FINAL REPORT

ON

PROSPECTING AUTHORITY NO.2277

MT EAGLEBEAK, HARTS RANGE, N.T.

Distribution:

N.T. Administration (2)
Sydney (1)
Vancouver (1)
Oakland (1)

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FINAL REPORT ON

PROSPECTING AUTHORITY NUMBER 2277

MT EAGLEBEAK, HARTS RANGE, N.T.

I. SUMMARY

Prospecting Authority No.2277 was taken up to evaluate reported occurrences of rare earth minerals in calc-silicate rocks, and of tantalite associated with pegmatite outcrops.

Photogeological interpretation, radiometric surveying, rock chip sampling, and ultra-violet examination of prospects were carried out. Results were discouraging, and the P.A. was relinquished.

II. INTRODUCTION

P.A. 2277 was applied for on 23rd January 1969, and granted on 29th May 1969. It covered approximately 351 square miles in the Mt Eaglebeak area in the Harts Range.

III. OWNERSHIP AND HISTORY

Australus Mining Co. Pty. Ltd. was granted P.A. 2277 in the Harts Range, an area containing numerous small prospects and workings. Although gold was mined here around the turn of the century, little profitable mining has been carried out to date. Uranium was discovered in 1935 by Owen in the Mt Palmer region, to the east of the P.A., but little interest was shown until 1948 and 1949. During those years B.M.R. geophysicists Daly and Dyson examined nearly every mine in the Harts Range , and reported radioactivity and identified uranium minerals at half of them. All the high grade patches of radioactivity were found to be associated with pegmatites, and most were subsequently identified as samarskite and betafite. This information was withheld from publication for security reasons until 1956. Hence the Harts Range was largely neglected as a prospecting area for uranium during the uranium "boom".

IV. LOCATION AND ACCESS

The Harts Range is located approximately 130 miles east-north-east of Alice Springs, and trends generally east-west. The area of interest is roughly south-east of the Harts Range Police Station in the eastern portion of the range. Access is gained by following the Stuart Highway north from Alice Springs for 42 miles. The Harts Range road is then followed eastwards, passing the Police Station at 90 miles from the highway. At a point 18 miles east of the Police Station, almost immediately after crossing Entire Creek, a track is taken to the south through a gap in the range to Mt Eaglebeak.

The P.A. covered an area described as follows:

Commencing at the intersection of S. Lat. 22°55' with E. Long 135°00', thence proceeding to the intersection of Lat. 22°55' with Long. 135°25', thence proceeding to the intersection of Lat. 23°02' with Long. 135°25', thence proceeding to the intersection of Lat. 23°02' with Long. 135°18', thence proceeding to the intersection of Lat. 23°10' with Long. 135°18', thence proceeding to the intersection of Lat. 23°10' with Long. 135°00', thence proceeding to the point of commencement, excluding therefrom all reserves, all mining tenements held or applied for, and all rail and road reserves.

V. MINERALIZATION

Air photo coverage of the area was obtained, and a photogeological study made.

In the Valley Bore area, near the centre of the P.A., a band of calc-silicate rocks averaging nine feet in width, containing rare earth mineralization, was traced for approximately two miles, but proved to have no economic potential, rare earth concentrations occurring at only three places. The main calc-silicate band trends north-south, and is cut by younger pegmatites that carry mica and trend east-west. At the contacts there is considerable local mineralization, consisting in the main of magnesite, actinolite, fluorspar, calcite, and microcline, but no economic concentrations of these minerals were found. Examination of the calc-silicate band at night with an ultra-violet lamp revealed small, uneconomic patches of scheelite, but no systematic trends could be established.

Approximately half a mile south of the rare earth outcrops, an area containing surface scheelite float was examined. The float appears to come from small stringers of scheelite in the same rock type as the rare earths. The main mineralized zone consists of a lens-like, flat to steeply dipping epidote-garnet-calcite rock 10-90 ft wide, intruded by numerous quartz veins, and is concordant with the regional sediments and parallel to the bedding. In several places it has been locally displaced by faults, which usually have pegmatite dykes along them. Scheelite occurs as small disseminations in the epidote and near the quartz veins. Outcrops are discontinuous for about 800 ft, and may extend to 2,000 ft under alluvium. Investigation of a broad area at night with an ultra-violet lamp did not reveal any further extensions of the scheelite mineralization.

Grade evaluation of the mineralized zone was attempted, using the ultra-violet lamp, but proved impossible because of the presence of abundant calcite and other fouorescent minerals.

Fifteen rock chip samples were assayed for tungsten, zinc, molybdenum, and tantalum. Locations are shown on Plan No. 1845, and results appear in the table below.

VALLEY BORE SCHEELITE PROSPECT

Sample No.	WO_3 %	Zn %	Mo %	Ta_2O_5 %
VB 1	trace	0.006	<0.001	<0.010
2	"	0.005	"	"
3	"	0.004	"	"
4	"	0.006	"	"
5	"	0.003	"	"
6	"	0.004	"	"
7	"	0.004	"	"
8	"	0.003	"	"
9	"	0.006	"	"
10	"	0.004	"	"
11	very low	0.004	0.026	"
12	trace	0.004	<0.001	"
13	"	0.006	"	"
14	"	0.003	"	"
15	"	0.004	"	"

In the south-eastern portion of the P.A., kyanite zones in gnessic biotite-schist were inspected, and proved to be narrow, discontinuous, and far too small for economic exploitation.

Pegmatite outcrops throughout the area were also examined, but none of them appeared to warrant more intensive investigation.

Samples of alluvial sands were taken from Entire Creek.

Heavy mineral separation using bromoform (Sp. Gr. 2.9) was carried out, and the heavy concentrate was passed through 18# and -18# sieves. These two fractions were then magnetically separated into primary, secondary, and tertiary magnetic fractions, and a non-magnetic fraction, and were examined under a binocular microscope. Results are shown in Appendix I.

VII. PROSPECTS

Walter Smith radio-active show:

This is located 2.2 miles from the turn-off at Pat Wolf's whirly. It is situated in a large outcrop of Entia Gneiss that makes up most of the valley of which Valley Bore is the centre. The gneiss protrudes at intervals through the alluvium on the valley floor, and varies from a garnet-rich through quartz-feldspar-rich to biotite-rich gneiss.

The lode is hosted by a heterogeneous calc-silicate assemblage, the layering of which conforms to the surrounding country rock. It has been depicted as a main lode with northerly and southerly extensions. As shown in the radiometric diagram, Plan No. 1478, four rich pockets were detected. This radio-activity is thought to result from samarskite and allanite disseminated throughout the lode.

Atrich's Mica Mine:

The mine is situated approximately eight miles south-south-east of Valley Bore. An adit 50 ft long follows the mica zone of a pegmatite. Large crystals of beryl occur in the quartz core, which is too small to be of commercial interest. No anomalous radio-activity was recorded.

Mt Mary Bore West Ironstone:

This outcrop occurs at the head of the first gully west of Mt Mary Bore, south of the fence. Iron staining exists in a pegmatite zone approximately 70 ft along strike. The rock types are varied, and consist of quartz-haematite-breccia, haematite-quartzite, limonite-quartz-breccia, haematite-breccia, and haematite-limonite gossan. The gossan is too small to be of interest.

September 16, 1970
DSF:AS:705

PROSPECTING AUTHORITY NO. 2277

ANALYSIS OF EXPENDITURE

	$
Surface prospecting	1032
Geology	3431
Geophysics	-
Geochemistry	2443
Drilling	-
Property expenses	-
Sampling, assaying	934
Road building	-
Transportation	1612
Legal costs	-
Consulting fees	38
Evaluation	-
TOTAL	$9490

APPENDIX I

Mineral	Percentage	Degree of Rounding	Comment
Primary Magnetics:			
Magnetite	60	subrounded	some crystal fragments
garnet	25	angular	pink and red varieties
sillimanite	5	angular	prismatic needles with iron staining.
mica	5	subrounded	cleavage plates of biotite and muscovite
epidote	5	angular	
Secondary Magnetics:			
ilmenite	70	subrounded	goethite staining on most grains
mica	10	subrounded	biotite cleavage plates
garnet	10	angular	pink variety
epidote	5	angular to subangular	
sillimanite	5	subrounded	prismatic crystal fragments iron staining.
Tertiary Magnetics:			
ilmenite	30	subrounded	goethite staining on some grains
garnet	25	subangular to subrounded	pink and red varieties
augite	25	subrounded	some grains showed cleavage at approximately 90°
mica	5	subrounded	biotite cleavage plates
beryl	5	subrounded	hexagonal cross sections
sillimanite	5	subrounded	prismatic crystal fragments with iron staining
zircon	5	subangular	

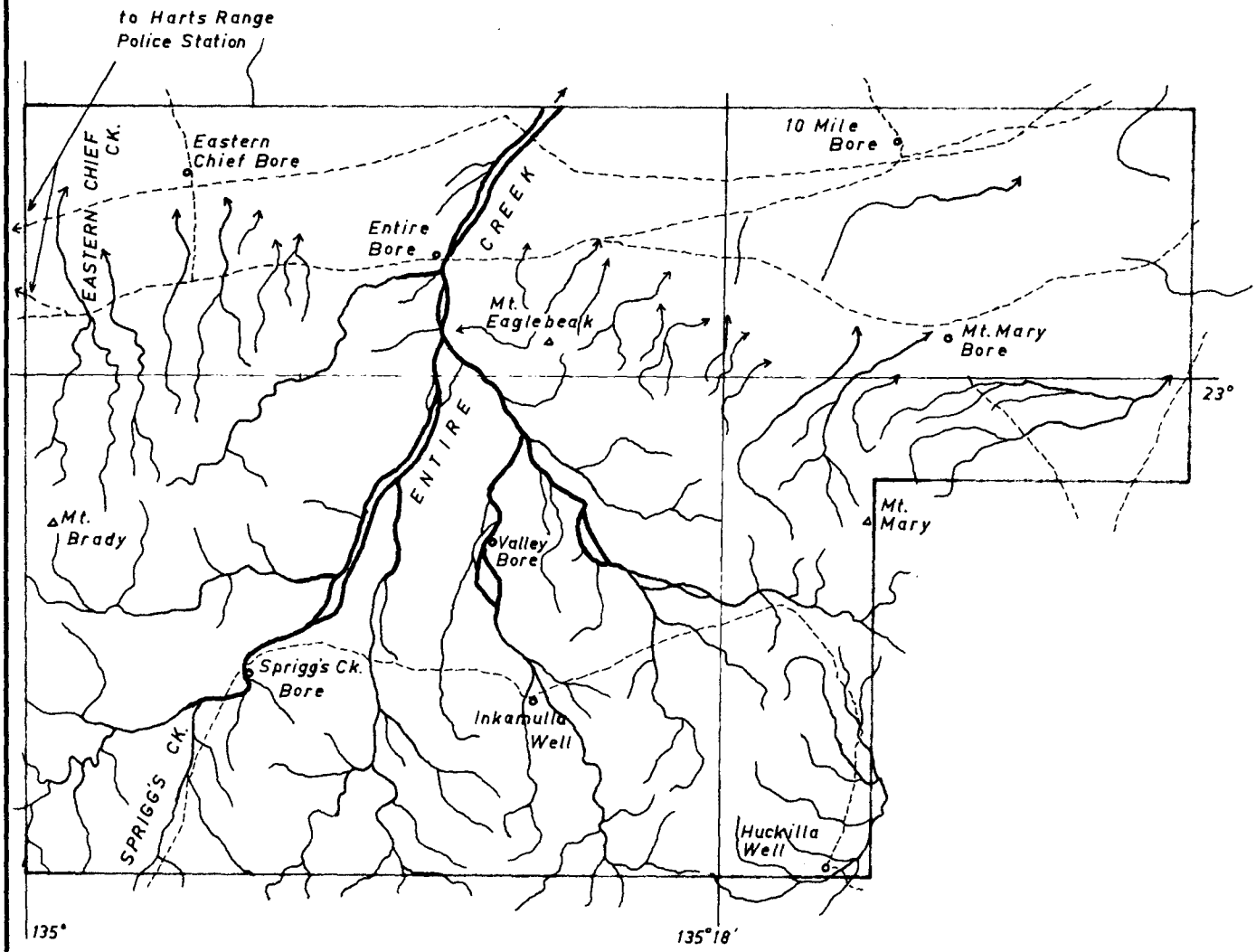
Non Magnetics:

Mineral	Percentage	Degree of Rounding	Comment
augite	35	subrounded to subangular	some grains showed cleavage planes at 90° approximately
sillimanite	10	subrounded	prismatic needlelike crystal fragments, some iron staining
epidote	10	angular	
zircon	10	subangular to subrounded	
beryl	10	subangular	hexagonal cross sections
mica	5	subrounded	biotite cleavage plates
ilmenite	5	subangular	goethite staining
garnet	5	subrounded	pink variety
rutile	5	subrounded to rounded	foxy-red colour
*quartz	5	subrounded	milky white with iron staining

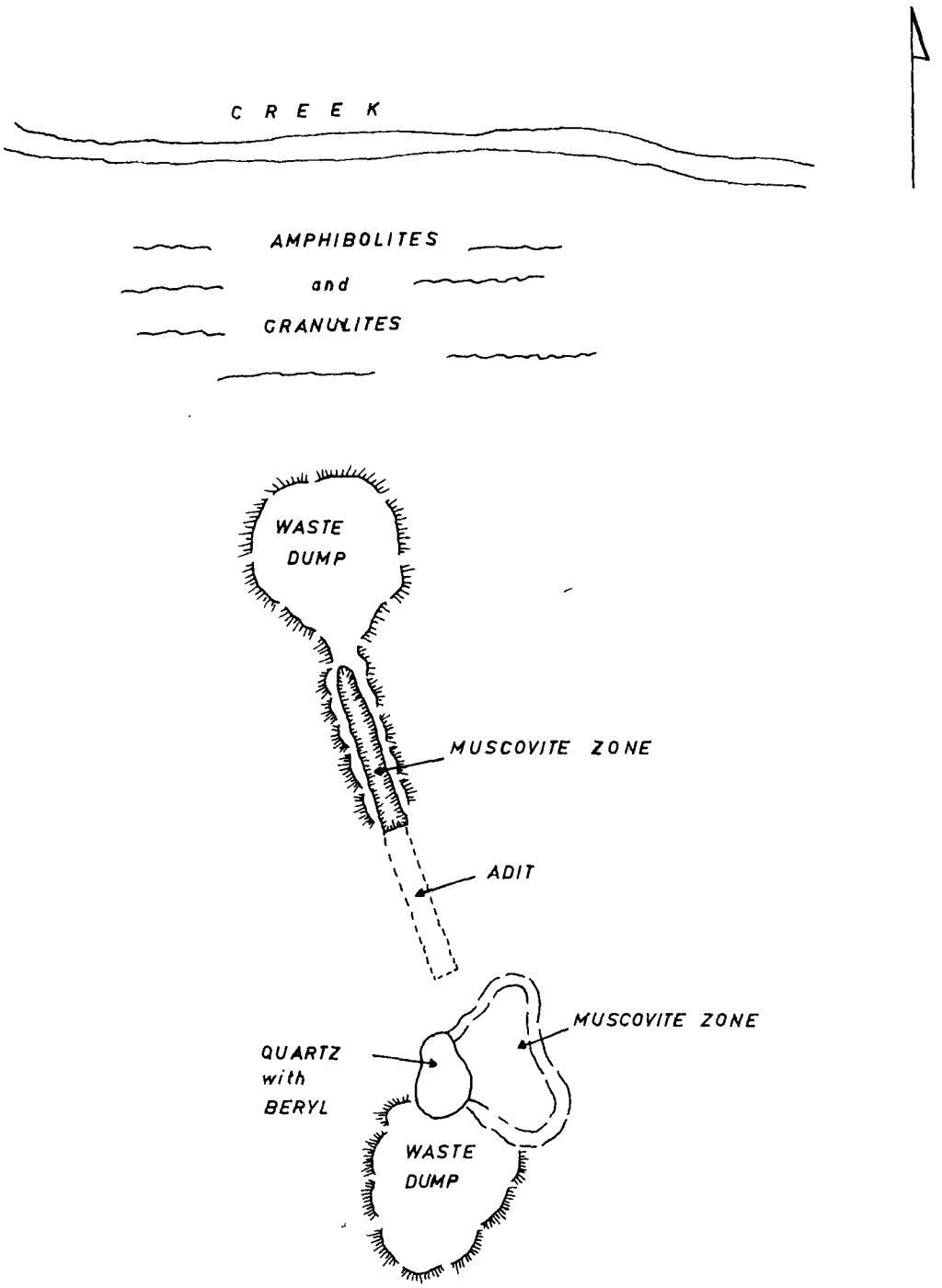
*SG is less than 2.9 but iron staining increased the SG of the grains.

+ 18# oversize:

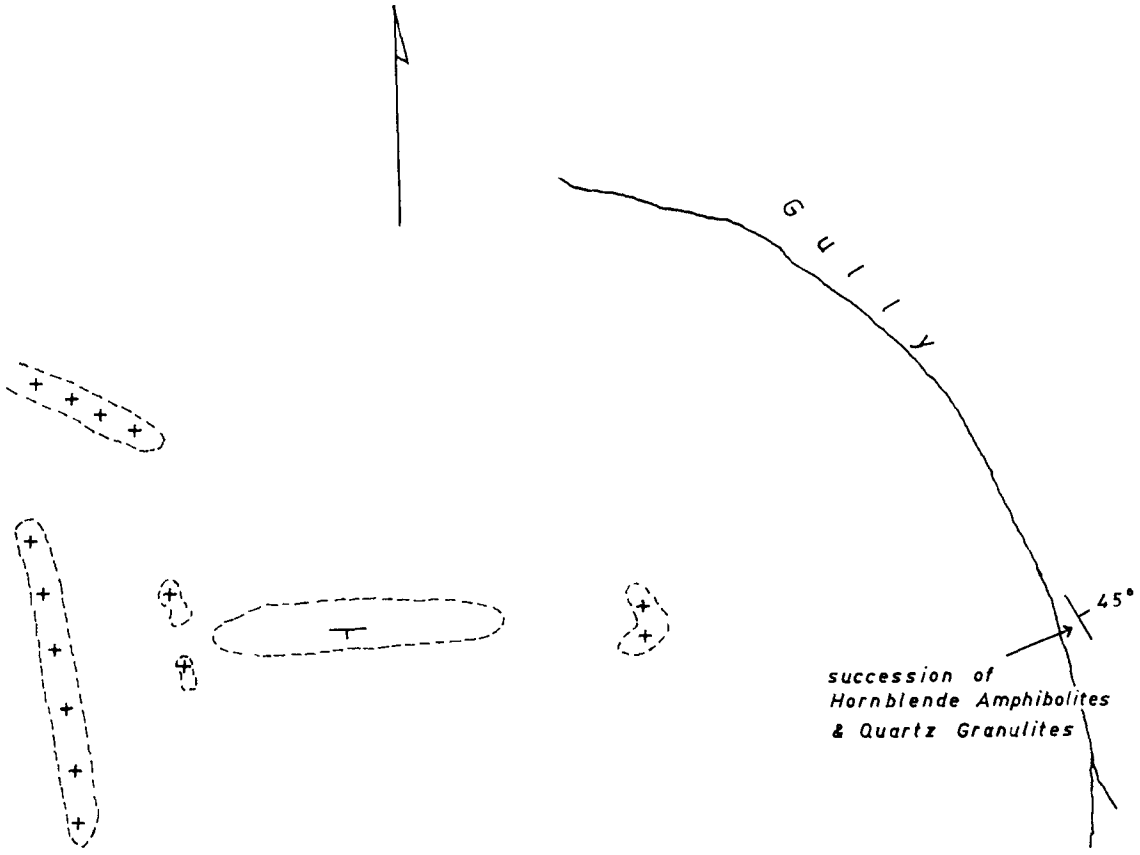
ilmenite	35	subrounded	goethite staining
augite	35	subrounded	
mica	10	subrounded	biotite cleavage plates.
garnet	10	subrounded to rounded	pink and red varieties
sillimanite	5	subrounded	needle crystals and fibrous massive
magnetite	5	subangular	
quartz	trace	subrounded	
epidote	trace	subangular	



PLACER PROSPECTING (AUST.) PTY. LTD.	
LOCATION MAP A-P 2277 NORTHERN TERRITORY	
Date:	Geology:
Scale: 1 : 250,000	Drawn by: A. N. B.
Revisions:	File No.: 1759 N.T.



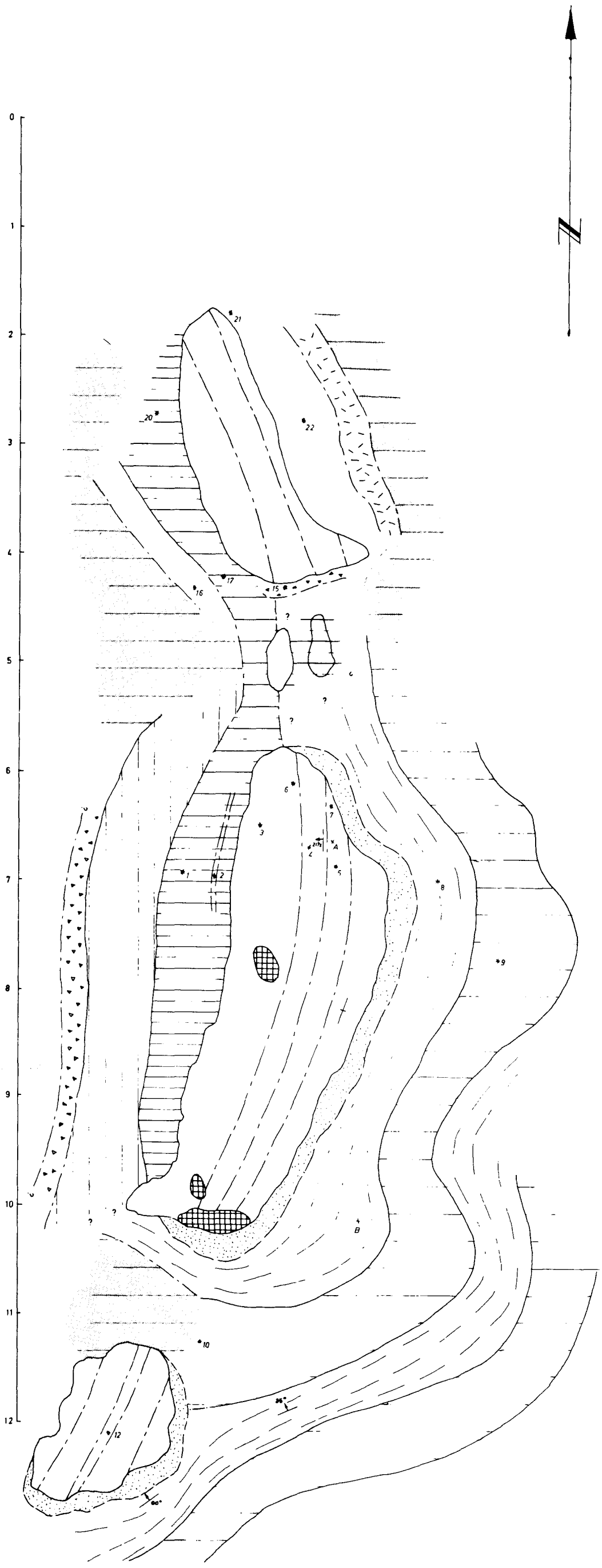
PLACER PROSPECTING (AUST.) PTY. LTD.	
ATRICH'S MICA MINE SPRIGG'S BORE AREA, HARTS RANGE A-P 2277	
Date: 6 – 4 – 69	Geology: J. G.
Scale: 1" = 50' app.	Drawn by: A. B.
Revisions:	File No.: 1757 N.T.



REFERENCE

- Quartzic Ironstone with yellow staining
- Quartz Feldspar Pegmatite
- ---- outcrop boundary

PLACER PROSPECTING (AUST.) PTY. LTD.	
MT MARY BORE, WEST IRONSTONE	
A-P 2277	
Date: 12 — 4 — 69	Geology: J. G.
Scale: 1" = 50' app.	Drawn by: A. B.
Revisions:	File No.: 1758 N.T.



L E G E N D

- *Entia Gneiss*
- *Biotite Rich Phase Of Entia Gneiss*
- *Extremely Rich Pockets of Ore*
- *Calc Silicates*
- *Metamorphosed Basic Dolerite Basalt ?*
- *Impure Calc Silicates*
- *Spessartite Pegmatite*

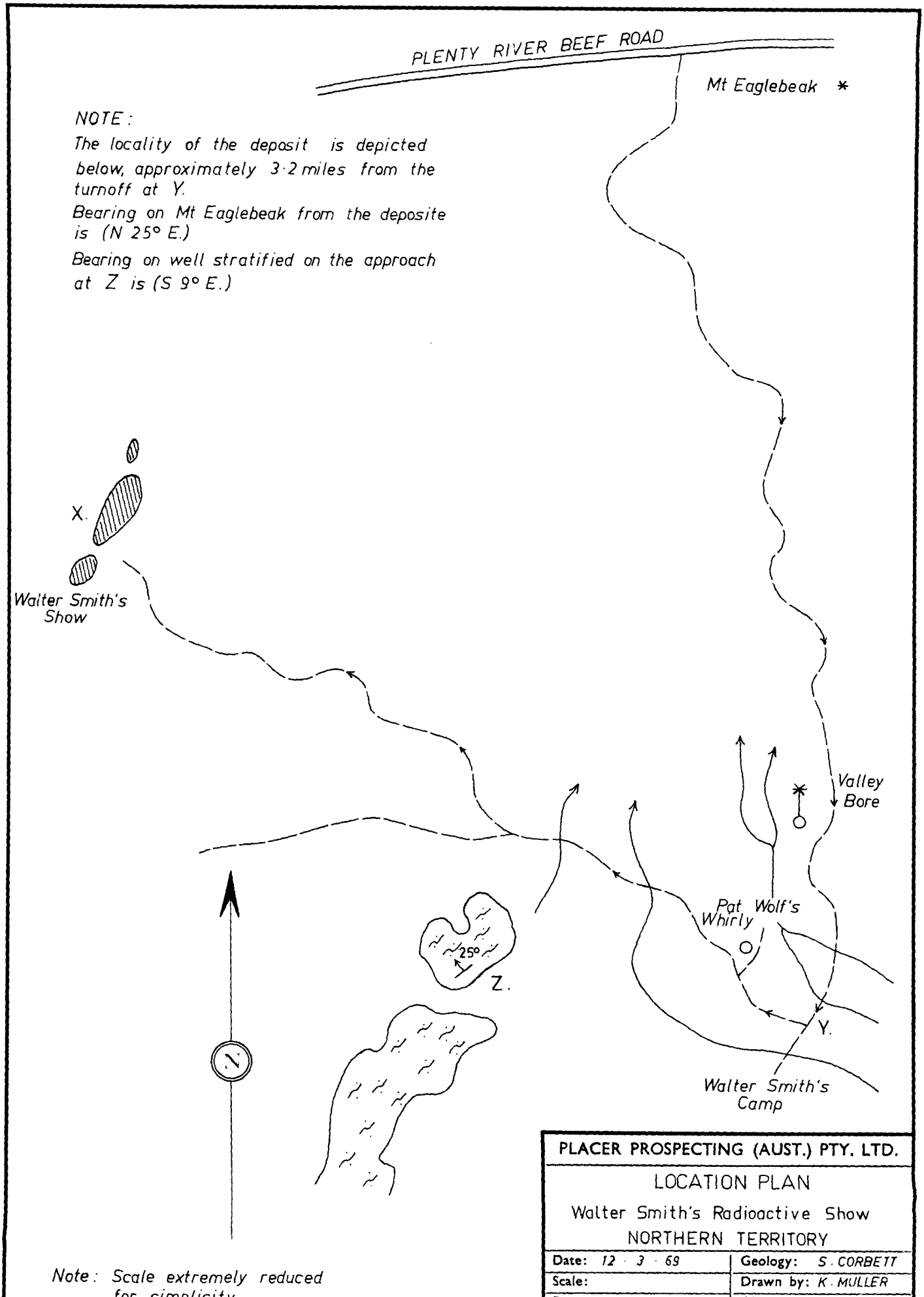
The lodes themselves consist of a series of banded impure & pure calc silicates. Uppermost bed is on pure homogeneous calc silicate Stringers of sheared Quartz are abundant

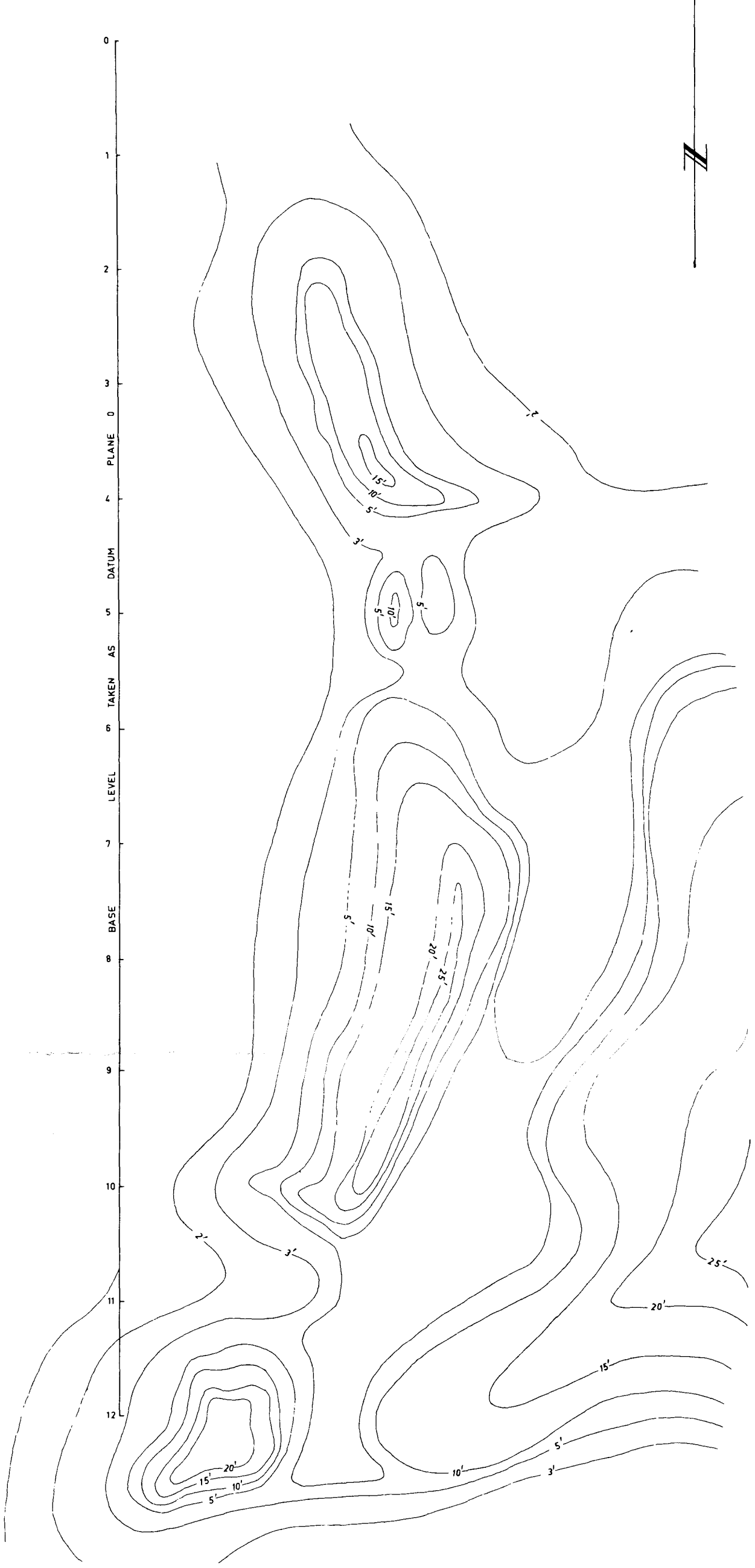
- *Rubble and Scree*
- *Alluvium*

PLACER PROSPECTING (AUSTRALIA) PTY. LTD.

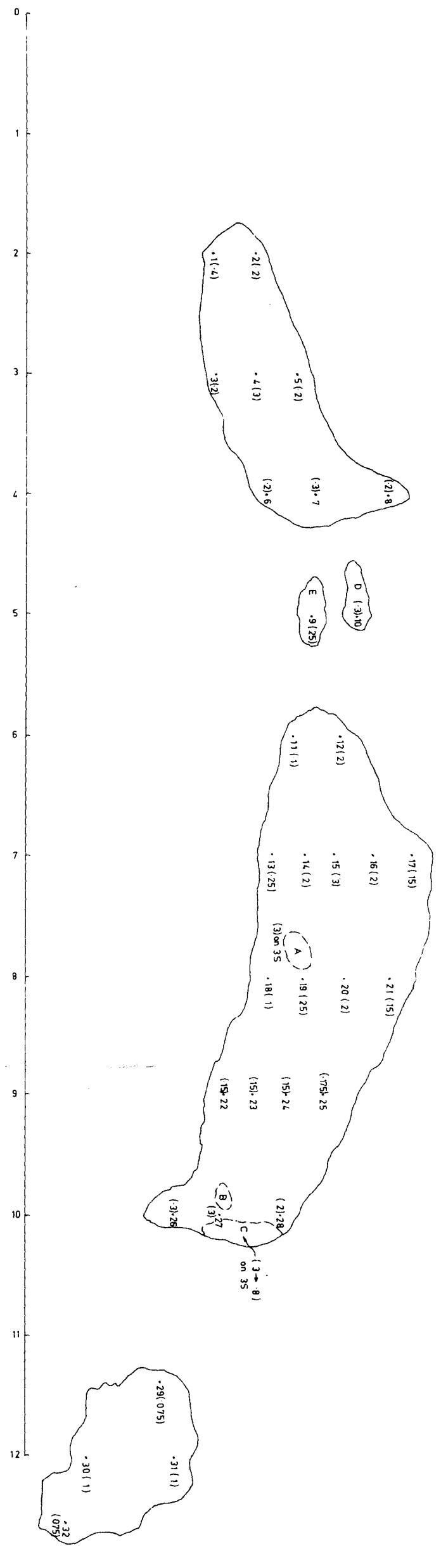
GEOLOGICAL PLAN
WALTER SMITHS RADIOACTIVE SHOW
NORTHERN TERRITORY

Date : 14-3-1969	Geology : S. Corbett
Scale : 1 in. to 50 ft.	Drawn : R.J. Voss
Revisions :	File No : 1476— N.T.


PLENTY RIVER BEEF ROAD
Mt Eaglebeak *
NOTE :
The locality of the deposit is depicted below, approximately 3·2 miles from the turnoff at Y.
Bearing on Mt Eaglebeak from the deposite is (N 25° E.)
Bearing on well stratified on the approach at Z is (S 9° E.)
X.
Walter Smith's Show
Valley Bore
Pat Wolf's Whirly
25°
Z.
Y.
Walter Smith's Camp
N
Note : Scale extremely reduced for simplicity.
PLACER PROSPECTING (AUST.) PTY. LTD.
LOCATION PLAN
Walter Smith's Radioactive Show
NORTHERN TERRITORY
Date: 12 · 3 · 69
Geology: S. CORBETT
Scale:
Drawn by: K. MULLER
Revisions:
File No.: 1475—N.T.



PLACER PROSPECTING (AUSTRALIA) PTY. LTD.	
CONTOUR PLAN WALTER SMITHS RADIOACTIVE SHOW	
Date: 14-3-1969	Geology: S. Corbett
Scale: 1 inch to 50 ft.	Drawn: R. J. Voss
Revisions:	File No: 1477 — N.T.



LEGEND

( ) Mean readings of samples in situ.

ABCDE — Rich pockets

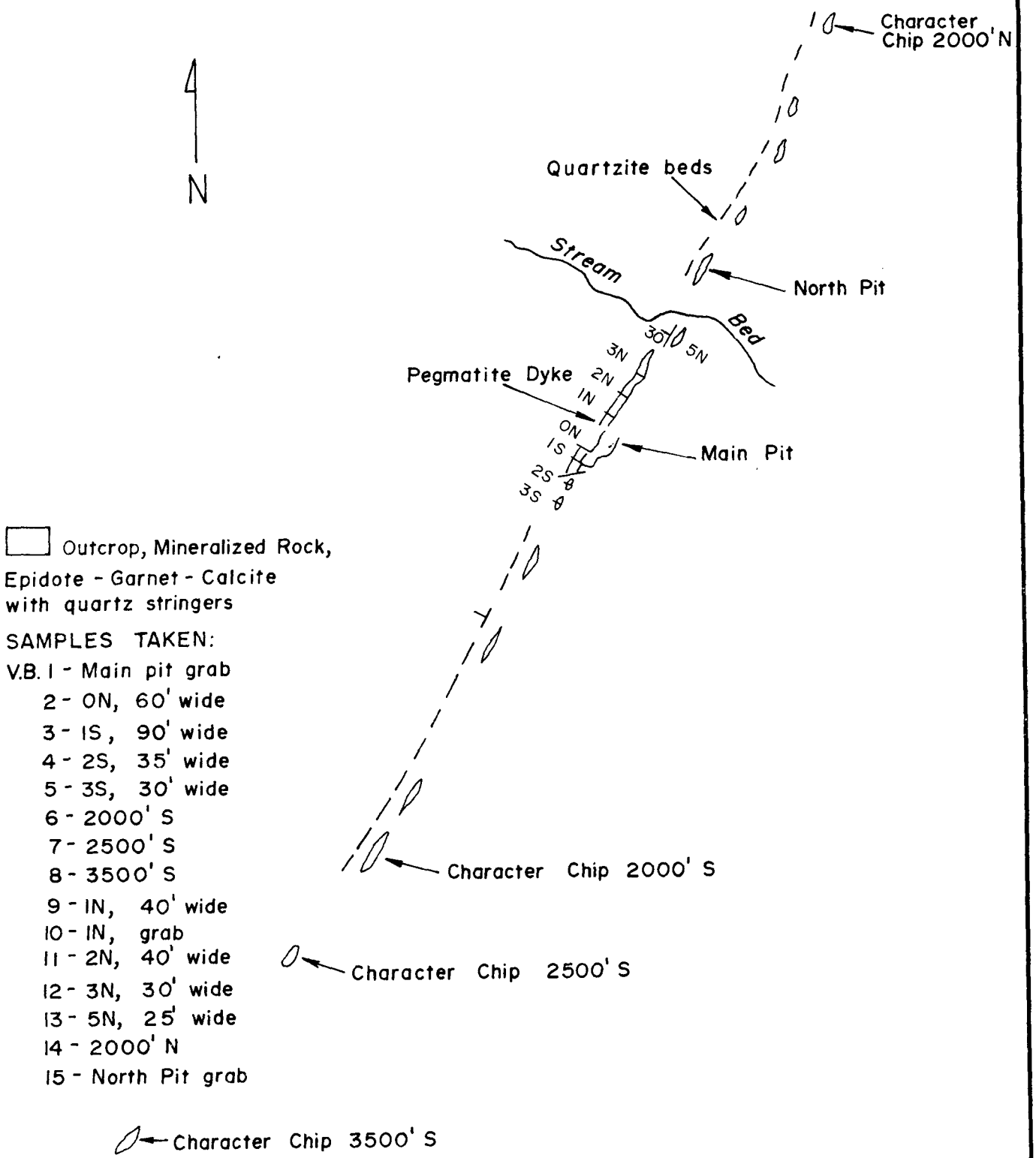
All readings taken on ·1 scale in situ (except where stated.)

NOTE:
Radiation readings as taken on a Panax Radiation Monitor T.M.64.

PLACER PROSPECTING (AUSTRALIA) PTY. LTD.

RADIATION READINGS
WALTER SMITH'S RADIOACTIVE SHOW
N.T.

Date: 14 March 1969	Geology: S. Corbett
Scale. 1 inch to 50 feet	Draughsman: R.J. Voss
Revisions:	File No: 1478 — N.T.



Outcrop, Mineralized Rock,
Epidote - Garnet - Calcite
with quartz stringers

SAMPLES TAKEN:

V.B. 1 - Main pit grab
2 - 0N, 60' wide
3 - 1S, 90' wide
4 - 2S, 35' wide
5 - 3S, 30' wide
6 - 2000' S
7 - 2500' S
8 - 3500' S
9 - 1N, 40' wide
10 - 1N, grab
11 - 2N, 40' wide
12 - 3N, 30' wide
13 - 5N, 25' wide
14 - 2000' N
15 - North Pit grab

PLACER PROSPECTING (AUST.) PTY. LTD.

VALLEY BORE SCHEELITE
Preliminary Sketch Map

Date: 26 6 70	Geology:
Scale: 1" = 600'	Drawn by: K K
Revisions:	File No.: 1845 - N.T.