Owner
Ferley Jewelers & Gifts
PIERRE, S. DAK.
Branch Store
PHILIP, S. DAK.

Lester J. Ferley

Box 253 Phone CApital 4-2467
PIERRE, S. DAK.

OIL, MINING, REAL ESTATE
Director
Pierre National Bank

From: L & R MIning Co.

OME
~~DEPARTMENT OF THE INTERIOR~~
FEB 1 1962
REGION III
DENVER, COLORADO

To: Mr. Hugh Connors
Office of Minerals Exploration
Denver, Colo.

Subject: O)ME- 6120 Date: 1-31-62

FOLD

DEar Sir:

In reply to your letter of the 9th.

I wrote mr. Clifford and explained what you stated in your letter, I then called him And he said something was "haywire" as the Buster #3 extended much farther south then the map you sent indicated. ON monday of this week Laramie and I drove over to Custer look into the matter. we found that Mr. Gantz was in South America, we then looked up the original Lode location notice, a copy of which I am enclosing, you will notice that the claim is 935.8 feet long the notice states that it runs 635.8 feet north of discovery shaft, WHICH IS THE OLD ORIGINAL SHAFT, our shaft had not been started then, so, it runs 300 feet south of the old shaft. which is all the ground we need. I took Clifford and Stiles, who staked the claim, with me and we located the south west stake(# 7) just about 6 feet from the south gov. drilled core hole. Mr. Gantz sure done some guessing when he put the clifford shaft where he did. we will not be even close to the B.S.G. Lode in our exploration.

Yes, the surface rights are on patented ground but the minerals do not

Please ~~Reply Below~~ Date:

FOLD

apply, this was resolved in the Billings land office, I think in 1956. That is the reason we sunk the shaft farthernorth then we would have liked, and worked south.

I am sorry it took so long to do this, with inventory reports etc. January was rather busy.

I would appreciate it if you would send back the two maps that I am returning to you. Thank you.

Sincerely

Lester Ferley

Lester FErley

SENDER: Keep pink copy, send white and blue. | RECIPIENT: Return blue copy with reply.

Building 20 - Federal Center
Denver 25, Colorado

January 9, 1962

Mr. Lester J. Perley
P. O. Box 253
Pierre, South Dakota

Re: OME-6121 (Mica-Beryl)
Perley and Laramie dba L & R Mining Co.
Buster No. 3 claim, Custer County, South Dakota

Dear Mr. Perley:

Mr. Gardner Gantz has supplied us with a map of the Buster No. 3 and adjoining claims on which he has indicated the approximate location of the Clifford shaft. (A copy of his map is enclosed for your information.) We assume that the "Clifford" shaft is the new 60-foot vertical shaft recently examined by our Mr. Bolmer.

From the claim map, it appears that the new shaft is only 100 feet, more or less, north of the end line of the Buster claim. As shown on the attached sketch of the Buster Dike deposit, this end line nearly coincides with the final sections of the 60-foot level from the shaft. Any additional exploration of the deposit in a southerly direction (toward the old workings) thus will fall outside the Buster claim. As you probably know, we cannot recommend exploration on property not subordinated to the Government.

Any exploration of the deposit in a northerly direction from the existing 60-foot level will fall within a portion of the Buster claim overlapped by the B.S.G. lodes. We do not know the priority rights of the latter with respect to the Buster claim. The status of the M.E.S. 256 and other apparently patented property, which overlaps the south end of the Buster claim and the north end of the B.S.G. lodes, also needs clarification.

Even though the above property conflicts are resolved, it is evident that some additional ground south of the Buster claim (north portion of B.S.G. lodes) will have to be subordinated to the Government before an exploration program can be justified.

Yours very truly,

Original signed by

Hugh M. Connors
Acting Field Officer, OME, Region III

RB/ lm
Attachments (2) Claim map with Gantz's letter
Sketch map of Buster Dike Pegmatite

RB/lm
cc Chief, Division of Field Operations, OME
OME-6121
Chron
Bolmer

GARDNER GANTZ
Professional Engineer and Land Surveyor
U. S. MINERAL SURVEYOR
Consulting Mining Engineer

CUSTER, S. D.
20 North 6th St.
Phone 174

RAPID CITY, S. D.
107 Signal Drive
Phone FL-3-6733

Box 892
Custer, S. D.
December 30, 1961

Mr. Hugh M. Conners
Acting Field Officer OME
Bldg. 20- Federal Center
Denver, Colorado

At the request of Walt Clifford, owner of the Buster Claim, I am sending an old working map of the Buster and BSG Claims. I have sketched in the approximat location of the Clifford shaft.

I might add that the USGS drilled two holes showing excellent mica and a log and map of the holes may be obtained from the USGS in Denver.

Owner of the BSG group is Ben S. Gantz, Capt. USN retired whose address is 2347 South Arlington Ridge Road, Arlington, Virginia. Walt Clifford has been taking care of the assessment work.

Yours truly,

Gardner Gantz

UNITED STATES
DEPARTMENT OF THE INTERIOR
STEWART L. UDALL, SECRETARY

OFFICE OF MINERALS EXPLORATION
REGION III

DOCKET No. OME-6121

LESTER FERLEY and RUSSELL LARAMIE
dba L & R MINING CO.

Buster Dike Pegmatite

CUSTER COUNTY, SOUTH DAKOTA

(Mica-Beryl)

Examination Report

By

R. L. Bolmer, Mining Engineer, Bureau of Mines

December 1961

OME-6121
LESTER FERLEY and RUSSELL LARAMIE
dba L & R Mining Co.
Buster Dike Pegmatite
Custer County, South Dakota

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OME-6121

LESTER FERLEY AND RUSSELL LARAMIE
DBA L & R MINING Co.
BUSTER DIKE PEGMATITE
CUSTER COUNTY, SOUTH DAKOTA

INTRODUCTION

Lester Ferley and Russell Laramie -- a partnership doing business as the L & R Mining Co. of Pierre, South Dakota -- made application for financial assistance to explore the leased Buster No. 3 claim (Buster Dike pegmatite) in Custer County, South Dakota for mica and beryl. Their application, dated April 6, 1961, was assigned Docket No. OME-6121. Although exploration of the deposit by core drilling, shaft sinking, and drifting was proposed in the application, neither the extent of such work nor the estimated cost thereof was clearly defined.

A field examination of the property was made November 14, 1961, in the company of both applicants and one of the property owners. It was concluded from this examination and from other criteria that certain exploration of the deposit was warranted. A modified exploration project involving 225 feet of drifting and/or crosscutting and costing an estimated $8,100.00 (Government participation $4,050.00) is recommended.

LOCATION AND PHYSICAL FEATURES

The Buster No. 3 claim is in the SW$\frac{1}{4}$ NW$\frac{1}{4}$ sec. 2, T.4S., R.4E., Black Hills meridian, Custer County, South Dakota. This location falls in a rolling, partly wooded, ranching area at an altitude of about 5,500 feet in the Black Hills National Forest. Winters in the area are cold with moderate snowfall, but mining operations generally

are conducted the year around. The terrain in the immediate vicinity of the deposit is relatively flat, precluding all but shaft sinking for underground mine development.

There are no improvements remaining on the claim other than the access road and the mining facilities recently provided by the applicants. The latter includes a steel headframe, a gasoline-powered hoist, and waste disposal facilities at the collar of the new shaft and a frame compressor building about 50 feet east of this shaft.

The town of Custer, South Dakota (pop. 2,500), the county seat and nearest commercial center, is 2.7 miles northeast of the property. It is readily accessible over 1.2 miles of dirt ranch road and 1.5 miles of U. S. Highway 85A. The latter is an oiled all-weather road. Custer is a shipping point on the C.B.&Q.R.R. and is the site of both the Government mica-beryl purchasing depot and the custom feldspar mill of International Minerals and Chemical Corp.

HISTORY AND PRODUCTION

The history and production of the Buster Dike Pegmatite are described by J. J. Norton in Geological Survey Professional Paper 247[1/]. Pertinent parts of this description are quoted below.

> History - "The Buster Dike property was first prospected many years ago, but no early production has been recorded. S. T. Gamber of Custer relocated the claims in 1939 and worked the two principal open-pits for potash feldspar. Early in 1942 the top of a rich mica zone was discovered at a depth of about 20 feet in the pit nearest the present shaft house. Gamber continued to work the pegmatite

1/ Page, L. R. and others, Pegmatite Investigations 1942-45 Black Hills, South Dakota: Geol. Survey Prof. Paper 247, 1955, pp. 86-89

until May 1942, when the property was purchased by the Black Hills Mining Company. The Black Hills Mining Company operated the mine from an inclined shaft and adjacent stopes. Near the close of their operations in 1944, the shaft and levels were backfilled. The large production of mica for which the mine is noted was made during the period of operations by this company."

The Government war-time agency, Metals Reserve Company, through its subsidiary Colonial Mica Corporation, started purchasing strategic mica at subsidy prices in December 1942. Apparently all mining operations stopped and the property was abandoned when this program terminated early in 1945. Walter Clifford and Charles Stiles, the present owners, subsequently relocated the deposit as abandoned mining ground. Their amended location, the Buster No. 3 claim, was recently leased to the Applicants for exploration assistance. During 1960-61 the Applicants reopened the deposit by sinking a new 60-foot vertical shaft and by drifting about 140 feet from the shaft bottom.

The deposit was examined in 1942 and then re-examined and mapped in detail in 1943-44 by the Geological Survey. Three core-drill holes aggregating 546 feet were drilled on the property by the Bureau of Mines in 1947[2/]. The deposit was restudied and remapped by the Geological Survey in conjunction with this drilling project.

Production - "The Buster Dike mica mine, Custer County was one of principal producers of sheet mica from May 1942 to 1944 . . . . . (It) produced mica from a very rich concentration along the hanging wall of the south end of the pegmatite. A total of 602 tons of crude mica was produced from May 1942 through December 1943. Production figures on processed mica previous to the first sale to the Colonial Mica Corporation on December 15, 1942, are not available, but from that date

2/ Needham, A. B., Investigation of Mica Deposits at the White Bear, Silver Dollar, Buster Dike, and Hot Shot Mines, Custer County, South Dakota: Bureau of Mines Report of Investigations 4693, June 1950, pp. 26-36.

to the end of 1943 the Buster mine produced 17,446 lb. of large sheet mica ($1\frac{1}{2}$ by 2 in. and larger, three quarter trim), 2,275 lb. of small sheet (1 by 1 in. and $1\frac{1}{4}$ by $1\frac{1}{4}$ in., full trim), and 97,197 lb. of untrimmed punch from a total of about 384 tons of mine run mica . . . . . The Buster Dike mine produced a whitish or very pale ruby mica generally of good quality except for a heavy air-stain . . . . . Herringbone structure is developed in much of the mica, and causes a low recovery of sheet from crude mica. Books of mica as much as 4 ft. in diameter reportedly have been recovered and books 8 to 12 inc. are abundant. It is estimated that between July 1, 1942 . . . . . and the end of December 1943, about 5,700 tons of pegmatite was mined, and from this amount a total of 558 tons of crude mica, or 9.8 percent, was recovered."

"At least 10 tons of beryl was produced from the Buster Dike from 1939 to 1942, but only a few hundred pounds between July 1942 and 1943. A few tons of beryl was recovered from later work near the surface. Nearly all of the beryl occurs near the surface in or near the perthite-rich pegmatite, where crystals 1 foot or more across are not uncommon."

"Considerable quantities of perthite feldspar were mined in the two principal open-pits on the Buster Dike property prior to the discovery of mica shoot. The perthite is white, and commonly in crystals several feet long."

OWNERSHIP AND EXTENT

The Applicant's property rights consist of a mining lease on the unpatented Buster No. 3 lode mining claim. An Amended Location Certificate for this claim is recorded under the names of Walter Clifford and Charles Stiles in Book 19, page 442, of the Registrar of Deeds, Custer County South Dakota. Figure 1 shows the boundaries of the amended claim location with respect to the Public Land Survey and the outcrop of the Buster Dike pegmatite. The recorded owners have leased the property to the L & R Mining Company, the Applicant under Docket No. OME-6121. A copy of the mining lease is not available and the terms thereunder are unknown. Apparently a

copy of the lease along with the Owner's Consent to Lien and Subordination Agreement were included with the original application and forwarded to Washington.

DESCRIPTION OF THE DEPOSIT

Inasmuch as the geology is described in Professional Paper 247 and as a subsequent geological map based on the diamond drilling program is available, only the more pertinent features of the deposit will be repeated here. In brief, the Buster Dike deposit is a zoned pegmatite body intruding Precambrian schist. At the surface, the deposit is about 200 feet long and 40 to 60 feet wide. Its long axis trends roughly north-south, and both ends are rounded. The pegmatite-schist contact locally is irregular but in general dips steeply west to southwest on all sides. The body as a whole has a general plunge to the southwest. Apparently both the side and end walls of the dike converge with depth, reducing the horizontal section of the body on the 100-foot level to a length of about 170 feet and a width of 10 to 20 feet.

Below a depth of 20 to 30 feet from the surface, the pegmatite dike can be separated into two mineralogical zones--a central core of albite-quartz pegmatite and a wall zone of albite-quartz-muscovite pegmatite. The previous mica production was obtained from a rich muscovite shoot within the latter zone near the south end of the dike. This mica shoot was localized between the south end of the dike and the limits of a prominent anticlinal roll in the hanging wall. It averaged about 10 feet in width and tapered from 80 to 40 feet in length over a mining depth of 180 feet below the surface. The

muscovite-rich wall zone apparently is more or less continuous around the remainder of the dike, averaging about 5 feet in width on the hanging wall side and somewhat less on the footwall. Any additional local concentrations or shoots of mica that may exist in the Buster Dike pegmatite probably will be found along this wall zone.

PRESENT STATUS OF THE PROPERTY

Exploration and development

The old mine workings at the south end of the dike are no longer accessible. Apparently the former operators stripped both the shaft and level pillars in anticipation of the closing of the mica purchase program and backfilled the workings with the waste material. However, the extent of these workings, as mapped by the Geological Survey in 1943-44, is shown on Plate 9, Professional Paper 247.

Data concerning the Bureau of Mines drilling program at the property, including the locations and the logs of the three holes, are given in Report of Investigation 4693.

The extent of the underground exploration and development recently completed by the Applicant at the north end of the dike is shown on figure 2. This work entailed sinking a vertical shaft to a depth of 60 feet below the surface then drifting and crosscutting for a distance of about 140 feet from the shaft bottom. The shaft was collared and sunk its full depth in the schist country rock. The initial sections of the 60-foot level also were driven in schist, apparently below the keel of the plunging pegmatite body. The final

20 feet of the level, however, crosscut the wall zone and penetrated the core of the main Buster Dike pegmatite. At this point, the wall zone is several feet wide and contains a few books of ruby mica up to 4 inches in diameter.

Operating Methods and Costs

The exploration headings recently completed on the 60-foot level of the shaft were driven to a 5-by 7-foot cross section, without timber support. A 20-hole, 4½- to 5-foot drift round was drilled with an airleg drill and mucked by hand into a small mine car which was then hand trammed to the shaft, hoisted to the surface, and dumped. The miner and his helper on the level generally could drill out, load and blast, and muck a standard drift round in an 8-hour shift. Usually drilling of the next round commenced before all the muck from the previous round had been removed. Mine rail, compressed-air pipe, ventilation line, and lighting cable were extended periodically as required. The overall advance on the level averaged about 4 feet per day worked. State law requires a minimum of two men at all times on the surface, and both a hoistman and a toplander were employed.

Actual costs of the work are unknown, but an estimate for a similar type operation is included under a subsequent section of this report. According to the application, the minimum wage rates necessary to attract competent mining labor in the Custer area are as follows:

Classification	Wage rate (per hr.)	Wage rate (per day)
Underground -		
Lead miner	$ 2.50	$ 20.00
Miner's helper or mucker	2.25	18.00
Surface -		
Hoistman - compressorman	2.00	16.00
Toplander	2.00	16.00

Mining equipment and other facilities

The 6-by 8-foot vertical shaft sunk by the Applicants is supported by two-compartment timber shaft sets on 6-foot centers. The smaller 3-by 6-foot compartment serves as a manway and is equipped with ladders and landings, a 2-inch compressed-air line, an 8-inch ventilation line, and a 2-conductor electric-power cable for mine lighting. The electric power cable is badly deteriorated and needs replacement. The larger 5-by 6-foot compartment (4-by 5-foot inside the timbers) is provided with wooden guides for the car-hoisting cage. Twelve-pound rails on an 18-inch gage extend the full length of the 60-foot level. Compressed-air, ventilation, and power lines also are present along most of the level.

A 30-foot pyramid-type steel headframe stands at the shaft collar, and mine track extends from the collar to a nearby waste-disposal dump. A gasoline-powered single-drum mine hoist is mounted adjacent to the shaft. Other hoisting facilities include a sample cage for raising a mine car in the shaft, a sheave wheel, and a steel hoisting rope. All the equipment at the shaft collar appears in good operation condition and is suitable for the type of operation anticipated. The hoist is not enclosed in a building or otherwise protected from the weather. A heated, wooden-frame compressor house, however, is provided about 50 feet east of the shaft.

The Applicants apparently possess all of the other mining equipment needed for a small exploration project; but because the property has been idle for several months, such equipment had been removed to prevent theft and vandalism. The following items of the Applicants' capital

equipment are considered necessary for the proposed project and would be subject to the standard depreciation allowance. The estimated values shown are those supplied by the Applicants but, as a whole, appear valid.

Item	Estimated value
Hoisting equipment (headframe, hoist, cage, sheave wheel, hoisting rope, etc.)	$ 1,000
210 c.f.m. gasoline-powered air compressor	2,500
Airleg-mounted rock drill	895
2.5-Kw. gasoline-powered generator	800
Electric-powered centrifugal pump	250
Electric-powered centrifugal blower	250
Jeep truck (for hauling materials, supplies, etc.)	600
20-cu. ft. end-dump mine car	100
Total estimated value	$ 6,395

PROJECT PROPOSALS WITH COSTS

Although "considerable" core drilling was proposed in the application, details as to the location and the amount of such work were lacking. During the inspection, the Applicants indicated that they originally had intended to core drill a subparalled pegmatite dike that crops out on the hanging wall side south of the main Buster dike. The Applicants acknowledged that core drilling, particularly in such a location, was not too promising and were agreeable to eliminating all core drilling from their proposal. The remainder of the Applicants' proposal involved deepening the new shaft to a depth of 200 feet below the surface and exploring the main Buster dike on the

60-foot, 100-foot, and 200-foot levels.

Because of the southwesterly plunge of the dike and its apparent narrowing with depth, exploration at a depth of 200 feet is not considered feasible from the existing shaft nor is it considered warranted under present circumstances. Exploration of the wall zone of the dike is feasible from either the 60-foot or 100-foot level of the shaft but is warranted on only one level, not both. Exploration on the 100-foot level would be preferred because of the additional stoping height available should a mica shoot be encountered. However, such work would involve the extra time and cost of sinking the existing shaft an additional 40 feet and crosscutting to the receding keel of the dike. Testing the wall zone of the dike on the 60-foot level would be equally promising for exploration purposes and could be carried out quicker and at less cost. The time element is important inasmuch as the present Government mica purchasing program is scheduled to close June 30, 1962, and any reserves discovered as a result of project work probably could not be marketed after this date. A modified project involving exploration of the wall zone along both the foot and hanging walls of the Buster dike from the existing 60-foot level of the new shaft, therefore, is proposed.

The proposed project work, which is shown on figure 2, involves extending the existing 60-foot level of the new shaft an estimated 25 feet so as to crosscut the full width of the dike and then drifting 70 feet south and 35 feet north along the wall zone on the hanging wall of the dike and 50 feet south and 45 feet north along the wall zone on the

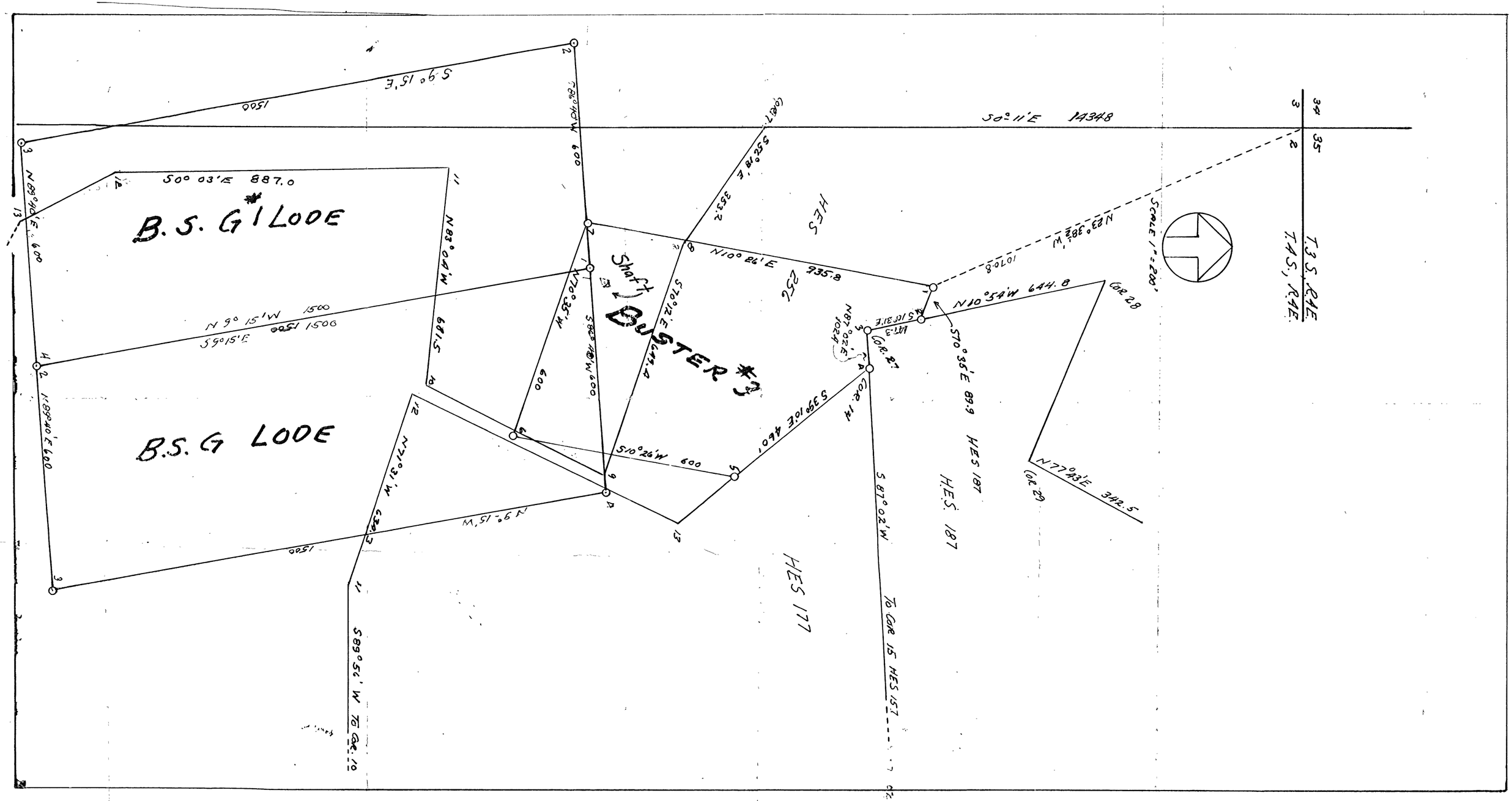
footwall of the dike. This proposed 225 feet of drifting and crosscutting should be completed within a period of $2\frac{1}{2}$ to 3 months. The estimated cost of such work is detailed below.

ESTIMATED COSTS OF PROJECT

Item of cost	Amount
Labor (240 man-shifts at $17.50)	$ 4,200
Equipment (depreciation of owned equipment)	320
Materials and Supplies:	
Explosives	900
Drill steel and bits	250
Mine track	200*
Pipe and fittings	100*
Ventilation pipe	200*
Gasoline	600
Small tools, other supplies	320
Miscellaneous	
Payroll taxes, liability insurance, etc.	420
Repairs to equipment	240
Bookkeeping	150
Hoisthouse construction -- labor	300
materials	300*
	$ 8,500
Gross cost of project	
less salvage value of unexpended material* at 50% of original cost	- 400
Net cost of project	$ 8,100
Recommended units of work	225 feet
Net unit cost	$ 36.00 per foot

CONCLUSIONS AND RECOMMENDATIONS

There is reason to believe that the Buster Dike pegmatite may yet contain significant reserves of strategic mica and therefore is deserving of additional exploration. It is recommended that the Government participate in the cost of the modified exploration project outlined in this report.


B.S. G 1 LODE
B.S. G LODE
Shaft Buster #3
HES
HES 187
HES 177
T.3 S. R.4E.
T.4 S., R.4E.
SCALE 1" = 200'
S 50° 11' E 14348
N 50° 03' E 887.0
N 89° 40' E 600
N 9° 15' W 1500
S 9° 15' E 1500
N 88° 04' W 600
S 88° 04' W 600
N 70° 35' W
S 70° 12' E 644.8
N 10° 54' W 644.8
S 70° 35' E 89.9
S 87° 02' W
To Cor 15 HES 157
S 39° 10' E 460'
S 10° 26' W 600
N 71° 31' W 1243
N 9° 15' W 1500
S 88° 52' W To Cor. 10
N 77° 43' E 342.5
N 23° 38½' W 1070.8
N 10° 92' E 935.8
S 25° 18' E 353.2
N 67° 00' E 1024'
Cor. 14
Cor. 29
Cor. 28

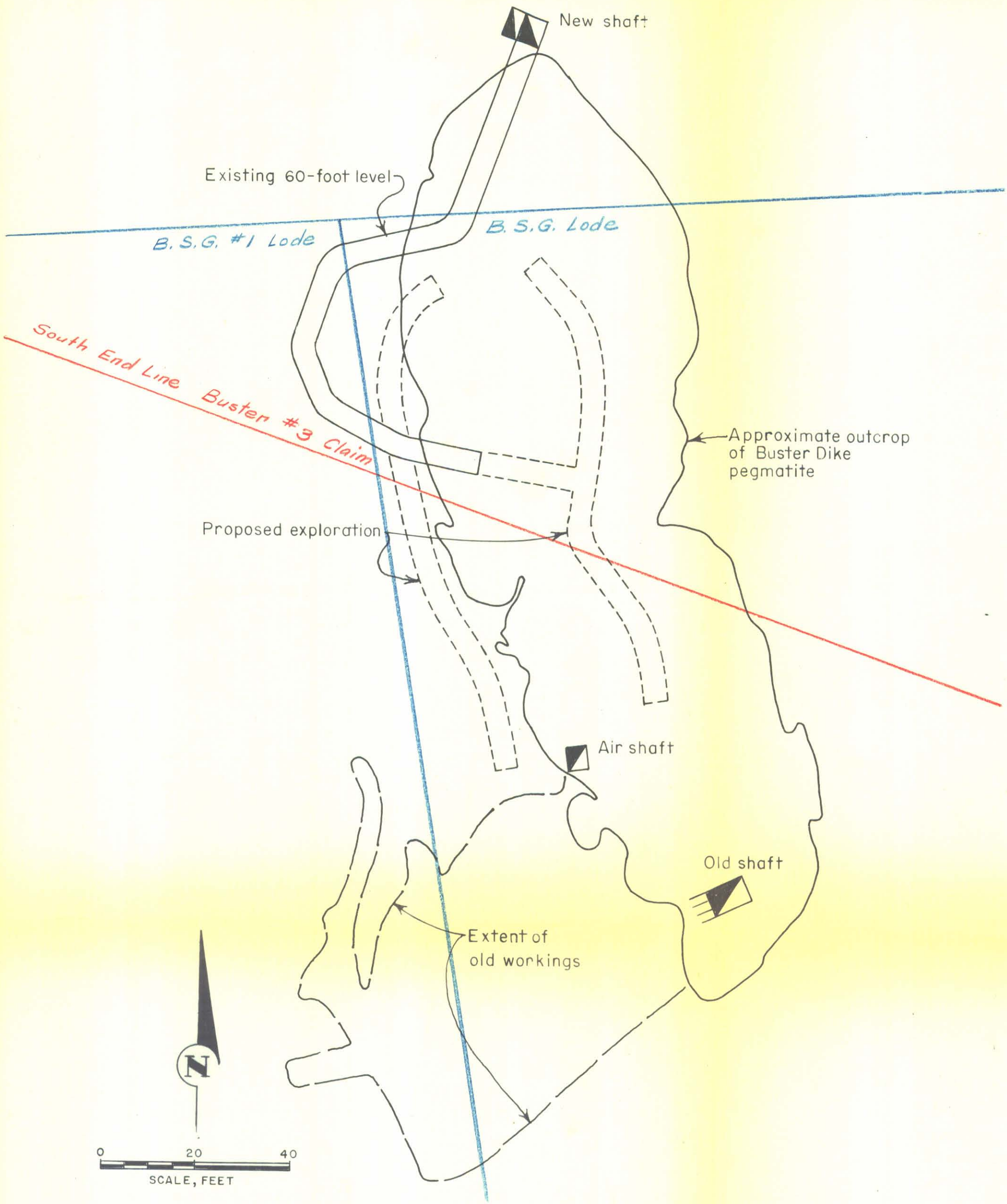


FIGURE 2.- MAP OF BUSTER DIKE PEGMATITE, CUSTER COUNTY, S. DAK., SHOWING PROPOSED EXPLORATION. OME-6121