September 8, 1954

Mr. Mark Bennett of Burnsville, North Carolina calling Mr. Houk

Re: Docket No. DMEA-3233 - Mica
Bennett & Westall
Cilly Mine
Yancey County, North Carolina

Mr. Bennett: I am calling about DMEA-3233 the Cilly Mine.

Mr. Houk: I have the docket here in front of me.

Mr. Bennett: What is the status of that?

Mr. Houk: On April 8, 1954, we denied your application for exploration assistance and you did not supply another application but you did send us a copy of the map. We reaffirmed the denial to Mr. Laurence. Hasnt he advised you?

Mr. Bennett: You sent it back to him. I have not heard from him.

Mr. Houk: No we denied the application last April then you supplied the maps to Mr. Laurence and he sent us in another recommendation and we re-denied that to Mr. Laurence although you did not get a formal denial letter.

Mr. Bennett: What are the chances now?

Mr. Houk: No good - that is an old mine that has been worked and worked. It is not encourging from an exploration standpoint. I am sorry we cannot give you more favorable consideration.

Mr. Bennett: They claim it is a good prospect and we did all the extra surveying down there to show a better picture.

Mr. Houk: The indications are that there was some mica at the bottom but the justifica- for spending that amount of money to go down was not encouraging enough for the Government to consider.

Mr. Bennett: If we put in another application would the Government consider it.

Mr. Houk: We have turned it down two times now. Why not get some new prospects instead of these old holes. Our idea is to increase our reserves and not spend money on these old holes that have been mined out.

Mr. Bennett: Ok them Mr. Houk, I will see you.

Mr. Houk: Goodbye.

DEFENSE MINERALS ADMINISTRATION

97023

PRODUCTION EXPANSION DIVISION

PROCUREMENT APPLICATIONS

Name of Company and Address _____

Name of Mine and Location _____

Docket No. DMA - _____ Date received by P.E.D. _____

Metals or Minerals involved _____

Length of Contract (preproduction plus production) _____

Amount of Metals or Minerals in tons, units or pounds _____

Floor price or Guaranteed price and whether or not escalated _____

Maximum Government Commitment _____

Comments on Contract: _____

_____

_____

_____

_____

_____

Date sent to Legal Division _____

Date of Recommendation to D.P.A. for Certification _____

Date Certification sent to G.S.A. by D.P.A. _____

Date signed into Contract by G.S.A. _____

Additional Remarks: _____

_____

_____

_____

_____

NOTE: If application is denied, or if it is recommended for change into exploration, etc., please state under additional remarks.

Signed _____

Interior—Duplicating Section, Washington, D. C.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON FIELD OFFICE
ROOM 25 CEB BLDG.
KNOXVILLE 2, TENN.

August 16, 1954

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region VII

Subject: Maps on DMEA-3233, Bennett & Westall Applicants - Cilly Mine.

Transmitted are six copies of the map for the subject mine. Through an oversight, these maps were omitted from the memo mailed from this office August 5, 1954.

Robert A. Laurence

ZM.
cc:
Beck
Lynch
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 25 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

August 5, 1954

Memorandum

TO: Operating Committee, D M E A - Washington

From: Field Team, DMEA - Region VII

Subject: Docket No. DMEA-3233 (mica) Bennett and Westall, Applicants
Cilly Mine, Y ancey County, N. C.

The Cilley Mine was examined by the field examiners on February 12, 1954. The report covering this examination was forwarded to Washington on February 17. Subsequent information was provided the Washington office on March 19, 1954. The application for exploration assistance was denied on April 8, 1954.

Since receiving the denial the applicants have contacted the Field Team several times regarding the possibility of having the application reconsidered. Also, we understand that they have contacted the Washington office by telephone regarding this possibility.

The Field Team advised the applicant that additional information substantiating their position would be needed before furtner consideration could be given. Recently they have submitted the attached topographic map of the area covered by their application. This map shows the character of the cut as it is now, as compared to the U.S.G.S. Map of 1944, as well as the elevation of the proposed shaft. Actually the collar elevation of the proposed shaft would be lowered to approximately 2710 feet by the proposed bulldozing.

The new topographic map permits a more accurate prediction of the underground conditions, and indicates that a drift extending to the south west at approximately 2615 feet elevation, from the bottom of a 100-foot shaft would be well under the old workings as shown on the 1944 U.S.G.S. map and cross sections which accompanied the field examination report.

The Field Team is still of the opinion that this deposit has merit as a potential source of strategic mica. Admittedly, this is an old mine, but almost all mica mines in the southeast where new reserves have been developed have been old ones.

We would like to request that reconsideration be given the subject application. The following program of exploration is offered :

Bulldoze shaft site and repair 100 yards of road.

Construct toolhouse and magazines.

Sink 100-foot, 2 compartment, 5' x 7' shaft at location shown on attached map.

Drive approximately 100 feet of drift on the footwall of the pegmatite southwest from the shaft, and crosscut to the hanging wall.

Estimated cost of the proposed work is as follows:

Shaft site preparation and road repair		
10 hrs. bulldozer @ $10.00/hr.	$100.00	
Buildings		
Toolhouse	75.00	
Exploder Magazine	13.00	
Powder magazine	25.00	$ 213.00
100-feet Shaft (60 shifts)		
Labor:		
1 - Miner @ $1.50/hr	720.00	
1 - Hoistman @ $1.25/hr	600.00	
2 - Laborers @ $1.00/hr	960.00	
Equipment (rental)		
Hoist @ $50/Mo.	150.00	
Compressor, drill, pump, etc. @ $240/Mo.	720.00	
Supplies:		
Timber - 8M @ $65/M	520.00	
Explosives	500.00	
Drill Steel	200.00	
Gasoline and oil	300.00	
Small tools	150.00	
Miscellaneous	180.00	
Estimated shaft cost.....		$5,000.00
100 feet 5' x 7' drift and/or crosscut (45 shifts)		
Labor:		
1 - Miner @ $1.50/hr	540.00	
1 - Hoistman @ $1.25/hr	450.00	
2- Laborers @ $1.00/hr	720.00	

Equipment: (rental)		
Hoist @ $50/Mo	$112.50	
Compressor, pump, drill, etc. @ $240/Mo.	560.00	
Supplies		
Timber, 1M @ $65/M	65.00	
Explosives	350.00	
Drill Steel	200.00	
Gasoline and oil	300.00	
Small Tools	100.00	
Miscellaneous, social security, etc.	102.50	
Estimated drift cost.....		$3,500.00
Estimated Total Cost of Project		$8,713.00

Robert A. Laurence
EXECUTIVE OFFICER
DMEA REGION VII

Wm. A. Beck, for V. J. Lynch
U. S. Bureau of Mines

KHT/sm

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

DEPARTMENT OF
Defense Minerals
RECEIVED
MAR 29 1954

March 26, 1954

Memorandum

To: Nonmetallic Minerals Division
Defense Minerals Exploration Administration

From: Acting Chief, Ceramic and Fertilizer Materials Branch

Subject: DMEA-3233, Cilly Mine, Yancey County, North Carolina

The following comments refer to additional information on the subject application contained in a letter dated March 19, 1954 from the DMEA Field Team, Region VII to the DMEA Operating Committee, Washington, D. C.:

1. The mica from this mine is non-ruby, but appears to be of strategic quality.

2. Although no production data are available the past workings are extensive, and evidence shows that mica concentrations occurred at least to a depth of 110 feet from the original surface.

3. Mining and exploration thus far have been conducted almost entirely in a mica zone near the footwall of the pegmatite.

4. The Field Team recommendation to approve the application for exploration assistance appears sound on the basis of the quality of the mica, the probability of extension laterally and in depth of the footwall mica zone, the possibility of the existence of a mica zone near the hanging wall of the pegmatite, and the apparently adequate mica mining experience of the applicants.

5. There are no data available to appraise the tenor of the ore, and no estimate of the quantity and grade of mica which might result from the proposed exploration is possible.

6. The possibility of the discovery and development of strategic mica as a result of the proposed exploration appear to be at least equal to the possibilities on approved mica exploration assistance contracts.

Signed

Donald R. Irving

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

Mr. Robert A. Laurence
Executive Officer, DMEA
Field Team, Region VII
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Cilly Mine
Yancey County, North Carolina

Dear Mr. Laurence:

Reference is made to your telephone conversation of March 12, 1954, with Mr. C. O. Mittendorf, on the subject application.

A study of the field team report fails to indicate the geologic premise upon which the proposed work is based. It is not certain from studying this report whether the pegmatite and mica shoot in the main workings is narrowing and pinching with depth and if the target is worth pursuing. We wish to have your thoughts on this matter. In other words, what geological criteria do you have for expecting the mica shoot to persist to the depth where it will be intersected? To what depth have the Bittner Mine, the Beech Mine, and the Three Quarters Creek Mine been worked? Does the pegmatite on the extreme south end of the sheet justify drifting approximately 110 feet to explore in depth or would a more economic approach be to work from the surface? Are any structural controls apparent from the surface which would indicate a possibility of widening the pegmatite between the South Pegmatite and the Cilly Mine?

Such additional information as you may have on the location of the present ground surface above the Cilly stope, zoning or absence of zoning in the South Pegmatite and any geologic information you may have on the subject property and geologic habits of the mica shoots in this area should be forwarded to this office for further study.

Reviewed by
DMEA OPERATING COMMITTEE

Sincerely yours,

Approved: _____ (date)

Chairman, Operating Committee

Member, Bureau of Mines

Member, Geological Survey

LGHouk:gad 3/16/54
Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Dietrich, 3061
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

March 16, 1954

Memorandum

To: Mr. C. O. Mittendorf

From: Lawrence G. Houk

Subject: Bennett & Westall - Docket No. DMEA-3233 - Mica
Cilly Mine
Yancey County, North Carolina

The proposed exploration appears to offer insufficient promise of finding sufficient reserves of strategic mica to justify the cost. Much of our analysis is based upon our assumptions as to the effect of the open-cut work performed subsequent to 1944 (when the maps and sections were completed). The field team's proposal may be divided into two sections:

1. The shaft sinking and a short drift to intersect the downward projection of the previously mined stope (Cilly Mine).

2. Drifting southward along the strike of the pegmatite to South Pegmatite.

The first portion of the work is to gain access to the down dip projection of the previously mined pegmatite containing a rich mica shoot in places up to 75% mica.

The work is apparently premised upon the continuation of the mica shoot downward. Section C-D in the accompanying map indicates a sheet mica zone exists at the bottom of the stope.

The production of $51,438.67 worth of mica during World War II was apparently recovered from this stope. Assuming the stope continues downward a distance equal to the distance already stoped, and the tenure of the ore continues unchanged, the Government would be returned approximately $2,550 in royalty.

The second phase of the proposed program, drifting southward along the strike, does not appear from the field team report to be justified on the basis that there is geologic probability of making a significant discovery. The target of the South Pegmatite is not described in the field team report.

3. Most of our past exploration in deeply weathered material around old workings has been unsuccessful. The statement in the field team report quoting the 1944 Geological Survey Report:

"Another possible source of mica is south from the present shaft along the strike both above and below the level of the old workings", may be clarified by the field team to indicate the geologic reasons why mica shoots may exist in this particular area.

This Division does not object to work in old mine areas where geologically favorable information indicates a project is worthwhile. We do not feel that gaining access to old stopes or intersecting projected mica shoots a few tens of feet below old workings is good exploration. The field team should encourage exploration for new mines in old districts and new mines in new districts not simply providing access to small limited targets attached to old stopes.

The field team report on the subject property fails to mention the reason for recommending exploration at the subject mine. The geologic habit of the other mica shoots in the immediate district should be mentioned. The Cilly Mine stope appears to be bottoming out. What reason has the field team for believing the pegmatite and mica shoot continue to depth? The field team may have an alternate proposal for exploring the South Pegmatite.

Burnable area. Extreme
food lake shallow.

Colley USGS 1944 Aug.

Stope 130 x 50 with grass floor.

3/4 mile Trammed to colley.
Bulldozing drive.

Bottom needs fill for fill pa.

Bush

Smaller colley Group. very from small food lake
Irregular foods.

Colley north end appears to food out
& from black grass

3/4 lake rejects 40' block stope fractured
similar to Colley stope overbreak

Colley Exposed on dumping area - heavy oxidized
Minerals - radioactivity of large amounts of Manganite
at the Colley Mine.

2 mine zones

600

Mr. Robert A. Laurence
Executive Officer, DMEA
Field Team, Region VII
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Cilly Mine
Yancey County, North Carolina

Dear Mr. Laurence:

Reference is made to your memorandum of August 5, 1954, submitting a topographic map and recommending a contract on this denied application.

Our letter of April 8, 1954, stated that the portion of the work directed toward gaining access to the Cilly Stope extension was partly development, and drifting southward was not justified as extensive bulldozing failed to indicate a mica shoot worth pursuing to depth. The topographic map does permit a more accurate location of the underground workings, but the target and the exploration approach remain basically the same. We must reaffirm the denial as the Cilly Stope area has been well explored.

We agree that historical producers have merit as potential sources of strategic mica, but at the same time we would like to see more work directed toward primary exploration on new pegmatites. We think there should be more bulldozing and trenching of new pegmatites, and shaft sinking exploration based on geologic information gained therefrom. Our records to date, based principally on reopening old mines, have not been too encouraging, and we wonder if we should not take longer shots on the new pegmatites in old districts.

The Field Team should do what it can to encourage exploration of new prospects. While it is true the applicants' main consideration is the immediate production of strategic mica, the DMEA Program should also lead to opening up new pegmatites and increasing the national mica resources. By working only old mines we may deplete our known sources of mica without adding corresponding new reserves. Our mica program has been in operation over three years and the new sources we have opened up have been relatively small. The foregoing is not written in a spirit of criticism but only to point out some of our thinking.

Sincerely yours,

Approved:

J. H. Hedges

Member, Bureau of Mines

s/Thor N. Kilsgaard

Member, Geological Survey

W. S. Martin

ACTING Chairman, Operating Committee

LGHouk:gad 8/23/54

Copy to: Admr. R. File
Docket
Operating Committee
Mr. Dietrich, 3061
Mr. Houk
Mr. Kilsgaard, 5227

August 18, 1954

DMMA-3233 - Mica
Bennett and Westall
Cilly Mine
Yancey Co., N. C.

Mr. Houk calling Mr. Laurence in Knoxville, Tenn.

Mr. Houk: The Cilly Mine memo came in. I dont know whether they are going to do anything about it though. I am trying to compose a letter but they do not seem to be much interested in new spots down there. I thought the Cilly map showed an outcropping at the extreme South end.

Mr. Laurence: Part of the same system that has been mined. The boys down there do not think there is any good possibility.

DEFENSE MINERALS ADMINISTRATION

97023

PRODUCTION EXPANSION DIVISION

PROCUREMENT APPLICATIONS

Name of Company and Address _____

Name of Mine and Location _____

Docket No. DMA - _____ Date received by P.E.D. _____

Metals or Minerals involved _____

Length of Contract (preproduction plus production) _____

Amount of Metals or Minerals in tons, units or pounds _____

Floor price or Guaranteed price and whether or not escalated _____

Maximum Government Commitment _____

Comments on Contract: _____

_____

_____

_____

_____

_____

Date sent to Legal Division _____

Date of Recommendation to D.P.A. for Certification _____

Date Certification sent to G.S.A. by D.P.A. _____

Date signed into Contract by G.S.A. _____

Additional Remarks: _____

_____

_____

_____

_____

NOTE: If application is denied, or if it is recommended for change into exploration, etc., please state under additional remarks.

Interior—Duplicating Section, Washington, D. C.

Signed _____

[redacted]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 25 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

August 5, 1954

Memorandum

TO: Operating Committee, D M E A - Washington

From: Field Team, DMEA - Region VII

Subject: Docket No. DMEA-3233 (mica) Bennett and Westall, Applicants
Cilly Mine, Yancey County, N. C.

The Cilley Mine was examined by the field examiners on February 12, 1954. The report covering this examination was forwarded to Washington on February 17. Subsequent information was provided the Washington office on March 19, 1954. The application for exploration assistance was denied on April 8, 1954.

Since receiving the denial the applicants have contacted the Field Team several times regarding the possibility of having the application reconsidered. Also, we understand that they have contacted the Washington office by telephone regarding this possibility.

The Field Team advised the applicant that additional information substantiating their position would be needed before further consideration could be given. Recently they have submitted the attached topographic map of the area covered by their application. This map shows the character of the cut as it is now, as compared to the U.S.G.S. Map of 1944, as well as the elevation of the proposed shaft. Actually the collar elevation of the proposed shaft would be lowered to approximately 2710 feet by the proposed bulldozing.

The new topographic map permits a more accurate prediction of the underground conditions, and indicates that a drift extending to the south west at approximately 2615 feet elevation, from the bottom of a 100-foot shaft would be well under the old workings as shown on the 1944 U.S.G.S. map and cross sections which accompanied the field examination report.

The Field Team is still of the opinion that this deposit has merit as a potential source of strategic mica. Admittedly, this is an old mine, but almost all mica mines in the southeast where new reserves have been developed have been old ones.

We would like to request that reconsideration be given the subject application. The following program of exploration is offered :

Bulldoze shaft site and repair 100 yards of road.

Construct toolhouse and magazines.

Sink 100-foot, 2 compartment, 5' x 7' shaft at location shown on attached map.

Drive approximately 100 feet of drift on the footwall of the pegmatite southwest from the shaft, and crosscut to the hanging wall.

Estimated cost of the proposed work is as follows:

Shaft site preparation and road repair		
10 hrs. bulldozer @ $10.00/hr.	$100.00	
Buildings		
Toolhouse	75.00	
Exploder Magazine	13.00	
Powder magazine	25.00	$ 213.00
100-foot Shaft (60 shifts)		
Labor:		
1 - Miner @ $1.50/hr	720.00	
1 - Hoistman @ $1.25/hr	600.00	
2 - Laborers @ $1.00/hr	960.00	
Equipment (rental)		
Hoist @ $50/Mo.	150.00	
Compressor, drill, pump, etc. @ $240/Mo.	720.00	
Supplies:		
Timber - 8M @ $65/M	520.00	
Explosives	500.00	
Drill Steel	200.00	
Gasoline and oil	300.00	
Small tools	150.00	
Miscellaneous	180.00	
Estimated shaft cost.....		$5,000.00
100 feet 5' x 7' drift and/or crosscut (45 shifts)		
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Hoist @ $50/Mo	$112.50	
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Explosives	350.00	
Drill Steel	200.00	
Gasoline and oil	300.00	
Small Tools	100.00	
Miscellaneous, social security, etc.	102.50	
Estimated drift cost.....		$3,500.00
Estimated Total Cost of Project		$8,713.00

Robert A. Laurence
EXECUTIVE OFFICER
DMEA REGION VII

Wm. A. Beck, for V. J. Lynch
U. S. Bureau of Mines

KHT/am

APR 8 1954

Bennett & Westall

Statesville, North Carolina

Re: Docket No. [illegible]-[illegible] - Mica
Bennett & Westall
Gilly Mine
Yancey County, North Carolina

Gentlemen:

Your application for aid for an exploration project and other reports available to us in Washington relating to the subject property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information indicates to us that the probability of disclosing significant reserves of mica by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

C. O. Mittendorf

Administrator

Mittendorf:gad 3/8/54
Copy to: Admr. R. File
Docket File
Field Team, Region VII
Operating Committee
Mr. Dieterich, 3526
Mr. Lorrabee, 0-232 GSA Bldg.
Mr. Hook

600

APR 8 1954

Mr. Robert A. Laurence
Executive Officer, DMEA
Field Team, Region VII
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Gilly Mine
Ramsey County, North Carolina

Dear Mr. Laurence:

Reference is made to your memorandum of March 19, 1954, and our reasons for denial of the subject application.

A study of the factual data on this application indicates the lack of positive criteria to justify drifting southward along the pegmatite to prospect for a blind mica concentration. The extensive bulldozing above the area to be prospected by the drift, apparently, failed to indicate a lead worth pursuing to depth. The portion of the work directed toward gaining access to the downward extensions of the Gilly Stope is in part development and similar projects exploring for extensions of old stopes have not found many worthwhile extensions.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

J. H. Hedges
Member, Bureau of Mines

Noted: T. P. Thayer
Member, Geological Survey

LGHouk:gad 4/5/54
Copies to: Admr. R. File
Docket File
Operating Committee
Mr. Dietrich, 3061
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

P.S.

Apparently the proposed work to gain access to the Gilly stope would only encounter old workings and would not open up any new ground in this area.

April 5, 1954

Memorandum

To: Mr. C. O. Mittendorf

From: Lawrence G. Houk

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Cilly Mine
Yancey County, North Carolina

A study of the field team examination report and the field team's reply to our request for justification for a contract on the subject mine indicates that the application should be denied:

1. The drift southward along the pegmatite is to explore for a blind mica concentration, and extensive bulldozing above the area apparently failed to indicate a lead worth pursuing to depth.

2. All the mines shown on the map appear to be pod-like and to have been worked to a shallow depth.

3. In past experiences exploring for extensions of previously mined stopes have been discouraging.

4. The pegmatite appears to be pitching flatly to the North, and the area offers insufficient promise to justify Government participation.

5. It is recommended denial be based upon the improbability of making a significant discovery. The denial letter and a letter to the field team are attached, if you concur in this action.

LGHouk:gad 4/5/54
Copyto: Admr. R. File
Mr. Houk

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 24 1954

March 19, 1954

Memorandum

To: Operating Committee, DMEA - Washington

From: Field Team, D M E A- Region VII - Knoxville, Tennessee

Subject: Docket No. DMEA-3233 - mica. Bennett and Westall. Cilly Mine, Yancey County, N. C.

Reference is made to your letter of March 17, 1954 on the subject application.

The South pegmatite, referred to in subject letter, and the Cilly pegmatite are continuous. There appears to be a gradual thinning of the pegmatite to the north; however, at the point of the proposed shaft (70 ft. northeast of the old Cilly shaft) the pegmatite is about 12 feet thick. Exposures in the vicinity of the open cut are rather poor, mainly because of slumpage, although minor folds in the wall rock plunge at a steep angle to the northeast suggesting that the mica concentration does likewise. As the mine is flooded, the examiners were unable to inspect the pegmatite in an unweathered condition. However, the extensive surface bulldozing conducted since the mine was operated during World War II has shown conclusively that there is no abrupt termination of the pegmatite to the northeast at the surface. Also, the location of the bulldozer cut, in respect to the underground openings, leaves one to infer that the mica producing zone is continuous near the footwall contact over a strike distance of approximately 75 feet. The additional footage recommended in the examination report is to be used for exploring the hanging wall zone of the pegmatite. So far as the field examiners have been able to determine, little exploration has been conducted on the southeast (hanging wall) contact.

There is no information available to the Field Team that indicates the mica zone mined at the Cilly Mine is either thinning or pinching with d depth. Mr. Ralph Thompson, who was the last operator that worked the mine underground, is of the opinion that the mica concentration is persistant to depth. He states that when the mine was closed in October 1944 (because the mica was classified as non-ruby by the Colonial Mica Corp) mica concentrations occurred in the north and south faces and in the bottom of the mine (110-foot level).

No positive answer can be given as to whether or not 110 feet of drifting is justified to explore the pegmatite extension south of the Old Gilly shaft. This need could be appraised only after exploration is in progress; however, as previously mentioned, some of the 110 feet of level work is intended for use on the hanging wall of the pegmatite.

There is no reliable information available as to the depth of the Three Quarters Creek, Bittner and Beech Mines. Reports suggest that all have been worked to a depth of from 30 to 50 feet, but they are all flooded and the sides slumped and caved, making it impossible to tape them accurately.

The bulldozer cut, made about 1950, is approximately 70 feet deep. The present surface is estimated to be less than 10 feet above the top of the shape shown on the map attached to the examination report. Goldthwait in his report of Aug. 19th for the U. S. G. S. mentions little about zoning in the Gilly pegmatite. He does point out that most of the previous production has been from a footwall zone which is within two feet of the contact. Also he states: "Another likely source of mica is along the strike north of the present workings. This, however, does not appear as promising, inasmuch as some gneiss is present in the heading.

"Although there is no indication of mica concentrations, the pegmatite does continue to the east for an unknown distance. A hanging wall zone might be located."

The Field Team is of the opinion that this deposit is a good bet for a successful exploration project, and that the recommendation is consistent with previous recommendations and approved projects.

Robert A. Laurence

Wm. A. Beck, for V. J. Lynch
U. S. Bureau of Mines

KHT/mm

March 8, 1954

Memorandum

To: Administrator

From: Nonmetallic Minerals Division

Subject: A denial of exploration assistance and closing review.
Docket No. DMMA-3233 - Mica
Property: Cilly Mine, Yancey County, North Carolina.
Located 2.4 miles east of Burnsville, North Carolina.
Operator's property rights - lease for five years, dated May 5, 1952, and right of option for another five years.
Applicant: Bennett and Westall
Amount requested: $7,313.77
No contract: Application denied.

Docket Summary:

1/13/54 Received application, Form MP-103.
1/19/54 Memo from D. A. Brobst, USGS, recommending field team examination.
1/26/54 Memo from W. F. Dietrich, USBM, recommending field team examination.
1/28/54 Referral letter to field.
2/19/54 Received report of examination by Field Team, Region VII, by K. M. Teague, Geologist, USGS, D. H. Amos, Geologist, USGS, and L. E. Shirley, Mining Engineer, USBM. The Field Team recommends an exploration contract in the amount of $8,825.00.
3/1/54 Memo from D. M. Larrabee, USGS, concurring in field team's recommendation.
3/2/54 Memo from W. F. Dietrich, USBM, concurring in field team's recommendation.

Resume:

This is an old mine that has been worked intermittently since 1879, and during World War II produced $51,438.67 worth of mica. The field team recommends an exploration contract and submits an exploration plan which appears to be a development program to reach the old mine workings.

Because the existing shaft is not safe for operation, the field team proposes to sink a new 65 foot shaft at a point 70 feet to the north. Then from bottom of this new shaft, drive a drift back toward and 80 feet beyond the old shaft for an over-all distance of 150 feet. This work is to cost $8,825.00. As we interpret the plan from the map attached to the report, the proposed drift goes through much of the old workings, some of which are even below the level of the drift, based on original sections compiled before open-cut work subsequent to 1944.

Comments:

Based on the past experience we are reluctant to recommend spending $8,825.00 for a proposal to reopen old workings.

The size of the target appears inadequate for the proposed expenditure. The justification to make the $8,825.00 is inadequate.

Therefore, the Nonmetallic Minerals Division recommends that the application for exploration assistance be denied.

W. C. Anderson
Nonmetallic Minerals Division

WCAnderson:gad 3/8/54

Copy to: Admr. R. File
Docket File
Mr. Houk

P. S. In a telephone conversation February 23, 1954, the subject of reopening old mines as exploration projects was discussed with Mr. Laurence. H e agreed that the policy of not reopening old mines was a good one but stated little mica was being produced from new mines.

MAR [illegible]

620

Mr. Robert A. Lawrence
Executive Officer, DMEA
Field Team, Region VII
Room 23, Post Office Bldg.
Knoxville 2, Tennessee

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Gilly Mine
Yancey County, North Carolina

Dear Mr. Lawrence:

Reference is made to your telephone conversation of March 12, 1954, with Mr. C. O. Mittenzwei, on the subject application.

A study of the field team report fails to indicate the geologic premise upon which the proposed work is based. It is not certain from studying this report whether the pegmatite and mica sheet in the main workings are narrowing and pinching with depth and if the target is of sufficient size to justify the recommended expenditure. We wish to have your thoughts on this matter. In other words, what geological criteria do you have for expecting the mica sheet to persist to the depth where it will be intersected? To what depth have the Ritter Mine, the Beech Mine, and the Three Quarters Creek Mine been worked? Does the pegmatite on the extreme south end of the sheet justify drifting approximately 110 feet to explore in depth or would a more economic approach be to work from the surface? Are any structural controls apparent from the surface which would indicate a possibility of widening of the pegmatite between the South Pegmatite and the Gilly Mine?

Such additional information as you may have on the location of the present ground surface above the Gilly stope bottom, zoning or absence of zoning in the South Pegmatite and any geologic information you may have on the subject property and geologic habits of the mica sheets in this area should be forwarded to this office for further study.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

J. H. Hedges

Member, Bureau of Mines

Philip W. Guild

Member, Geological Survey

LOHouk:gad 3/17/54
Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Dietrich, 3061
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

March 16, 1954

Memorandum

To: Mr. C. O. Mittendorf

From: Lawrence G. Houk

Subject: Bennett & Westall - Docket No. DMEA-3233 - Mica
Cilly Mine
Yancey County, North Carolina

The proposed exploration appears to offer insufficient promise of finding sufficient reserves of strategic mica to justify the cost. Much of our analysis is based upon our assumptions as to the effect of the open-cut work performed subsequent to 1944 (when the maps and sections were completed). The field team's proposal may be divided into two sections:

1. The shaft sinking and a short drift to intersect the downward projection of the previously mined stope (Cilly Mine).

2. Drifting southward along the strike of the pegmatite to South Pegmatite.

The first portion of the work is to gain access to the down dip projection of the previously mined pegmatite containing a rich mica shoot in places up to 75% mica.

The work is apparently premised upon the continuation of the mica shoot downward. Section C-D in the accompanying map indicates a sheet mica zone exists at the bottom of the stope.

The production of $51,438.67 worth of mica during World War II was apparently recovered from this stope. Assuming the stope continues downward a distance equal to the distance already stoped, and the tenure of the ore continues unchanged, the Government would be returned approximately $2,550 in royalty.

The second phase of the proposed program, drifting southward along the strike, does not appear from the field team report to be justified on the basis that there is geologic probability of making a significant discovery. The target of the South Pegmatite is not described in the field team report.

3. Most of our past exploration in deeply weathered material around old workings has been unsuccessful. The statement in the field team report quoting the 1944 Geological Survey Report:

"Another possible source of mica is south from the present shaft along the strike both above and below the level of the old workings", may be clarified by the field team to indicate the geologic reasons why mica sheets may exist in this particular area.

This Division does not object to work in old mine areas where geologically favorable information indicates a project is worthwhile. We do not feel that gaining access to old stopes or intersecting projected mica sheets a few tens of feet below old workings is good exploration. The field team should encourage exploration for new mines in old districts and new mines in new districts not simply providing access to small limited targets attached to old stopes.

The field team report on the subject property fails to mention the reason for recommending exploration at the subject mine. The geologic habit of the other mica sheets in the immediate district should be mentioned. The Cilly Mine stope appears to be bottoming out. What reason has the field team for believing the pegmatite and mica sheet continue to depth. The field team may have an alternate proposal for exploring the South Pegmatite.

LGHouk:gad 3/16/54
Copy to: Admr. R. File
Docket File
Mr. Houk

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

Department of the Interior
Defense Minerals Administration
RECEIVED
MAR 1 2 1954

February 24, 1954

Memorandum

REVIEW OF FIELD TEAM REPORT ON APPLICATION DMEA-3233 (mica)

To: L. G. Houk, Defense Minerals Exploration Administration
From: D. M. Larrabee, U. S. Geological Survey
Applicant: M. W. Bennett and Vencent Westall, Burnsville, N. C.
Name of property: Cilly Mine
Location of property: Yancey Co., N. C.
Date of field team report: February 16, 1954.
Authorship of field team report: K. H. Teague, L. E. Shirley, and D. H. Amos.
Field team's recommendation: 65' shaft
150' drifts and crosscuts

Cost $8,825

Comments: This would appear to be a possible source of economically recoverable strategic mica, judging from War II history.

ACTION RECOMMENDED: Follow field team's recommendation.

D. M. Larrabee

Copy to: DMEA (3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

MAR 2 - 1954

March 1, 1954

Memorandum

To: Nonmetallic Minerals Division
Defense Minerals Exploration Administration

From: Chief, Ceramic and Fertilizer Materials Branch

Subject: DMEA-3233

Applicant: Mark W. Bennett and Vencent Westall

Name and Location of Property: Chilly Mine
Yancey County, North Carolina

Date of Field Team Report: February 17, 1954

Date Rec'd by Ceramic & Fertilizer Mats. Branch: February 25, 1954

Field Team Recommendation:

1. A contract for exploration in the amount of $8,825.

Comments:

1. Exploration by a 65-foot 2-compartment shaft and 150-foot drift and/or crosscut.

2. Proposed exploration is consistent with good engineering practices, and eliminates the hazards involved in the applicant's original proposal.

Recommendation:

I concur in the field team's recommendation for an exploration project in the amount of $8,825.

Signed

W. F. Dietrich

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
Room 13, Post Office Bldg.
Knoxville 2, Tenn.

C O P Y

February 17, 1954

Memorandum

To: Operating Committee, DMEA - Washington

From: Field Team, DMEA-Region VII

Subject: Examination Report on DMEA-3233, Cilly Mine-North Carolina

Transmitted are four copies of the subject report with six extra copies of the map. The Field Team is in agreement with the recommendations set forth in the report, but no "Owner's Consent to Lien" has been obtained. The applicants informed the examiners that one of the property owners had refused to sign the MF-203; however, they are making another attempt to secure the necessary signature. If the "Owner's Consent to Lien" cannot be obtained, both the applicants are willing to sign the "Guarantee."

/s/ Wm. A. Beck
Wm. A. Beck, Acting
Executive Officer, DMEA
Region 7

/s/ Benjamin Gildersleeve
Benjamin Gildersleeve, Geologist
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
2-26-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM, REGION VII

On

DMEA-3233, CILLY MINE
Yancey County, N. C.

(mica)

By

Kefton H. Teague, Geologist
U. S. Geological Survey

Lawrence E. Shirley, Mining Engineer
U. S. Bureau of Mines

Dewey H. Amos, Geologist
U. S. Geological Survey

February 16, 1954

Reviewed by
DMEA OPERATING COMMITTEE
2-26-54
(date)

FIELD EXAMINATION REPORT
ON
DMEA-3233, CILLY MINE (mica)

Applicant: Mark W. Bennett and Vencent Westall, Burnsville, N. C.

The field examiners are of the opinion that this deposit has merit for exploration. Considerable mica has been produced in the past and exploration appears justified below the past work. The examiners believe the approach to exploration should be different from the proposed exploration. The applicants are in agreement with this change.

The deposit was examined on February 12, 1954. Mark W. Bennett, Yates Bennett and Ralph Thompson accompanied the examiners. Two hours were spent on the examination.

The mine is 2.4 miles by road east of Burnsville, Yancey County, North Carolina. It is about 100 yards west of the Three Quarters Creek road (gravel road).

The applicants are competent to conduct the proposed exploration.

The property is held under a 10 year lease. Area covered by the lease is adequate for the proposed exploration.

There are no present surface facilities on the property. Present works consist of a large open cut about 70 feet deep, a caved adit, and a vertical shaft. The shaft was about 110 feet deep prior to dozing the open cut.

The following information is taken from a report by Lawrence Goldthwait, U.S.G.S., August 1944:

"The country rock of the Cilly area is a biotite gneiss, locally grading into a schist that contains much biotite at contacts with the pegmatite. The general trend of the foliation is northeast, with nearly vertical dips. Small lenticular plagioclase patches as much as an inch in diameter are common in the gneiss. A few garnets are also present. Much of the gneiss has been deeply weathered and is stained. At the Cilly mine, part of the extensive old lower tunnel was cut in a deeply weathered hornblende gneiss. Faults are common, particularly in the southern portion of the area, and several of the pegmatite contacts are fault contacts. At the southwest end of the old Cilly tunnel is such a fault contact. Numerous faults also occur within the pegmatite.

"The pegmatite in the recent workings is a dike-shaped mass that dips steeply near the surface and becomes less steep at a depth of seventy feet. It plunges northward. It is at least forty feet thick. At the northern end of the upper workings the pegmatite seems to be pinching out and the face shows some gneiss.

"The pegmatite consists chiefly of plagioclase, quartz with some muscovite, with a very little biotite. No microcline is present. Garnets,

as crystals ranging in size from one-sixteenth of an inch up to one and a half inches, often occurring in rows, are generally clear and fresh, though shattered. Granular masses of garnets are also present. Quartz is rather evenly distributed throughout the pegmatite, and there is a tendency toward graphic intergrowths with feldspar along the middle of the east wall.

"In the main underground workings, where the west wall and floor are gneiss (footwall) and the east wall is pegmatite, the best mica is located near the footwall at a level close to the bottom of the shaft cribbing. The heading thrity feet lower shows a zone that averages fourteen inches in thickness and extends two feet above the footwall for a distance of twelve feet. This zone is about 75% mica.

"The muscovite is clear and rum colored. The operator reported no trouble with staining, and there appears to be little tying or "A" structure. Approximately 5% of the mine-run block mica was recovered as trimmed sheet and punch.

"The operator is working (1944) down the dip of the pegmatite, a procedure that should yield the most mica, particularly close to the footwall. Although mica probably occurs along the strike of the vein to north and south, the operators believe that the best policy is to work to greater depth along the footwall in the present workings.

"Another possible source of mica is south from the present shaft along the strike, both above and below the level of the old workings."

The first work was done in 1879 by a Mr. Gilly. The mine was operated during World War II and 8,514.12 pounds of sheet mica was sold to Colonial Mica Corporation for $51,438.67.

Manpower and supplies are readily available. There is a 1-phase electric line about 100 yards from the site.

The examiners are of the opinion that the method of exploration proposed by the applicants would neither be safe nor the most effective. The proposed dozing would create a hazardous bank and would necessitate moving excessive material. It is believed a more realistic approach would be to sink a shaft about 70 feet north of the existing shaft and then drift south under the old work.

Estimated Cost of proposed work:

Bulldozing shaft site and repair of 100 yards of excess road	$100.00
Toolhouse	150.00
Magazine - Cap	25.00
Magazine - powder	50.00
65-foot 5' x 7', 2-compartment timbered shaft @ $50/ft.	$3,250.00
150-foot 5' x7' drift and/or crosscut @ $35/ft	5,250.00
Estimated Total Cost.....	$8,825.00

Estimated time required : 110 shifts

February 12, 1954

K. H. Teague and Dewey H. Amos, Geologists
U. S. Geological Survey

and

Lawrence E. Shirley, Mining Engineer
U. S. Bureau of Mines

sm

600

JAN 28 1954

Bennett & Westall

Burnsville, North Carolina

Re: Docket No. DMEA-3233 - Mica
Bennett & Westall
Gilly Mine
Yancey County, North Carolina

Gentlemen:

Your application for assistance in exploring the subject property has been reviewed by the Nonmetallic Minerals Division of the Defense Minerals Exploration Administration and has been referred to Mr. Robert A. Lawrence, Executive Officer, DMEA Field Team, Region VII, Room 13, Post Office Building, Knoxville 2, Tennessee, for further consideration and possibly a field examination.

The Regional Office will contact you at an early date if an examination is to be made. Any assistance that you may give the members of the field team during the examination will be appreciated.

Sincerely yours,

C. O. Mitzender

Administrator

WCAnderson:gad 1/27/54

Copy to: Admr. R. File
Docket File
Field Team, Region VII
Operating Committee
Mr. Dietrich, 3526
Mr. Larrabee, G-232 GSA Bldg.
Mr. Nenk

600

JAN 2 1954

Mr. Robert A. Laurence
Executive Officer, DMEA
Field Team, Region VII
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Subject: Docket No. DMEA-3233 - Mica
Bennett & Westall
Gilly Mine
Yancey County, North Carolina

Dear Mr. Laurence:

Please review the subject application and arrange for a field examination if you deem it advisable.

Copies of memoranda from the Geological Survey, dated January 15, 1954, and from the Bureau of Mines, dated January 25, 1954, are enclosed for your information.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

J. H. Hedges

Member, Bureau of Mines

s/ Philip N. Guild

Member, Geological Survey

Enclosures 4

WCAnderson:gad 1/27/54

Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Dietrich, 3526
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

Department of the Interior
Defense Minerals Administration
RECEIVED
JAN 23 1954

January 25, 1954

Memorandum

To: Nonmetallic Minerals Division
Defense Minerals Exploration Administration

From: Chief, Ceramic and Fertilizer Materials Branch

Subject: DMEA-3233

Applicant: Bennett & Westall
Name and Location of Property: Chilly Mine, Yancey County
North Carolina
Date of Application: January 13, 1954
Rec'd. by Ceramic & Fertilizer Materials Branch: January 13, 1954
Estimated Cost: $7,314
Comment:

1. Geological Survey (Professional Paper 225, p. 59.) reported that 409 pieces of mica from this mine were tested and found to be 100 percent E-1 capacitor quality. The color was described as brownish olive.
2. We have no record of mica from the mine being sold to Colonial Mica.

Recommendation:

It is recommended that the field team visit this property when a member of the field team is in that vicinity to ascertain if an exploration program is justified.

Signed

W. F. Dietrich

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

G-MD-CNM
RECEIVED

January 15, 1954

Memorandum

REVIEW OF APPLICATION DMEA-3233 (Mica)

To: L. G. Houk, Defense Minerals Exploration Administration
From: D. A. Brobst, U. S. Geological Survey
Applicant's name and address: Mark W. Bennett and Vencent Westall
Burnsville, North Carolina.

Name of property: Cilly mine.
Location of property: Approximately 15 miles from Spruce Pine, North Carolina.
Summary of applicant's proposal: A three month project is proposed in which overburden is to be removed as deep as necessary to sink a 60-foot shaft safely. A drift 100 feet long will be driven from the shaft. The project will cost a total of $7,313.77.
Sources of information on applicant's property: No information is available.
Comments:
This is an ambitious program for a prospect that is evidently in bad ground. There is no information about the pegmatite to be worked, no sketch, or other data to judge the merit of the project. More data is needed and the property should be examined before any decisions are made.
RECOMMENDATION:
Examination by the Field Team.

D. A. Brobst

Brobst:jeh
1/15/54
cc: Director's reading 4212
Branch reading 4212
DMEA 3
Brobst G-230

600

JAN 19 1954

Bennett & Westall

Burnsville, North Carolina

Re: Docket No. DMEA-3233 - Mica
Bennett & Westall
Gilly Mine
Yancey County, North Carolina

Gentlemen:

Reference is made to your application for exploration assistance for mica.

On November 3, 1953, Amendment No. 3 to DMEA Order-1 became effective and limited Government participation in the case of mica to 75 percent of the approved costs. Inasmuch as your application was received after November 3, 1953, please advise this office in writing if you desire to have your application processed under the new Government participation rate. The processing of your application will be deferred until receipt of your reply.

A copy of our release of November 3, 1953, is enclosed for your information.

Sincerely yours,

SIGNED

Lawrence G. Houk, Chief
Nonmetallic Minerals Division

Enclosure

WCAnderson:gad 1/18/54
Copy to: Admr. R. File
Docket File
Field Team, Region VII
Mr. Dietrich, 3526
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

UNITED STATES
TMENT OF THE INTERIOR
DEFENSE MINERALS
ORATION ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

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PAYMENT OF POSTAGE, $30
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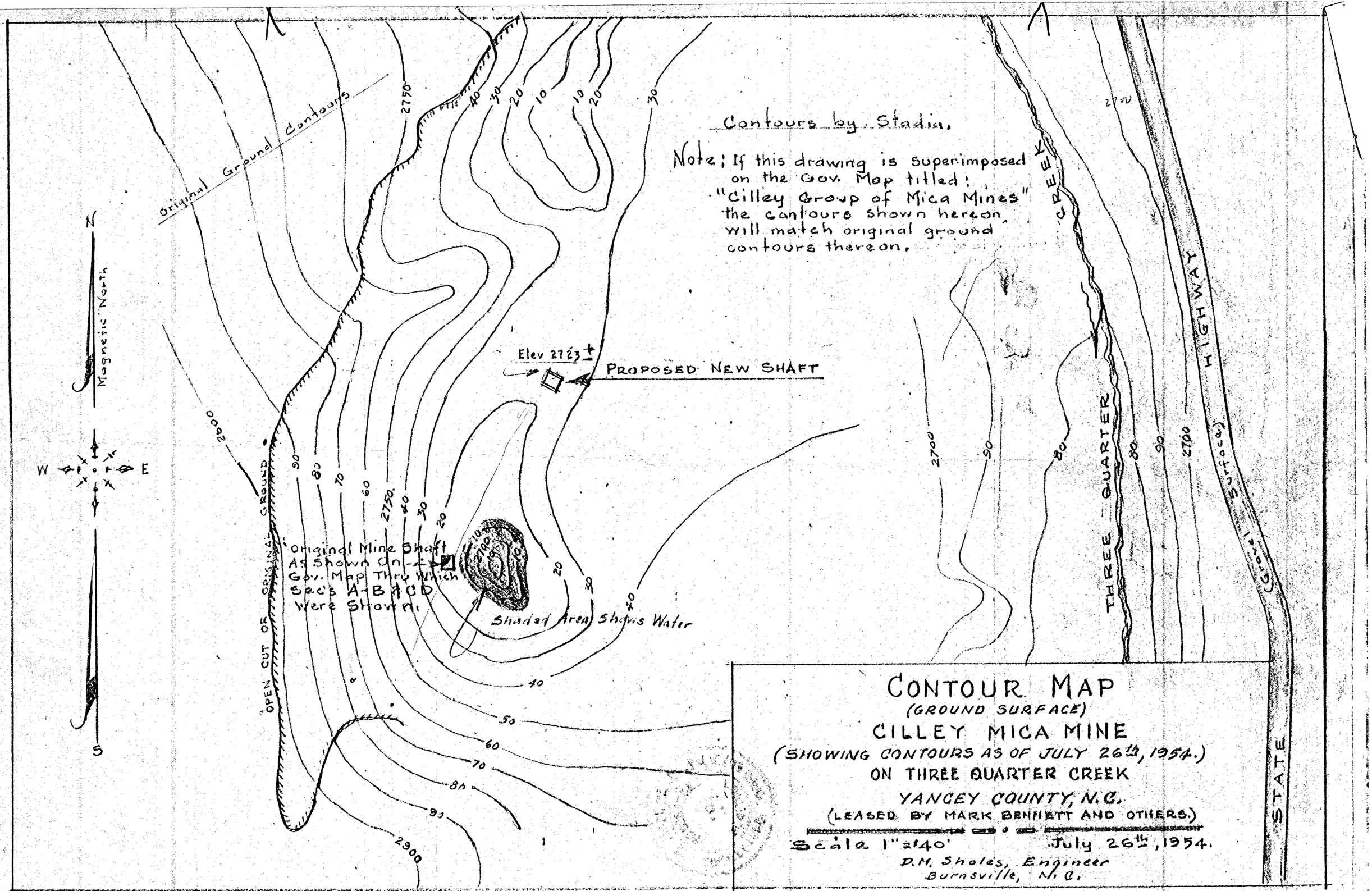
Contours by Stadia.
Note: If this drawing is superimposed on the Gov. Map titled: "Cilley Group of Mica Mines" the contours shown hereon will match original ground contours thereon.
Original Ground Contours
N
Magnetic North
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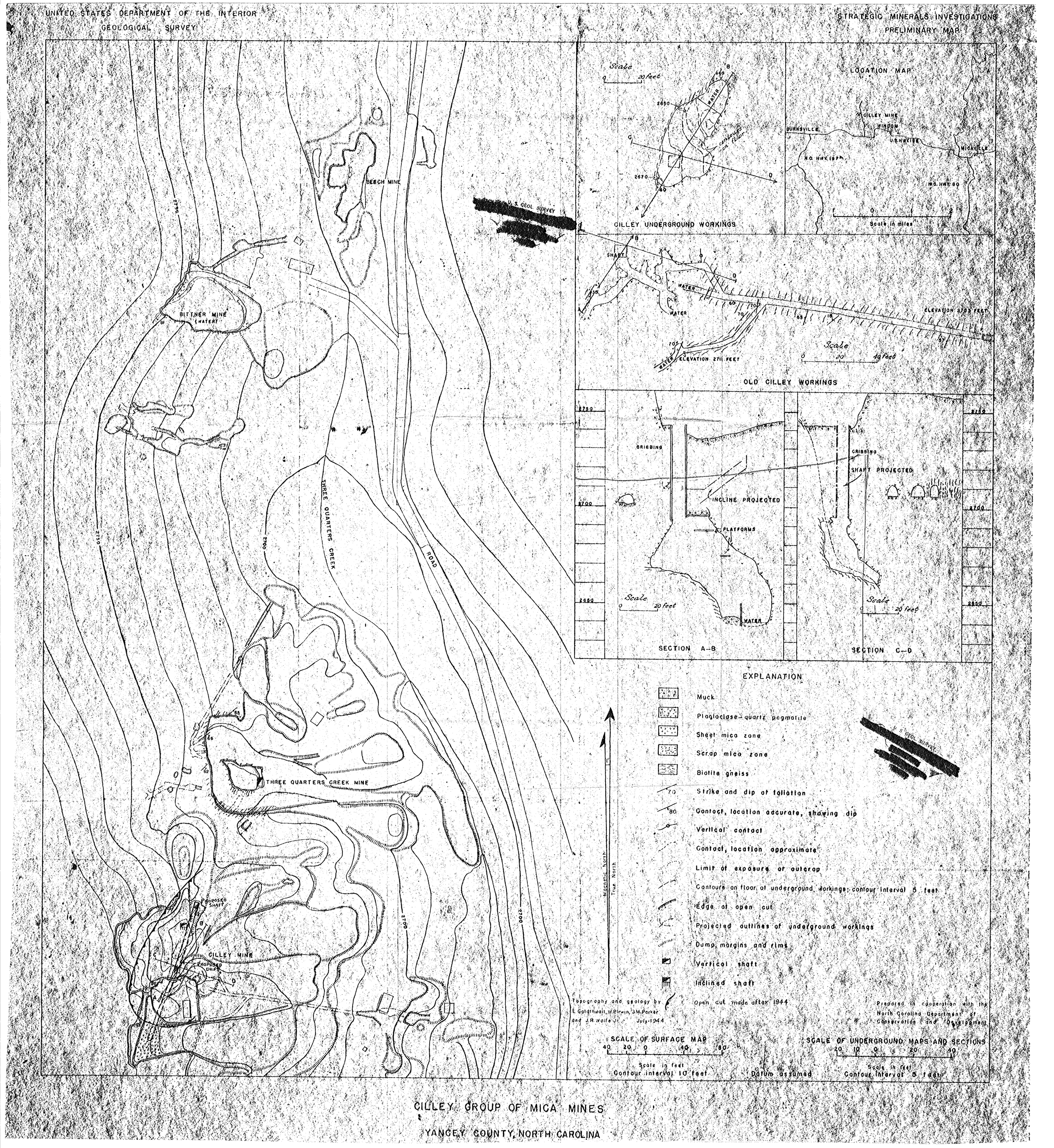
PROPOSED NEW SHAFT
Original Mine Shaft As Shown On Gov. Map Thru Which Sec's A-B & C-D Were Shown.
Shaded Area Shows Water
OPEN CUT OR ORIGINAL GROUND
THREE QUARTER CREEK
STATE HIGHWAY
(Surface)
2800
2750
2700
2900
CONTOUR MAP
(GROUND SURFACE)
CILLEY MICA MINE
(SHOWING CONTOURS AS OF JULY 26th, 1954.)
ON THREE QUARTER CREEK
YANCEY COUNTY, N.C.
(LEASED BY MARK BENNETT AND OTHERS.)
Scale 1" = 40'
July 26th, 1954.
D.M. Sholes, Engineer
Burnsville, N.C.

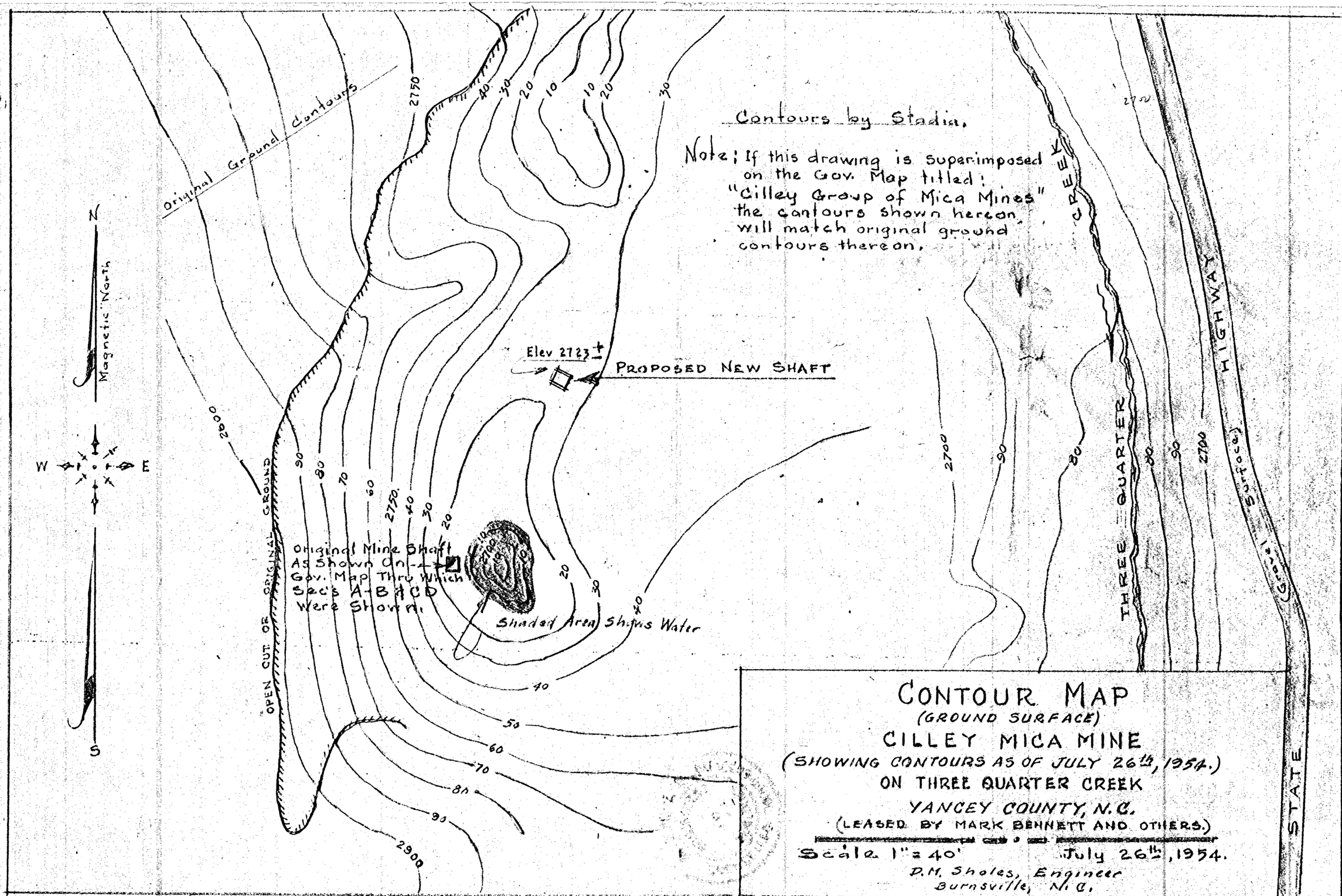
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STRATEGIC MINERALS INVESTIGATIONS
PRELIMINARY MAP



CILLEY GROUP OF MICA MINES

YANCEY COUNTY, NORTH CAROLINA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Original Ground Contours
Elev 2723 ±
PROPOSED NEW SHAFT
Original Mine Shaft As Shown On Gov. Map Thru Which Sec's A-B & C-D Were Shown.
Shaded Area Shows Water
OPEN CUT OR ORIGINAL GROUND
THREE QUARTER CREEK
STATE HIGHWAY
Ground Surface
Magnetic North
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2900
2750
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CONTOUR MAP
(GROUND SURFACE)
CILLEY MICA MINE
(SHOWING CONTOURS AS OF JULY 26th, 1954.)
ON THREE QUARTER CREEK
YANCEY COUNTY, N.C.
(LEASED BY MARK BENNETT AND OTHERS.)
Scale 1" = 40'
July 26th, 1954.
D.M. Sholes, Engineer
Burnsville, N.C.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STRATEGIC MINERALS INVESTIGATIONS
PRELIMINARY MAP

CILLEY GROUP OF MICA MINES

YANCEY COUNTY, NORTH CAROLINA