Geological and Geophysical Report
on the Brenda Prospect
Osoyoos, M.D., B.C. 92H/16E

Situated 14 miles northwest of Peachland BC.

49 - 119 northwest

By: Charles S. Ney, P. Eng.

Oct 3/57 May 29 - Sept. 12, 1957

0189 2/2

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Maps in Folder

Claims to which Assessment Work is being Applied

Claim	Group	Record No.	Tag No.	Distribution of Work Geological	Distribution of Work Geophysical	Yrs. Work Claimed
Roger 1			B72661	$100	$200	2
2			B72673	$100	$100	2
4			B72663	$100		1
Juba 19	Brenda		A66183	$100		1
20	No 2		A66184	$100		1
21			A66185	$100		1
22			A66186	$ 50		1
24			A66180	$ 50		1
Juba 1001			249932		$200	2
" 'F' Fract			249931		$100	1
" 'G' Fract	Brenda		249933	—		1 *
G & H #3	No 14		B39437	—		1 *
" #2			B39439	$100	$100	2
Roger 9 Fr.			249943	—	—	1 *

* Supplied by D.D. Hole on $330 G&H #2

Claim	Group	Record No.	Tag No.	Geological	Geophysical	Yrs. Work Claimed
Tiger 7			A79110	—	$250	2
8			A79095	—	$100	1
Juba 43			A66313	$150	$ 50	1
44	Brenda		A66314	$100	—	1
45	No 3		A66315	—	$100	1
46			A66316	$100		1
47			A66317	—	$ 50	1
48			A66310	—	—	1
Juba E Fr.			249938		$100	1
Grace #3			249936		$100	1
Juba 25			A66191	$100		2 *
26	Brenda		A66192	$100		2 *
41	No 7		A66311	$100		2 *
42			A66312	$100		2 *
				$1,550	$1,450	

*Additional work supplied by P.S. Drilling - $400

NORTHWESTERN EXPLORATIONS, LIMITED

Brenda Prospect

INTRODUCTION

The Brenda Prospect is an extensive area of low grade copper mineralization in fractured granitic rocks. Exploratory work was done on the property by Noranda Exploration Company in the summer of 1956. Additional work by Northwestern Explorations, Limited in 1957 included geological mapping and a magnetic survey.

The geological mapping was done byK. Olien, D. Hyndman, and C.S. Ney, P. Eng. Helpers and line cutters were R. Roadhouse, D. Puddy, J. Premischook, R. Wright, and A. Bertram. The work was done intermittently over the period May 1 to September 12, 1957.

The magnetic survey was done by M. Bell and R. Roadhouse under the supervision of C. S. Ney, with advice and direction from D. Smellie, geophysical consultant for Northwestern Explorations. The survey was completed June 27 to July 20, 1957.

LOCATION

The property is centred at latitude 49°52½'N; longitude 120°00'W, and is 14 miles in a direct line N 60°W of Peachland, B.C. Elevations range from 4700 feet to 6100 feet over the map area. Topography is in general subdued. Drainage is effected by tributaries of Peachland Creek on the south, Trepanier Creek on the northeast, and a small portion of the area on the west drains to Brenda Lake and thence to the Nicola River.

ACCESS

The road distance from Peachland is about 20 miles. The first ten are on good gravel road, the remaining ten are on a narrow dirt road which follows the divide between Peachland Creek and Trepanier Creek, and continues on two miles past the property to Brenda Lake.

FIELD METHODS

Surveys: Three north-south base lines 3600 feet apart were located by surveying along the Brenda Lake Road. Hubs were set in at 400-foot intervals along the baselines from which lines were turned off in an east-west direction. These secondary lines were extended by picketing from one base to the other. The lines provided a grid for the magnetic survey and facilitated geological mapping.

Geology: Mapping was done on three scales, viz. 1" equals 2640 feet, 1 inch equals 400 feet, and 1 inch equals 100 feet. Most of the claims fall within the 400 scale map-area. A base map with 25 foot (400-scale m contours was prepared by Photographic Surveys Limited from available B.C. Air Photographs. This was most useful for locating outcrops and geological data in areas not covered by the grid. On the 100 scale map, details were filled in by numerous pace-compass surveys between points on the grid.

Magnetic Survey: Over the main area, observations were taken at 200-foot intervals along lines 400 feet apart. A portion of the area was covered in greater detail with observations at 50-foot intervals along the lines. Stations along the baselines were first established and tied in to a common reference station, being thus made available for correcting the traverses along the lines against diurnal changes.

Data are shown on contour maps and selected profiles. The intensity level is arbitrary. The contour interval is 100 gammas.

The instrument used was a Schmidt type balance manufactured by Hilger-Watts Ltd. with a sensitivity of 22.2 gammas per scale division.

OBJECTIVES

Geology: Geological mapping was prompted by several problems. Close examination of the surface was required first from the point of view of pure prospecting. Mapping of the limits of outcrop was considered essential to appraising the extent of mineralization. The relation of mineralization to the contact between the granitic rocks and the older Nicola Series, and the position of this contact, appeared to be an important geological question. Finally information was desired on the structural control of mineralization.

Magnetic Survey: The magnetic survey was started with the idea that there would be some magnetic contrast between mineralized and unmineralized rocks. It was also hoped that a contrast between the Nicola rocks and the granitic rocks would be found, which would facilitate tracing the contact through the overburden covered areas. Magnetic data would also be useful to complement the data of electrical surveys.

GEOLOGY

The general geological picture is simple. Nicola volcanic rocks of Triassic age occupy a large region to the west and south of the map-area. Intrusive granitic rocks outcrop over a very large area to the north and east. East of the map-area volcanic rocks of Tertiary age overlie the granitic rocks unconformably. Mineralization followed zones of fracture in the granitic rocks. There is no evidence relating mineralization to the contact between the intrusive rocks and the Nicola Series.

Nicola Series: The lowest stratigraphic 6000 feet of the Nicola Series in the western portion of the map area consists mainly of fine grained and porphyritic dacite. It is a hard, brittle light-gray rock. In one prominent band, alteration has produced a biotite schist. More locally, near the intrusive, there is some development of paragneiss. Rocks of andesite and amphibolite composition make up a small portion of the section.

Along a north-south line through Brenda Lake the rocks become tuffaceous and finally sedimentary, and include a black limestone member about 200 feet thick. Sedimentary strata prevail for about 500 feet of section.

Granitic Rocks: The entire granitic region of the map-area appears to be an essentially homogeneous body. Contrasting types may be recognized but variations are so imperceptibly gradational that it was not possible to subdivide the rocks into mappable units. The average rock is a light-gray moderately coarse-grained type with 20 percent mafic minerals and 15 percent quartz. The remaining feldspar appears to be mostly acid plagioclase, orthoclase and basic plagioclase both being subordinate in amount. The rock is classed as granodiorite. The hornblende-biotite ratio varies widely. In some cases a poikilitic texture is developed where interrupted crystals of alkali feldspar up to one-half inch wide envelop all other rock components. Very locally are phases very rich in potash feldspar which are related to copper mineralization. Pegmatite is developed near the contact with the Nicola. There may be small lobes of pegmatite within the Nicola up to a few hundred feet from the main body o f intrusive. Small dykes of aplite and pegmatite are to be found generally through the intrusive.

Dykes: There are two classes of dykes in the granitic terrane. In the first class are regular northwest trending steep bodies 1 to 20 feet wide. They are fresh in appearance, the small sizes like fine gray andesite, the larger bodies feldspar porphyry. They are thought to represent Tertiary igneous activity. The second class is represented by three occurrences. They are irregular bodies with west-northwest trend, three to thirty feet wide. They are characterized by tabular crystals of black feldspar with brown-gray reaction rims. These crystals attain a size of several inches. They are nearly always oriented parallel to the walls of the dyke. The dykes make frequent local incursions into the wall rock, rifting off and partially digesting masses of granite. These features suggest the dykes formed from highly active fluid magma. They are designated trachyte in deference to their flow structure.

Dykes in the Nicola did not receive much attention. Some basic-looking hornblende porphyries were thought to be old dykes or sills. In Peachland canyon southwest of the map-area there is a feldspathic dyke with similar trend and composition to the trachyte dykes.

Structure: The Nicola Series roughly forms a west-dipping homocline. The strike varies from N 10° E to N 20° W along the west edge of the map-area. Dips are from 25 degrees west to vertical, but probably average about 50 degrees west. Data on attitudes are scarce in the region underlain by volcanics, so this picture is an extreme simplification.

Schistosity is confined to narrow belts in the Nicola at or near the intrusive contact. It strikes northwesterly and dips 50° west, more or less parallel to the bedding. Bedding and schistosity were never found in close enough association to determine their true relations. A faint schistosity of similar attitude is sometimes seen in the intrusive rocks near the Nicola contact.

In the granitic rocks regular sets of fractures are conspicuous and are directly related to mineralization. There are three common sets with strikes grouped as follows: N 0°-20° E, N 55°-75° E, and S 45°-55° E. The first two sets commonly dip steeply east and southeast respectively. The third set is near vertical. Good development of three sets gives ground with a columnar structure, the columns pitching steeply to the southeast. The relative development of the three sets varies widely. The N 60° E set is most consistently developed over the 100 scale map-area. The due north set is the most widespread regionally. The southeast fractures are irregular and seldom form a distinct set.

Mineralization is not confined to a particular set. The development of the N 60° E fractures seems in most cases to indicate the tenor of the ground. In general, mineralized ground shows the columnar structure brought about by equal development of three sets.

The N 60° E fractures tend to become large and conspicuous with frequent signs of movement and in several cases vein fillings.

Magnetic Results: The magnetic contour map on 400 scale shows considerable detail over exposed granitic rocks. The normal value is represented approximately by the 1500 gamma contour. Rounding off some of the extreme values we retain a range fmm 1100 to 2000 gammas, forming the relief. The southwest corner of the map is magnetically subdued in the range 1400-1600 gammas. This region is known to be underlain by Nicola Volcanics. There would appear to be little absolute difference in the magnetic character of the Nicola and the granitic rocks, but considerable contrast in the amount of internal relief. The low relief area in the south and east portions of the map is probably underlain by granitic rocks, but deep overburden may mask the magnetic detail.

There is a general northwest trend to the region of high relief which may be significant in relatinn to the probable trend of the ore zone. In the low at 12S, 14W trends of N 35° E and N 30° W are probably valid reflections of lithology. The elongated high striking N 25° W in the area 4N, 17W to 16N, 23W is based on few readings and could be contoured a different way. A vague but persistent trend at N 50° E appears to carry back into the Nicola at 16S, 30W.

The 100 scale map adds little of interest. It shows the dependence of some of the contouring on spot values. No unusual rock was found at 8N, 7W where a pronounced high and adjacent low are indicated. In profile, the curve of this line suggests a dipole in horizontal attitude. The high at 8S, 8E is probably due to a trachyte dyke, known from experiment to be somewhat more magnetic than the average granitic rock in the area. The spot low at 2E, 4S may be due to the same dyke, at this point topogaphically elevated above the point of observation.

Profiles comparing topography with the magnetic intensity show a small tendency for magnetic lows to follow topographic lows. This is as it should be in normally polarized rocks with susceptibility greater than that of air. The profile of line 12 south is the best example. It is evident that most of the magnetic relief may not be accounted for by topography.

There is no suggestion that mineralization may be correlated with rock magnetism. The known mineralized area looks no different magnetically from the rest of the granitic area, and most of it falls within the average range of values 1500 - 1600 gammas.

CONCLUSIONS

The amount of outcrop in the map-area averages less than five percent. Critical exposures are sufficiently plentiful to outline the general geology and mineralization. Several large areas remain to be prospected.

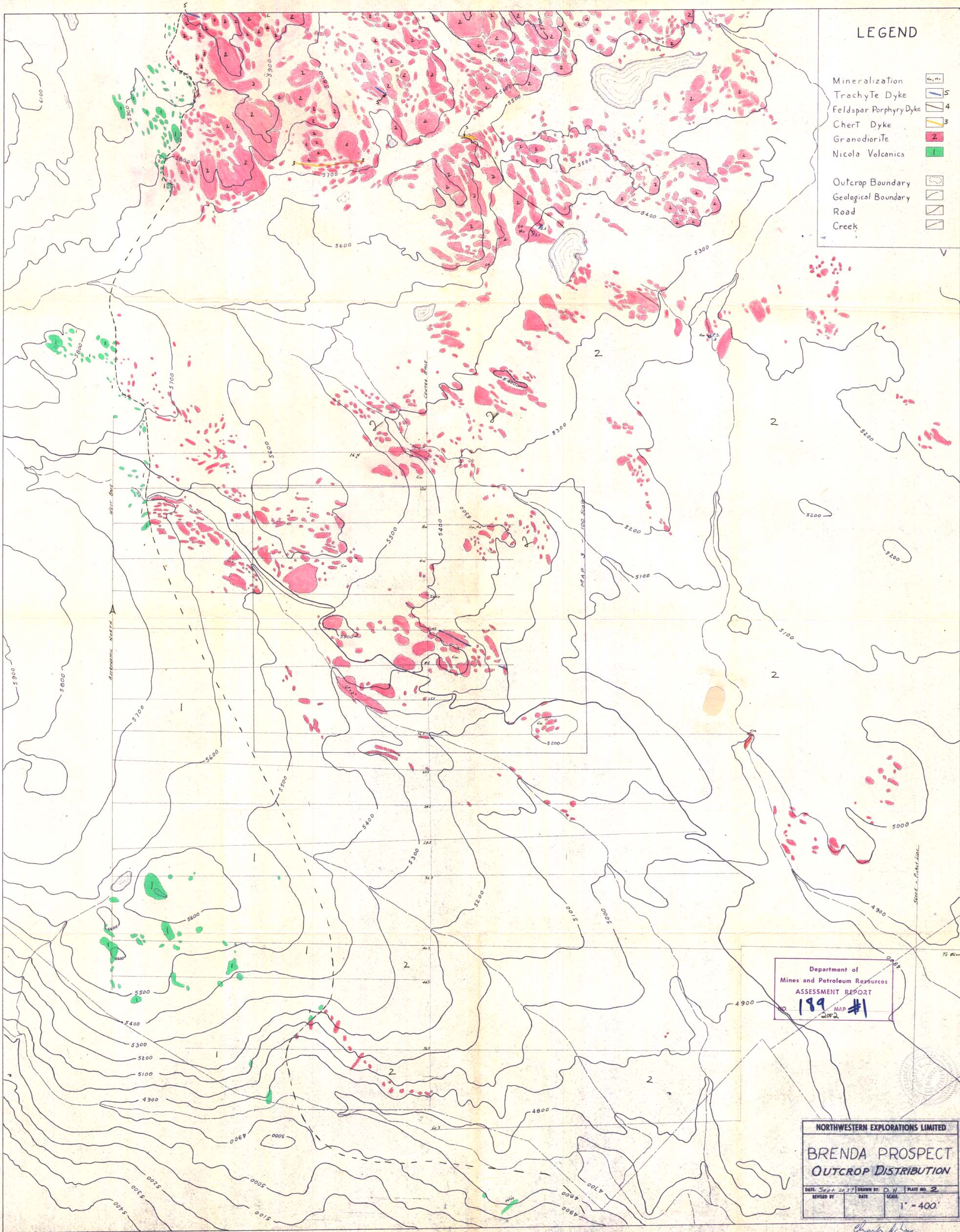
Known mineralization is confined to the granitic rocks and not in any observed way related to the Nicola Series. The locus of mineralization is characterized by fracturing of the granitic rocks.

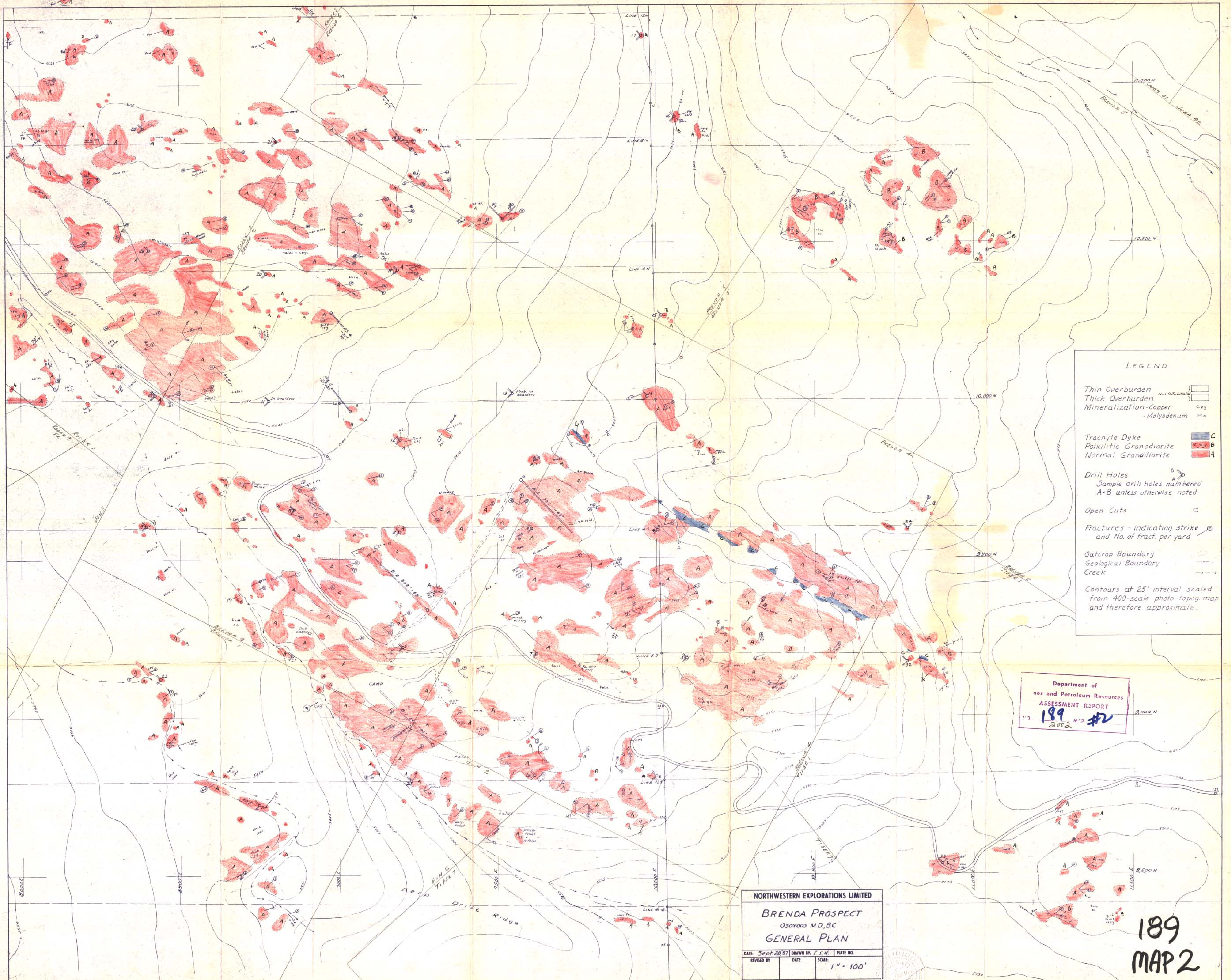
The granitic rocks have a more variable but not necessarily higher magnetism than the Nicola Series. From the evidence in this area there is no assurance that the two types of rock could be separated regionally by magnetometer.

Mineralized ground cannot be distinguished from normal granitic terrane on the basis of magnetic intensity maps of this area.

Charles S. Ney P.Eng.
Charles S. Ney

October 3, 1957


LEGEND
Mineralization
Trachyte Dyke 5
Feldspar Porphyry Dyke 4
Chert Dyke 3
Granodiorite 2
Nicola Volcanics 1
Outcrop Boundary
Geological Boundary
Road
Creek
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 189 MAP #1
2 OF 2
NORTHWESTERN EXPLORATIONS LIMITED
BRENDA PROSPECT
OUTCROP DISTRIBUTION
DATE: Sept 20 57
DRAWN BY: D.H.
PLATE NO. 2
REVISED BY
DATE
SCALE: 1" = 400'



LEGEND
Thin Overburden
Thick Overburden
Not Differentiated
Mineralization - Copper Cpy
- Molybdenum Mo
Trachyte Dyke C
Poikilitic Granodiorite B
Normal Granodiorite A
Drill Holes
Sample drill holes numbered A-B unless otherwise noted
Open Cuts
Fractures - indicating strike and No. of fract. per yard
Outcrop Boundary
Geological Boundary
Creek
Contours at 25' interval scaled from 400-scale photo topog. map and therefore approximate.
NORTHWESTERN EXPLORATIONS LIMITED
BRENDA PROSPECT
OSOYOOS M.D., B.C
GENERAL PLAN
DATE: Sept. 20, 57
DRAWN BY: C.S.N.
PLATE NO.
REVISED BY
DATE
SCALE: 1" = 100'
Department of
nes and Petroleum Resources
ASSESSMENT REPORT
NO. 189 2 of 2 MAP #2
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MAP 2
Charles S. Ney P.Eng.
CAMP
OLD CABINS
Deep Drift Ridge
LINE 12 N
LINE 8 N
LINE 4 N
LINE 4 S
LINE 8 S
LINE 12 S
LINE 16 S
11,000 N
10,500 N
10,000 N
9,500 N
9,000 N
8,500 N
8,000 E
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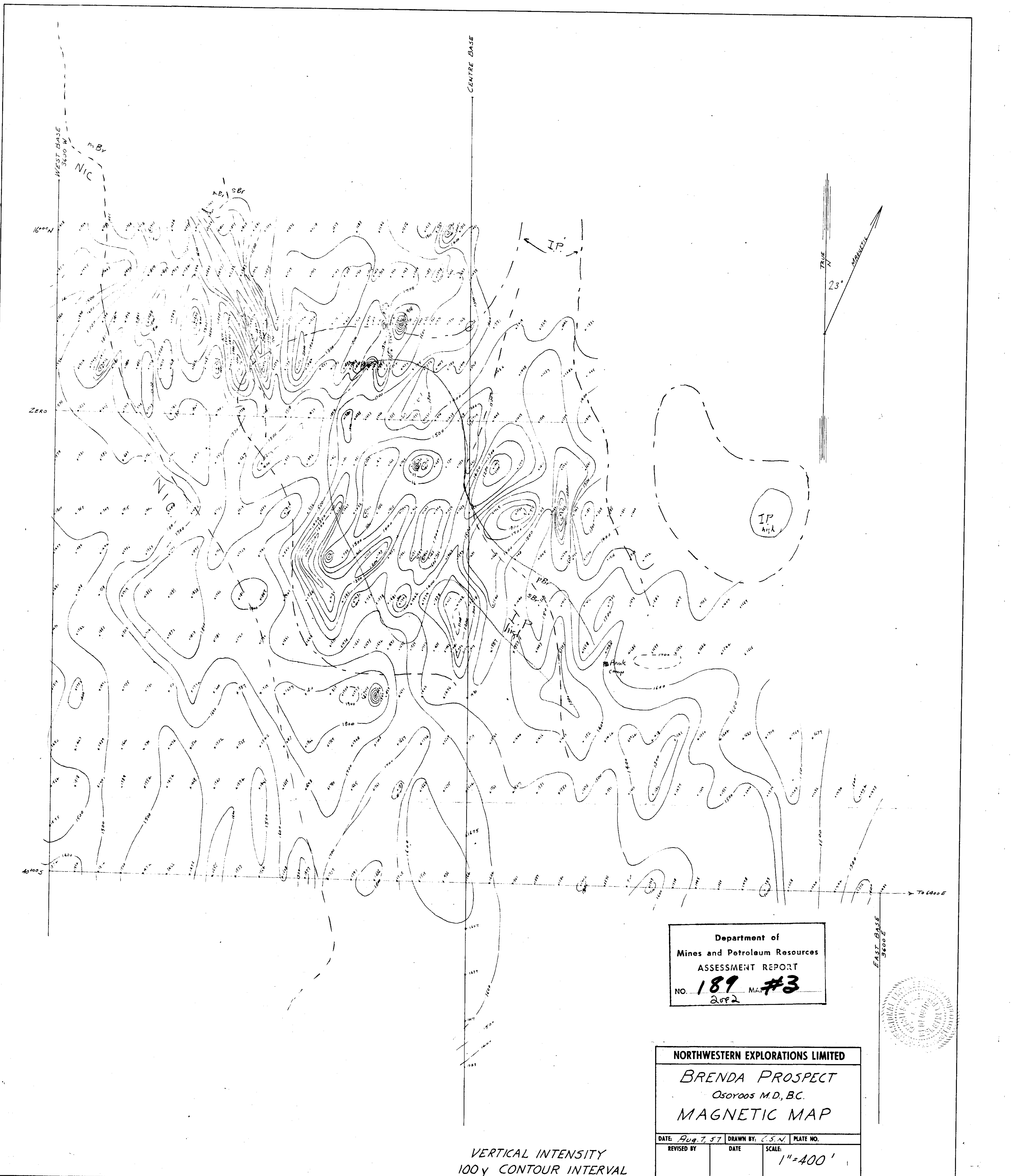
10,000 E
10,500 E
11,000 E
11,500 E



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 189 MAP #3
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NORTHWESTERN EXPLORATIONS LIMITED

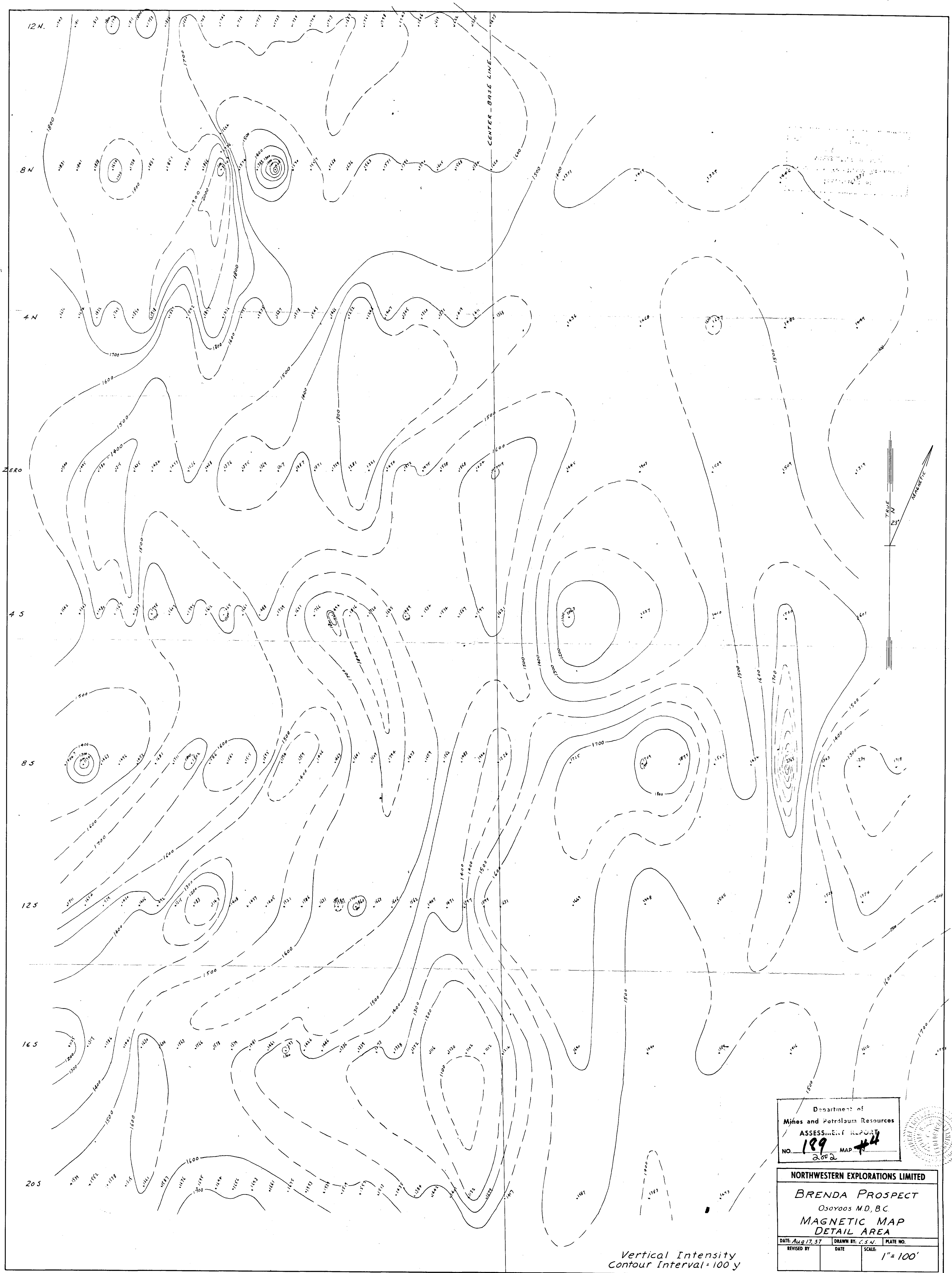
BRENDA PROSPECT

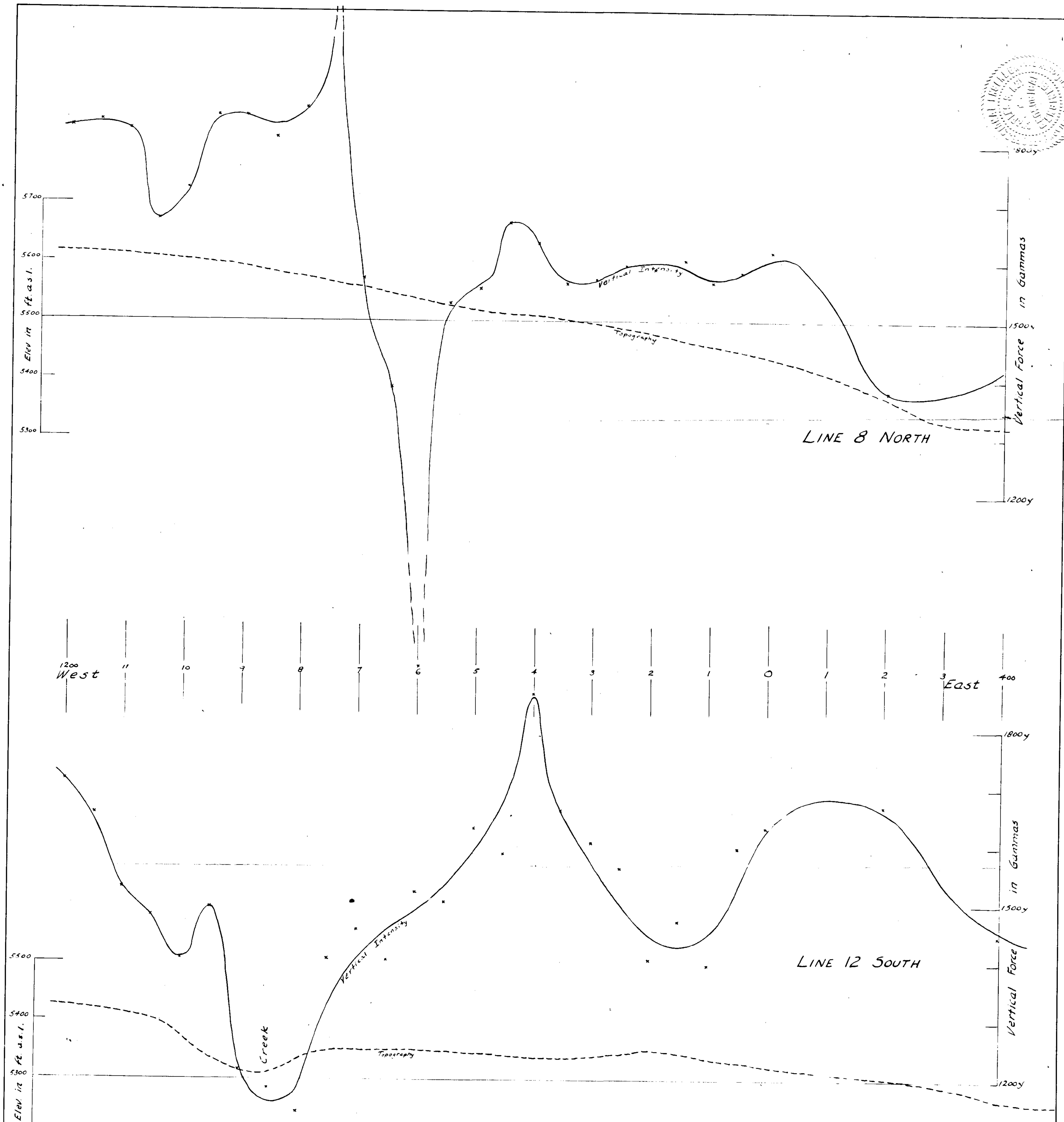
Osoyoos M.D., B.C.

MAGNETIC MAP

DATE: Aug. 7, 57	DRAWN BY: C.S.N.	PLATE NO.
REVISED BY	DATE	SCALE: 1" = 400'

Charles S. Ney


12 N.
8 N
4 N
ZERO
4 S
8 S
12 S
16 S
20 S
CENTER-BASE LINE
TRUE N
MAGNETIC
23°
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 189 MAP #4
2 of 2
NORTHWESTERN EXPLORATIONS LIMITED
BRENDA PROSPECT
Osoyoos M.D., B.C.
MAGNETIC MAP
DETAIL AREA
DATE: Aug 17, 57
DRAWN BY: C.S.N.
PLATE NO.
REVISED BY
DATE
SCALE: 1" = 100'
Vertical Intensity
Contour Interval = 100 γ



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 189 MAP #5
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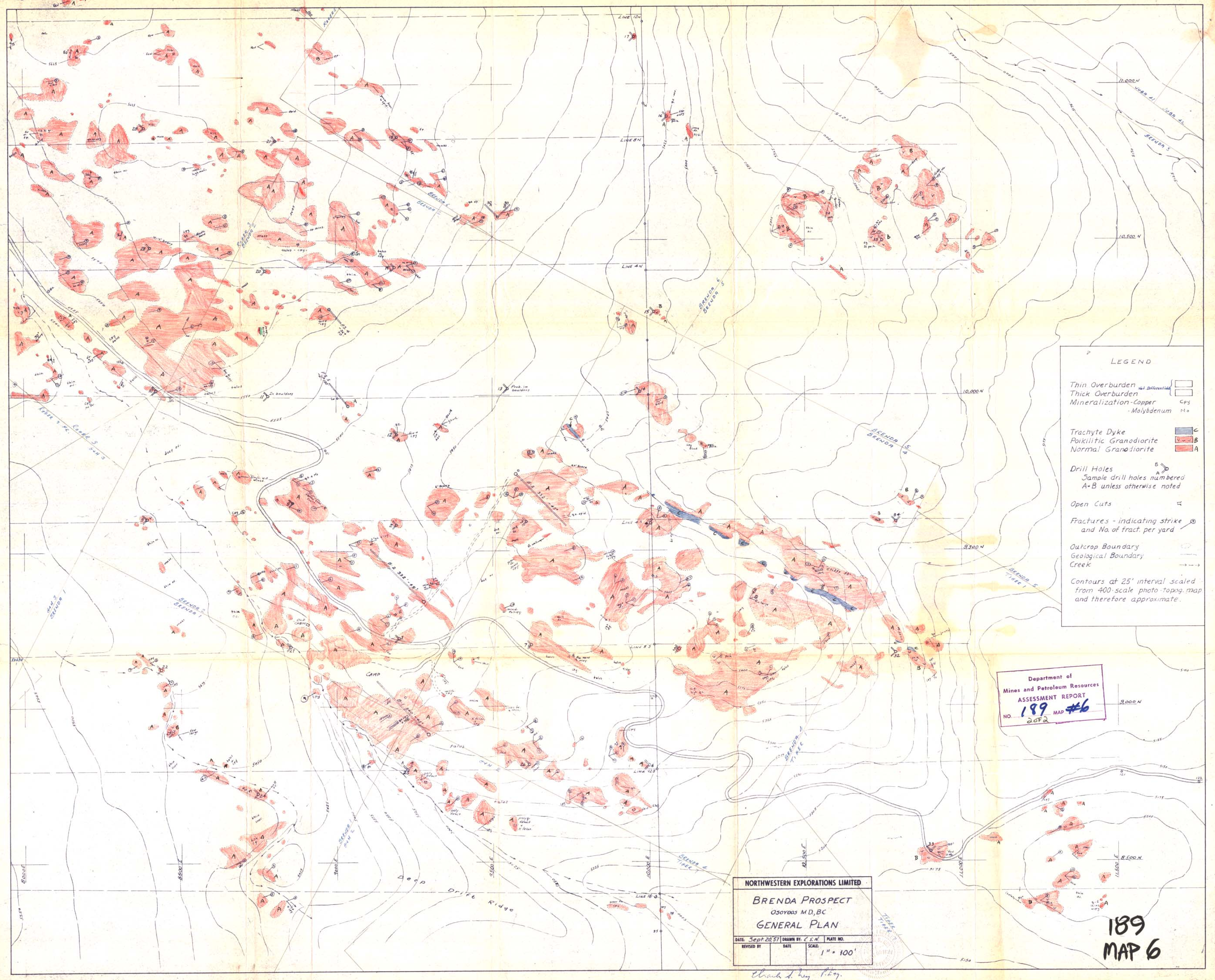
NORTHWESTERN EXPLORATIONS LIMITED		
BRENDA PROSPECT OSOYOOS M.D., B.C. MAGNETIC PROFILES		
DATE: Oct 5, 57	DRAWN BY: C.S.N.	PLATE NO.
REVISED BY	DATE	SCALE: 1" = 100 ft = 100γ


NORTHWESTERN EXPLORATIONS LIMITED
BRENDA PROSPECT
OSOYOOS M.D., BC
GENERAL PLAN
DATE: Sept 20,57 DRAWN BY: C.S.N. PLATE NO.
REVISED BY DATE SCALE: 1" = 100'
LEGEND
Thin Overburden
Thick Overburden
Not Differentiated
Mineralization - Copper Cpy
- Molybdenum Mo
Trachyte Dyke C
Poikilitic Granodiorite B
Normal Granodiorite A
Drill Holes
Sample drill holes numbered A+B unless otherwise noted
Open Cuts
Fractures - indicating strike and No. of fract. per yard
Outcrop Boundary
Geological Boundary
Creek
Contours at 25' interval scaled from 400-scale photo-topog. map and therefore approximate.
Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 189 MAP #6
2 OF 2
189
MAP 6
Deep Drift Ridge
CAMP
OLD CABIN
LINE 12N
LINE 8N
LINE 4N
LINE 4S
LINE 8S
LINE 12S
LINE 16S
10,500 N
10,000 N
9,500 N
9,000 N
8,500 N
11,000 N