

REPORT ON CERTAIN FEATURES OF INTEREST WITH RESPECT TO
EXPLORATION ON THE CENTRAL PATRICIA GOLD MINES LTD'S
PROPERTY, CENTRAL PATRICIA, ONTARIO

The following report is confined to a discussion of evidence and possible programs of exploration in the vicinity of the Central Patricia and Springer mines.

During the course of this work and the preparation of this report, the writer has drawn on much available information gathered by the mine staff, consulting geologists, Ontario Bureau of Mines and others. The co-operation and interest of the manager, Mr. R. E. Barrett and his staff was particularly helpful, as well as the information given by Mr. A. G. Hattie and his staff at the Pickle Crow.

THE POSSIBLE REASON FOR THE RAKE OF THE ORE BODIES AND ITS
POTENTIAL VALUE IN LOOKING FOR FURTHER ORE

Mining at the Central Patricia Mine has reached a stage where the rake of the ore bodies is clearly known, and is of use in predicting the position of these bodies, which are more or less uniform in horizontal length over a considerable vertical interval. At present a panel of these closely spaced bodies are being mined along a horizontal east-west length of 500 to 600 feet. They lie in one general horizon of iron formation which has an almost east-west strike, and dips 73 to 74 degrees to the north. It is possible that the various lenses of ironstone which contain the ore are not one bed, which has in places suffered considerable dislocation and fracturing, but in part two or more closely adjacent lensing beds. It is clearly visible in places that these beds have been severely pulled or sliced along this strike. The rake of the ore shoots and the general end-boundaries of the panel of these shoots has, if seen in vertical east-west section, a dip of about 65 degrees to the east. The plunge of the compound angle made by this ore shoot rake, being in a dipping horizon, is about a dip of 62° N. 64° E. The structural reasons for this ore rake are of course of considerable importance, as a proper interpretation would facilitate the search for ore. In reviewing the geological plans the following possible solution presented itself.

In the intense folding and later movements suffered by the greenstone and interbanded iron formation, much deformation, fracturing and shearing of the ore bearing horizon has occurred. The pattern of all these shears and fractures is complex, and in many parts show little consistency, but a few things stand out relatively clearly.

1. Drag folds are common in the banded iron formation and

usually show that the north side of the beds has moved west and south side east, but the reverse is evident in places. The pitch down the bedding, seen in vertical east-west section, is almost vertical to 65 to the east.

2. Shearing parallel to the beds is very common.

3. Ore occurs, as Buffam pointed out, where the iron formation has suffered cross fracturing. Often this fracturing is quite irregular, but in other places it has a rather consistent north or slightly east of north strike.

4. Out of the welter of other directions of dislocation present, one rather consistent shear direction is evident: a northwesterly trending, northeasterly dipping one. These shears strike from about N. 68 degrees W. to N. 45 degrees W., with odd ones approaching N. 40 W. Their dip is from 75 to 55 degrees to the northeast, with a few as low as 45.

Three more or less main zones containing this shearing are present in the mine workings: (a) a pronounced eastern zone evident on surface and on lower levels on the east boundary of the main ore zone; (b) a central zone which is strong but not well defined on many levels; and (c) a western zone bounding the ore zone on the west. This last one is not well known, as most of the workings do not extend far enough west. Other shears with like directions are present between the above rather vaguely defined zones. Some of the abnormal dragging seen in the iron formation may be due to the intermediate blocks between these main zones suffering torsional stresses.

5. Rather wide zones of disturbance are locally present. In these where the iron formation, if narrow, is strung out in irregular blocks, and the associated schist is more or less contorted and mineralized, but usually does not contain gold values. In these zones are more or less evident some of the north-westerly shears and it is believed that they usually are closely related to these areas of disturbance and mashing.

Naturally a relation between these various structural features is to be expected. They of necessity did not all arise at once and it is more than likely that some of these failure directions were at times more active than others, and, moreover, these events occurred over a long interval of time. A simple relationship for these structural characteristics is indicated in the attached diagram. The east-west and north-westerly shears are considered as related shear directions and the cross fracturing, common in the ore, is considered as the tension direction of failure. The irregularity in the trends and strikes of these latter fractures strongly supports this. The movement on the northwesterlies is usually east side moved south. If this

shear is related to the east-west shears, the movement on these must be north side west and south side east. Such movement along the bedding and boundaries of the iron formation would give the dragages which are typical in most of the present mine workings.

The intersection of the dipping iron formation with the northwesterly shears conforms reasonably closely with the rake of the ore bodies and the boundaries of the panel of ore bodies now mined, at least from the S75 to the surface.

The regional strike of the folded strata is northeasterly but near the shaft of Central Patricia, the iron bands have an east-westerly strike. The compressive forces that would cause this, at this locality would be in a direction approximately north-south. Subsequent compressive forces the region suffered would probably also trend to be in that same general direction.

Although there are occurrences in the mine that are not obviously explained by the above hypothesis, these exceptions are not serious. The weight of evidence rather strongly supports it.

The following three points are discussed with reference to the above hypothesis:

1. The H-3 and F-3 Orebodies

The H-3 and F-3 orebodies were intersected on the 3rd level about 500 feet west of the main ore lenses. To the east of them is a wide zone of disturbance and northwesterly shearing. Under the above theory the occurrence of ore here is explainable.

On the S. 60° E. continuance of F-3 stopes diamond drill hole No. U-119 intersected, probably, the same iron band which showed a width of 7 ft., and less, with but good values in gold. Though a narrow band of iron and therefore not favourable for ore deposition it here carried values, probably due to its proximity to the above zone of northwesterly shearing.

This shear zone is a relatively strong one and given good widths of iron, ore should be found adjacent to it at lower levels.

2. The 1000-ft. Level Orebodies.

The absence of ore at the west end of this level, where it might reasonably be expected in the wide iron formation here present, is explainable on the assumption that the western zone of shearing becomes weaker at depth and the associated cross fractures would therefore be less in amount.

(eastern?)
The western and central zones of shearing are apparently quite a little stronger and their persistence to greater depth with associated orebodies can be expected.

3. Mineralized Occurrences in the Station at the 1300-ft. Level

Iron formation and porphyry occur and are intensely sheared in a direction of N. 70° W., and dip to the north east. Some heavy slips striking a little more northerly are also present. These last are believed to be the important later structures. The above shearing is cut by quartz veins, so the veins are later; but the north-westerly slips cut the quartz. The iron formation is generally heavily sheared so that, like the porphyry, it can not be considered as a brittle member. The presence of much tension fracturing in the iron formation is therefore not to be expected and little that can be considered as such is present. The brittle quartz is fractured and both it and parts of the iron formation contain sulphides. Some of the above mineralized quartz cuts the iron formation and there is a possibility it will assay in gold. Still cross fracturing is not pronounced here and is possibly not persistent enough to afford channels for gold. So far assays have yielded no values in this locality.

The heavy shearing evident in the station will be found to angle across the iron formation and the less disturbed area adjacent to the shear, if iron formation is present, should prove favourable ground. There is quite a probability that the porphyry in this neighbourhood has cut out at least part of the iron. Not enough is yet known regarding the configuration of this intrusive body to be able to predict the presence or absence of the favourable iron horizon in this locality.

SOUTH HORIZON OF IRON FORMATION INDICATED IN 1300 FOOT STATION

The horizon of iron formation in the 1300 foot station lies close to 400 feet to the south of the band now being mined. Assuming a N 60° W to N 55° W strike on the northwesterly shears and that the south band continues parallel to the one being worked, the respective shears, if produced would intersect to the one being worked, the respective shears, if produced would intersect this south band about 690 to 570 feet east of the points they occur in the horizon being mined. Under the above theory this locality would be good prospecting ground for ore. The continuance of these shears is supported by the presence of northwesterly shears in the surface outcrop 450 to 800 feet southeast of the shaft. These lie on the strike of the eastern and central group of shears present in the mine workings. The western group would pass just to the south of this outcrop in covered ground. The shear zone just east of H3 and F-3 orebodies would also at surface, pass into covered ground.

If present at the surface the southern band of iron formation would outcrop in an east-west direction 400 feet south of the shaft. This would carry it across the south part of the area of outcrop southeast of the shaft. No iron formation is here present. The two north-south lines of dip needling done two years ago, 200 and 500 ft. west of the shaft do not indicate its presence there. It therefore apparently lenses out before it reaches the above outcrop and is not present at the subdrift surface southwest of the shaft.

The possibility of it being cut out by porphyry at least in part, is indicated. The Porphyry is present with it at the 1300 foot station. Drill hole No. 44 from the 250 foot level intersected porphyry between two points, respectively 240 feet west and 210 feet south, and 260 feet west and 290 feet south of the shaft. The end of this hole, which is in porphyry, is close to the strike of the iron horizon at that level and it is therefore probable that porphyry here cuts it off. At the surface a small porphyry outcrop is present 425 feet west and 525 feet south of the shaft, which lies south of the projected strike of the iron formation; but the width of the porphyry body is not known.

These three porphyry occurrences may all be part of one mass, but that at present is not known. More information will be required to delimit this porphyry and to estimate its relation to the southern band of iron formation.

THE POSSIBLE EXPLORATION OF THE SOUTHERN IRON BAND

On the 375 foot level the position of the west and east boundary of the main ore zone projected along the S 60 E and S 55 E directions of the northwesterly shearing would intersect the south iron band horizon at about 290 to 410 feet and at 770 to 890 feet respectively east of the shaft. A good locality, therefore, under the above theory to test for the possibilities of the southern band would be between 410 and 770 feet east of the shaft on the 375 foot level, where 400-foot, due south, horizontal holes would just reach the projected strike. The eastern end would be almost under the surface expression of the Fault Creek fault. The dip of this is not known but is possibly towards the east which would carry it still further east on the 375 foot level.

The above points would shift east approximately 45 feet for every 100 feet of depth. This would carry them far east of the workings on the lower levels.

The zone H-3 -- F-3 might likewise have its counterpart in the south iron band horizon. Taking the central point of this zone to be approximately 900 feet west of the shaft on the 375 foot level, and considering the hypothesized shear control has a strike of S. 60° to 55° E. this point would lie due south of the 375 foot level, between 210 to 330 feet west of the shaft. On the 625 the point would be 100 to 220 feet west of the shaft. At the 1,000 between 50 feet west to 70 feet east of the shaft. From the back of this station south of the shaft this area would be reached horizontally with a 50 foot hole. On the 1300, drifting on the iron band would reach the point at from 85 to 205 feet east of the shaft.

The most feasible and inexpensive exploration program to test the possibilities of the southern iron band horizon would be by a series of holes fanned out to the south from the 1,000 foot level station. Other possible programs are indicated above.

A SUGGESTED PROGRAM OF EXPLORATORY DRILLING NORTH OF THE SPRINGER

The work of Dr. J. E. Thompson, Ontario Bureau of Mines, and Creelman on the ground held by Pickle Crow Gold Mines Limited and the adjacent Patricia ground has traced the trend of numerous bands of iron formation. North of power line and Patricia - Pickle Crow road they have traced out structures which they believe are steeply north-easterly dipping synclines. On the Springer ground south of the road the north-easterly trending lavas and interbedded iron formations are facing southeast. Between these south-easterly facing lavas and the syncline north of the road there must be an antecline or fault, or the northern syncline is really an over-turned antecline. There is apparently no room for an antecline to reconcile the above structures and it is unlikely that what is now considered as a syncline is really an overturned antecline, so that the most logical solution is to believe that a strong northeasterly trending zone of faulting occurs in the general locality of the power line and road.

Evidence of a strong northeasterly trending fault in this locality is indicated by the following:

1. There is a very pronounced northeasterly trending valley.
2. Shearing on the north side of it on claim 630 parallels this direction.
3. Drilling by Pickle Crow Gold Mines Limited on the strike of this shows a wide zone of highly sheared rocks. Near the west boundary of claim 751, the furthest southwest hole drilled by them intersects a wide zone of shearing in which brecciated iron formation carrying gold is present.
4. The apparent lack of conformity of the structures on the two sides of this line supports the possibility of a fault, as previously indicate.

Gold is known to occur in the vicinity of the presumed fault, so that the possibilities of favourable ore structures being present in its vicinity must be considered. It is unlikely that the main fault will yield ore, but subsidiary favorable structures may be present. The presence of favorable bands of iron being involved in such movements is also likely. The possibility of gold being present in either iron formation or quartz veins is in harmony with the known occurrences in this locality. Recent work at the Albany has disclosed values in a wide contorted shear, presumably not the main fault.

The first program of exploratory drilling would comprise about 3000 feet of drilling. As indicated on the map three holes aggregating about 1550 feet of diamond drilling would section claim 630 in a northwesterly direction and would test the ground below the valley. About 1500 feet to the southwest another three holes would section the valley and determine the presence or absence of the two parallel faults believed to be here present. Cross shearing is present

7.

between these presumed faults as indicated by the sneer in the centre of claim 626. This shearing is east-westerly, and has the same strike as the north end of vein 5 on the Springer. This central block between the presumed faults would have undergone torsional strains due to the two boundary faults; if quartz veins or iron formations are here present it should be favorable country.

Another section which might eventually be tested, in the light of the evidence gathered from the above program, is the valley angling a little east of north, across the east boundary of claim 626. The direction of this valley is not far off that of the northerly trending sections of vein 5 and others west of the Springer shaft. It might be the locus of a fault zone heading into the main northeasterly trending fault. If such a structure is present it might of itself be interesting. The same would be true of related structures in the vicinity of it and the northeasterly fault.

J. B. Mawdsley,

Aug. 13, 1927.

W. F. JAMES & B. S. W. BUFFAM
GEOLOGISTS

67 Yonge Street,
Toronto, Ontario,
September 18, 1937.

Mr. P. E. Barrett,
Manager,
Central Patricia Gold Mines Ltd.,
PICKLE CROW, Ontario.

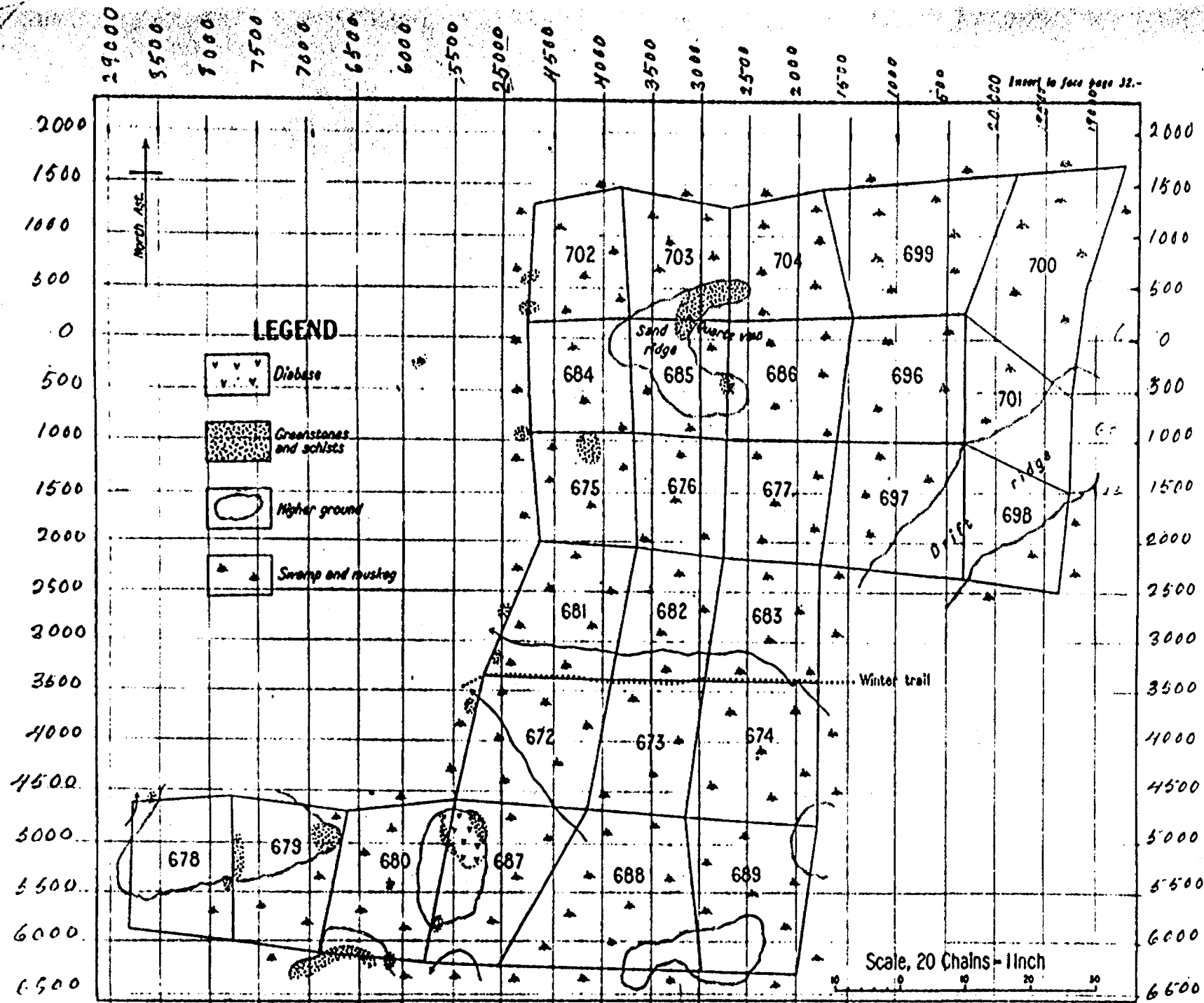
Dear Sir:

Enclosed herewith please find ^{copy of} Dr. Mawdsley's
Report on Central Patricia Gold Mines Limited, dated,
August 13th, 1937.

Yours very truly,

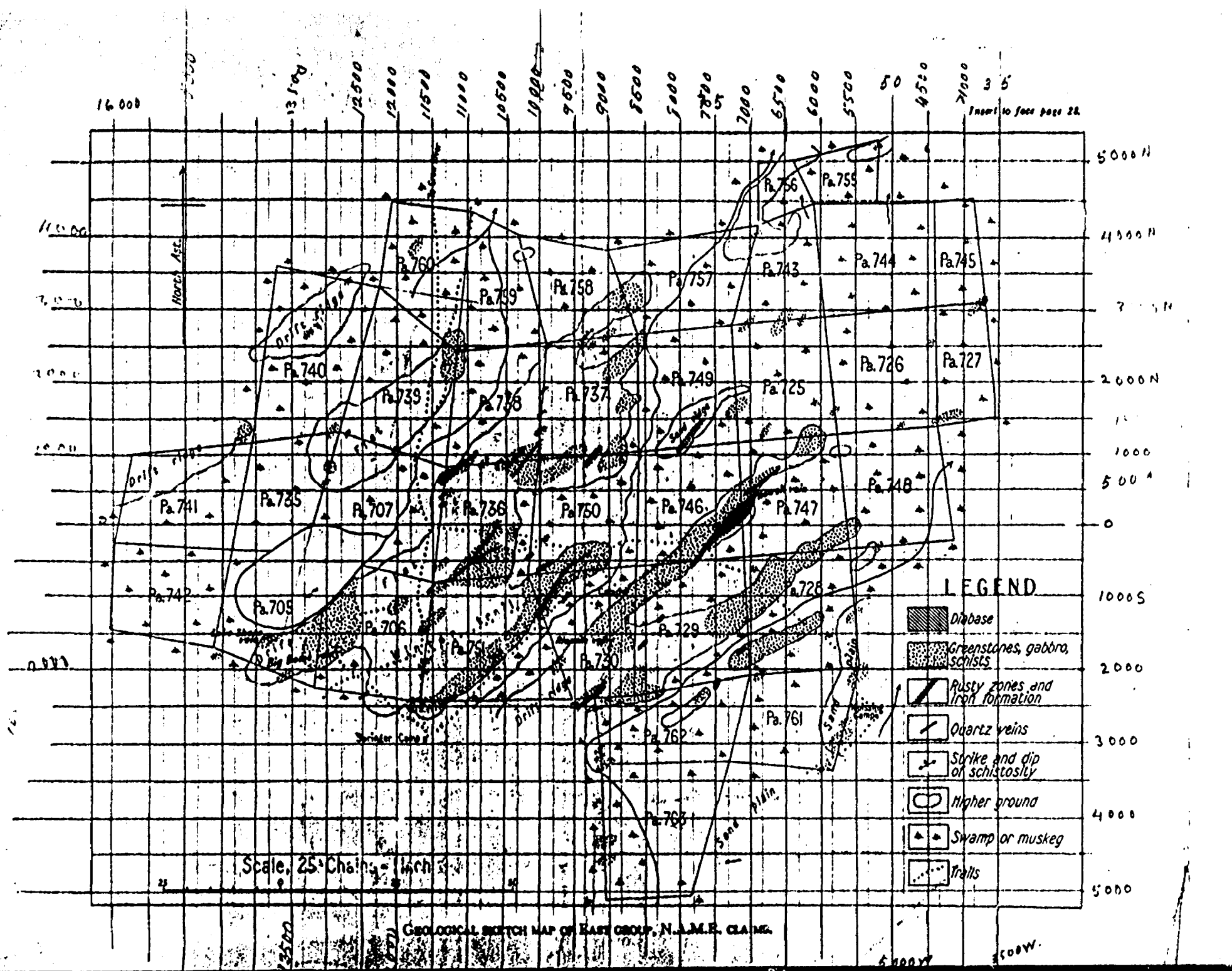
W. F. James
per R. Cannon.

C.



GEOLOGICAL SKETCH MAP OF WEST GROUP, N.A.M.E. CLAIMS.









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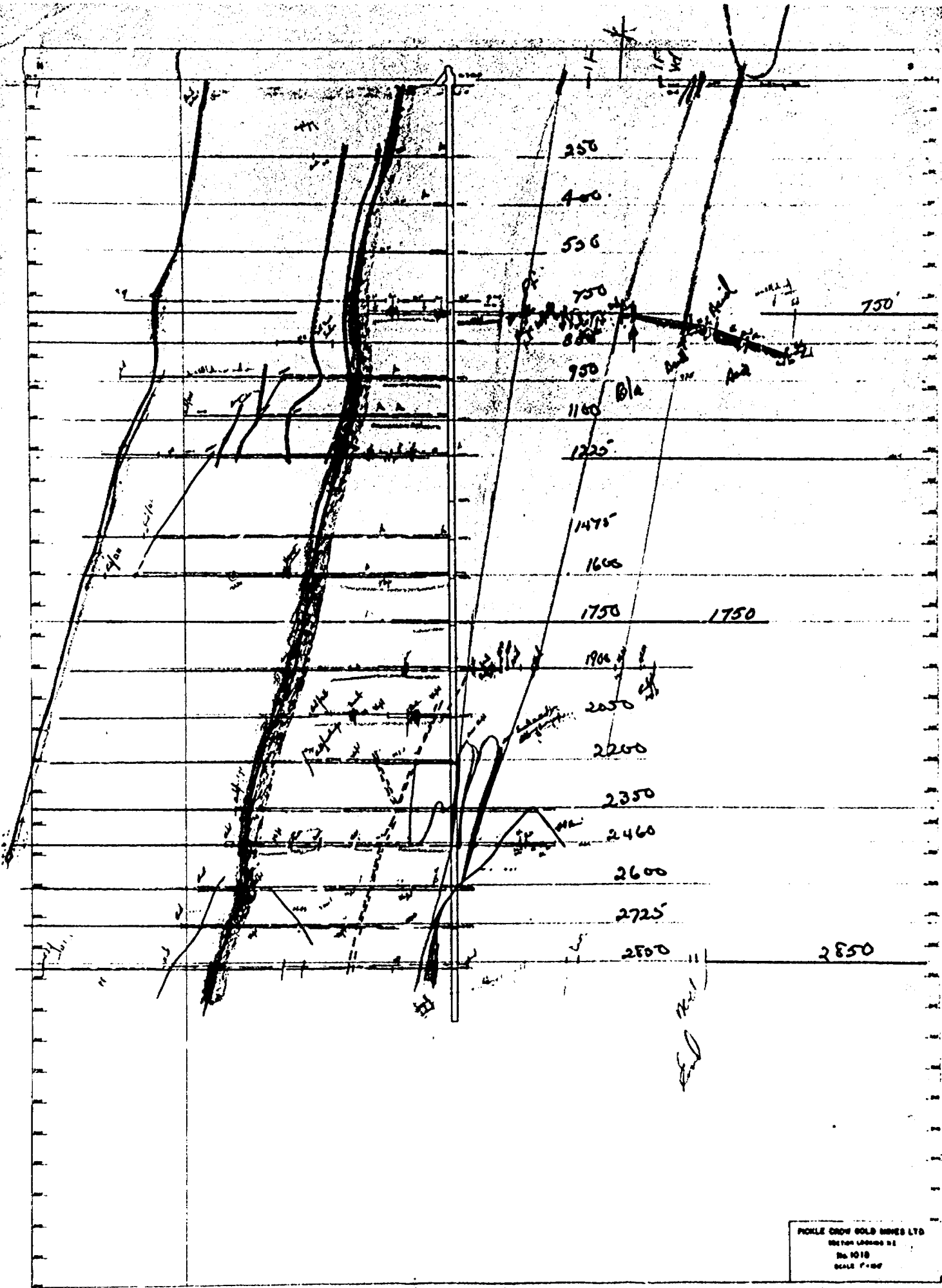


Scale, 25' Chains = 1 inch

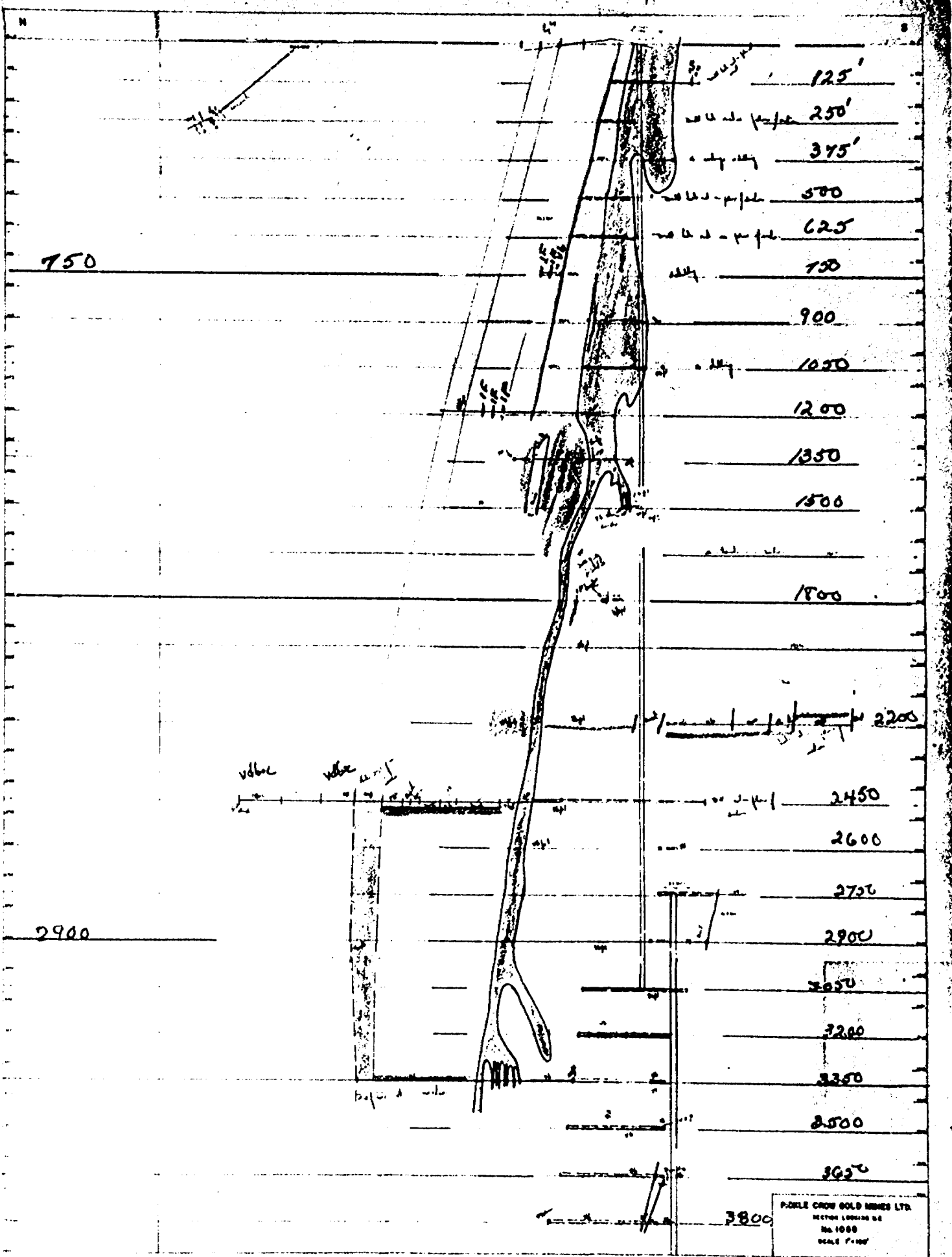
GEOLOGICAL SKETCH MAP OF EAST GROUP, N.A.M.E. CLAIMS.

LEGEND

-  Diabase
-  Greenstones, gabbro, schists
-  Rusty zones and iron formation
-  Quartz veins
-  Strike and dip of schistosity
-  Higher ground
-  Swamp or muskeg
-  Trails



PICKLE CROW GOLD MINES LTD
SECTION LOCATED BY
No 1018
SCALE 7"=100'



750

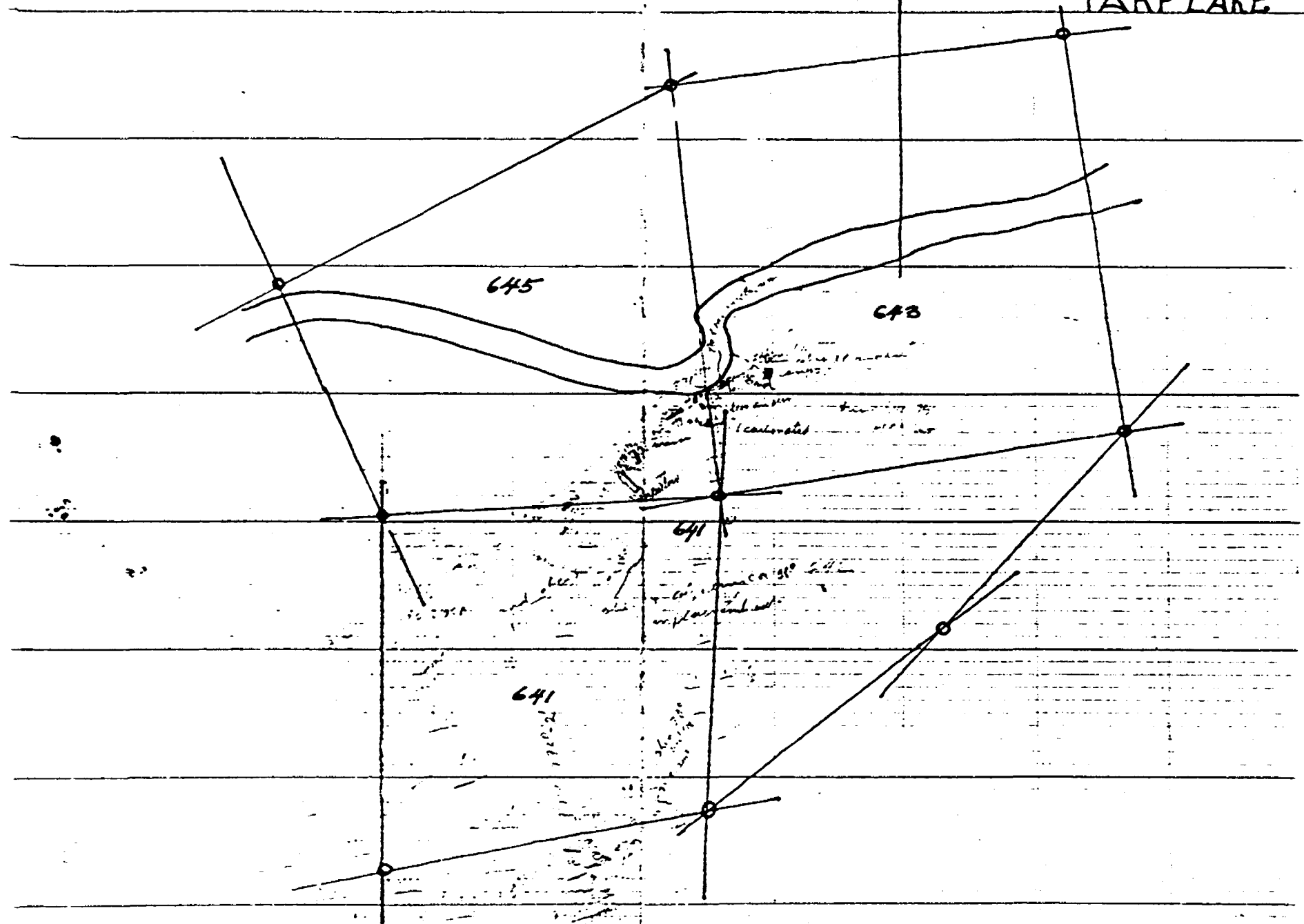
2900

- 125'
- 250'
- 375'
- 500
- 625
- 750
- 900
- 1050
- 1200
- 1350
- 1500
- 1800
- 2200
- 2450
- 2600
- 2750
- 2900
- 3050
- 3200
- 3350
- 3500
- 3650
- 3800

PICKLE CROW GOLD MINES LTD.
SECTION LOCATED BY
No. 1088
SCALE 1"=100'

N (Ast) CENTRAL PAT CLAMS
NORTH OF ALBANY RIVER
500' = 1"

TARPLAKE



736

750

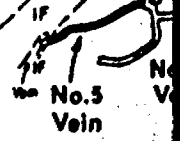
746

730

751

729

2,500 W

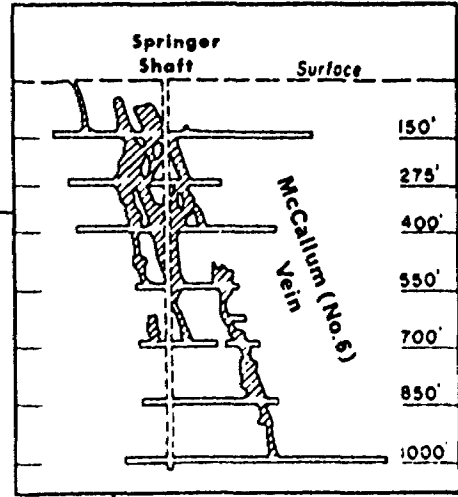


2,500 S

CENTRAL PATRICIA (No. 2 OPE

630 / 648

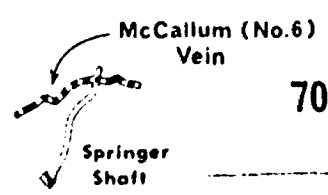
Longitudinal Projection of McCallum (No.6) Vein



762

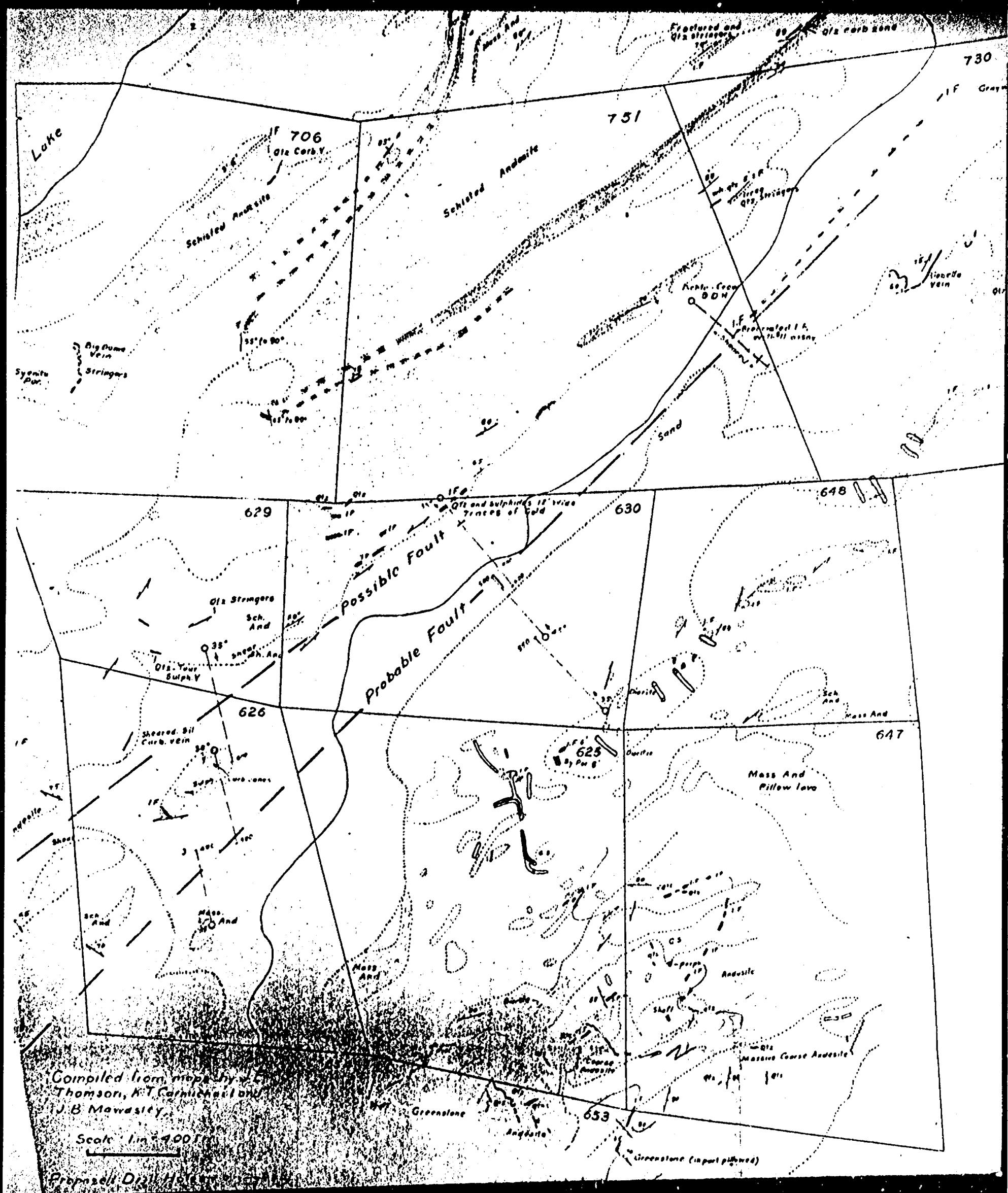
647

763



700 Ft. Level

5,000 S



Compiled from maps by
 Thomson, K.T. Carnichael and
 J.B. Mawdsley.

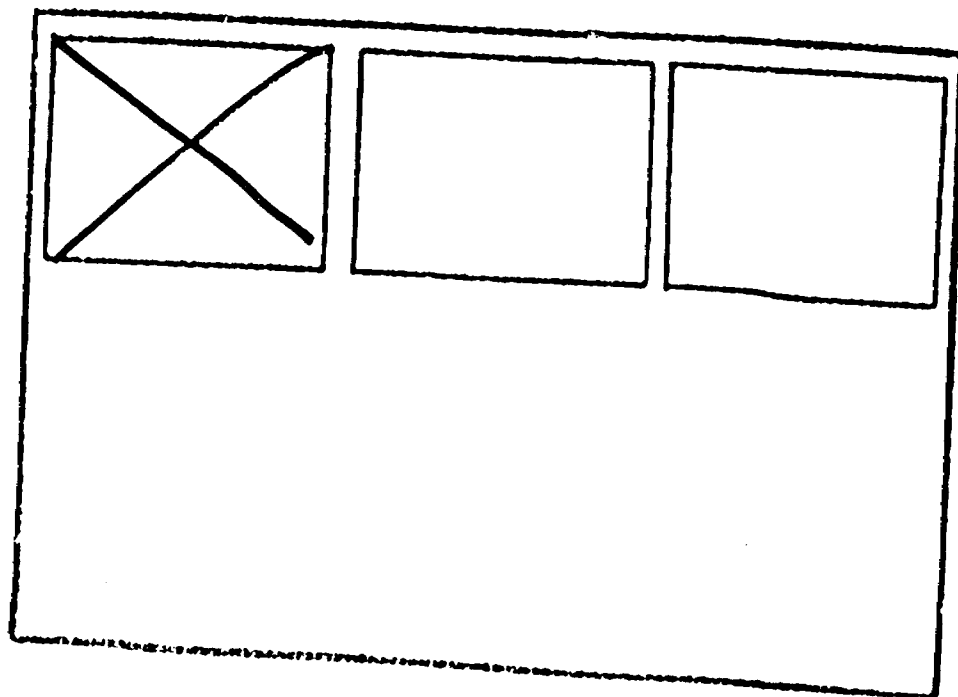
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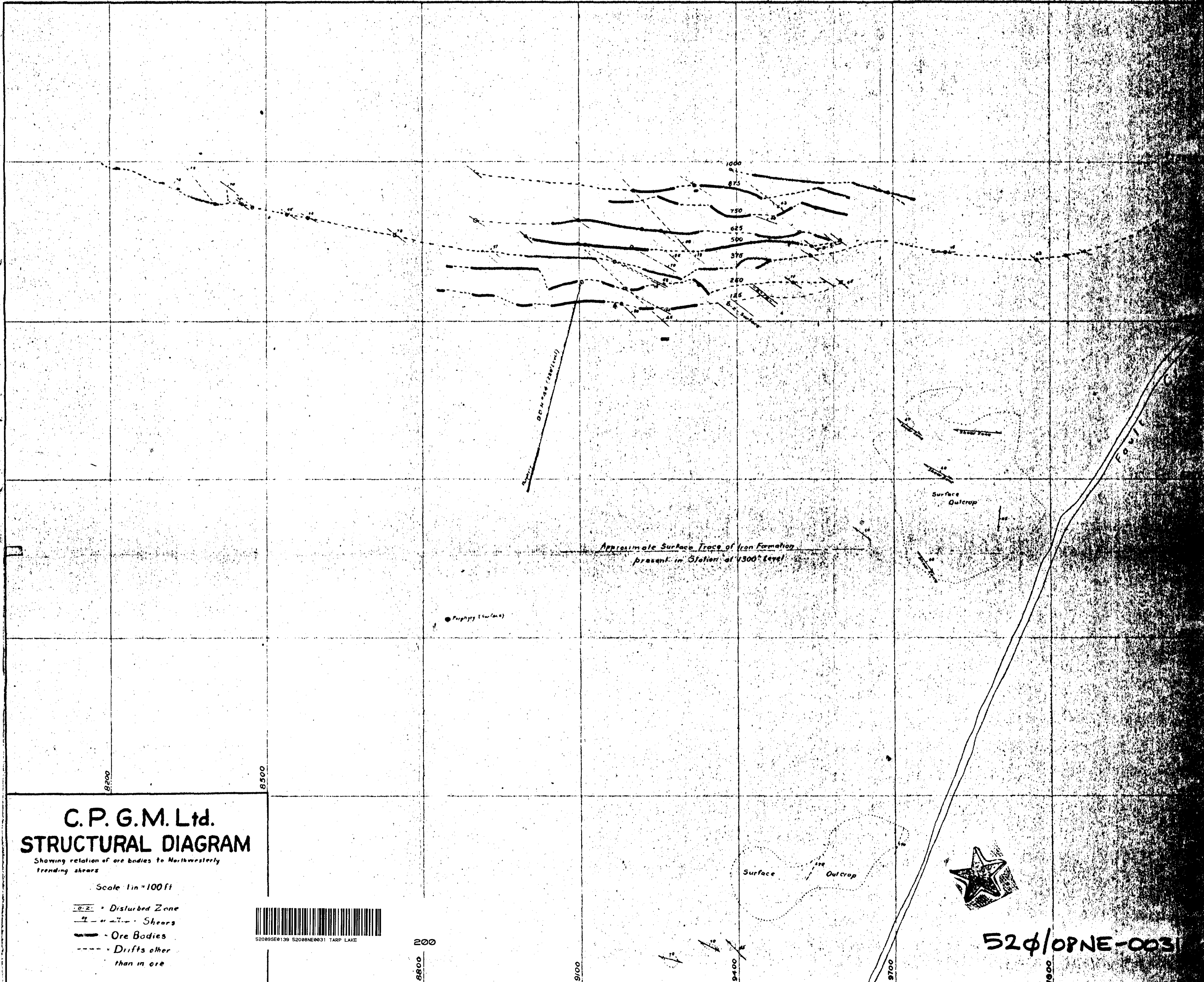
Prepared by D. H. ...

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

S24/O8NE-0031-41

LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)





C. P. G. M. Ltd.
STRUCTURAL DIAGRAM

Showing relation of ore bodies to Northwesterly trending shears

Scale 1 in = 100 ft

- Disturbed Zone
- Shears
- Ore Bodies
- Drifts other than in ore



200

8800

9100

9400

9700

1000

520895E0139