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NEW CONSOLIDATED GOLD FIELDS (A'SIA) PTY. LIMITED.

085001

No. 15/1968.

PROGRESS REPORT

ON

THE NORTH DUNDAS PROJECT (S.P.L. NO. 20) TASMANIA

FOR

1967-1968 FIELD SEASON

BY

D.L. FORSYTHE,  
GEOLOGIST.

AMG REFERENCE POINTS ADDED

Date: 3rd July, 1968.

C O N T E N T S

	<u>Page No.</u>
<b>INTRODUCTION</b>	1
General	
Access	
Topography, Soil	
Vegetation	2
<b>PREVIOUS REPORTS AND BRIEF DESCRIPTION OF OLD WORKINGS</b>	2
General	
Old Workings	
<b>ACTIVITIES IN THE 1967-68 FIELD SEASON</b>	4
General	
Surveying	
Geological Mapping	
Geophysics	
Geochemistry	
<b><u>OBSERVATIONS AND RESULTS</u></b>	5
Geology: General	
Geology: Structure	6
Geology: Lodes	
Geophysics	7
geochemistry	
<b>CONCLUSIONS AND RECOMMENDATIONS</b>	8

ILLUSTRATIONS

<u>Plate No.</u>	<u>Description</u>	<u>Scale</u>
1	Geological Plan: North side of Godkin Ridge	1" = 200 ft.
2	Ground Magnetic Survey (North side of Godkin Ridge)	1" = 200 ft.
3	Residual soil and rock sampling North side of Godkin Ridge: ppm Lead (Spectrographic)	1" = 200 ft.
4	Residual soil and rock sampling North side of Godkin Ridge: ppm Arsenic and Antimony (Spectrographic)	1" = 200 ft.
5	Residual soil and rock sampling North side of Godkin Ridge: ppm Tin (Spectrographic)	1" = 200 ft.

INTRODUCTIONGeneral

This report summarises the activities of the 1967-1968 field season in Special Prospectors Licence No.20 at North Dundas, Tasmania. These activities were restricted to an area bounded by the Godkin Ridge to the south, Frazer Creek to the west, the North East Dundas Railway formation between the Montezuma Falls and Bonnie Point to the east, and the old power transmission line near Ringville to the north. The area shown on Plate 1, included the old Curtin Davis, Curtin Davis Extended, South-West Curtin Davis, and Frazer Mines, and a number of smaller workings.

S.P.L. No.20, of 1,980 acres is held by Renison Ltd., and is due for renewal on the 16th August 1968.

Access

Four-wheel drive vehicular access into the restricted area described above is from Renison Bell along the Pine Hill track to Confidence Saddle, near the western boundary of the S.P.L., thence along the North East Dundas Railway formation to the camp near the foot of the Montezuma Falls. The camp is about 8 miles from Renison Bell. Eastwards from the camp the railway formation provides foot access to Williamsford. Within the restricted area, previously-cut lines, old horse tracks and a cart track, and creek beds provided additional access (see Plate 1).

Topography. Soil

The Godkin Ridge dominates the area. Its northern slope rises very steeply to 2,200 feet above sea level and is 1,200 feet above the North East Dundas Railway formation. The two major creeks, the Montezuma and the Frazer, arise south of the Godkin Ridge, and drop many hundreds of feet over spectacular falls before passing under the Railway and northward with much reduced gradients. Both creeks have built up alluvial flats within the area. Tributaries are deeply incised.

Soil is shallow and irregularly developed over the steep, open northern slope of the Godkin Ridge. Development and definition into distinctive horizons are markedly better north of the Railway formation on the relatively gentler slopes.

### Vegetation

Rain forest covered all of the area studied near the turn of the century, as old photographs in the Zeehan School of Mines show, but bush fires have since burnt out much of the northern slope of the Godkin Ridge above the Railway, leaving it covered by low scrub. The forest covering the remainder of the area varies in density, but generally necessitates line cutting and creek clearance.

### PREVIOUS REPORTS AND BRIEF DESCRIPTION OF OLD WORKINGS

#### General

Old reports on this area have been summarised and supplemented by McIntosh Reid in 1925 (The Dundas Mineral Field; Tas. mines Dept. Bull. No. 36) and Blissett in 1962 (Zeehan; Tas. Mines Dept. Geol. Survey. Explan. Rept.)

The area is one of complexly folded and faulted sediments and interbedded volcanics placed by Blissett in his Brewery Junction formation, largely of the Cambrian Dundas Group, although he suggested that a number of other formations may in fact be represented. Elders, of Renison Ltd., in his report on work done in the 1966-1967 field season in S.P.L. No. 20, attempted a subdivision into these formations but had difficulty in fitting the succession on the north slope of the Godkin Ridge into Blissett's succession.

Old Workings (Sources: McIntosh Reid (1925), Blissett (1962) and a report by Montgomery, 1896, entitled Report on the Zeehan - Dundas Mineral Fields in February, 1896; Mines Office, Launceston).

The Curtin Davis and Curtin Davis Extended mines (see Plate 1) produced 922 tons of ore averaging about 3.5% Cu, 1% Pb and 30 ozs./ton Ag from small ore shoots in a steeply east dipping fissure lode less than 3 feet wide and exposed on the steep northern slope of the Godkin Ridge. The lode was tested from the summit of the ridge to below the North East Dundas Railway by 9 adits and a number of shallow openings. The best ore was taken from Nos. 1, 3 and 5 Curtin Davis adits and Nos. 1 and 2 Curtin Davis Extended adits. A sideritic gangue carried tetrahedrite, chalcopyrite, pyrite, bismuthinite, galena and sphalerite.

The ore mineral assemblage in the South-West Curtin Davis mine on the steep west slope of the Godkin Ridge resembled that in the Curtin Davis mine. 600 tons of ore averaging from 120 to 200 ozs./ton Ag and 10-12% Cu were won from a narrow, steeply ESE-dipping fissure lode worked from the surface and from two adit levels.

Workings 700 feet north of the South-West Curtin Davis mine are not described in the old reports. The narrow lodes are of the Curtin Davis type, and there was little production from the shallow workings.

The NW-striking Eastern Lode to the east of the Curtin Davis mine (see Plate 1) was mentioned by Montgomery (1896). There was no production from this lode which was only 3 inches to 9 inches wide and of the Curtin Davis type.

An attempt was made to work the Frazer Mine for its tin content soon after its discovery, but the grade was too low for a successful operation. Later, at least 1,000 tons of arsenopyrite rich ore averaging 16-18% As and 2.3% Cu were produced. Reid (1925) analysed bulk samples and detected 2 to 5 ozs./ton Ag and nil to 0.3% Sn. The steeply east dipping orebody, worked over 500 feet of its length in adits and surface openings, is a 2 feet wide quartz vein carrying arsenopyrite, pyrrhotite, pyrite, marcasite, chalcopyrite and minor galena, sphalerite and cassiterite and resembles some parts of the Federal lode in the Renison mine. Reid's (1925) plan indicated an extension of the Frazer lode well south of the railway bridge over Frazer Creek.

The Montezuma Deposit east of the Railway bridge over Montezuma creek is a large pyritic body said, by Reid (1925), to be in the contact of the northward extension of the Moores Pimple ultrabasic dyke, now altered to dolomitized serpentine and stained by zaratite. However, Blissett (1962) suggested that 'zaratite' at Moores Pimple was in fact the chrome-mica fuchsite, while a polished section examined during this study showed that the host rock for this deposit in the adit in the railway cutting was a hydrothermally altered tuff. Minor chalcopyrite is visible in the ore. No analyses are given in the literature, and production appears to have been negligible.

ACTIVITIES IN THE 1967-68 FIELD SEASONGeneral

Field work was carried out between the 5th December 1967 and 1st May 1968. One geologist (the writer), three university students on vacation, and three field assistants worked on the project for varying periods during the season.

Old horse tracks, an old cart track, major creek and old workings, shown in Plate 1 were cleared. A short reconnaissance flight by helicopter assisted the location of some workings and tracks.

Surveying

The accompanying plates are based on a tape, compass and clinometer survey of the area. A theodolite and tape survey of the principal track from the summit of the Godkin Ridge to the North East Dundas Railway formation was carried out by Renison Ltd. surveyors.

Geological Mapping

Detailed mapping of tracks, workings etc. was carried out within the area of Plate 1: no detailed or reconnaissance mapping was done beyond this area. Major underground workings, being inaccessible or unsafe were not examined. Exposed lodes were generally oxidised, or representative of obviously low grade sections, so that no sampling, other than residual soil sampling was done. A representative suite of rocks was examined by AMDEL, South Australia.

Geophysics

Tracks, lines and the North East Dundas Railway formation were surveyed with Renison Ltd.'s McPhar portable magnetometer which measures the intensity of the vertical component of the earth's field. Readings were taken at 25 feet intervals along lines, and at survey stations and a few intermediate points along tracks and the railway formation. Intervals were reduced over anomalous sections. Corrections for diurnal variations were made.

*Point  
Spikes?*

Geochemistry

Sampling at approximately 100 feet intervals

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along lines was carried out within the area of Plate 1, and 146 samples, taken from pits, were submitted to ANDEL, South Australia, for spectrographic analysis for Cu, Pb, Zn, Ag, Sn, W, As and Sb. This total was made up of 93 residual soil, 40 bedrock and 13 alluvium samples. Bedrock samples were taken mainly on sections of the steep slope of the Godkin Ridge, where soil development was very poor.

#### OBSERVATIONS AND RESULTS

##### Geology: General

Plate 1 is a preliminary geological plan of the area north of the Godkin Ridge.

Within the area of Plate 1, Elders, in his reconnaissance mapping in 1966-67, distinguished 'siltstone with conglomerate' in the Frazer Creek area, younger 'grits' and a yet younger 'Montezuma Group' of interbedded sediments and volcanics outcropping on the northern slope of the Godkin Ridge and east of Montezuma Creek.

The grits, or argillaceous lithic greywacke as they were described in an ANDEL report, are a readily identifiable unit, but in the area of the plan it was not possible to distinguish Elders' other two units, and these may well be the same. On Plate 1 they are grouped under 'black shale/siltstone with interbedded volcanics and coarse clastics'. Complex faulting and folding make it difficult as yet to determine a succession, but the 'grits', apparently capping a down thrown block, may be younger than the black shale/siltstone unit.

Black to grey laminated shales, siltstones and sandy siltstones in the 'black shale/siltstone' sequence are locally pyritic. The interbedded volcanics are predominantly tuffs and devitrified ignimbrites of rhyolitic to andesitic composition, in which irregular and minor quartz and calcite veins and disseminated veinlike sulphide mineralisation are usual. Most of the tuff showed no evidence of sedimentation in water, although tuffaceous greywackes were identified near the summit of the Godkin Ridge. Volcanic breccias, in which rounded or angular boulders were set in an acid matrix, were observed in the vicinity of the foot of the Montezuma Falls, and were interbedded with minor vesicular basic lavas in addition to the shaley sediments and finer grained pyroclastics.

Pebble conglomerates and a chert pebble conglomerate were also distinguished.

The argillaceous lithic greywacke, or graywacke grit, is a greenish grey, medium to coarse grained elastic sediment in which fragments of quartz, shale and quartzite, minor felspar and microcrystalline quartz are set in an argillaceous matrix, much of which appears to be derived from the disintegration of shale fragments. Interbedded micaceous shales, greywacke and pebble conglomerate are frequently observed in this unit.

A sheared and highly altered basic dyke, intruding the black shale/siltstones, is exposed in the railway cutting west of the Frazer Creek crossing. This is composed of a fine grained intergrowth of chlorite, talc, microcrystalline quartz, and opaques including ilmenite (leucoxene) and a sulphide. A carbonate, probably dolomite, and quartz occupy shear planes and carry sparse chalcopyrite, pyrrhotite and sphalerite.

#### Geology: Structure

Minor north-trending fold axes were observed in the black shale/siltstone sequence in the vicinity of the Curtin Davis and Frazer Mine workings and along the railway between the Monteguma Falls and Bonnie Point. A number of other axes were reasonably inferred from bedding variations. Such folding is more intense in the eastern half of the area of Plate 1 than in the Frazer Creek area. A major plunging syncline is inferred in the greywacke grits. Major folding in the black shale/siltstone sequence is not yet inferred.

There is much evidence of faulting in this area and two major fault trends are apparent: one NNW and the other NNE to NE- striking. A NNW trending zone near and along Frazer Creek appears to be a major structure: a considerable width is indicated at the railway crossing over the creek and a strike length of more than 3600 feet is known. The NNW trend appears to be the more dominant and shears with this trend more persistent.

#### Geology: Lodes

Shears of both trends have been mineralised. In general, the Curtin Davis type of a tetrahedrite - bearing

orebody occurs where the volcanics are prominent in the black shale/siltstone sequence in the South Eastern half of the area: i.e. on the steep northern and north western flanks of the Godkin Ridge. The arsenopyrite-pyrrhotite-chalcopyrite-cassiterite mineralisation is associated with the Frazer Creek fault zone.

The Montezuma Deposit, a pyritic body, also occurs where volcanics are prominent in the black shale/siltstone sequence.

With the exception of this latter deposit, all of the exposed lodes are less than 3 feet wide in this area. However, these narrow channels have in some cases been mineralised over a considerable strike length and depth, although the available evidence suggests that, as elsewhere in the Eeehan-Dundas area, the economic sections of the Curtin Davis type lodes is restricted to the (present) upper parts of the bodies.

There are no new additions to the ore mineral assemblage and grade information mentioned in an earlier section.

#### Geophysics

The steeply east dipping pyrrhotite bearing Frazer lode was clearly indicated in the magnetic survey (see Plate 2) although the anomaly was less intense than those over the wider Renison orebodies. The survey indicated that mineralisation in the Frazer Creek fault zone continues considerably further along strike than was indicated by the known old workings.

A lower grade anomaly north east of the Frazer Mine cannot yet be fully explained. A known arsenopyrite - etc. - bearing lode in a trench crossed by line 3 west of the anomaly, and tin and arsenic anomalies in soils in this area, (see below) are indicative of another Frazer type of body.

#### Geochemistry

Some results of the residual soil, rock and alluvium sampling for the more significant lead, tin, arsenic and antimony values are shown on Plates 3, 4 and 5. Results of analyses for Cu, Zn, Ag and Ni are shown on working plans, copies of which are being forwarded separately to Consolidated Syndicate members.

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Interpretation of these results is hindered by the wide line spacing, variations in bedrock type, irregular soil development, the strong likelihood of considerable lateral transport of the analysed elements down the steep slopes of the Godkin Ridge, and the large number of old workings and dumps. The following general observations should be considered with these factors in mind.

Lead (Plate 3) and silver contents are well correlated. Background values are generally much lower in soils overlying the greywacke grits (lines 2, 3, 4) than over the black shale/siltstone sequence. Low intensity anomalies over the black shales/siltstones show a rough agreement with known Curtin Davis type lodes. A low grade lead anomaly along the Frazer Creek fault zone may in fact reflect the higher background in the black shales/siltstones.

The Frazer, Curtin Davis and South-West Curtin Davis lodes are indicated by narrow copper and zinc anomalies but other anomalies are apparently unrelated to ore mineralisation so that these elements appear not to be very specific in this area.

Arsenic (Plate 4) shows some correlation with lead and silver, reflects the Curtin Davis type lode, and has a higher background in the black shale/siltstone than in the grits. Of interest are the strong indications over the Frazer lode on lines 3 and 4, and perhaps on line 7, and a somewhat weaker indication on line 6. Rather low intensity arsenic anomalies accompany the tin anomalies (Plate 5) on lines 3 and 5. The former is in the vicinity of a known Frazer type lode and a magnetic anomaly; the latter is not accompanied by a magnetic anomaly and requires further investigation.

High antimony contents (Plate 4) correlate with high arsenic contents. Odd high nickel values appear to be random.

#### CONCLUSIONS AND RECOMMENDATIONS

The argillaceous lithic greywacke, or greywacke grit, has proved to be unfavourable for orebody development in this area. Major ore development has been restricted to the black shale/siltstone sequence with its interbedded volcanics.

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The Curtin Davis type of tetrahedrite-bearing orebody attains its best development where the volcanics are most prominent. These bodies are narrow and there is not yet reason to vary the assessment based on previous production and grade. The Frazer Creek fault zone is more encouraging. Pyrrhotite-arsenopyrite-chalcopyrite-cassiterite mineralisation similar to parts of the Federal lode in the Renison mine is indicated over a strike length greater than that indicated by the known workings. The fault zone locally attains a considerable width. The past record of production and grade is not good, but it is recommended that further attention be paid to this zone, and in addition, to the known occurrences of tin in Green's prospect (on and below the North East Dundas Railway formation just outside the western boundary of Plate 1) and of pyrrhotite in the Hecla mine further to the west.

Investigation of the northward and southward extensions, if any, of mineralisation in the fault zone is still required and further detailed work over the known sections is necessary.

Access for this additional work from the present camp is available and would be fairly readily improved by the clearing of several intermediate lines, Great Northern Creek, and part of an old water race running from Great Northern Creek to the Renison Bell area (a section of this is shown just west of the Frazer mine on line 3, Plate 1).

Some further mapping in, and east of the Montezuma Creek above the Falls would include other old workings, and is recommended together with reconnaissance mapping eastward from Bonnie Point along the railway.

The completion of these suggested investigations using the present camp as a base would take at least 2 months with a party similar to that of the 1967-68 season. This work would nearly complete the coverage of the northern half of S.P.L. No. 20.

In view of the difficult access into the southern half of the licence area, it is suggested that before and during this work a 4-wheel drive vehicular track be constructed from Confidence Saddle to the vicinity of the old timber mill at the end of Wallace's tramway, and a camp

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be established there. Line cutting and the clearing of creeks, tracks and old workings could then be well under way at completion of work in the northern half.

The examination of the southern half is likely to be hampered by the difficult terrain, the deep soils and dense rain forest, and a relative lack of access. With a party similar in size to that of the 1967-68 season it is unlikely that the examination of the S.P.L. No.20 will be completed in the 1968-69 season.

It is recommended that the magnetic survey be extended, in view of its usefulness in outlining the pyrrhotite bearing ores. The results of the residual soil sampling to date have not been easy to interpret, but the method may be more applicable in the less precipitous parts of the licence area; hand augering rather than just pit sinking is recommended. Reconnaissance stream sediment sampling is of little use in this well mineralised area and is not recommended.

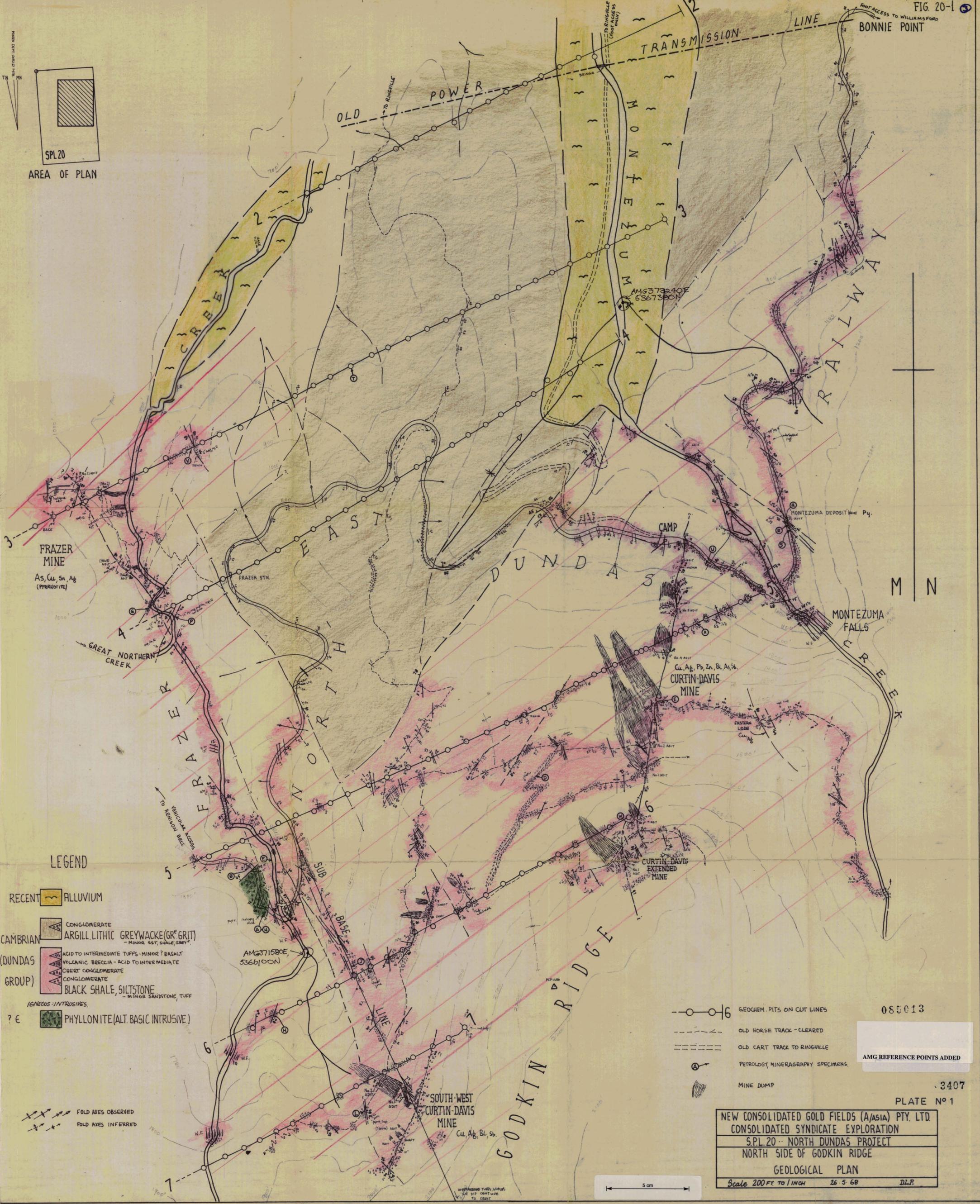
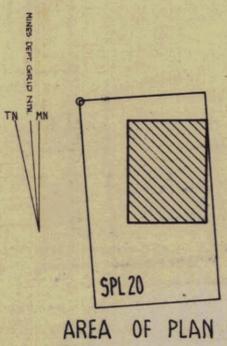
Finally, it is suggested that consideration of the application of other geophysical methods and drilling await the results of the coming season's operations.

It is proposed to prepare as soon as possible a suggested programme and budget for the 1968-1969 field season incorporating the above recommendations for consideration by the Consolidated Syndicate Members.

(Signed)

D.L. FORSYTHE,  
GEOLOGIST.

3rd July, 1968.



LEGEND

- RECENT ALLUVIUM
- CAMBRIAN CONGLOMERATE
- CAMBRIAN ARGILL. LITHIC GREYWACKE (GR<sup>o</sup> GRIT)  
- MINOR S.S.T., SHALE, GREY<sup>o</sup>
- (DUNDAS GROUP) ACID TO INTERMEDIATE TUFFS - MINOR ? BASALT
- (DUNDAS GROUP) VOLCANIC BRECCIA - ACID TO INTERMEDIATE
- (DUNDAS GROUP) CHERT CONGLOMERATE
- (DUNDAS GROUP) BLACK SHALE, SILTSTONE  
- MINOR SANDSTONE, TUFF
- IGNEOUS - INTRUSIVES
- ? E PHYLLONITE (ALT. BASIC INTRUSIVE)

FOLD AXES OBSERVED

FOLD AXES INFERRED

- GEOCHEM. PITS ON CUT LINES
- OLD HORSE TRACK - CLEARED
- OLD CART TRACK TO RINGVILLE
- PETROLOGY, MINERALOGY SPECIMENS
- MINE DUMP

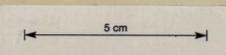
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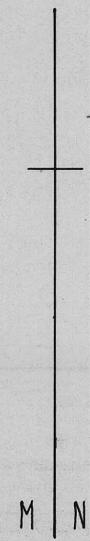
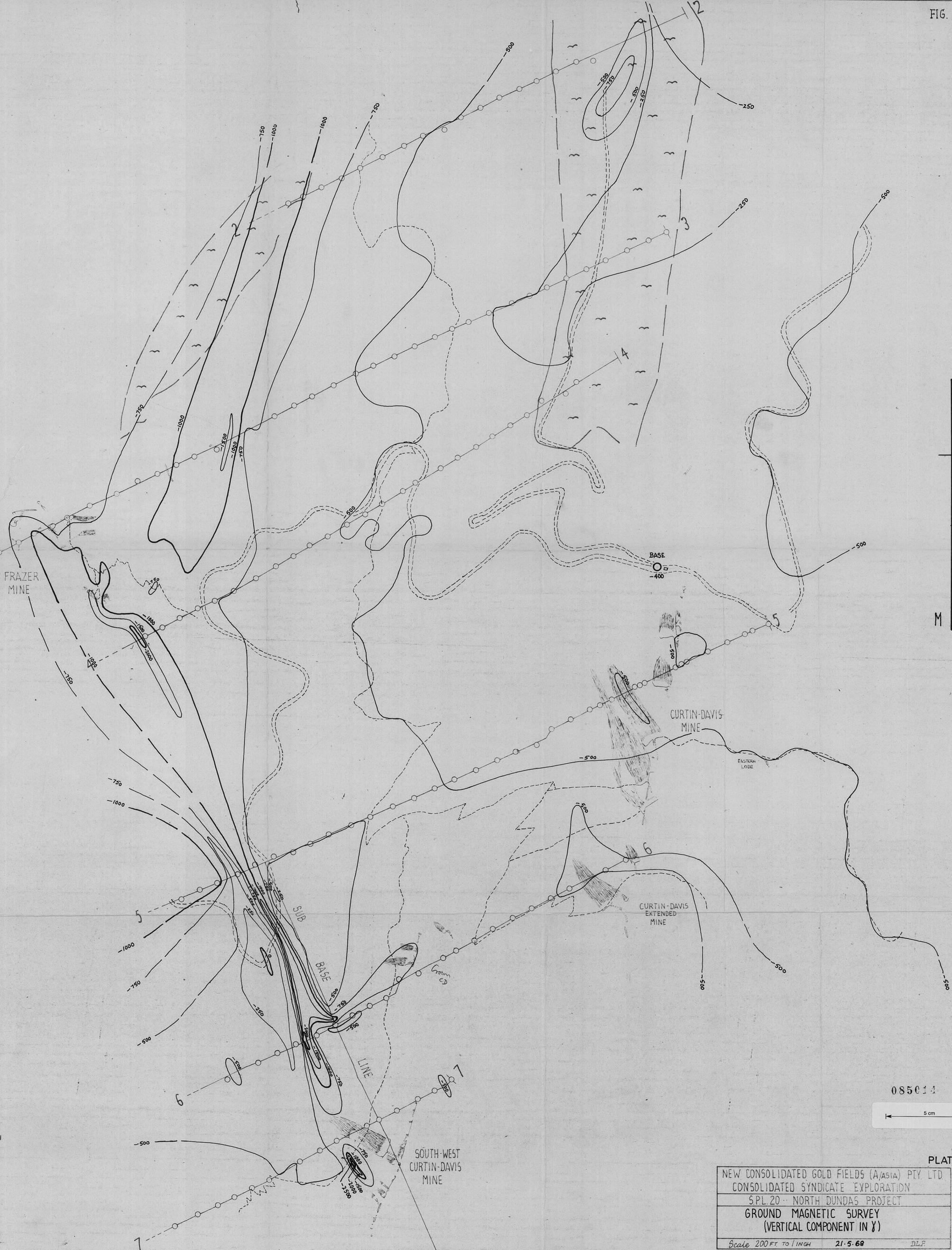
AMG REFERENCE POINTS ADDED

3407

PLATE No 1

NEW CONSOLIDATED GOLD FIELDS (A/ASIA) PTY. LTD.  
 CONSOLIDATED SYNDICATE EXPLORATION  
 S.P.L. 20 - NORTH DUNDAS PROJECT  
 NORTH SIDE OF GODKIN RIDGE  
 GEOLOGICAL PLAN  
 Scale 200 FT. TO 1 INCH 26-5-68 D.L.F.

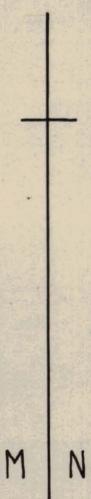
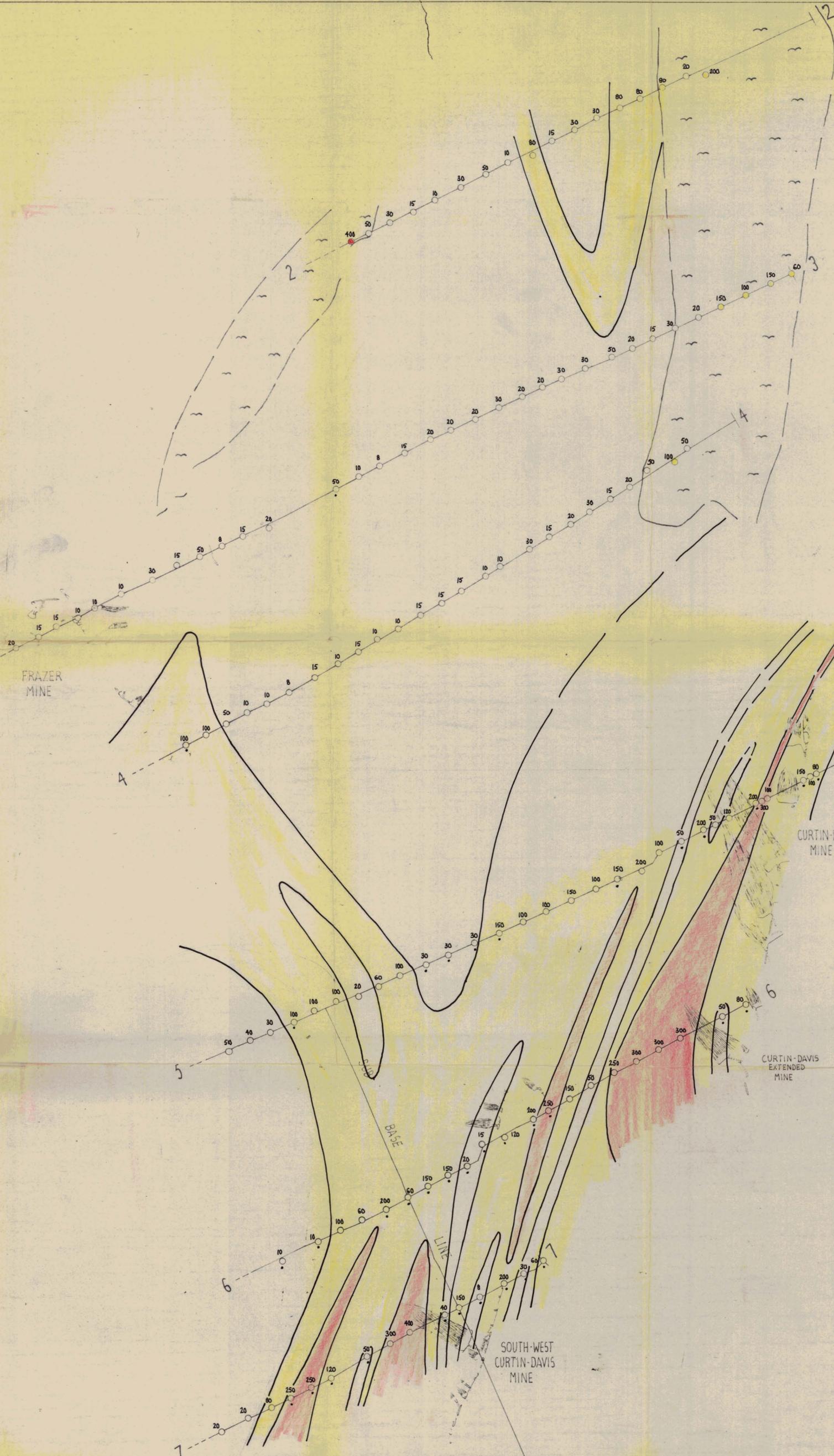




085014  
 5 cm

3408  
 PLATE No 2

NEW CONSOLIDATED GOLD FIELDS (ASIA) PTY. LTD.		
CONSOLIDATED SYNDICATE EXPLORATION		
S.P.L. 20 - NORTH DUNDAS PROJECT		
GROUND MAGNETIC SURVEY		
(VERTICAL COMPONENT IN γ)		
Scale 200 FT TO 1 INCH	21.5.68	D.L.F.

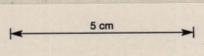


COLOUR KEY

pp.m. Pb

- 0-50
- 50-200
- >200

ACCURACY ±50%

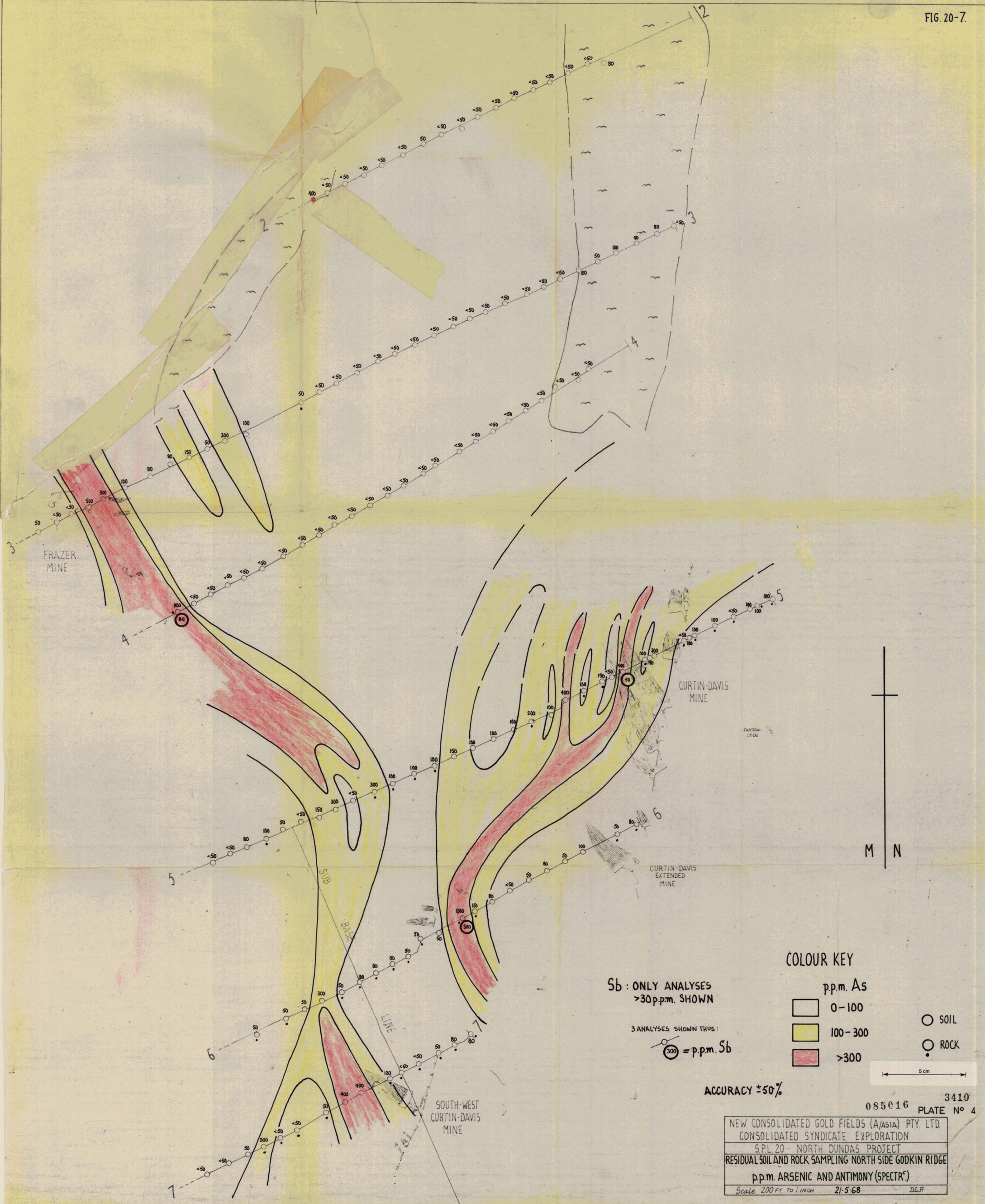


- SOIL
- ROCK

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085015 PLATE No 3

NEW CONSOLIDATED GOLD FIELDS (A/ASIA) PTY. LTD  
 CONSOLIDATED SYNDICATE EXPLORATION  
 SPL. 20 - NORTH DUNDAS PROJECT  
 RESIDUAL SOIL AND ROCK SAMPLING NORTH SIDE GODKIN RIDGE  
 ppm. LEAD (SPECTROGRAPHIC)  
 Scale 200 FT TO 1 INCH 21-5-68 D.L.F.



FRAZER MINE

CURTIN-DAVIS MINE

CURTIN-DAVIS EXTENDED MINE

SOUTH-WEST CURTIN-DAVIS MINE

SUB-BASE LINE

EASTON LODE

COLOUR KEY

p.p.m. As

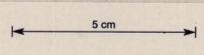
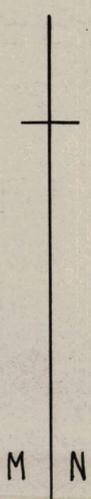
- 0-100
- 100-300
- >300

- SOIL
- ROCK

Sb : ONLY ANALYSES >30p.p.m. SHOWN

3 ANALYSES SHOWN THUS:

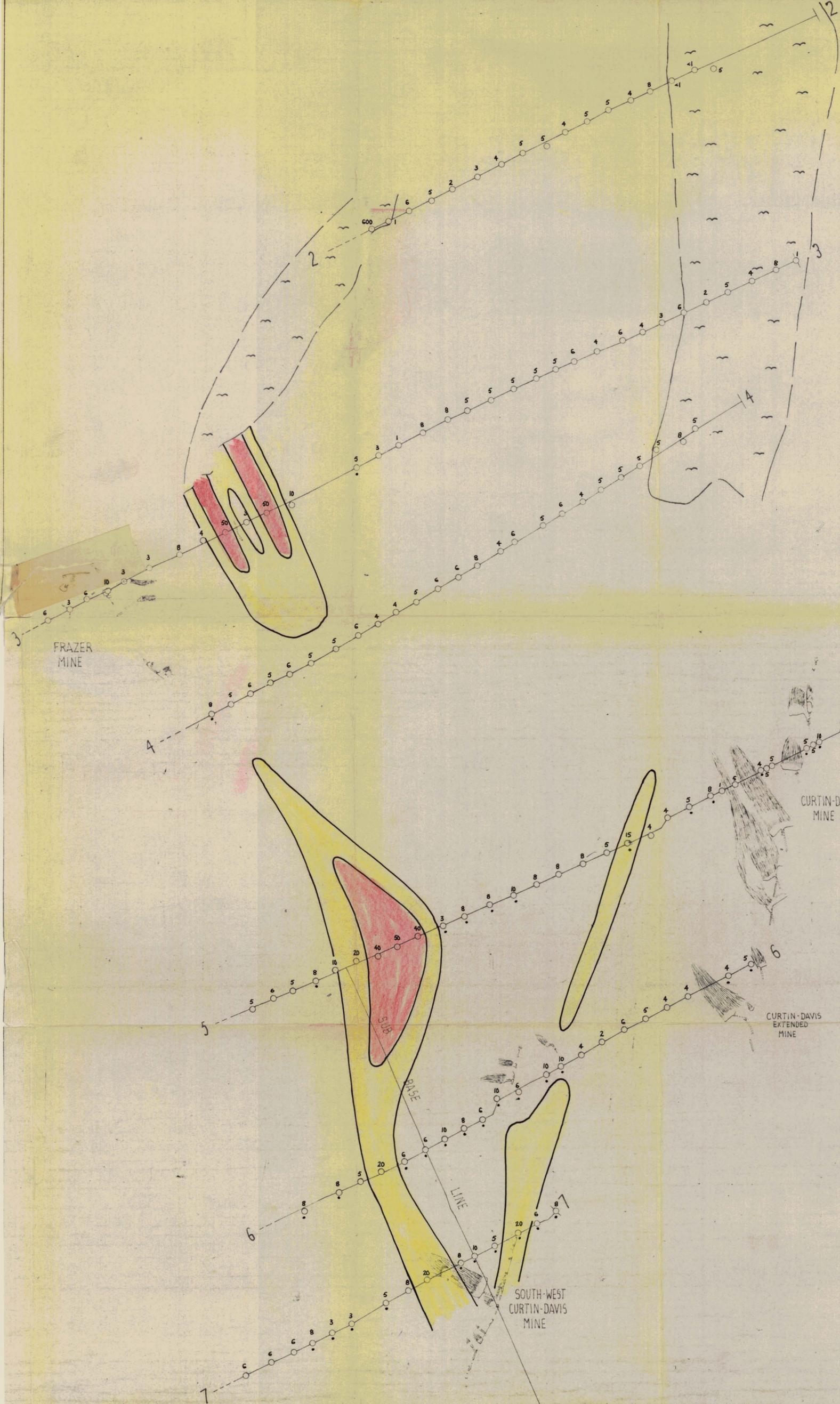
300 = p.p.m. Sb



ACCURACY ±50%

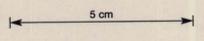
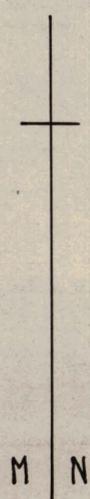
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PLATE No 4

NEW CONSOLIDATED GOLD FIELDS (A/ASIA) PTY. LTD.  
 CONSOLIDATED SYNDICATE EXPLORATION  
 S.P.L. 20 - NORTH DUNDAS PROJECT  
 RESIDUAL SOIL AND ROCK SAMPLING NORTH SIDE GODKIN RIDGE  
 p.p.m. ARSENIC AND ANTIMONY (SPECTR)  
 Scale 200 FT. TO 1 INCH 21-5-68 D.L.P.



COLOUR KEY

ppm Sn	CS5017
0-10	○ SOIL
10-30	○ ROCK
> 30	
ACCURACY ± 50%	



3411

PLATE No 5

NEW CONSOLIDATED GOLD FIELDS (A/ASIA) PTY. LTD.  
 CONSOLIDATED SYNDICATE EXPLORATION  
 SPL 20 - NORTH DUNDAS PROJECT  
 RESIDUAL SOIL AND ROCK SAMPLING NORTH SIDE GODKIN RIDGE  
 ppm. TIN (SPECTROGRAPHIC)  
 Scale 200 FT. TO 1 INCH 21-5-68 D.L.P.