explored, and,
(6) Open pit mining can be considered in any operation plan.

PROPERTY, LOCATION and ACCESSIBILITY

The Northern Star copper lode claims number 26, all are unpatented and all are apparently in good legal standing although they have not been surveyed, but are contiguous as a group. (See Claim Map)

These claims are located in Sec. 34, T. 10 N., R. 16 W., G. & S. R. B. & M. in Yuma County, Arizona, about 5 miles south of Bill Williams River, southeast of Buckskin Mtns and about 27 miles by road east of Parker, Arizona, a small town on the Colorado River and Southern Pacific Railroad.

Access to the property from Parker is over a Yuma County graveled road leading northeast from Parker on the southeast side of the cotton gin located on the main street of Parker. This road leads to Alamo Crossing (Bill Williams River) and on up to Yucca and Kingman or south to Wendem, Arizona. At times, this road to Alamo Crossing (eastward from the property) is not passable due to rain washouts.

The property turnoff is 27 miles from Parker over this Yuma County road. The western end of the Northern Star claims parallels and borders this road. Unless rains cause some washout of the mine road, the trip can be made by auto, otherwise a pickup is recommended.

Ranchers Metals, a 900 ton crude ore perday copper leaching operation, about 7 miles northwest of the Northern Star property, utilizes about 12 miles of the Parker-Alamo Crossing road to truck their acid, scrap iron, aluminum and precipitate.

FACILITIES

No electric power is available on the property, however, a high transmission line is approximately six miles distant to the west. No water is developed on the property although it is thought that well water could be developed about ½ to 3/4 of a mile to the east of the present workings.

A 3 inch natural gas line which services Parker, crosses the property. Except at road crossings, it lies on the surface and is a "branch" from the large "main" between Aguila and Kingman.

HISTORY and DEVELOPMENT

There is some evidence of old workings, in particular an inclined shaft which was sunk on a strong wall containing iron oxide. This work was probably done in search of gold. It is the same hanging wall of the copper oxide zone which is developed on the surface by pits and is some 800 feet distant along the strike. (See Geologic Sketch Map)

The most recent developments are the three surface pits from which approximately 4,000 tons of an excellent grade of ore has been mined and "heaped". (See Photo)

This property was under lease to a "partnership" not too long ago but it came to an abrupt end when the two partners were killed in an airplane accident. During their being however, the operators mined and "heaped" an estimated 4,000 tons and accomplished some production -- it is said about 14 tons of precipitate were produced. The "heap" (see photo) is still very much "alive" with "gree color", as well as some brown to red iron oxide which may also carry copper which is not discernible to the eye.

REGIONAL GEOLOGY

The regional rocks, 5 to 10 miles of the property, include sediments as limestone, shales and sandstones and igneous rocks as lavas, precambrian gneiss, schist, andesite dikes and granite. (See Location & Geology Map).

LOCAL GEOLOGY and MINERALIZATION

The claims have within their areas the same above mentioned rock types but no attempt was made to map them except in the immediate area of the one copper oxide occurance no partly developed by a limited amount of workings. (see Geological Sketch Map).

Of the several copper oxide occurances within the property, only one was mapped by the writer so as to provide some information as to the mode and type of mineralization present and to serve as a guide when future complete geological mapping is commenced.

Copper oxide mineralization occurs in a zone which has an apparent, surface-wise, continuous N. 10° E. strike length of at least 1200 feet and possibly more with an apparent dip of about 35° to the east. Its hanging wall is defined at only two points about 900 feet apart, (in the most northern pit and in the inclined shaft to the south). This hanging wall is recognized by a heavy, 2 to 6 inch thick red-brown iron oxide seam. Heavy concentrations of copper oxide minerals occur below the hanging wall. Dispersed copper oxide mineralization as blobs, veinlets, fracture fillings and disseminations continue away from the hanging wall for about 70 feet on the surface (about 50 feet normal to dip) where visible. The footwall of this zone has not been clearly defined nor really exposed. It is thought that the footwall may well be irregular, perhaps of an assay definition.

Copper minerals within the zone include malachite with minor amounts azurite, chrysocolla and perhaps tennorite and some cuprite. The host rock for the most part appears to be of igneous orign with some clay seams and an altered gneiss which apparently underlies the strong mineralized zone as shown on the included Geologic Sketch Map. Andesite dikes, unmineralized, are exposed in close proximity with the mineralized zone and no doubt are related to the sone of mineralization.

Grade-wise, the writer would estimate the zone to average about 1.0% copper. No pit wall or pit bottom were sufficiently clean for the writer to attempt sampling at this stage. Large bulk sampes would be required.

EXPLORATION POSSIBILITIES

The mode and type of copper mineralization exhibited in the

strong structural zone examined geologically suggests the possibility of down dip continuance of the copper mineralization, oxides and perhaps sulphides at some depth. (See Photo of Pit showing the blue and green color of the oxide minerals.)

The structure and copper mineralization are also present in the -35° incline located some 900 feet from the site of the most eastern present working. This is the only down dip penetration of the structure which has any depth.

With such evidence exhibited, a program of closely spaced vertical drill holes utilizing a "cheap cost" per foot drilling unit (rotary or percussion) is justified and a definite requirement towards determining a reserve and the grade of such reserve.

The visualized exploratory program includes a line of holes paralleling the strike of the zone and about fifty feet east of the hanging wall of the zone. Such holes should be drilled to a depth of 100 to 125 feet. A paralleling line of holes should also be drilled approximately 100 feet east of the assumed hanging wall of the zone. Such holes should reach a depth of 175 to 200 feet. A fifty foot spacing along the strike should be maintained and if the mineralization is too great in variance, the spacing should be reduced to 25 feet--where needed or required.

Such a proposed drilling program would approach an expenditure of $35,000.00 or more and could indicate 500,000 tons of material of economical grade. This is but a cost of 7¢ per ton indicated. This total expenditure includes drilling cost, sampling, assaying, supervision and sundry expenses.

Indications are that a 1% copper or better grade for the indicated zone is a very strong possibility.

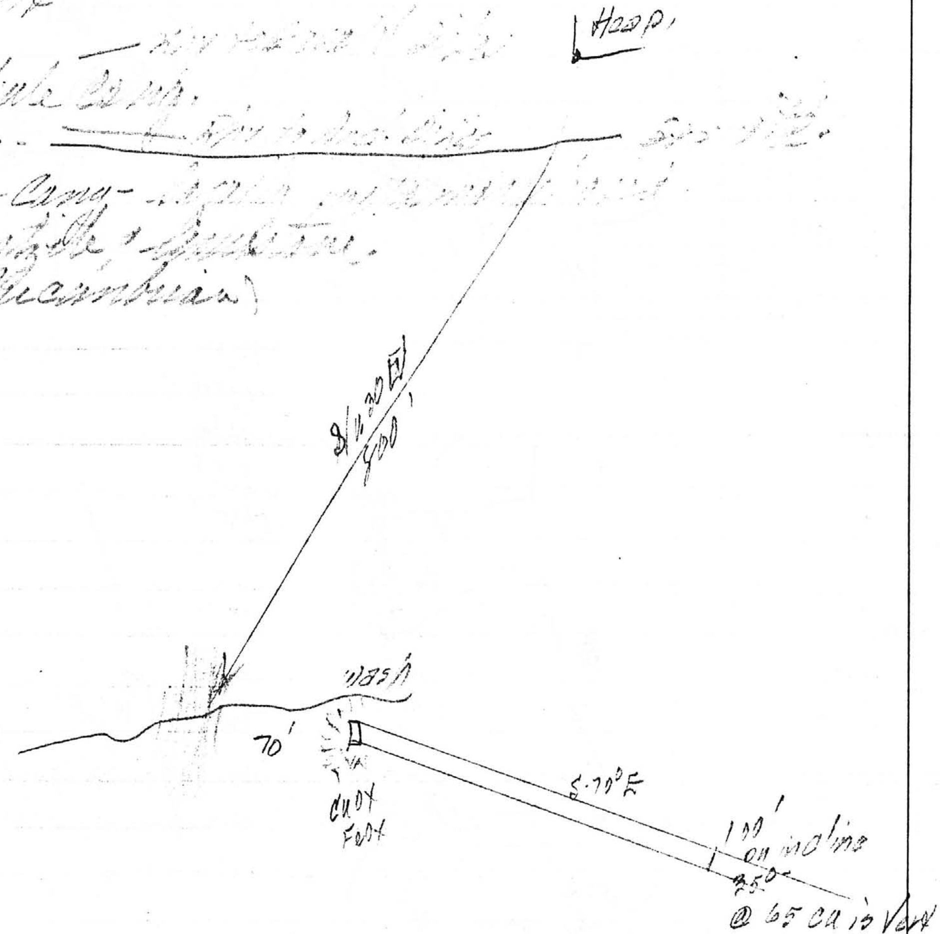
Detailed geologic surface mapping of the area is also most desireous and can be carried forward simultaneous with the drilling program.

Respectfully submitted,

R. E. Mieritz,
Mining Consultant,
Phoenix, Arizona.

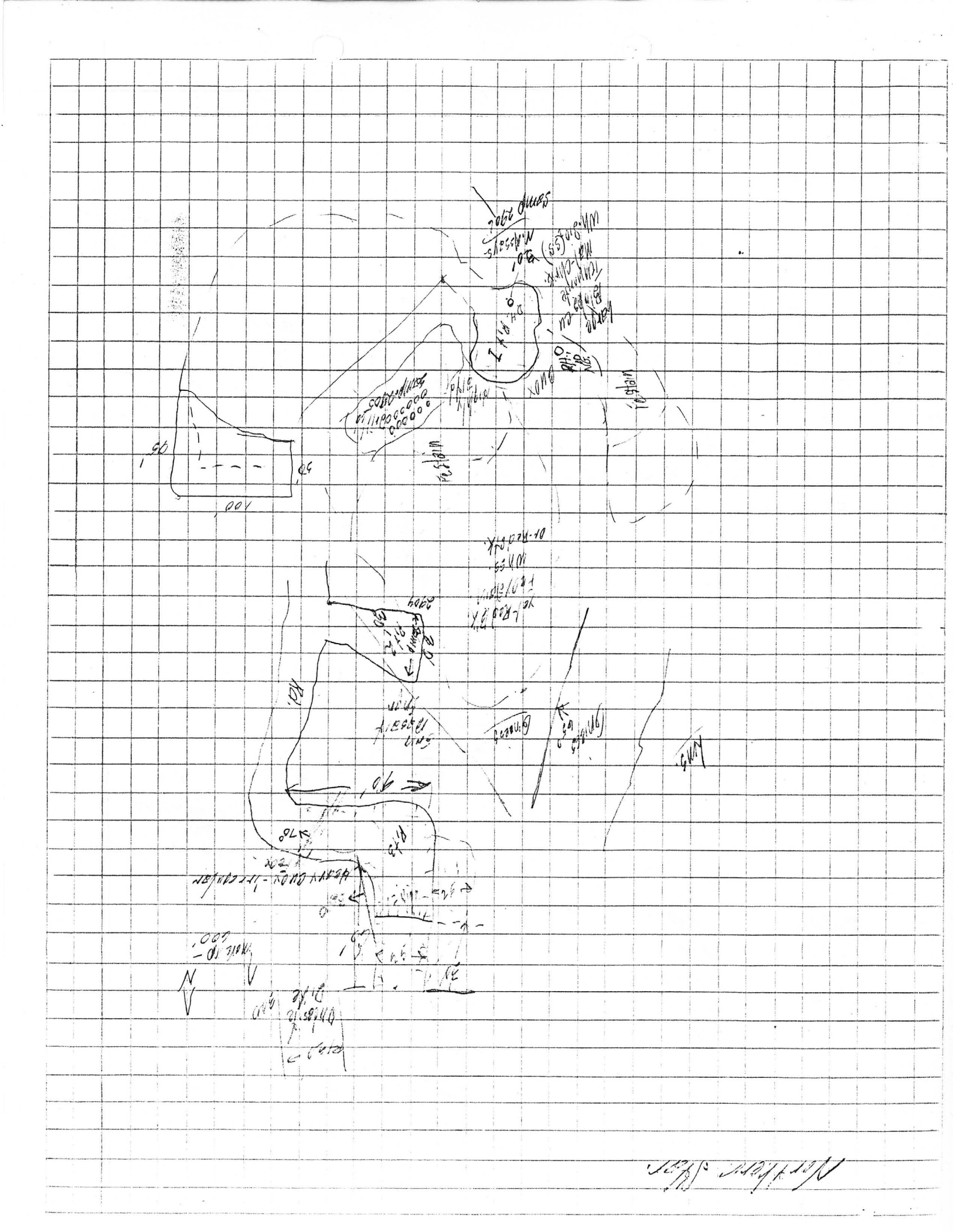
February 22, 1969

Qg - Gravel, sand, silt
QTs -
Qb - Basalt
QTb -
Tss - S.S. Shale Cong.
Mgr - Granite
Ms - S.S., Shale-Cong-
PMu - Shale, Quartzite + Limestone.
Sch - Schist (Precambrian)
Gn - Gneiss



2904 -	.19
05	.07
06	.11
7	.46
8	.39

Claim Map.




N.S. 6
N.S. 5
29
N.S. 11
N.S. 3
N.S. 4
N.S. 15
28
TO PARKER
41
42
NATURAL GAS PIPELINE
N.S. 12
N.S. 2
N.S. 1
N.S. 16
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43
N.S. 13
N.S. 7
N.S. 9
N.S. 17
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N.S. 14
N.S. 8
N.S. 10
N.S. 18
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TO SWANSEA
LOCATIONS 33 — 37 Inclusive NOT SURVEYED
N.S. CLAIMS No. 19 — 26 Inclusive NOT SURVEYED
SCALE 1" = 400'
LEGEND
Limestone
Porphyry
Greenstone
N.S. Northern Star
CLAIM MAP — NOBLITT PROSPECT — ARIZONA