DEPARTMENT OF DEFENSE
Defense Minerals Administration
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INLAND MINING CORPORATION

Monthly Progress Report

June 1952

DMEA Docket No. 2299

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GCS 8/26/53

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MONTHLY PROGRESS REPORT

For Month Ending June 30, 1952

Inland Mining Corporation
515 DeQueen Street
Mena, Arkansas

To: Defence Minerals Exploration Administration
Regional Office
Joplin, Missouri
Docket No. DMEA-2299 Contract No. Idm-E280

A.) DATA SECTION

1.) The following table itemizes the units of work during the month.

Location	Bulldozer Trail Ft.	Bulldozer Trench Ft.	Feet of Hand* Trenching
Hurricane Bill	2,550	390	55
New Find	1,500		80
Baloff	3,400	285	30
Coon Creek	4,750	625	36
Boar Tusk No. 1			60
Boar Tusk No. 2	420		
	10,570	1,300	261

	Bulldozer Excavation yds.	Chip Channel Samples	Jackhammer Test Holes
Hurricane Bill			
New Find	1,050		
Baloff	950	1	3
Coon Creek	350		
Boar Tusk No. 1		5	
Boar Tusk No. 2	680		
	3,030	6	3

Location	Analytical Channel Samples	Metallurgical Channel Samples	Samples for Quantitative Analysis
Hurricane Bill	7	7	1
New Find	3	3	1
Baloff			
Coon Creek	6	6	1
Boar Tusk No. 1			
Boar Tusk No. 2			
American		1	1
	16	17	4

* This item consists of drilling and blasting sample trenches and cleaning them out by hand.

2.) Analyses, maps, and cross section profiles are included with this report.

SUMMARY

Four bulk samples from scattered locations were taken for
for quantitative analysis during the month of June. The results revealed no materials that would prevent using the beneficiation methods now being investigated for application to the western Arkansas manganose ores.

Approximately 4,000 pounds of carefully obtained samples were sent to American Cyanamid Company and the Dorr Company for metallurgical text work.

Some exploratory work was done at four new locations during the month. These areas have yelded much more encouraging results than any previously investigated. Computed averages of trench samples from three of them are as follows:

Location	Av. Thickness of ore zone	% of Mn
New Find	10'	8.22
Hurricane Bill	11'	8.61
Coon Creek	12'	11.92

Estimated ore reserves containing plus 5% Mn are given below in long ton units.

Location	Indicated	Inferred
American	10,750	5,700
Boar Tusk	17,400	7,700
Baloff	500	10,000
New Find	40,000	20,000
Hurricane Bill	55,000	30,000
Coon Creek	83,000	355,000
Other areas		200,000
	206,650	628,400

The conclusion points out the large unexplored area of manganese mineralization in the Ouachita Mountains.

General Discussion

not in cabinet J.O.R.

During the month of June the work on the American group of claims and that on the Boar Tusk group was completed. Exploratory work was also done on the following properties: Baloff, New Find, Hurricane Bill and Coon Creek. The results of the work on the last three named properties were much more encouraging than those on any other properties investigated to date.

Metallurgical consultants working on the beneficiation of the western Arkansas ores requested complete quantitative analysis on ores from various parts of the district. Four bulk samples from various locations were obtained for this purpose. A description of these samples along with the results of the analyses are given at the back of this report.

Large bulk samples for metallurgical test work were also needed. These were obtained from four different localities and 500 to 600 pounds from each location were sent to both American Cyanamid Company and the Dorr Company. These were obtained at the same time that trench samples were being taken for analytical purposes. A full description of the taking of each sample is included in this report. Detailed assays are at the back of the report, but results of the metallurgical test work are not yet available.

During the month the consulting geologist and the resident geologist continued to do reconnaissance work as much as possible. A detailed record was made of the geology of all new areas visited. Considerable time was devoted to directing

the actual exploration and doing the sampling and mapping thereof.

American Group

The work on the American group of claims was completed early in the month. All of the trenches, that had been previously tested drilled and blasted, were cleaned out to permit visual inspection of the ore beds in place.

A sample for quantitative analysis was taken from trench No. 2 on claim No. 28 (See map from report for May, 1952). A detailed description of this sample is given following the analytical results of same at the back of this report.

A sample of metallurgical text work was taken from this same trench. About 2,000 pounds of ore were taken from the floor and walls of this trench which had been previously dug in the ore beds in place (see cross section of trench No. 2 in report for May, 1952). The sample material was taken over a lateral distance along the trench of about 30 feet ranging from drill hole No. 28 to drill hole No. 17. This material was broken down to minus two inches with sledge hammers. Fifteen sacks of the material were taken from the thoroughly mixed pile. The total weight was approximately 1,100 pounds. Eight sacks were shipped to the American Cyanamid Company and seven to the Door Company on June 12, 1952.

Estimated ore reserves on claims 28 and 29 of the American group are as follows:

	Long Tons	% Mn
Indicated ore	10,750	5
Inferred ore	5,700	5

Boar Tusk

The exploratory work on this property was completed and samples taken where it appeared to be indicated. Maps 105A and 105B show the geology and the work done on this group of claims.

There is a small amount of good ore along the crest of Boar Tusk Mountain. This crest borders the south side of the group of claims. Most of this ore is purely residual on the surface exposures and does not persist down the dip of the beds. A few hundred tons of ore would be readily available for mining in the vicinity of trenches 10, 11, and 12.

Good exposures of ore were made in the area of trenches 1 and 5 on claim No. 8 (Map 105A). A channel sample across an 8 to 9 foot bed in trench No. 1 had a Mn content of 8.40. Samples from trench No. 5 (see cross section on 105A plate 1) showed a true ore thickness of 11.5 feet. The average of this ore zone as computed from the assays is 6.53 percent manganese. Assays of each sample are given at the back of this report.

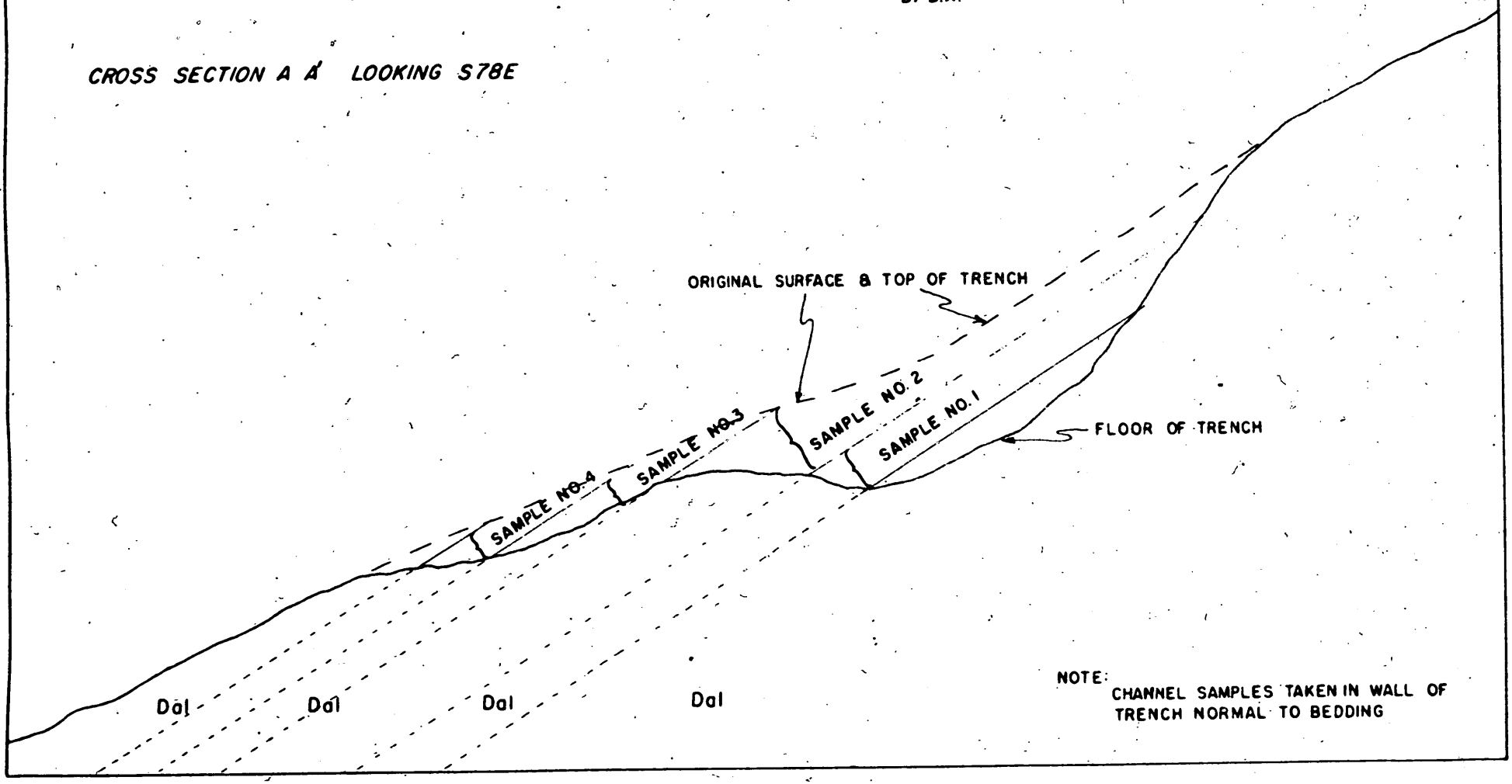
Some ore was uncovered by bulldozer trenching only on claim 12 (see map 105B). This is in the vicinity of some old workings and a small quantity of good ore is available. The area is highly distorted and the ore might persist downward for some distance. However it is at a height of only 15 to 20 feet above a perennial stream and the ore beds dip under this stream. This would preclude any extensive mining at this location and any further exploratory work was not considered. justified.

INLAND MINING CORP
MENA, ARKANSAS

SKETCH- CROSS SECTION OF TRENCH NO 5 (Map No. 105A)
BOAR TUSK GROUP OF CLAIMS SEC 19, 20 & 29 T3S R30W
& SEC 24 T3S R31W.
POLK COUNTY, ARKANSAS
SCALE 1" = 10'

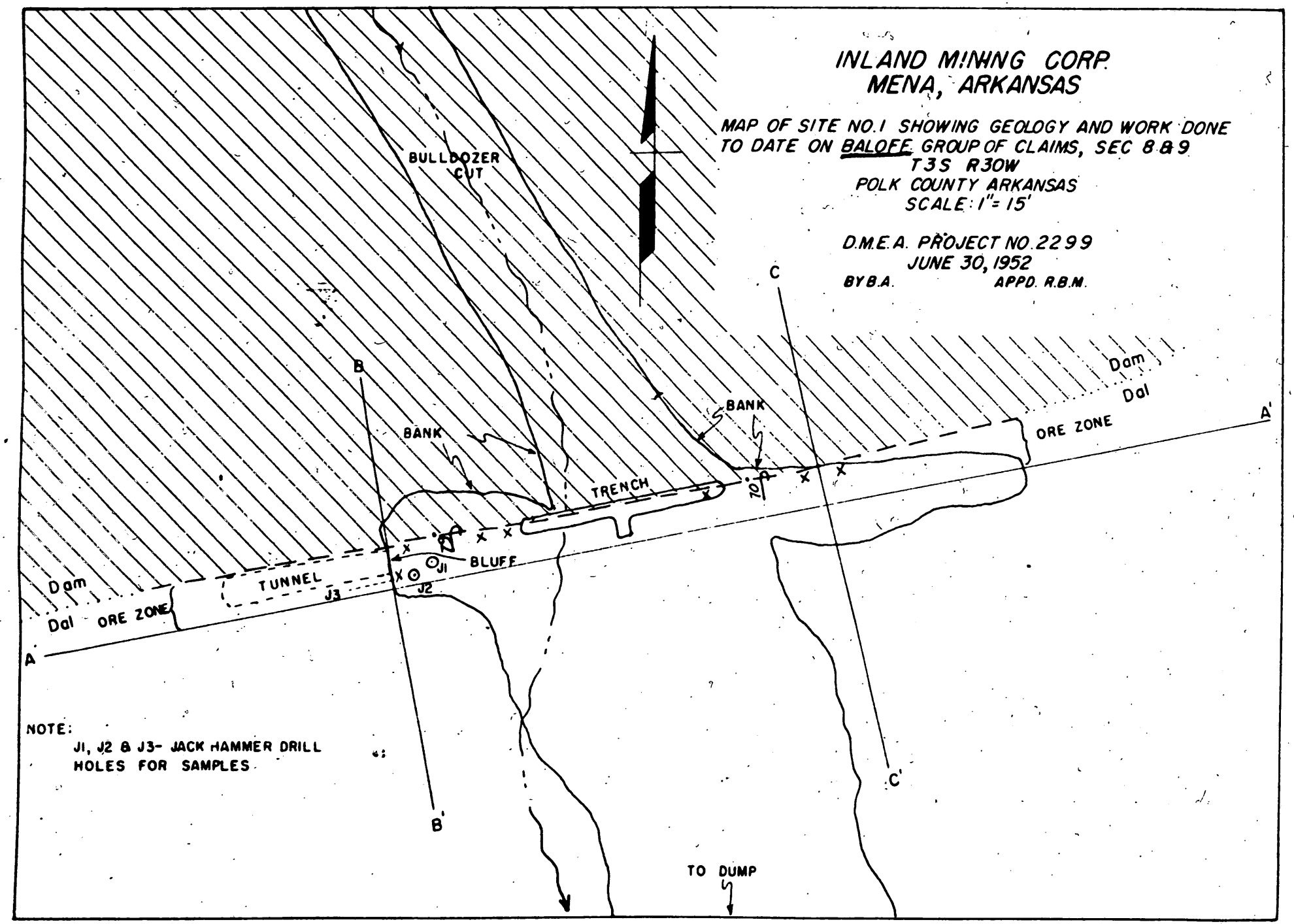
D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952
BY B.A. APPD. R.B.M.

CROSS SECTION A A' LOOKING S78E



NOTE:
CHANNEL SAMPLES TAKEN IN WALL OF TRENCH NORMAL TO BEDDING

105 A PLATE I


INLAND MINING CORP.
MENA, ARKANSAS
MAP OF SITE NO. 1 SHOWING GEOLOGY AND WORK DONE TO DATE ON BALOFE GROUP OF CLAIMS, SEC 8 & 9
T3S R30W
POLK COUNTY ARKANSAS
SCALE: 1" = 15'
D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952
BY B.A.
APPD. R.B.M.
BULLDOZER CUT
BANK
BANK
TRENCH
BLUFF
TUNNEL
J1
J2
J3
ORE ZONE
ORE ZONE
Dam
Dal
Dam
Dal
A
A'
B
B'
C
C'
TO DUMP
NOTE:
J1, J2 & J3- JACK HAMMER DRILL HOLES FOR SAMPLES

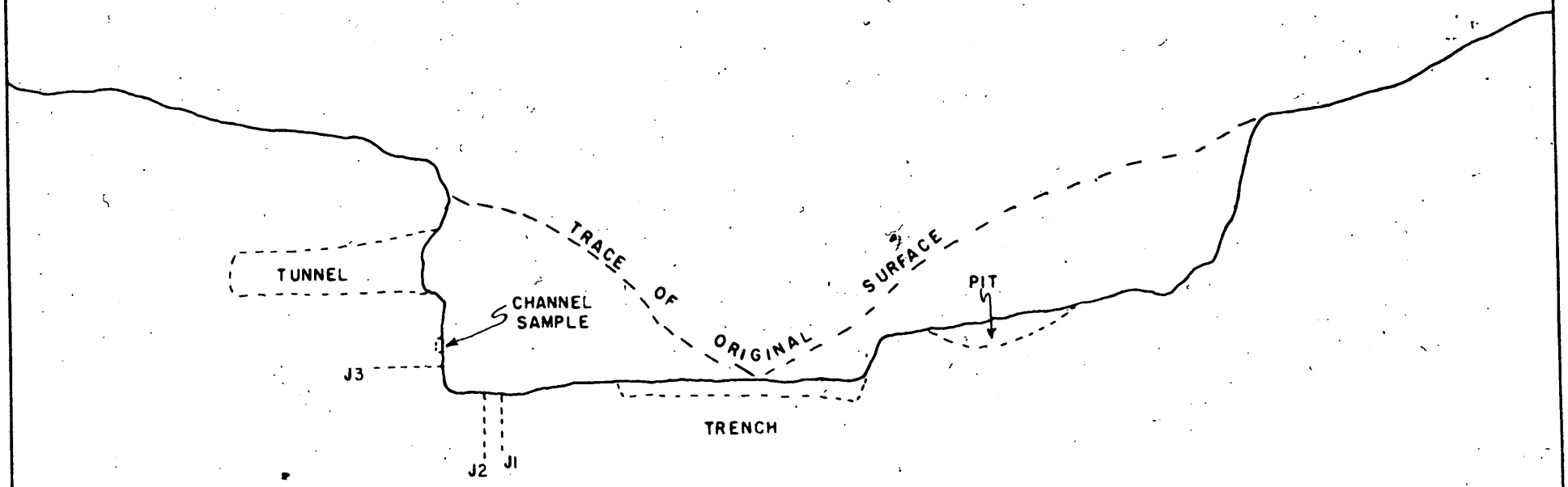
106 A

INLAND MINING CORP.
MENA, ARKANSAS

SKETCH- PLANE VIEW THROUGH SITE NO.1, (Map No.106)
BALOFF GROUP OF CLAIMS, SEC 8 & 9 T3S R30W
POLK COUNTY, ARKANSAS
SCALE 1" = 15'

D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952
BY B.A. APPD. R.B.M.

NOTE:
J1, J2 & J3 JACK HAMMER DRILL HOLES FOR SAMPLES



PLANE VIEW A A' LOOKING NIOW

106A PLATE I

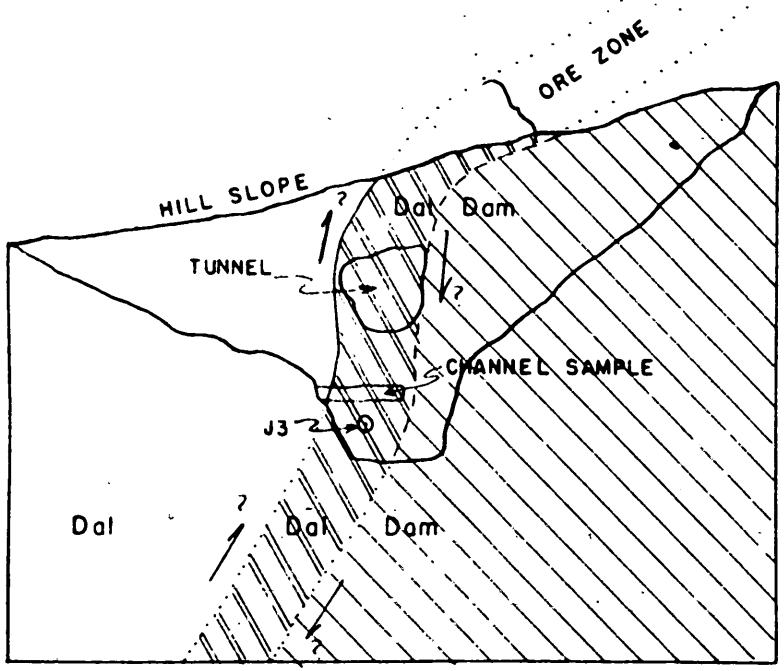
NOTE:
CROSS HATCHING INDICATES ORE ZONE AND ZONE OF MOVEMENT ALONG POSSIBLE THRUST FAULT PLANE

INLAND MINING CORP.
MENA, ARKANSAS

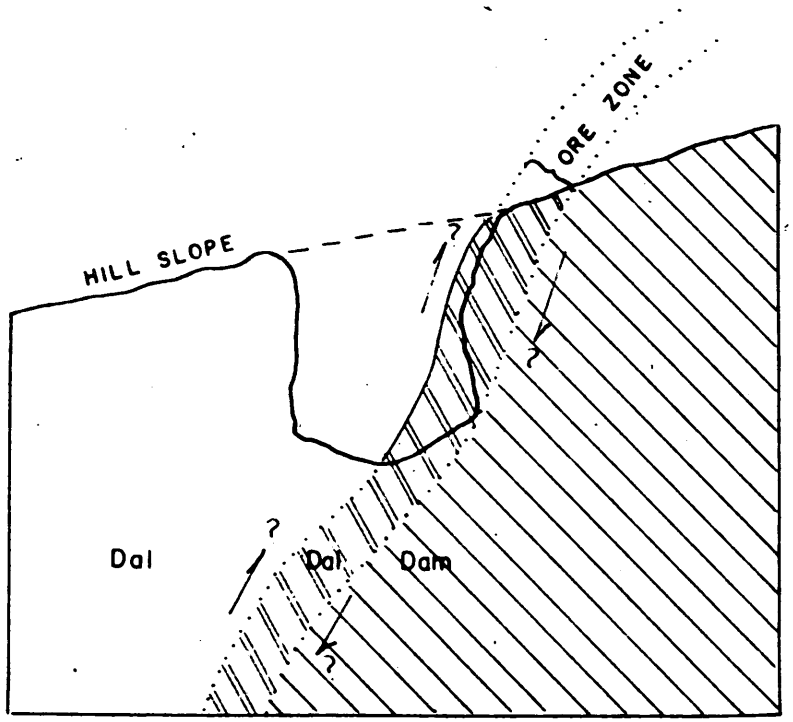
SKETCH OF CROSS SECTIONS (Map No. 106), BALOFF GROUP OF CLAIMS SEC 8 & 9 T3S R30W
POLK COUNTY ARKANSAS
SCALE 1" = 15'

D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952

BY B.A. APPD. R.B.M.



CROSS SECTION B B' LOOKING S 80 W



CROSS SECTION C C' LOOKING S 80 W

106 A PLATE II

The extimated ore reserves for the Boar Tusk group of claims is given below:

Classification	Long Tons	% Mn
Indicated	17,400	5 to 6
Inferred	7,700	5 to 6

Balpff

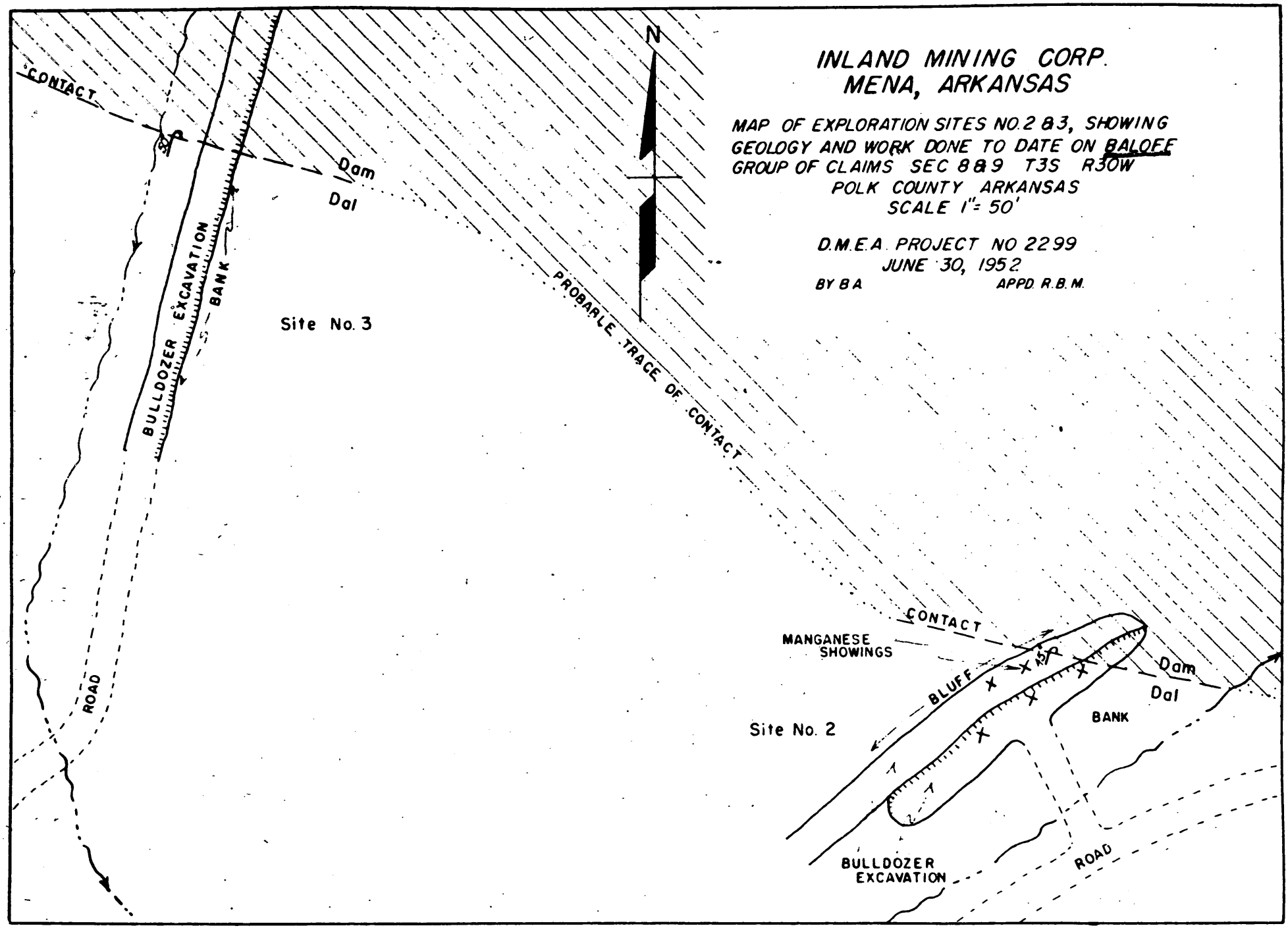
The general geology in this area consists of an over-turned turned fold truncated by erosion so as to expose the lower division novaculite lying on the middle division. There has been considerable east west shortening so as to form numerous cross folds in the semi-vertical beds (See map 106 in pocket). It also appears that there has been some movement between the two divisions of the novaculite (See 106A Plate II) so as to cause excessive shattering and distortion of the beds immediately adjacent to the plane of movement. This may be a small thrust fault or it may merely be differential movement, caused by the cross folding, along this contract of competent versus less competent beds. At any rate it has caused considerable fracturing and development of a strong water course along a bed that is a known zone of manganese mineralization. All of these factors contribute to excellent conditions for the formation of manganese ore bodies. At one place where an erosional ravine cuts across the strike of the beds (See plate 106A) some oldexcavations had been made into the ends of the beds and a small tunnel driven about 20 feet along the strike.

During the month of June the old workings were cleaned out, enlarged, and a small amount of sampling done. Twp vertical drill holes encountered mud and water and poor sludge recovery was obtained. The assays were quite low. One horizontal drill hole along the strike of the bed for a distance of six feet yielded samples with an average Mn content of 5.78 percent. A channel sample across the face of the ore zone showed a Mn content of 15.29 percent. The grade of the ore is apparently quite variable. Down the hill below the old workings were several piles of good ore that no doubt came out of them. They contained some 50 to 75 tons of selected ore. This is quite a good ratio in comparison with the total rock moved. The old dump also contained appreciable quantities of ore that had not been saved in the original prospecting work. Map No. 106A plate II shows two cross section views indicated on the plan map (106A). Map No. 106A plate I shows a vertical plane view along the line A-A' on the plan map.

At site No. 2 (See map 106C) old workings showed some manganese. These workings were cleaned out and enlarged with the bulldozer. Some ore was observed here and also where the ore beds crossed the creek to the east. No samples were taken.

A new cut was made across the beds at site No. 3 (See map 106C). This work failed to uncover any good manganese ore.

This property merits additional explanatory work although the indicated ore at this time would not exceed 500 tons. The inferred ore reserves could reasonably be estimated to exceed 10,000 tons.


INLAND MINING CORP.
MENA, ARKANSAS
MAP OF EXPLORATION SITES NO. 2 & 3, SHOWING GEOLOGY AND WORK DONE TO DATE ON BALOFF GROUP OF CLAIMS SEC 8 & 9 T3S R30W
POLK COUNTY ARKANSAS
SCALE 1" = 50'
D.M.E.A. PROJECT NO 2299
JUNE 30, 1952
BY B A
APPD. R.B.M.
N
CONTACT
Dam
Dal
BULLDOZER EXCAVATION
BANK
Site No. 3
PROBABLE TRACE OF CONTACT
ROAD
CONTACT
MANGANESE SHOWINGS
BLUFF
Dam
Dal
BANK
Site No. 2
BULLDOZER EXCAVATION
ROAD

106-C

New Find

The ore body at this location is centered in a gentle cross fold or through on the near vertical north limb of a steeply folded anticline. Some of the surface dips indicate overturning but along the strike to the east and underground in an old tunnel (See map 107) and a short distance west of the area shown on the map normal north dips are present. Also across the crest of the ridge to the south (See cross section 107 plate I) the dip is to the north. Apparently the south dips are due to slumping of the beds near their contact with the less resistant middle division of the novaculite. The ore is in the normal ore horizon at the top of the lower division novaculite but it has a greater true thickness here than at most points.

Previous work here consisted of a tunnel about 60 feet long, as shown on may 107, and several test pits on top of the hill. Good ore is present on top of the hill in the vicinity of the test pits and along the strike of the beds for some 200 feet. Exploratory work done on this property during the month of June consisted of bulldozer excavation along the contact of the ore zone with the middle division novaculite, cleaning out the old tunnel, drilling and blasting a sample trench across the ore beds in the floor of the tunnel, and digging two sample trenches across the beds at the surface. The two surface sample trenches were not drilled and blasted so as to obtain samples due to lack of time.

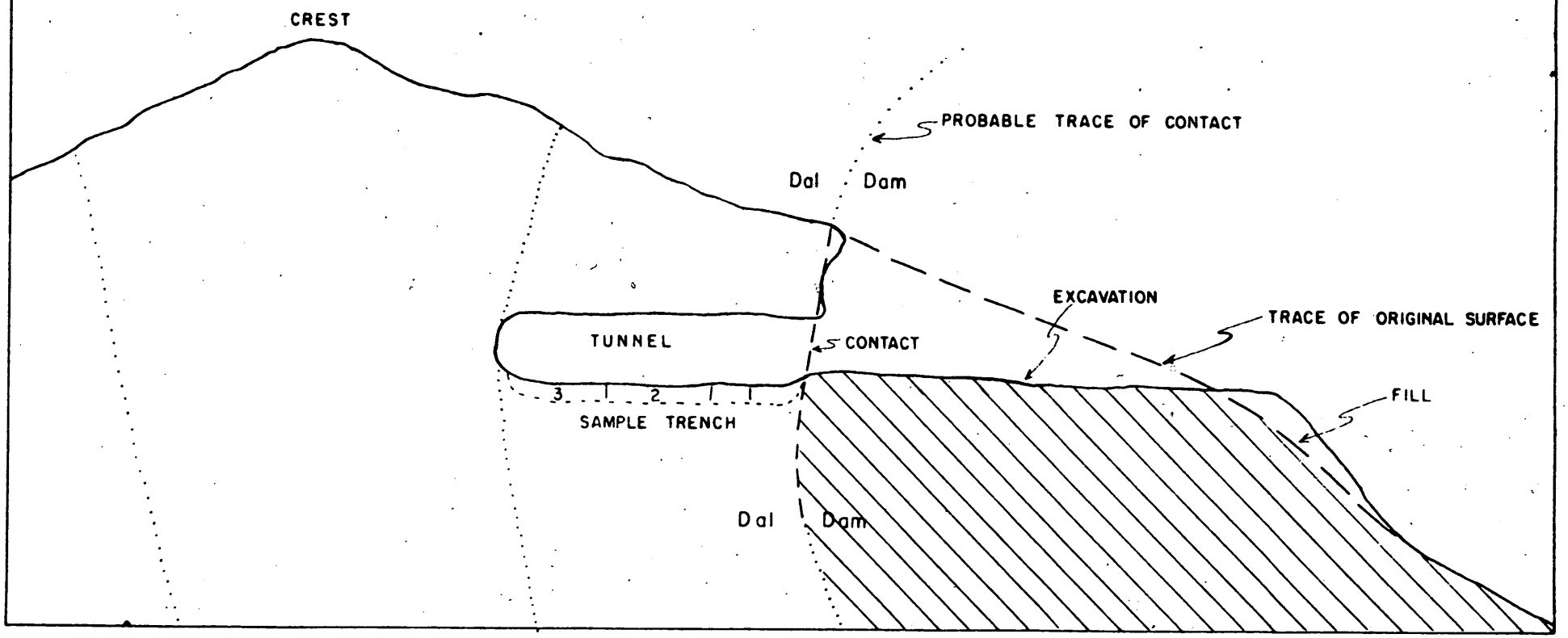
NOTE:
NUMBERS IN TRENCH IN TUNNEL
DENOTE SAMPLE INTERVALS

INLAND MINING CORP.
MENA, ARKANSAS

SKETCH OF TUNNEL ON NEW FIND GROUP OF CLAIMS ON
SEC 27 T3S R29W
POLK COUNTY ARKANSAS
SCALE 1" = 15'

D.M.E.A. PROJECT NO. 2299
JUNE 30 1952
BY B.A. APPD. R.B.M.

CROSS SECTION A A' LOOKING N 55 W



107 PLATE I

The method of taking and preparing samples for analysis and metallurgical test work is described below: A trench two feet wide by two feed deep by thirty feet in length was blasted in the floor of the tunnel (See map and cross section). This is directly across the upturned edges of the near vertical beds. This trench was divided into three ten foot intervals. The broken rock was then shoveled out of the first ten feet to an equal depth along its length until approximately 900 pounds of sample material was obtained and placed on a wooden platform. This material was broken down to approximately minus two inch size by means of hammers. The sample material was then thoroughly mixed, coned and quartered. The opposite quarters were then combined, and sacked for metallurgical samples. This resulted in six sacks of material weighing a total of about 450.pounds. The remaining quarters were combined and re-split to obtain approximately 150 pounds of material for analysis. The same procedure as outlined above was followed to obtain similar samples from the other two sample intervals of ten feet each. Nine sacks of samples, or approximately 650 pounds, were sent to the American Cyanamid Company and the Dorr Company respectively. Six sacks of samples, totaling 450 pounds, and representing three sample intervals were sent to the Bruce Williams Laboratories at Joplin, Missouri for analysis to determine content of manganese, copper, iron and phosphorous. Results of these analyses are given at the back of this report. The Mn

content of each interval was 8.22, 2.83 and 2.15 percent respectively. This gives a twenty foot zone averaging 5.53 percent or a thirty foot zone averaging 4.40 percent.

Initially, before doing any work at this location, a sample for quanitative analysis was taken. The results of the analysis are given at the back of this report and is followed by a description of the sample and the ore type. It should be noted that all samples from this deposit are exceptionally low in content of iron, copper and phosphorous. The fact that these samples were taken at a point 15 to 20 feet underneath the surface (See cross section 197 plate I) should be noted. The type of ore present here indicates that a good intermediate concentrate could be readily obtained by means of the HMS process. Results of the metallurgical test work now under way should confirm this opinion.

An estimate of the ore reserves available in this deposit are given below:

Classification	Long Tons	% Mn
Indicated	40,000	5
Inferred	20,000	5

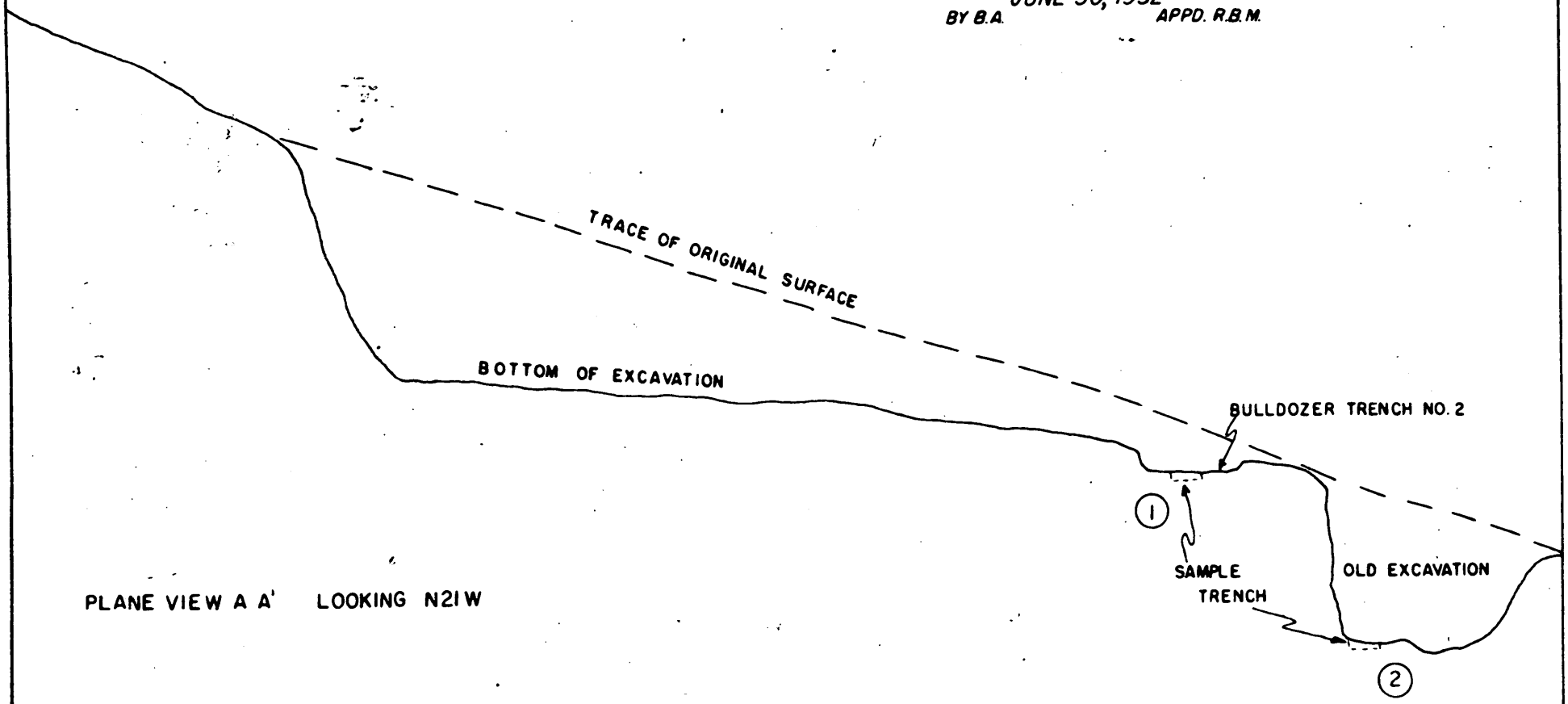
Hurricane Bill

The geology of the Hurricane Bill manganese deposit is different to any that have been explored under this project to date. Map 108 shows the geology and exploratory work done in this area.

INLAND MINING CORP.
MENA, ARKANSAS

SKETCH- PLANE VIEW THROUGH OLD EXCAVATION ON THE HURRICANE BILL GROUP OF CLAIMS SEC 33 & 34 T3S R28W
POLK COUNTY ARKANSAS
SCALE 1" = 20'

D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952
BY B.A. APPD. R.B.M.



108 PLATE I

The ore occurs in the upper division of the novaculite formation about ten to fifteen feet above the stratigraphic contact of this formation with the younger Stanley shale formation. The beds in the vicinity of the ore deposit are considerable overturned, and have a north dip of 30 to 60 degrees. Following the strike of the beds a few hundred yards east and west away from the ore deposit they gradually change their dip until it is only slightly to the north. In the vicinity of the ore deposit there has been considerable movement between the main ore bed and the hanging-wall bed (See cross sections on 108 plate II). This movement has been sufficient to distort and fracture the ore bed so as to create numerous open fractures of varying sizes. This has provided a most favorable condition for manganese mineralization. The ore is of higher grade and more consistent character than the normal deposits of the area.

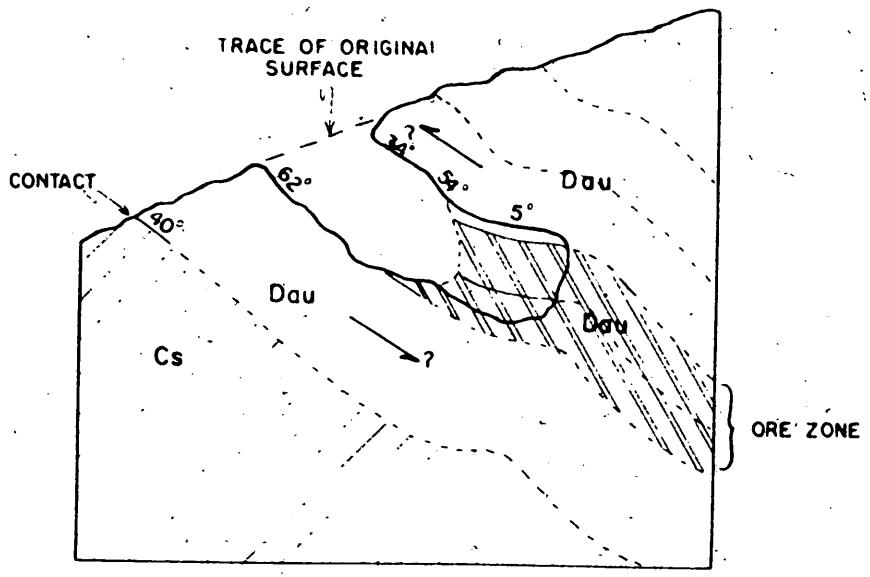
A sample for quantitative analysis was taken from this deposit. The results of this analysis are given at the back of this report. They are followed by a detailed description of how the sample was taken and prepared, and a description of the ore. It will be noted that the iron, copper and phosphorous content are low in all of the samples from this deposit. Where the ore bed was opened up in fresh unweathered rock below the zone of oxidation it was observed that the open type of fracturing was present the same as at the surface. These fractures were filled with hard manganese minerals.

INLAND MINING CORP.
MENA, ARKANSAS

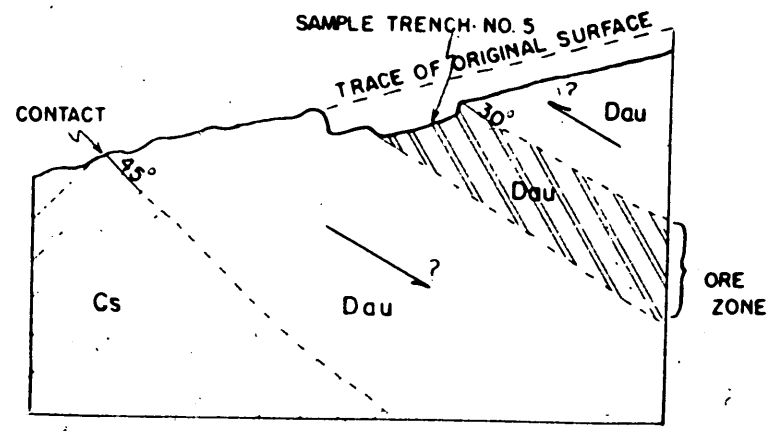
SKETCH- CROSS SECTIONS OF HURRICANE GROUP OF CLAIMS (Map No. 109) SEC 33 & 34 T3S R28W
POLK COUNTY, ARKANSAS
SCALE 1" = 20'

D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952

BY B.A. APPD. R.B.M.



CROSS SECTION B B LOOKING S71W



CROSS SECTION C C LOOKING N44E

The exploratory work at this location consisted of bull-dozer trenches across the strike of the ore beds. Where ore was uncovered the ore bed was cut with a trench two feed deep by two feet wide by means of drilling and blasting. At the location of sample No. 2 (See map 108) an old shallow shaft (See cross section 108 plate I) was cleaned out by hand and the sample trench blasted in the bottom of it. A total of five trenches varying in length from 16 feet to 8 feet were dug. Trenches 1 and 2 were 14 and 16 feet in respective length. They were divided into two sample intervals. The other three trenches were each sampled as one interval. The material making up each sample was taken from its respective tranch to a uniform depth, broken to minus two inches, coned and quartered. Two quarters from each sample were combined for metallurgical test work samples, The remaining two quarters were combined and then split in order to obtain a 75 pound bulk sample for analytical purposes. Six hundred pounds were sent to both American Cyanamid Company and the Dorr Company for metallurgical test work. Five samples totaling 375 pounds were sent to Bruce Williams Laboratories for analysis. Detailed results of analyses are to be found at the back of this report. The computed average of the manganese content is 8.61 percent. The true thickness of the ore zone as sampled at each sample location is as follows:

Trench No.	True Thickness
1	12.5'
2	14.5'
3	6.5'
4	7.0'
5	6.5'

An estimate of ore reserves at the Hurricane Bill deposit is as follows:

Cladsification	Long Tons	% Mn
Indicated	55,000	8
Inferred	30,000	6

Coon Creek

This area has yelded ore of a higher grade than any sampled under this project to date. Near the closure of a relatively broad syncline, which is also a topographic valley in this area, the drainage has cut down through the nearly flat lying beds near the axis of the syncline so as to expose the ore horizon on each side of the drainage valley. This ore horizon is the one at the top of the lower division of the novaculite formation. The pitch of the syncline is roughly the same as the stream gradient. This condition exists for a distance of about one half mile and exposures of the ore horizon can be observed intermittently along each side of the stream for the entire distance. At about the location of the sample area shown on map 109 the drainage starts to cut across the structure and continues this trend until it has cut completely across the south limb of the syncline. The cross section shown on 109 plate I shown the general conditions existing at the indicated location of the cross section on map 109. This is the general condition existing up stream from this location for about one half mile and down stream for a few hundred feet. Frequent out-

crops of good ore can be observed on both sides of the stream valley and considerable good float ore is present in the valley for the entire distance described. Numerous old test pits are present along the outcrop of the ore horizon on both sides of the valley. In practically every instance some ore has been uncovered by this work and in most places it is ore of good quality. The most extensive workings are in the zone of sampling shown on map No. 109. A quarry type of operation at this location had opened up an excavation about 120 feet in length by 60 feet in width with a face about 20 to 25 feet in height. This excavation was extended eastward about 40 feet by bulldozing to uncover the ore in this direction. Continuing on eastward across the small drainage ravine the ore zone can be observed for about 200 feet before it becomes covered with overburden and is subsequently cut across by the drainage valley.

The north limb of the syncline has a gentle south dip which steepens up the limb. At a point several hundred yards to the north and some 400 to 500 feet higher in elevation the ore horizon outcrops on the ridge paralleling the valley. It has a steep south dip at this point and can be followed eastward for three fourths of a mile and about the same distance to the west. Along this high outcrop exposures of ore can be intermittenly observed. The south limb of the syncline attains a steep dip immediately south of the axis. The upper extension of the ore horizon is covered with overburden for the entire length of the ridge and cannot be prospected by examination of surface outcrops.

Bulldozer trenching was employed to uncover the contact at two locations as shown on map No. 109. At both points the ore horizon was observed to carry manganese but not in sufficient quantities to constitute ore. Uncovering the ore horizon at frequent intervals along this contact would be justified. To the west the amount of middle division novaculite left in place gradually diminishes until it is practically nonexistent at the closure. There is very little of it in place on the lower portion of the north limb of the syncline and going westward from the location of cross section A-A' the middle division novaculite is to be found only locally for a distance of several hundred feet north of the stream. In this area there are numerous outcrops of ore and a great deal of good float.

A sample for quantitative analysis was taken from the main cut and showed a manganese content of 18.47 per cent. Results of the analysis are given at the back of this report and are followed by a description of the sampling procedure and of the ore. The ore is of a character that would be much more susceptible to beneficiation than many of the ore types of the region. The workings at this point were made during World War II. Apparently the operators were interested only in the large pieces of free ore as the dump is practically all made up of relatively high grade ore comparable to that exposed in the face. A considerable quantity of free ore is intermixed with it.

The sampling at this location consisted of three vertical

trenches two feet wide by two feet deep cut into the face. The ore horizon is made up of two beds 6 to 7 feet in thickness. At each sample location the upper bed was trenched and sampled first and then the lower bed in order to obtain two sample intervals. As each sample interval was broken out it was piled up at the base of the face. Approximately 600 pounds of the material was taken from the pile by shoveling a trench through it. This material was placed on a wooden platform, broken down to minus two inches, thoroughly mixed, coned and quartered. Opposite quarters were combined to make up a metallurgical sample. The remaining quarters were recombined and a 75 pound sample cut from this material for analytical purposes. The metallurgical samples were divided evenly and one lot sent to American Cyanamid Company and one to The Dorr Company. Six seventy five pound samples were sent to Bruce Williams Laboratories for analysis of Mn, Fe, Cu, and P. Results of the analyses are at the back of this report. The computed average of the six samples shows a Mn content of 11.92 per cent.

An estimate of the ore reserves of this area are given below:

Location	Classification	Long Tons	% of Mn
Parsons Claim	Indicated	53,000	8 to 10
Parsons Claim	Inferred	140,000	5 to 8
Myer Claim	Indicated	30,000	6 to 8
Myer Claim	Inferred	215,000	5 to 7

Other Areas

Numerous locations have been visited where it is readily apparent that five to ten thousand tons of ore could be obtained by surface gouging operations. Some of them have structural

conditions that might contribute to the presence of substantially larger amounts of ore. Many of these deposits would merit mining and no doubt would contribute materially to the ore reserves available in the area, if sufficient tonnage can first be proven in larger deposits to justify the large capital investment that will be needed for a manganese operation in this district.

The amount of inferred ore available at 15 different locations examined is roughly estimated to be 200,000 tons. Most of these deposits are of such a character that they do not justify much exploratory work. Some ore is available at all of them and if a mining operation was going on in the area it would be better to move in on them and mine as long as the ore lasted and then move on rather than spend any appreciable amount of money on exploration.

Conclusion

The first two months of the project were not very productive as far as proving of substantial ore reserves is concerned. They were very profitable in other ways. The work helped develop several geologic principals to use as a guide in selecting areas for future work. It also helped formulate some general methods of exploration to be utilized in exploring different types of manganese deposits. Utilization of the geologic principals mentioned above assisted in the location of a few favorable deposits that were investigated in the third month.

Four areas known as Baloff, New Find, Hurricane Bill and Coon Creek deposits were explored with some initial work during the month of June. All of them contained some good ore and excellent geologic conditions that indicated possible extension of the ore deposits as revealed at the surface. Smaller quantities of ore, ranging in manganese content from 10 to 20 per cent, are available in numerous places throughout the manganese area. It is not believed to be possible to develop large reserves of this grade of ore. It is quite possible that substantial reserves of material containing approximately 5 per cent manganese can be proven to exist throughout the area but it is not anticipated that many very large deposits will be found. Deposits on the order of five to fifty thousand tons will probably be the rule. In some areas several such deposits may be found relatively close together.

The area of manganese mineralization is very large. It is roughly estimated to cover 350 to 400 square miles in Arkansas plus a good deal more in Oklahoma. Most of the manganese area in Arkansas is on public domain or Week's Law land and thus can generally be easily acquired for mining purposes. Practically all of the manganese area in Oklahoma is privately owned and would have to be individually negotiated for either by lease or by purchase.

The area examined by geologists of this company makes up a very small percentage of the total area. There are many known prospects that have not been visited and a great deal

of geologically favorable area that has never been examined by technically trained men. There are no doubt hundreds of occurrences of manganese throughout the area. However, only a small percentage of them are likely to have economic possibilities.

R. B. McElwaine
Consultant for Inland
Mining Corporation.

INLAND MINING CORPORATION
Mena, Arkansas

Results of four samples sent to Bruce Williams Laboratories for complete quanitative analysis. A discussion giving complete information on these samples will be found immediately following the analyses shown below.

		AP#1	HB#1	NF#1	CC#1
Analysis on basis as received:					
Moisture, dried to constant weight at 105 deg.C		0.10	0.14	0.18	0.11
Chemically combined water	H_2O	2.27	2.81	3.85	4.06
Carbon Dioxide	CO_2	0.14	0.13	0.11	0.10
Calcium Oxide	CaO	0.08	0.10	0.15	0.08
Magnesium Oxide	MgO	0.14	0.12	0.23	0.17
Silica	SiO_2	78.88	75.80	64.59	62.50
Ferrous Oxide	FeO	0.03	0.03	0.02	0.03
Ferric Oxide	Fe_2O_3	6.44	4.72	1.72	3.00
Manganese Dioxide	MnO_2	8.61	12.72	23.09	21.33
Manganese Oxide	MnO	2.52	2.34	5.20	6.44
Barium Oxide	BaO	0.12	0.13	0.10	0.11
Alumina	Al_2O_3	0.10	0.48	0.16	1.44
Phosphorous Pentoxide	P_2O_5	0.31	0.20	0.22	0.25
Total Sulphur as Sulphur Trioxide	SO_3	0.08	0.10	0.13	0.12
Sodium Oxide	Na_2O	0.05	0.06	0.07	0.06
Potassium Oxide	K_2O	0.03	0.03	0.05	0.05
Zinc	Zn	* n.d.	n.d.	n.d.	n.d.
Cobalt	Co	0.03	0.03	0.05	0.05
Nickel	Ni	0.02	0.02	0.03	0.04
Lead	Pb	n.d.	n.d.	n.d.	n.d.
Copper	Cu	0.005	0.004	0.008	0.007
Difference and Undetermined		0.04	0.03	0.04	0.05
Total Manganese present as Mn		7.39	9.85	18.62	18.47
Total Iron present as Fe		4.52	3.32	1.22	2.12
Total Phosphorous calculated to P		0.14	0.09	0.10	0.11

*None detected.

The traces of copper, cobalt and nickel may be present as sulphides. Some of the manganese may be present as a silicate.

RECORD OF SAMPLES SENT TO BRUCE WILLIAMS LABORATORY
ON JUNE 7, 1952 FOR COMPLETE QUANITATIVE ANALYSIS.

Sample No: AP#1

Date Taken: June 6, 1952

Location: Claim No. 28, American Group, trench #2, under DMEA exploration contract #2299. This project was given the name "Apple" and thus the designation AP#1. It is located in the NW¼ of Section 35, T. 3S, R. 30W, Polk County, Arkansas.

How Taken: The sample was taken by the chip channel method out of the floor and wall of the trench over a lateral distance of about 30 feet. The sample was primarily in freshly broken rock so as to be fairly free of surface clay, but it was near the surface and thus not completely free of all surface oxidation processes. The sample was all from the actual ore bearing beds and thus did not include any barren or near barren rock from the overlying or underlying beds.

Weight of Original Sample: Ninety pounds.

Method of Splitting: The sample was crushed to minus one inch, coned, and quartered. Opposite quarters were combined and shipped for analysis. The remaining quarters were combined and saved for future reference.

Description of Ore: The sample was composed of two types of material. One was massive, hard novaculite with numerous fine fractures ranging from a hair line to 1/4 inch in thickness and running in all directions through the rock. The manganese occurs as fracture filling and is principally of a hard, blue-black variety. Appreciable iron oxide is present in some of the fractures but does not appear to be intimately intermixed with the manganese. The manganese is not uniformly distributed through the rock but occurs in concentrated nests or zones of fracturing occurring at random through the ore bed. Inspection with a hand lens revealed fine particles of silica scattered throughout most of the manganese. The other type of ore in the sample was from a thinner bed and therefore a lesser amount of it was included. The rock type is a fine grained, sandy, breccia. The manganese occurs as a matrix or filling in the rock and is intimately intermixed with the silica in a fine grained form. Appreciable iron oxide is observed to be present in the ore. The entire sample was as free of surface clay and soil as possible, but a small amount of it was unavoidably included. The sample was from the top of the lower division of the Arkansas Novaculite formation.

Record of Samples Sent to Bruce Williams Laboratory on June 7, 1952 for Complete Quanitative Analysis.

(2)

Sample No: HB#1

Date Taken: June 3, 1952

Location: Hurricane Bill claims 1 and 2 located in the east center of section 33 and west center of section 34, T. 3S, R. 28W, Polk County, Arkansas.

How Taken: Two channel samples were taken across the edge of the upturned ore bed which is about eight feet thick. The bed had been opened up by mining operations several years previously and the samples were taken in these old workings at points about 100 feet apart along the strike of the bed. The two channel samples were combined so as to make one representative sample of the area.

Weight of Original Sample: Seventy-five pounds.

Method of Splitting: The sample was crushed to minus one inch, coned, and quartered. Opposite quarters were combined and shipped for analysis. The remaining quarters were combined and saved for future reference.

Description of Ore: One channel sample was in fresh unweathered rock. The hard, steel blue, manganese occurs as fracture fillings throughout the novaculite. The fractures have a normal thickness of 1/8" to 1/2" with numerous finer fractures and frequent heavier ones of one to two inches in thickness. The manganese in the thinner fractures contains considerable fine grained silica, but in the coarser fractures the manganese appears to be fairly free of silica except along its contact with the rock. The main ore bed is in the upper division of the Arkansas Novaculite formation at a point about 12 to 15 feet stratigraphically below its contact with the Stanley Shale formation. This ore bearing rock is more porous and softer than that from the lower division of the novaculite formation and is easier to drill and break than the latter. The ore from the first channel is from below the zone of oxidation and is clean and free of any apparent contaminating minerals including iron.

The second channel sample is comparable to the first one except that it is much closer to the original ground surface and contains some clay and considerable iron oxide along the fracture faces and in the more porous parts of the rock.

Record of Samples Sent to Bruce Williams Laboratory
on June 7, 1952 for Complete Quanitative Analysis.

(3)

Sample No: NF #1

Date Taken: June 6, 1952

Location: New Find mine located in South central part of section 27, T. 3S, R. 29W, Polk County, Arkansas.

How Taken: There is an old tunnel that penetrates the near vertical ore beds at a point about 20 feet below their surface outcrop. Several pieces of ore were picked at random from the wall of the tunnel to make up this sample. The sample was all taken from one ten foot bed which contains the best ore of the 30 foot zone which is the thickness of the complete ore zone.

Weight of Original Sample: Sixty-five pounds.

Method of Splitting: The sample was crushed to minus one inch, coned, and quartered. Opposite quarters were combined and shipped for analysis. The remaining quarters were combined and saved for future reference.

Description of Ore: This ore is from the normal ore horizon at the top of the lower division of the Arkansas Novaculite formation. The rock is highly fractures and apparently somewhat altered so as to be more like the softer porous rock in the upper division than the hard dense type that is common to the lower division. The manganese occurs as fracture filling and the fractures generally range from 1/8" to 1" in thickness. Part of the manganese is of the hard dense variety but the greater percentage of it is of the soft pyrolusite type. Most of the manganese appears to be free of the fine grained silica that is so common to most of the western Arkansas manganese occurrences. The ore at point of sampling is practically free of clay and the only iron present appears to be fracture staining. No other minerals are observed to be present in visible quantities. The bulk of the manganese would probably be broken free of the rock if crushed to minus 1/2".

Record of Samples Sent to Bruce Williams Laboratory on June 7, 1952 for Complete Quanitative Analysis.

(4)

Sample No: CC #1

Date Taken: June 4, 1952

Location: Branch of Coon Creek in N. W. $\frac{1}{4}$ of section 13, T. 4S, R. 28W, Polk County, Arkansas.

How Taken: A ten foot ore bed lying in a horizontal position and with about six feet of rock overlying it has been mined so as to expose a vertical face of the ore bed along a distance of about seventy-five feet. At four intervals approximately ten feet apart along this exposure a channel was chipped out of the face across its vertical height and allowed to pile up at the base. An equal amount of material was taken from each pile and combined so as to form one composite sample.

Weight of Original Sample: Sixty pounds.

Method of Splitting: The sample was crushed to minus one inch, coned, and quartered. Opposite quarters were combined and shipped for analysis. The remaining quarters were combined and saved for future reference.

Description of Ore: This sample is from the normal ore horizon at the top of the lower division of the Arkansas Novaculite formation. The rock is of the hard dense variety but is highly fractured and contains many large fractures which are filled with hard, high grade manganese. This deposit appears to contain more large fractures that would produce more free ore with a minimum of crushing than any other deposit examined to date. There is also extensive fine fracturing filled with manganese. Some iron oxide staining occurs at random throughout the exposure but no other minerals are present in visible quantities. The manganese itself is of the hard, dense, steel blue variety that breaks with a conchoidal fracture. It contains some fragments of novaculite but does not appear to have the usual intermixture of fine grained silica that is common to most of the western Arkansas ores.

INLAND MINING CORPORATION
Mena, Arkansas

Assay Results of Samples - Bruce Williams Laboratories

Location	Sample	Interval	Length of Cut	Mn	Fe	Cu	P
Baloff	J-1	0'-3'	3'	3.54			
"	J-1	3'-5'	2'	1.78			
"	J-2	0'-3'	3'	2.55			
"	J-2	3'-5'	2'	1.17			
"	J-3	0'-3'	3'	7.17			
"	J-3	3'-6'	3'	4.40			
"	Channel Sample		5'	15.29	6.08	*N.D.	0.32

Location	Trench No.	Sample No.	Length of Cut	Mn	Fe	Cu	P
Boar Tusk	1	1	11-5'	8.40	5.95	0.01	0.22
" "	5	1	2-5'	3.14	2.96	N.D.	0.06
" "	5	2	5'	7.14	4.33	N.D.	0.11
" "	5	3	2'	8.46	5.58	N. D.	0.23
" "	5	4	2'	7.32	5.95	N. D.	0.26
New Find	1	1	10'	8.22	1.20	0.01	0.03
" "	1	2	10'	2.83	1.20	0.005	0.03
" "	1	3	10'	2.15	1.11	N. D.	0.03
Hurricane Bill							
	1	1	6'	5.54	2.40	0.04	0.05
" "	1	2	6.5'	4.62	3.20	0.02	0.02
" "	2	1	7.5'	4.22	1.20	0.03	0.02
" "	2	2	8.5'	6.77	4.20	0.05	0.10
" "	3	1	7.5'	23.70	1.20	0.03	0.14
" "	4	1	9.5'	7.75	1.44	0.026	0.05
" "	5	1	9'	7.30	3.44	0.120	0.09
Coon Creek	1	1	6'	18.85	1.70	0.02	0.14
" "	1	2	6'	10.24	1.26	0.03	0.07
" "	2	1	6'	6.35	1.36	0.124	0.04
" "	2	2	6'	7.30	1.46	0.042	0.03
" "	3	1	6.5'	17.94	4.92	0.02	0.25
" "	3	2	6'	10.34	1.24	0.036	0.08

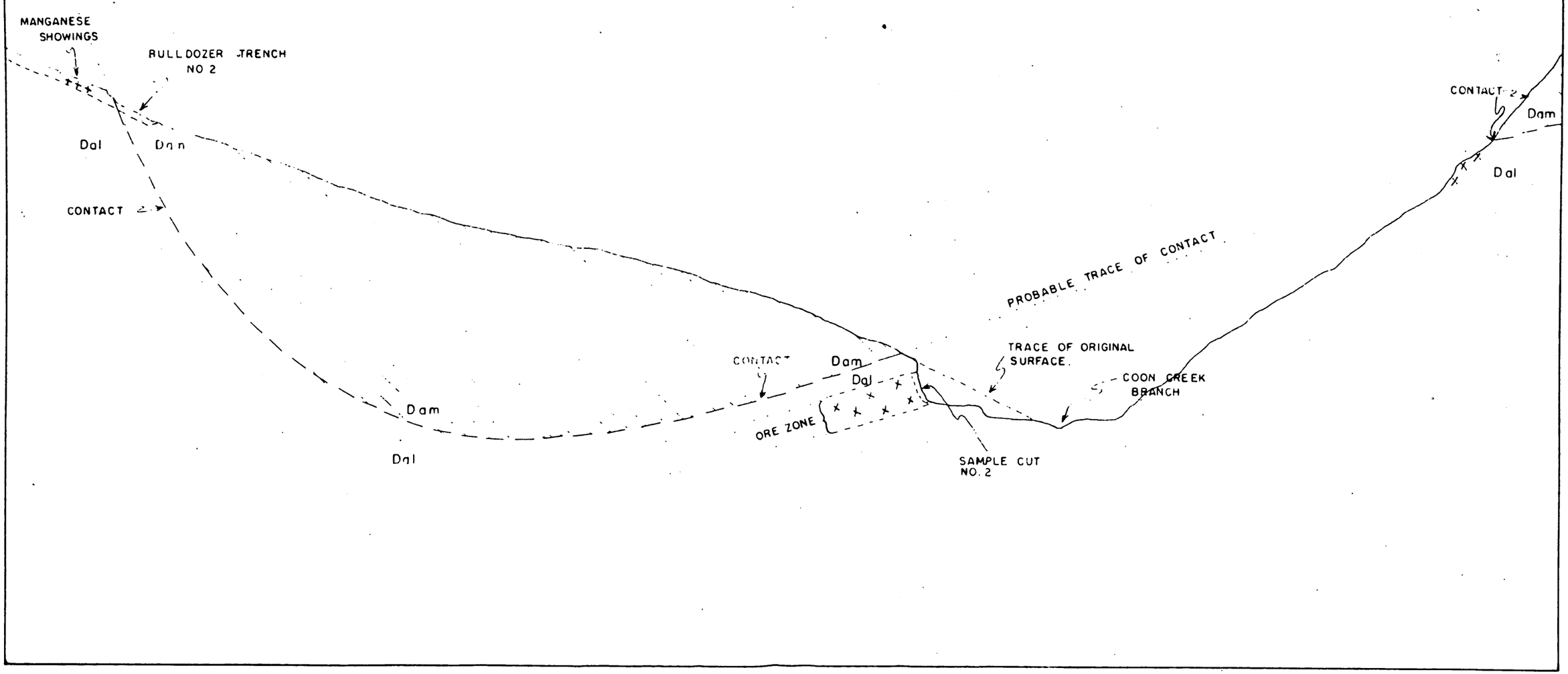
*None detected.

INLAND MINING CORP.
MENA, ARKANSAS

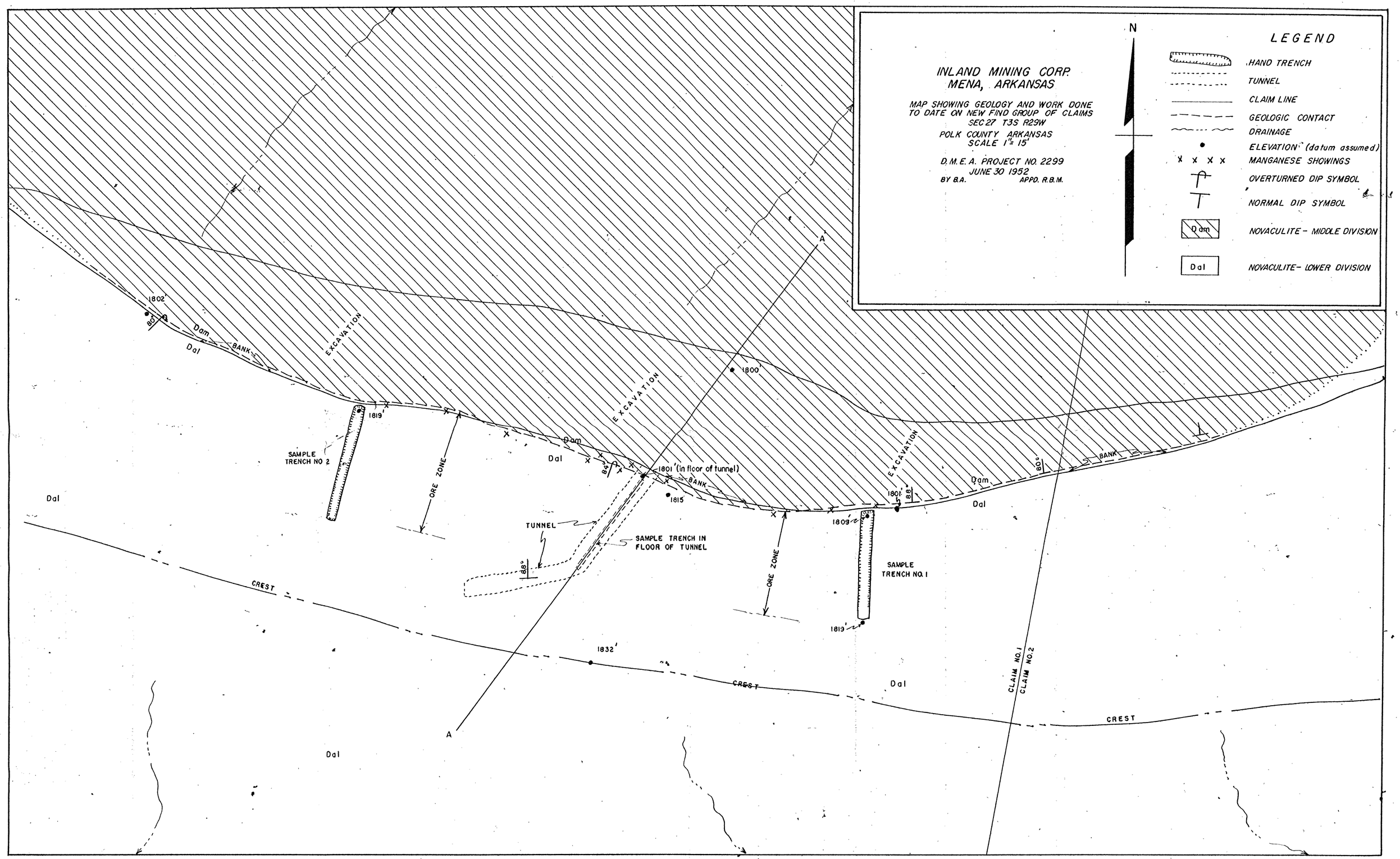
CROSS SECTION THROUGH EXCAVATION AND TRENCH ON
COON CREEK GROUP OF CLAIMS (Map No 109) SEC 13
AND 14 T.4 S R.28W
POLK COUNTY, ARKANSAS
SCALE 1" = 60'

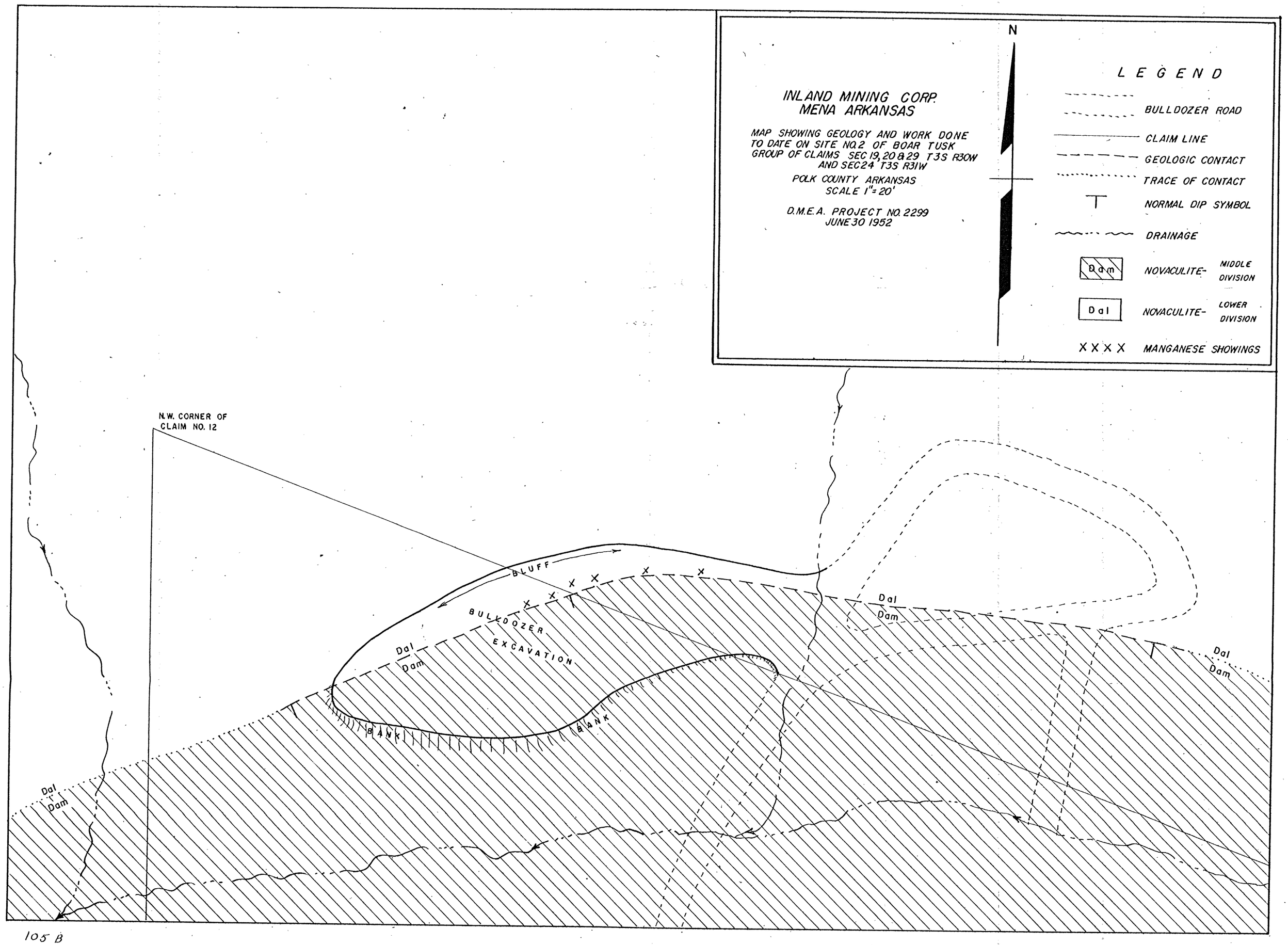
D M E A PROJECT NO 2299
JUNE 30 1952
BY B A APPD R B M

CROSS SECTION A A' LOOKING N 73 W

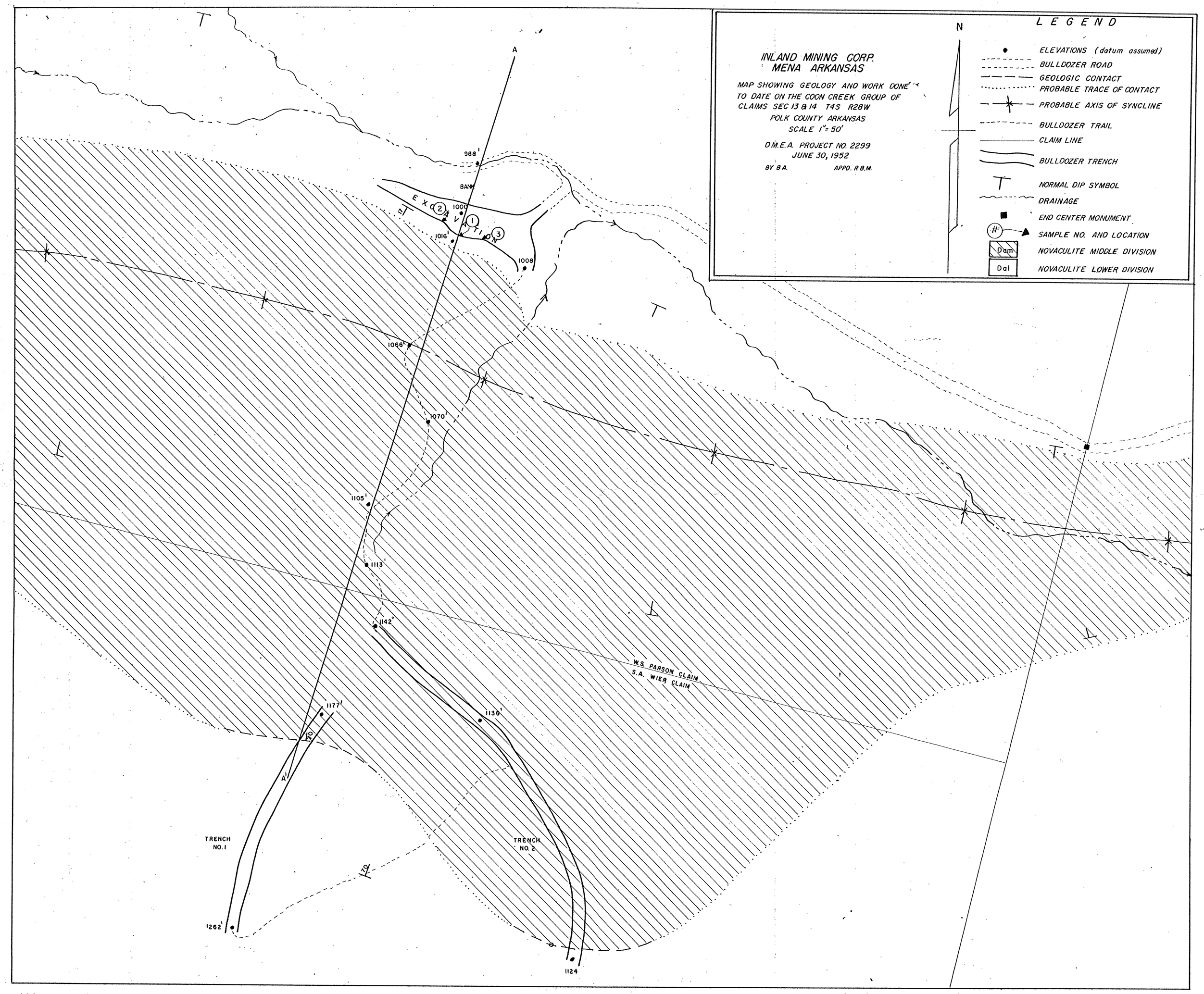


109 · PLATE I

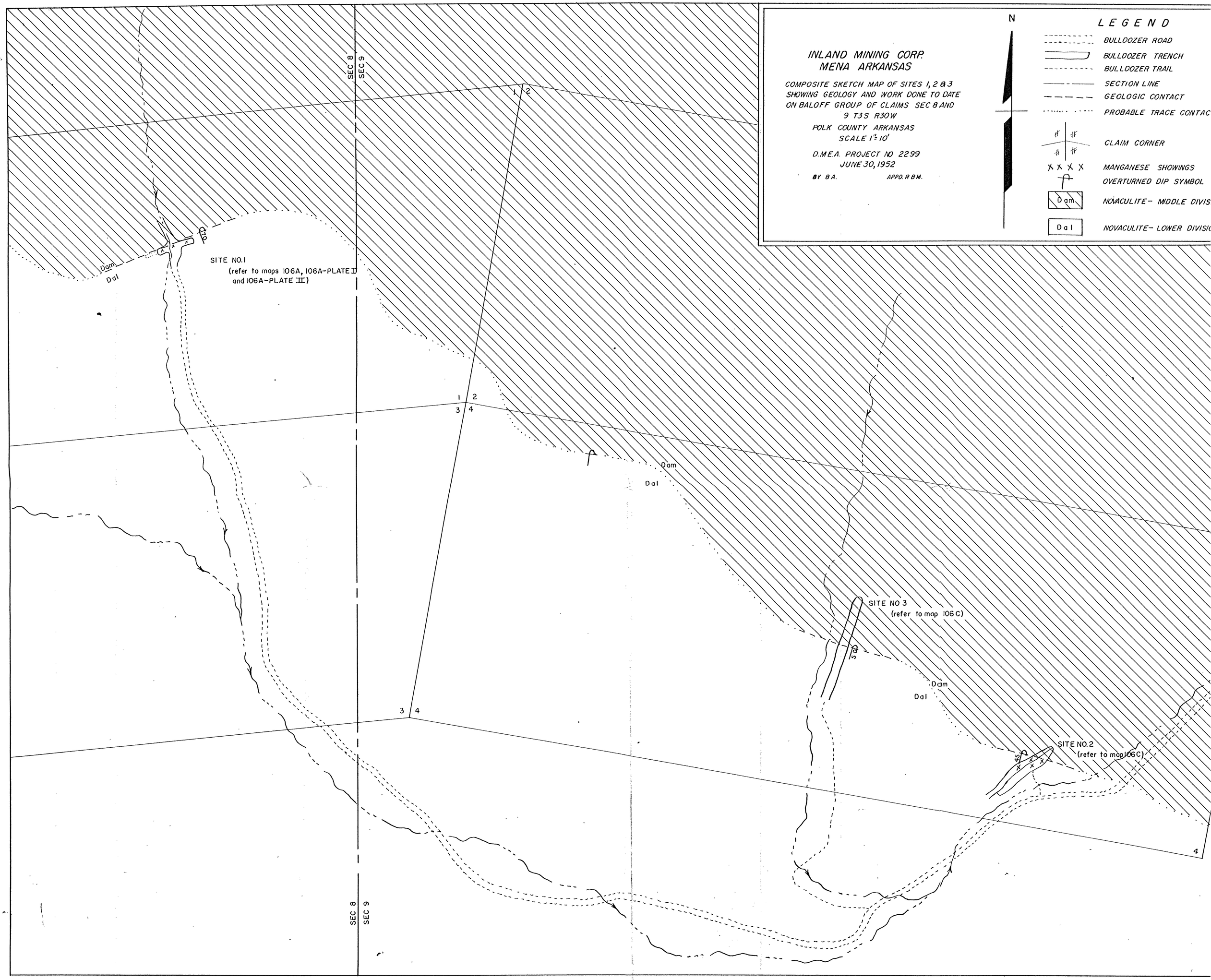

INLAND MINING CORP.
MENA, ARKANSAS
MAP SHOWING GEOLOGY AND WORK DONE TO DATE ON NEW FIND GROUP OF CLAIMS
SEC 27 T3S R29W
POLK COUNTY ARKANSAS
SCALE 1" = 15'
D.M.E.A. PROJECT NO. 2299
JUNE 30 1952
BY B.A.
APPD. R.B.M.
N
LEGEND
HAND TRENCH
TUNNEL
CLAIM LINE
GEOLOGIC CONTACT
DRAINAGE
ELEVATION (datum assumed)
MANGANESE SHOWINGS
OVERTURNED DIP SYMBOL
NORMAL DIP SYMBOL
Dam
NOVACULITE - MIDDLE DIVISION
Dal
NOVACULITE - LOWER DIVISION
1802'
80°
Dam
Dal
BANK
EXCAVATION
1819'
SAMPLE TRENCH NO 2
ORE ZONE
Dam
Dal
84°
1801' (in floor of tunnel)
BANK
1815'
TUNNEL
SAMPLE TRENCH IN FLOOR OF TUNNEL
86°
CREST
1832'
A
1800'
EXCAVATION
Dam
Dal
1801'
88°
1809'
ORE ZONE
SAMPLE TRENCH NO. 1
1819'
80°
BANK
CLAIM NO. 1
CLAIM NO. 2
CREST
Dal

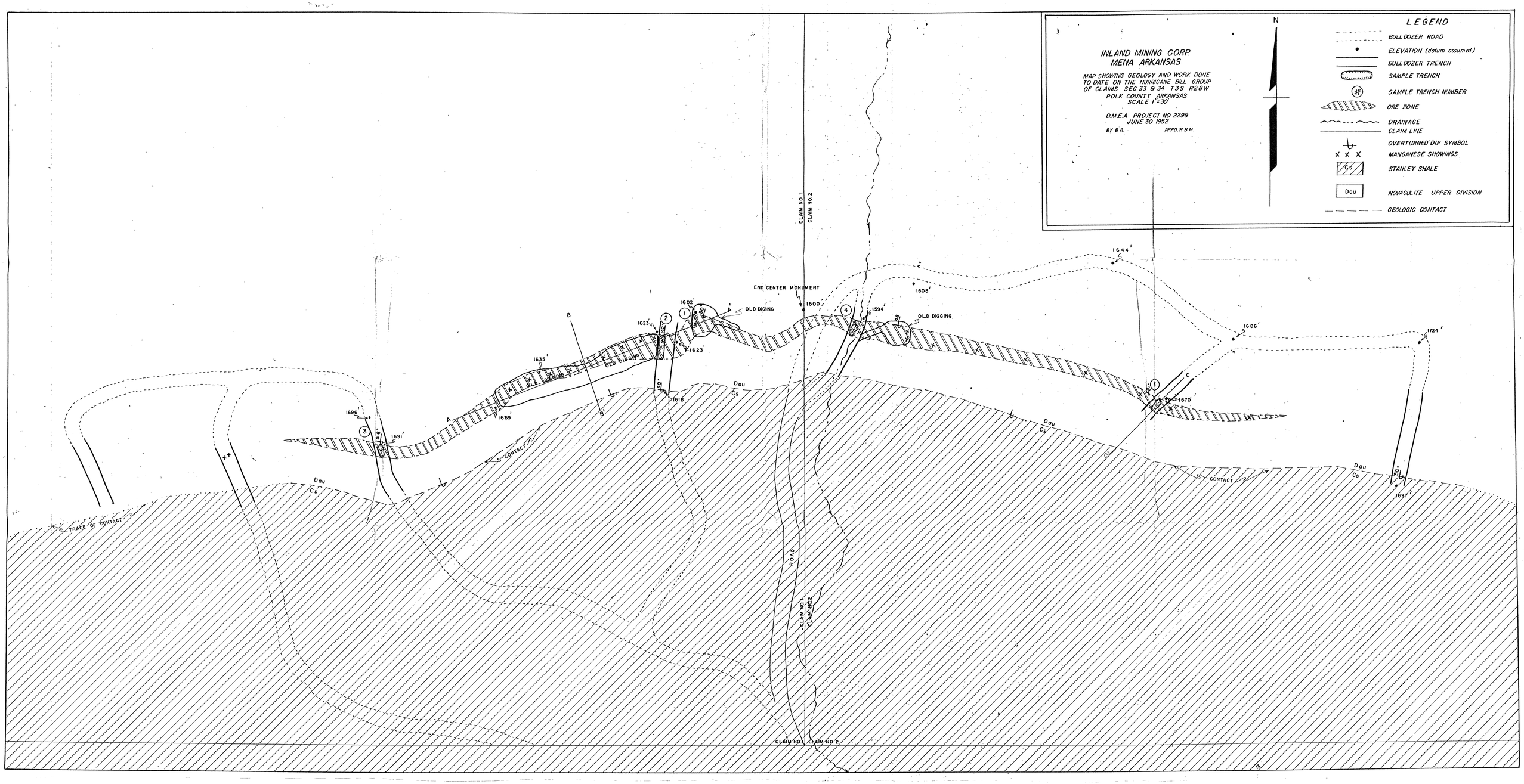

INLAND MINING CORP.
MENA ARKANSAS
MAP SHOWING GEOLOGY AND WORK DONE TO DATE ON SITE NO. 2 OF BOAR TUSK GROUP OF CLAIMS SEC 19, 20 & 29 T3S R30W AND SEC 24 T3S R31W
POLK COUNTY ARKANSAS
SCALE 1" = 20'
D.M.E.A. PROJECT NO. 2299
JUNE 30 1952
N
LEGEND
BULLDOZER ROAD
CLAIM LINE
GEOLOGIC CONTACT
TRACE OF CONTACT
NORMAL DIP SYMBOL
DRAINAGE
Dam
NOVACULITE- MIDDLE DIVISION
Dal
NOVACULITE- LOWER DIVISION
X X X X
MANGANESE SHOWINGS
N.W. CORNER OF CLAIM NO. 12
BLUFF
BULLDOZER EXCAVATION
BANK
BANK
Dal
Dam
Dal
Dam
Dal
Dam
Dal
Dam

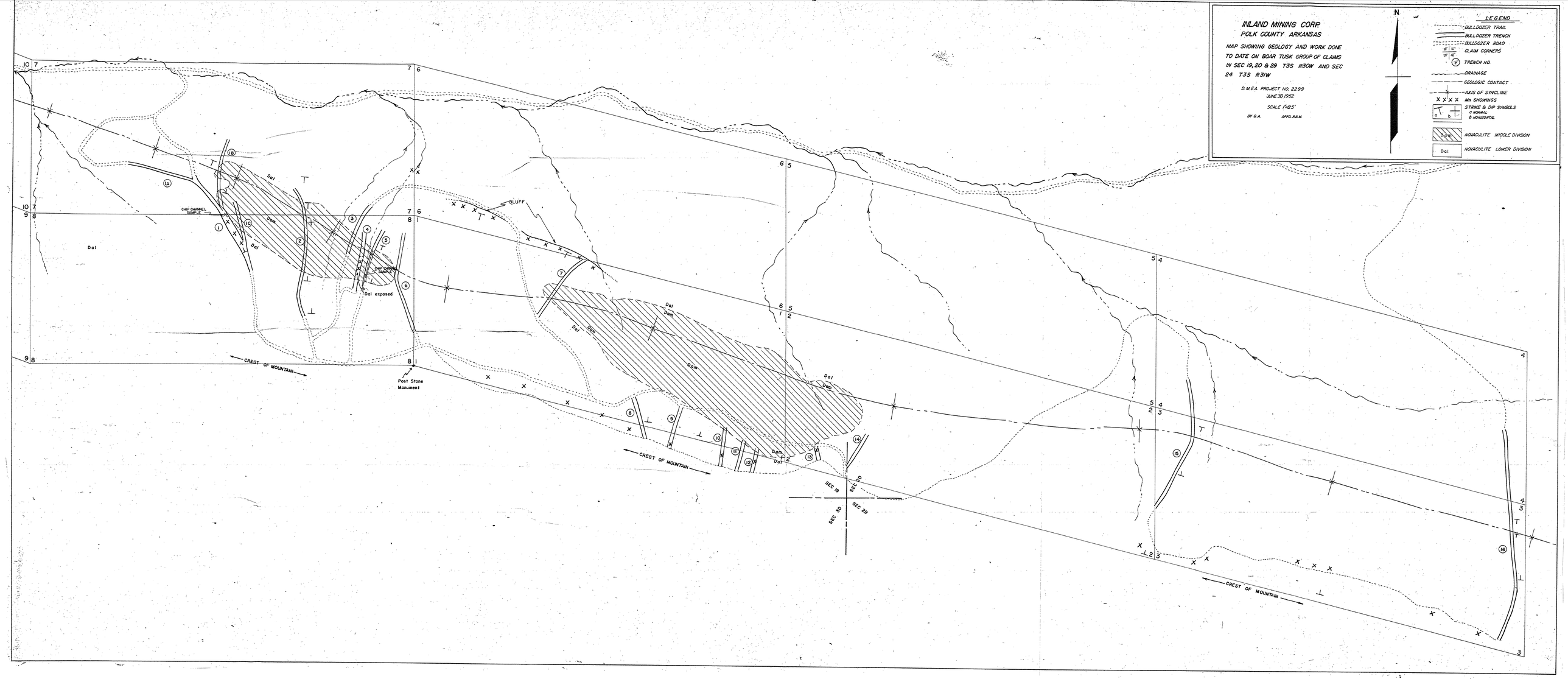
105 B


INLAND MINING CORP.
MENA ARKANSAS
MAP SHOWING GEOLOGY AND WORK DONE TO DATE ON THE COON CREEK GROUP OF CLAIMS SEC 13 & 14 T4S R28W
POLK COUNTY ARKANSAS
SCALE 1" = 50'
D.M.E.A. PROJECT NO. 2299
JUNE 30, 1952
BY B.A. APPD. R.B.M.
N
LEGEND
ELEVATIONS (datum assumed)
BULLDOZER ROAD
GEOLOGIC CONTACT
PROBABLE TRACE OF CONTACT
PROBABLE AXIS OF SYNCLINE
BULLDOZER TRAIL
CLAIM LINE
BULLDOZER TRENCH
NORMAL DIP SYMBOL
DRAINAGE
END CENTER MONUMENT
SAMPLE NO. AND LOCATION
Dam
NOVACULITE MIDDLE DIVISION
Dal
NOVACULITE LOWER DIVISION
A
988'
BANK
1000
1016'
1008
EXCAVATION
1
2
3
1066'
1070'
1105'
1113'
1142'
1177'
1136'
1124
1262'
W.S. PARSON CLAIM
S.A. WIER CLAIM
TRENCH NO. 1
TRENCH NO. 2
A'

109


INLAND MINING CORP.
MENA ARKANSAS
COMPOSITE SKETCH MAP OF SITES 1, 2 & 3
SHOWING GEOLOGY AND WORK DONE TO DATE
ON BALOFF GROUP OF CLAIMS SEC 8 AND
9 T3S R30W
POLK COUNTY ARKANSAS
SCALE 1" = 10'
D.M.E.A. PROJECT NO 2299
JUNE 30, 1952
BY B.A.
APPD. R.B.M.
N
LEGEND
BULLDOZER ROAD
BULLDOZER TRENCH
BULLDOZER TRAIL
SECTION LINE
GEOLOGIC CONTACT
PROBABLE TRACE CONTAC
CLAIM CORNER
MANGANESE SHOWINGS
OVERTURNED DIP SYMBOL
Dam
NOVACULITE- MIDDLE DIVIS
Dal
NOVACULITE- LOWER DIVISI
SEC 8
SEC 9
SITE NO. 1
(refer to maps 106A, 106A-PLATE I
and 106A-PLATE II)
SITE NO 3
(refer to map 106 C)
SITE NO. 2
(refer to map 106 C)
Dam
Dal
1
2
3
4


INLAND MINING CORP.
MENA ARKANSAS
MAP SHOWING GEOLOGY AND WORK DONE TO DATE ON THE HURRICANE BILL GROUP OF CLAIMS SEC 33 & 34 T3S R28W
POLK COUNTY ARKANSAS
SCALE 1"=30'
D.M.E.A PROJECT NO 2299
JUNE 30 1952
BY B.A.
APPD. R.B.M.
N
LEGEND
BULLDOZER ROAD
ELEVATION (datum assumed)
BULLDOZER TRENCH
SAMPLE TRENCH
SAMPLE TRENCH NUMBER
ORE ZONE
DRAINAGE
CLAIM LINE
OVERTURNED DIP SYMBOL
MANGANESE SHOWINGS
STANLEY SHALE
Cs
Dau
NOVACULITE UPPER DIVISION
GEOLOGIC CONTACT
CLAIM NO 1
CLAIM NO 2
END CENTER MONUMENT
1600'
1602'
1623'
1635'
1669'
1696'
1691'
1618'
1594'
1608'
1644'
1686'
1670'
1724'
1697'
OLD DIGGING
OLD DIGGING
OLD DIGGING
A
A'
B
B'
C
C'
CONTACT
CONTACT
TRACE OF CONTACT
ROAD
Dau
Cs


INLAND MINING CORP.
POLK COUNTY ARKANSAS
MAP SHOWING GEOLOGY AND WORK DONE TO DATE ON BOAR TUSK GROUP OF CLAIMS IN SEC 19, 20 & 29 T3S R30W AND SEC 24 T3S R31W
D.M.E.A. PROJECT NO. 2299
JUNE 30 1952
SCALE 1"=25'
BY B.A.
APPD. R.B.M.
N
LEGEND
BULLDOZER TRAIL
BULLDOZER TRENCH
BULLDOZER ROAD
CLAIM CORNERS
TRENCH NO.
DRAINAGE
GEOLOGIC CONTACT
AXIS OF SYNCLINE
Mn SHOWINGS
STRIKE & DIP SYMBOLS
a NORMAL
b HORIZONTAL
Dam
NOVACULITE MIDDLE DIVISION
Dal
NOVACULITE LOWER DIVISION
CHIP CHANNEL SAMPLE
Dal
Dam
Dal exposed
BLUFF
CREST OF MOUNTAIN
Post Stone Monument
SEC 19
SEC 20
SEC 30
SEC 29