MAR 19620002: NORTHWESTERN ALBERTA

Received date: Dec 31, 1962

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19620002

Summary of Exploratory Work Done on Iron Prospecting

Permit No. 18 (Donner Iron Deposit)

by Loram Ltd.
August 10, 1962

The area is question is located on the Hotchkiss River in North Western Alberta at longtitude 118° 25' and latitude 57° 13'. It is about 112 miles N.E. of Fort St. John.

The following exploratory work has been done on this deposit.

1) On June 5, 1961 an engineer on the Loram staff accompanied by the prospector visited the area for one day and made an examination of the showings. A number of grab samples were taken the assays of which ran between 12% and 54% iron. The average was 30%. (See details in exhibit 1).

2) From July 19 to July 26, 1961 Dr. R.M. Dickey, and E. Panchysyn consultants retained by Loram, visited the property. Their preliminary geological report is appended to this report.

In this report Dr. Dickey outlined the geology of the area and estimated that the deposit might contain 20 million tons of iron bearing sandstone. However, he recommended against further work, mainly on the basis of economic reasoning. (Report attached as exhibit 2).

3) Between August 24 and Sept. 8 Loram had a crew at the property digging trenches and pits. The objective of this work was to uncover iron bearing formation. The iron bearing formation indicated by the trenching proved to be a thin capping only.

4) The following is a summary of costs incurred by Loram in carrying out the above work. (Full details attached on exhibit 4).

Original examination	$ 1,102.10
Examination by R. Dickey & E. Panchysyn	2,278.11
Cost of trenching	2,992.23
Total Cost	$ 6,372.44

5) Conclusion: The results of the trenching work indicated that the actual extent of the iron formation was only a thin capping on weathered sediments and was not underlain by deposits of oolitic iron and therefore not interesting economically. (letter from D.J. Kidd, July 20, 1961.)

LORAM LTD.

[redacted]

C.M. LOCKWOOD, P. Eng.

EXHIBIT 1

Examination of the Donner Iron Deposit Showings

(This report is an excerpt from an inter-office memo written by A.F. Seraphim P. Eng., a member of Lorams' staff)

Description of Property

Location: On the Hotchkiss River in North Western Alberta
Long. 118° 25' Lat. 57° 13' in the cretacious formation (geologic age)
112 miles N.E. of Fort St. John
80 Miles N.W. of Peace River
64 miles N. of Hines Creek - terminal of Northern Alberta Railway
The showing is accessible (i) by Helicopter from Fort St. John - O.K. Helicopters Ltd., or from Peace River - Associated Helicopter (when helicopter available) (ii) within 7 miles by road.

A forestry road branches from Highway 35 to the West, 1 - 1/2 miles North of Hotchkiss, or 65 miles North of Grimshaw. This road actually passes through, or very close to the N.E. corner of the concession.
(See figure 1)

Topography:

The Hotchkiss River meanders easterly across the northern portion of the proposed concession about 30' wide 3.4 feet deep. The 2500 foot elevation contour passes almost diagonally across the concession from the N.W. to the S.E. corner.

The area contains about 50% muskeg and 50% tree cover, which latter probably indicates a shallow cover over bedrock.

Ore Deposit:

The deposit is poorly defined (over an area 3000' by 2000') by small pits and dubious outcrops. Limonitic material was found at the foot of a slope along a lineal distance of about 5000' (i.e. two sides of a rectangle 3000' by 2000') and on top of the ridge in two places where overburden was shallow. Overburden consists of grey sand, clay and limonitic sand.

.....2

Seven samples were taken for assay and forwarded to the Provincial Assayor at the University in Edmonton.

Sample 1- 54% Fe - Grab sample of best looking material from shallow pit at N.E. corner of ridge.

Sample 2 - 45% Fe - Grab sample (representative) of material 50' up slope or 15' higher in elevation than Sample 1.

Sample 3 - 18% - Grab sample (representative) of material 100' from Sample 1 at top of ridge, approximately 40' higher in elevation.

Sample 4 - 13% - Sample of float in limonitic layer in overburden

Sample 5 - 12% - Sample of float in limonitic layer

Sample 6 - 20% - Sample of limonitic material at bottom of pit - apparently in place.

Sample 7 - 40% - Limonitic material at S.E. corner of ridge at foot of ridge.

The results of these samples and the visual examination indicate two possibilities.

(a) The zone of 40% - 50% Fe content striking approximately W 20° E along the foot of the ridge is a result of a concentration by weathering of the low grade material found higher on the ridge and may continue into the muskeg but would probably not be economic.

(b) The zone of 40% - 50% Fe concentrate is a strata of unknown thickness (possibly more than 15' thick) overlain by a strata of poor material in the order of 15 to 25 feet thick.

Assuming (b) is the case, an area 3000 feet square by 25 feet thick would contain a quantity of ore equal to $\frac{3000 \times 3000 \times 25}{10}$ = 22,500,000 Tons with an approximate 1:1 waste ore ratio. Continuity of this type of ore body is historic (over 5 billion tons in France and Germany).

Recommendation: Pending the final assay report; it is recommended that Loram apply for an iron prospecting permit for a period of one year.

Note: Final assays attached.

sent 21/7/61 KDJ.

RESEARCH COUNCIL OF ALBERTA

87TH AVENUE AND 114TH STREET
EDMONTON, ALBERTA, CANADA

Geology Division

July 20, 1961.

Loram Ltd.,
Room 103,
239 - 6 Avenue S.W.,
CALGARY, Alberta.

Attention: Mr. A. F. Seraphim

Dear Mr. Seraphim:

Three of the four samples which I received from you yesterday are surface or bog-iron samples, i.e. of secondary origin. The remaining sample, No. 3, is a siliceous ferric sandstone which is hardly oolitic and of no value.

We have seen similar samples from the same area and do not think they are worth studying as received. In order to determine their economic value, the dimensions, including thickness of the occurrence, must first be determined and whether the locale of the three surface samples is underlain by bedrock deposits of oolitic iron type.

It is not possible to determine the age of the occurrence from these samples.

Yours very truly,

Donald J. Kidd.

DJK/G

C. EMERSON NOBLE
CHEMICAL ENGINEER
DIRECTOR INDUSTRIAL LABORATORIES
PROVINCIAL ANALYST

EDMONTON, ALBERTA
CANADA

July 18, 1961

Report of Analysis

sent Kb

SAMPLE OF: Irene Ore

SUBMITTED BY: Loram Ltd., 239 - 6 Avenue SW, Calgary

LABORATORY NUMBER: 61 - 6431-37

	Fe	SiO_2	Al_2O_3	Sulphur	PO_4	Mn
#1	57%	2%	24%	1.73%	0.01%	0.01%
#2	47%	3%	21%	5.16%	0.02%	trace
#3	15%	59%	3%	0.58%	0.04%	0.03%
#4	12%	70%	7%	0.13%	0.02%	0.04%
#5	10%	73%	7%	0.15%	0.02%	0.03%
#6	20%	49%	11%	0.06%	0.02%	0.12%
#7	40%	19%	17%	2.82%	0.02%	0.03%

[redacted]

C. Emerson Noble
Director
Industrial Laboratory

CEN:as

Exhibit 2

PRELIMINARY

GEOLOGIC REPORT

on the

DONNER IRON DEPOSIT (Claims)

CONCLUSION

The Donner iron deposit is unfavourably regarded for further investigation because of limited tonnages of ferruginous material indicated therein, according to available geologic evidence.

GENERAL

This deposit is located, as nearly as can be determined at present, in the extreme western part of Section 4 and the eastern half of Section 5, T95 and R3 west of the Sixth Meridian. It comprises the eastern part of a low ridge trending roughly east-west, which rises to a maximum height of about 80' above surrounding swamp and decreases gradually in elevation to the west. The ridge is about two miles long as observed.

The steepest slopes of the ridge are at its eastern terminus, and nowhere exceed 20° to the horizontal. The slopes flatten appreciably as the ridge surfaces descend from the crest toward the swamp surface elevations.

The Hotchkiss River is the major permanent stream in the locality, trending south of east at an average distance of 1/2 mile north of the Donner deposit.

Vegetation is abundant, the higher ground bearing jack pine and popple, and the swamps spruce, cedar, alder, and numerous varieties of moss which accumulate to a spongy thickness of perhaps 3' to 4'. No large trees were seen although some trunk diameters in the popple reach 10".

No roads exist near the deposit. Access is either by air, or along a trail leading to the Chinchaga ranger station from the old highway just west of the McKenzie Highway. This trail meets the old highway 2 miles north of the Hotchkiss P.O., and trends roughly north of west. A southward trail leaves it in the northeast portion of Section 26, T94, R2, to cross the Hotchkiss River by bridge in Section 34, T94, R3. Just south of the bridge is an east-west seismic trail passable only on foot in summer. This meets a roughly north-south seismic trail 2-1/2 miles to the west, which encounters still another east-west seismic trail 1/2 mile to the north. The latter east-west trail is followed west 7/8 mile, and the eastern face of the ridge is reached at a horizontal distance of just under 1 mile north. This last mile has no trails and the terrain is principally boggy swamp with heavy stands of alder, cedar and spruce.

GEOLOGY

Exposures. No exposures of bedrock in place were observed anywhere on the ridge and none is believed to exist. Aerial observation confirms this. Geologic conclusions herein are necessarily based upon float (talus or scree) and upon material exposed at the roots of timber deadfalls. Limited as the evidence is, it can be very useful providing the float has been subject to limited transportation, which is obviously true in this case. The float fragments are markedly angular except where they consist of discoidal concretions of ferruginous material which have locally indurated the sandstone.

It is believed that the float fragments have been dislodged from their original bedrock locations by weathering and have moved for relatively short distances downgrade by gravity to become embedded in a matrix of decomposed and disintegrated sandstone and clay. The sandstone being comparatively soft, any prolonged transportation by whatever agency would have produced much more rounding than is present.

It can hardly be denied that this assumption is correct, and it is the basis for the conclusions reached in this examination.

Materials Present. The most prominent location of float, over an area of about 100 square feet, is at the east end of the north flank

of the ridge, in the extreme northwest portion of Section 4, lying at the ridge base near its juncture with swamp. It is marked by a vertical steel drill rod and a blazed partial tree stub in place. The float material is ferruginous sandstone and siltstone, the silica grains cemented by yellow to blackish limonite, perhaps in part goethite. Occasional small lenticular fragments of white chert, pea-size or smaller, occur. The sandstone is predominantly fine-grained. Iron content can be guessed reasonably as 30%, or possibly a trifle more.

The float fragments are surrounded by fine-grained limonitic sand, with some clay, believed to represent detritus from sandstone still in place in the ridge, but not outcropping.

To the south on the east margin of the ridge and then to the west on the south margin at the ridge base are occasional float fragments of ferruginous sandstone, ranging up to 2' x 2' x 1'. The most westerly one located on the south flank is about 500' from the eastern ridge slope.

Going west on the north ridge margin from its eastern edge, angular pieces of ferruginous sandstone are found sporadically for a distance of about 500' from the steel drill-rod location, at the ridge base.

Going up the ridge slope from these, deadfall material shows ferruginous sandstone of about the same character to a vertical height of roughly 20'-25' above the ridge base. This is succeeded upward by an unknown thickness (possibly 5'-10') of lean ferruginous sandstone, and this by gray silt and clay with occasional well-rounded pebbles of quartzite up to 2" in diameter. The latter comprises the ridge material from the highest-observed sandstone to the crest.

Proceeding westward on the north flank of the ridge, indications of ferruginous sandstone of any grade whatever disappear abruptly about 500' from the drill-rod location. Deadfall exposures show only gray clay and silt, with sparse rounded pebbles of quartzite, or perhaps more properly novaculite, since the siliceous material is extremely fine-grained. This is true from ridge base to crest. The lowering of the ridge crest elevation to the west is concomitant with the disappearance of ferruginous sandstone from the deadfall material.

Stratigraphy. The ferruginous sandstone is definitely of the Clinton type, although not necessarily of Clinton age. If it were, it would be Silurian, as in the United States where it is present in Wisconsin, New York State and Alabama. However, this sandstone has been definitely established as Cretaceous in the Hotchkiss area.

The gray clay and silt, containing occasional rounded pebbles, is almost without question of glacial origin and Pleistocene age.

Suggested Geologic History. This is largely postulated on scraps of evidence and surmise but seems to fit the picture. It is emphasized that nowhere are strikes and dips available, but the character of the sandstone shows it has been subjected to no major deformation. It can be reasonably suggested that it lies approximately horizontal, or, if dipping, only slightly.

It is thought that the sandstone in place is a remnant of a once extensive deposit, covering a very large area, which by an unusual geologic occurrence escaped complete erosion by Pleistocene glaciation. It is probably a small monadrock which protruded slightly above the surrounding area after glacial activity had ceased.

The clay and silt, with sparse rounded pebbles, were almost without question deposited in an extensive Pleistocene glacial lake, and covered the area to an unknown depth. The pebbles are doubtless ice-rafted and were transported for long distances.

Following the final retreat of the ice sheets, post-glacial erosion set in. Stream action worked continuously on the glacial

lake deposits, leaving them as a capping or mantle over the sandstone monadrock. Westward, where the sandstone is no longer observable, it is likely that the ridge is made up entirely of this glacial material.

Weathering produced a breakdown of the exposed ferruginous sandstone into sand and silt particles, with accompanying angular sandstone fragments, which moved downgrade by gravity to the base of the ridge. Sandstone in place was too friable to outcrop and continued to slough off until buried under its own debris or covered by a clay-silt mantle from higher elevations.

The bulk of the ridge mass indicates only clay-silt present. It might be considered that no sandstone shows because the glacial mantle is much heavier to the west than toward the east. More logical is that the sandstone does not show because it is not present.

Economics. This area is remote from market and transport facilities. Even with the new railroad north from Grimshaw, Alberta, a rail spur about 30 miles long would be required from the main line to the property. Estimated cost of this spur would be roughly 2-1/2 million dollars, as a guess. Added to this would be all plant, equipment, and the numerous other requirements to place the property in operation.

In this light, a proven reserve of over 100 million tons of ferruginous sandstone would be marginal, when it is noted that of this only about 35 million tons of concentrates would be realized, at best.

Treatment of the sandstone for concentration would be low-cost; a gravity separation using only water as a medium, and with low crushing charges, could be suitable. Further conjecture as to this aspect would await chemical and metallurgical examination.

It is felt that nowhere near 100 million tons of sandstone are to be found in the Donner deposit - a more likely estimate is of the order of 20 million tons, granted that available information is scanty.

In brief, although details might be argued over, and postulates set up for very extensive low-grade iron deposits in the area, nothing now observed on surface would justify further expenditures on the Donner property.

R. M. Dickey

RMD:ljr
July 27th, 1961

EXHIBIT 3

Report on Exploration Work Conducted on Iron

Prospecting Permit No. 18 - Hotchkiss River

(Donner Iron Deposit)

From August 24 to September 8 Loram Ltd. employed a crew of 4 men to do trenching and other excavation work on the Donner Iron Deposit. This work was arranged by a member of the Loram engineering staff and directed in the field by Mr. Brian Donner, finder of the deposits. The crew consisted of a foreman, powderman, labourer and guide-horse wrangler.

The purpose of this program was to cut access trails to the showing and attempt to remove enough overburden so that the iron bearing formation could be examined in place. Up to this point only float material had been observed. (See report by R. M. Dickey).

During the time they were at the showings this crew dug and blasted approximately 50 pits and trenches of various lengths and to depths of 6 to 8 feet. These pits and trenches were dug along the edge of the bluff shown in figure 2. Typical strata encountered in these trenches were:

0' to 2'	Surface overburden
2' to 6'	Hard Sandstone - Ferruginous
6' to 7'	Black clay
7' to 7'6"	Yellow silt

Bottom on trench - black clay.

With the equipment and facilities available it was not practical to excavate to greater depths. In no case was any of the iron bearing formation found in place although loose chunks of it, highly angular in shape, were uncovered in the digging.

None of the material found in the trenches appeared to differ from the samples picked up during the original examination so no further assays were made.

Conclusions:

The iron bearing formation is a thin capping on weathered sediments and is not underlain by oolitic iron formation and is therefore not interesting economically.

LORAM LTD.

[redacted]

C.M. LOCKWOOD, P. Eng.

EXHIBIT 4

Details of Costs Incurred by Loram Exploring

Iron Prospecting Permit 18

(Donner Iron Deposit)

1. Original examination

Transportation from Calgary to Ft. St. John for 2 people in Mannix Company Ltd. plane. $ 367.10

Helicopter transportation from Ft. St. John to the area of the showings. 585.00

Cost of Loram [redacted] - (day in field plus report writing) 150.00

Total $ 1,102.10

2. Cost of examination by [redacted] July 28

Fees of [redacted] for field work and office work. $ 1,298.37

Aircraft expenses for transportation to Grande Prairie and flying over area 463.67

Other personal expenses and overhead 516.07

$ 2,278.11

3. Cost of Trenching etc. August 24 to September 8.

Mechanic	8 hrs. @	$ 4.25	$ 34.00		
Electrician	2 hrs. @	5.00	10.00		
Carpenter	11 hrs. @	5.00	55.00	$99.00	
Powderman DT	35 hrs. @	3.80	$ 133.00		
Powderman OT	22 hrs. @	2.85	62.70		
Powderman ST	104 hrs. @	1.90	197.60		
Labor DT	41 hrs. @	3.20	131.20		
Labor OT	25 hrs. @	2.40	60.00		
Labor ST	104 hrs. @	1.60	166.44		
[redacted]	18 days @	25.00	450.00	1,200.94	$ 1,299.94

Supplies	$ 457.43	Hold Pay	51.98
Oil & Grease	53.35	W.C.B.	43.92
Hightest Gas	7.00	U.I.C.	4.08
5% Handling	25.89	10%	139.94
	543.67		1,539.86

	543.67
Guide 13 days @$10.00	130.00
4 Horses 11 days @$10.00	110.00
Personal Expenses	142.70
[redacted] Cash Advances - $50.00 & $75.00	125.00
Steamclean Truck & Trailer 2 hrs. @$7.00	14.00
Rental on Land Rover	350.00
Rental on Trailer	37.00
	$ 2,992.23

4. Total costs incurred by Loram $6,372.44.

Form No. LE 10

STATUTORY DECLARATION

Canada)
Province of Alberta)
)
To Wit:)

IN THE MATTER OF **expenditures made by Loram Ltd. with respect to Iron Prospecting Permit #18**

I, **Charles McDonald Lockwood**

of the **City of Calgary**

in the Province of Alberta , **Engineer**

do solemnly declare that

1. **THAT I am associated with Loram Ltd. and as such have full and personal knowledge of the matters hereinafter set out, save those which I declare to be to the best of my knowledge, information and belief.**

2. **THAT the expenditures of Loram Ltd. as evidenced in Exhibit 4 to a Report re the Donner Iron Deposit dated August 10th, 1962, is a true and accurate account of expenditures made by Loram Ltd. in exploration work carried out under Iron Prospecting Permit #18.**

AND I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of "The Canada Evidence Act".

Declared before me at the)
City)
of **Calgary**)
)
in the Province of Alberta,)
)
this **10th** day of **August**)
)
A. D. 19**62** .)

[redacted]

Frances L. Boyd
A Commissioner for Caths in and
for the Province of Alberta.

File No. 107501

DESCRIPTION

IN TOWNSHIP NINETY-FOUR (94), RANGE THREE (3), WEST OF THE SIXTH (6) MERIDIAN:

Sections Nineteen (19) to Twenty-three (23) inclusive and Sections Twenty-six (26) to Thirty-five (35) inclusive;

AND

IN TOWNSHIP NINETY-FIVE (95), RANGE THREE (3), WEST OF THE SIXTH (6) MERIDIAN:

Sections Two (2) to Eleven (11) inclusive;

AND

IN TOWNSHIP NINETY-FOUR (94), RANGE FOUR (4), WEST OF THE SIXTH (6) MERIDIAN:

Sections Twenty-four (24), Twenty-five (25) and Thirty-six (36);

AND

IN TOWNSHIP NINETY-FIVE (95), RANGE FOUR (4), WEST OF THE SIXTH (6) MERIDIAN:

Sections One (1) and Twelve (12);

containing an area of Nineteen Thousand, Two Hundred (19,200) acres, more or less.

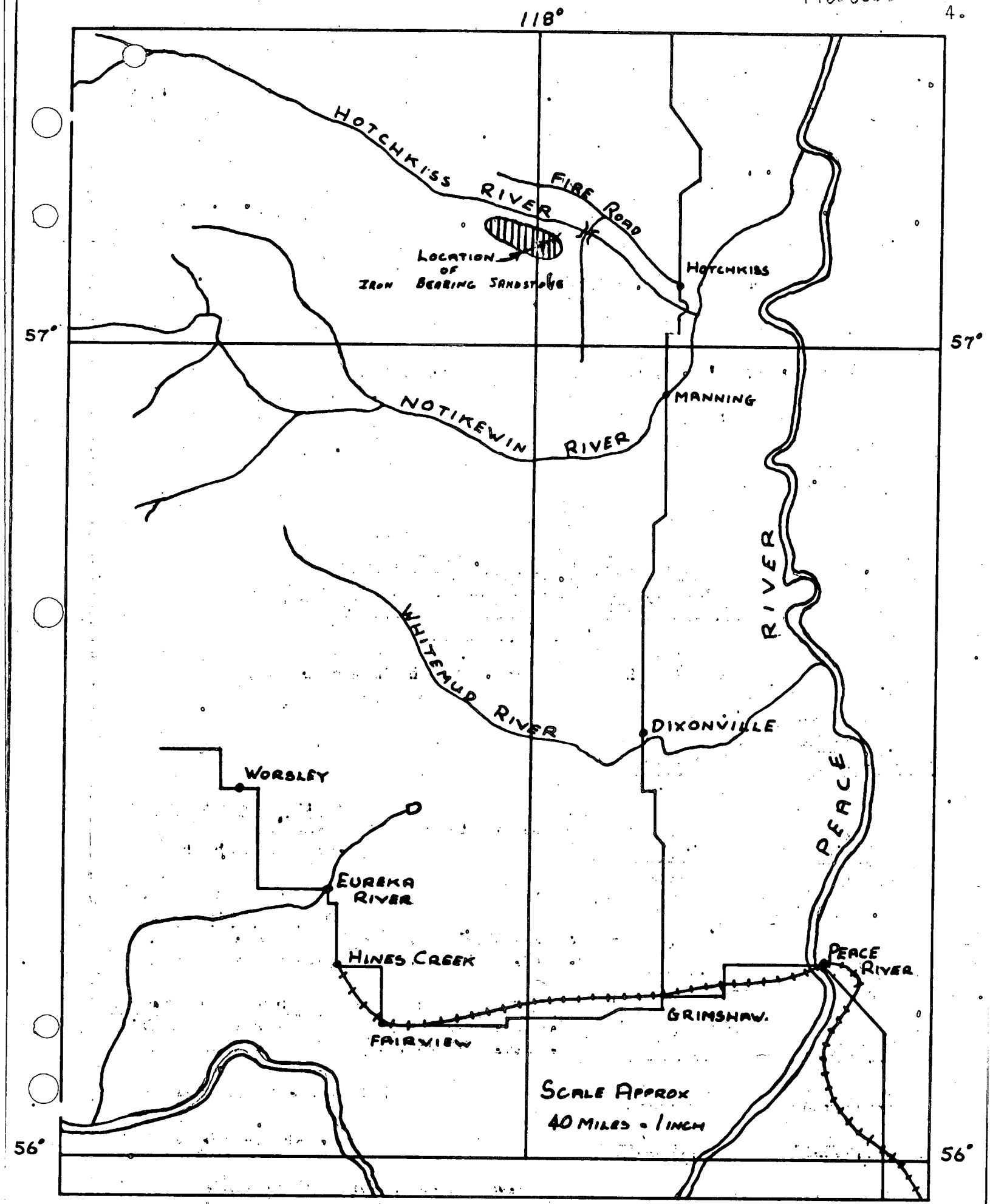
118°
HOTCHKISS RIVER
FIRE ROAD
LOCATION OF IRON BEARING SANDSTONE
HOTCHKISS
57°
57°
MANNING
NOTIKEWIN RIVER
RIVER
WHITEMUD RIVER
DIXONVILLE
PEACE
WORSLEY
EUREKA RIVER
HINES CREEK
PEACE RIVER
GRIMSHAW
FAIRVIEW
SCALE APPROX
40 MILES = 1 INCH
56°
56°

FIGURE 1

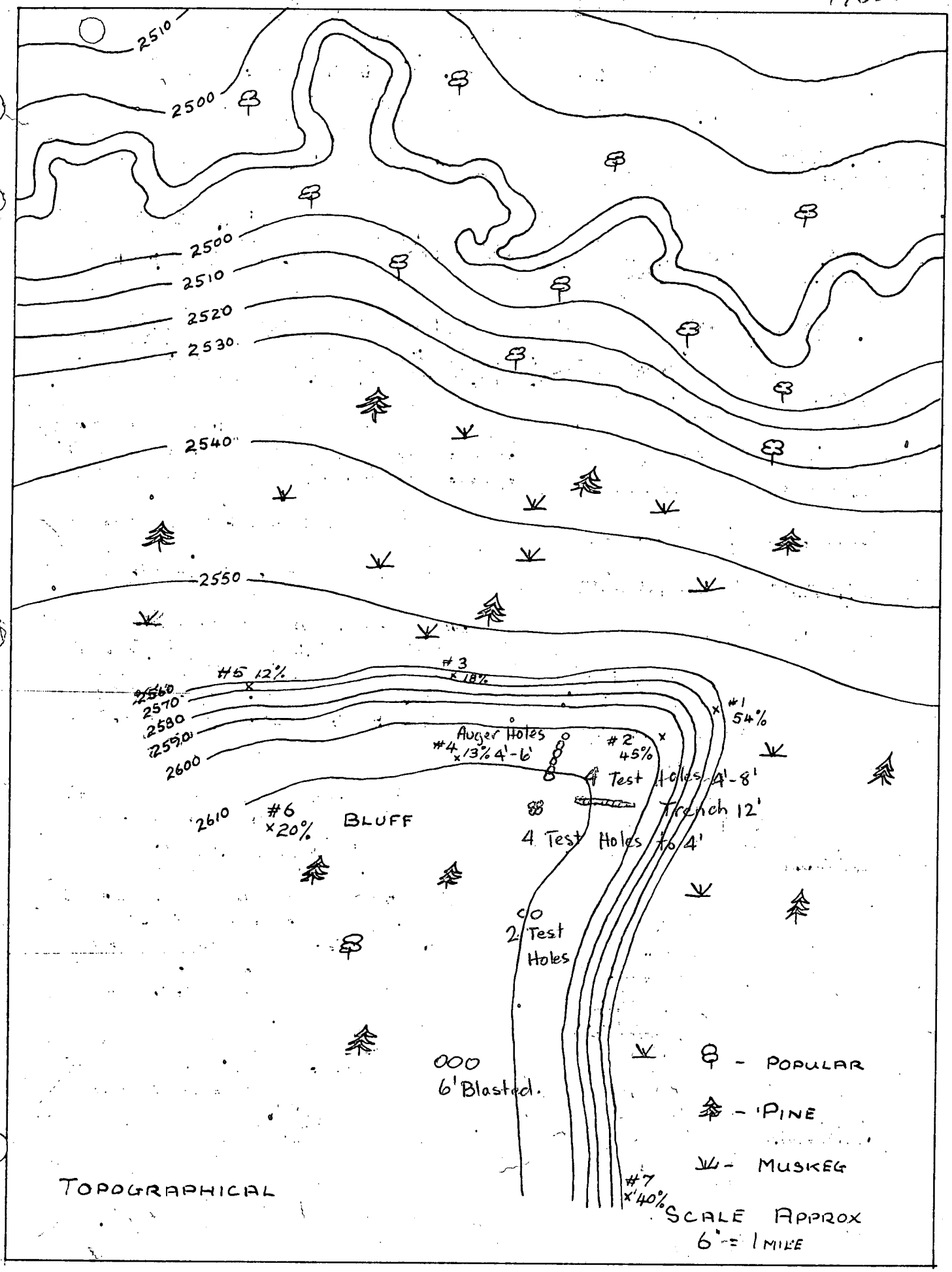
1962 000 ?
2510
2500
2500
2510
2520
2530
2540
2550
#5 12%
#3 18%
2560
2570
2580
2590
2600
#1 54%
Auger Holes
#4 13% 4'-6'
#2 45%
4 Test Holes 4'-8'
Trench 12'
2610
#6 20%
BLUFF
4 Test Holes to 4'
2 Test Holes
6' Blasted.
- POPULAR
- PINE
- MUSKEG
#7 40%
TOPOGRAPHICAL
SCALE APPROX
6" = 1 MILE

FIGURE 2