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## METALS EXPLORATION LIMITED

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ADAMSFIELD PROSPECT

SOUTH WEST TASMANIA

E.L. 4/85

ANNUAL REPORT FOR THE PERIOD ENDING  
25 JULY 1988

REPORT NO. 212005

**OPEN FILE**S. Carthew  
A. Jannink  
P. Bellairs  
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AMG REFERENCE POINTS ADDED

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## SUMMARY

At the time of compiling this report, exploration work was still in progress for the 1987-1988 year. Final analytical results are not expected until late July 1988/early August 1988. Consequently this annual report contains only a statistical summary of the work performed. A complete geological report will be submitted when all the data are received and compiled. //

The emphasis of exploration this year was on testing (by pitting) the Adam River Plains for alluvial platenoid/gold/chromite resources. An excavator, capable of pitting to about 6 metres depth, dug 102 pits from which 181 samples (about 1 cubic metre each) were extracted. These samples were treated through two washing plants assembled on site at Adamsfield.

Results from the bulk sampling (10 pits) completed in 1987 are presented. Six samples contained anomalous gold and PGE values ranging from 1.7 - 7.7 g/t Au and 4.0 - 7.1 g/t PGE. These results provided the encouragement to proceed with the 1988 pitting programme.

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## 1. INTRODUCTION

### 1.1 LOCATION AND ACCESS

The Adamsfield district is situated in the north central part of EL 4/85 and is 90km NNW of Hobart in the South West Conservation Area of south central Tasmania - Figure 1.

Access to the southern part of the Licence area is facilitated by the Gordon River Road connecting Maydena and Strathgordon, while the northern part can be accessed by either the Clear Hill Road or the Sawback Range Track, both of which connect with the old Adamsfield Track. The latter track, now inaccessible east of the Sawback Range, provided the original access to Adamsfield and ran west of Tim Shea across the Florentine River.

Previous work by the Company involved the upgrading of a 5km interval of the Adamsfield Track, extending from the Clear Hill Road junction east to the Sawback Range.

### 1.2 TOPOGRAPHY

The topography is generally of high relief, the mountains having a general north-south trend, and rising to heights of 1200m ASL. The lower plain country occupies altitudes of 390-480m ASL, and the eastern margin of Lake Gordon is included in the western part of the Licence area.

The most prominent mountains within the region are The Tumbs (1188 metres), Clear Hill (1198 metres), Sawback Range (700 metres) and Ragged Range (650 metres).

The principal drainage is to the west by means of the Adam and Eve Rivers and the Gordon River.

### 1.3 CLIMATE AND VEGETATION

The climate is typical of the West Coast having cold wet winters. Snowfalls are frequent and annual rainfall is 1.90 metres.

The vegetation typifies the low altitude - high rainfall character of the region, with the most common type being button grass, interspersed with stringy bark (*E.obliqua*) and wet scrub (*Melaleuca*, *Banksia*, etc.).

Minor stands of Smithton peppermint (*E.simmondsii*) and gum topped stringybark (*E.delegatensis*) are also present.

#### 1.4 TENURE

Exploration Licence 4/85, covering an area of 112 sq.km, was granted to the Company on the 25th July 1985 for a period of up to 10 years (subject to satisfactory exploration performance and expenditure, and to statutory reductions in area after 5 years etc.).

At the time of granting, the following constraints applied to the area:

- Mining Rights in the name of Turner and Morley;
- Mining Claims 46m/82 (S Morley, 6 ha) and 12m/83 (S Morley, 1 ha).

Although the Licence area is entirely enclosed by the South West Conservation Area (SWCA), the State Government (through the Department of Mines) has consistently encouraged mineral exploration activities in the area.

In 1985, the SWCA (proclaimed 1978) in the vicinity of EL 4/85, was administered by the Forestry Commission (west of the Ragged Range and east of the Sawback Range), and the National Parks and Wildlife Service (the central zone of the EL, underlain in part by ultramafic rocks).

Since 1980 the SWCA has been included on the register of the National Estate (under the Heritage Commission Act of 1974).

#### 1.5 PREVIOUS EXPLORATION AND MINING

Alluvial platinum group metals ("osmiridium") were discovered in 1925, and the lode deposit was located in about 1930.

15,394 ounces of osmiridium were recorded as being produced from Adamsfield during the period 1925-54 from both alluvial and hardrock sources between the Ragged and Sawback Ranges.

#### 1.6 REGIONAL GEOLOGY

The ultramafic complexes of Western Tasmania occur intermittently along a major crustal suture. They lie fault bound within Cambrian sediments or at the boundary between Cambrian and Precambrian rock (Williams et al; 1975). Numerous cross cutting transcurrent faults have displaced the ultramafic lenses.

The ultramafics throughout the belt display similar characteristics, indicating an origin from a common parent magma.

It is believed that these complexes were emplaced early in the development of the Tasman Geosyncline, into sediment filled troughs formed within and between regions of disrupted Precambrian basement (Williams, 1976).

The layered ultramafic complexes with which platinum group elements (PGE) are associated are mainly emplaced in Cambrian and Precambrian sequences, and are likely to be middle Cambrian age or older. They are considered as attenuated ultramafic sequences derived from magma chambers that have developed in part by fractional crystallisation of an original high Mg, low Ti or andesitic magma (i.e. partial mantle melt).

## 1.7 TENEMENT GEOLOGY

The Adamsfield Ultramafic Complex is composed mainly of three rock types: serpentinite (and serpentinitised dunite), interlayered serpentinite (and variably serpentinitised dunite) and pyroxenite, and massive pyroxenites; (Corbett [1966] and Brown [1972]).

### 1.7.1 Serpentinite

The bulk proportion of the northern ultrabasic body consists of serpentinites, both massive and sheared. The latter mainly occurs in the north, while the "tail" along the Sawback Range is mainly massive. Various proportions of relict olivine grains occur in the massive serpentinite. The serpentinites are mainly dark green to matt green, with the sheared zones being more yellowish green.

### 1.7.2 Layered Ultramafics

These rocks occur in the hills in the north and consists of alternating orthopyroxenite and serpentinite layers. The central cores of the hills often consist of a more massive coarse grained pyroxenite up to 30m thick (Brown 1972). The serpentinite layers (after dunite) still contain 20-60% olivine and weather greyish green. The pyroxenite layers are generally coarse grained, particularly in the central parts, and weather to a brown colour.

The layers vary in thickness from less than 1cm to 2m, with the pyroxenite being the thickest. They appear parallel with the strike direction of the general N-S trend of the ultramafic complex.

G07

### 1.7.3 Massive Pyroxenite

This rock type is confined to a distinct body situated in the middle of the ultrabasic "tail" along the west side of the Sawback Range. It consists mainly of orthopyroxene, has a variable grain size, and weathers to a dark brown colour. The boundary between the enclosed pyroxenite and the surrounding serpentinised dunite is irregular and is apparently a tectonic feature.

### 1.7.4 Sedimentary Rocks

The Adamsfield Ultramafic Complex is enclosed by sediments of Palaeozoic age forming the Junee Group (and specifically the Denison Sub Group). The more resistant units in this sub group form the locally distinctive Ragged and Sawback Ranges (e.g. siliceous and pebbly sandstone [+/- conglomerates] in the Sawback Ranges, and siliceous cobble conglomerate in the Ragged Range). Less prominent sedimentary rocks occur to the west of the ultramafic complex as quartz sandstone (e.g. Football Hill), and to the east as the Adamsfield Beds (calcareous mudstone, siltstone, sandstone and ultramafic debris). Ultramafic debris are also present in the Football Hill area, and both this sequence and the Adamsfield Beds appear to have shed chromite and PGE into the local drainage.

## 1.8 MINERALISATION

The Adamsfield Ultramafic Complex has been the source (either directly or indirectly), of both alluvial and lode platinum group metals.

Previous work by Ford (1981) has shown the typical platinoid alloy at Adamsfield to be iridosmine (IrOs) commonly referred to as osmiridium.

In addition, the Complex also hosts chromium, nickel and gold mineralization (MEL investigations). Chromite is an ubiquitous associate of the PGE metals in the alluvial deposits, with lesser gold.

Nickel sulphides occur in trace amounts (heazlewoodite) in the serpentinited dunitites, although early records indicate a shaft sunk on an occurrence of millerite near Halls Open Cut.

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## 2. EXPLORATION ACTIVITIES

### 2.1 GRIDGING AND TRACK CONSTRUCTION

During November/December 1987 Brooks, Lark and Carrick, surveyors, of Hobart undertook both flagging of grid lines and tracks proposed for the 1987/88 Adamsfield exploration programme. All grids and tracks were surveyed into the Australian Metric Grid by triangulation of three State Trig Stations.

Eight east-west grid lines 250m apart (9.9 km total length), were flagged immediately to the south of the Adamsfield Track. To the north of the Adamsfield Track, four north-south 250m spaced lines totalling 2.0km were also flagged. All these lines were used in the subsequent pitting programme. A track (Western Track, figure 3) was flagged along the western side of the Adam River Plain to provide access to the 8 flagged lines.

Further flagging of grids and tracks was completed in the Packers Spur West (north of Halls Open Cut) and Main Creek (west of Halls Open Cut) areas. Unfortunately, time constraints brought about by late (March 1988) Federal Government approval for the exploration programme to proceed meant that no work could be performed on the grids.

In December 1987/January 1988, all the above proposed grid lines and tracks were surveyed by archaeologist G.B. Prince, as recommended in the Prince 1987 report. This survey was the subject of a separate report, already submitted to the Department of Mines, entitled, "An Archaeological Survey of Proposed Mineral Exploration Works in The Vicinity of Adamsfield, Southwest Tasmania, A Report to Metals Exploration Ltd., February 1988". A copy of this publication is attached to this report in Appendix I.

Once various Government Authorities' approval had been gained, the "Western" track on the Adam River Plain was constructed by Hazell Bros. using a Traxcavator and Excavator in March/April 1988. Partial access was also constructed for the western end of some of the grid lines (Lines 5 to 7). Marriott Track, on the eastern side of the plains, was upgraded to take heavy vehicles (it was previously a 4 wheel drive track) thus providing access to the eastern end of the 8 lines.

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## 2.2 PITTING PROGRAMME

The alluvials of Adam River Plain and the adjacent Main Creek (Area 2) plain to the north were tested by a pitting programme which was sequentially undertaken commencing with the least environmentally sensitive area. Experience gained was then used to proceed into more sensitive areas under the guidance of environmental officers from the Tasmanian Mines Department. Prior to a new area being pitted, access etc. was flagged and all proposed access and pit sites were inspected in the field. Final approval was given once agreement had been reached on the steps required to minimise the exploration impact on the environment. The agreement, consisting of a number of points/guidelines, was written into a 'Triplicate Book' at the end of each field inspection and signed by both company and environmental officers from the Tasmanian Mines Department. One copy was retained by each signatory while the third copy remained in the book at the Adamsfield Camp. This copy was available to site personnel thus ensuring that the exploration was carried out according to the guidelines. In this way the exploration could proceed in a logical and efficient manner whilst minimising both environmental damage and avoiding historical/archaeological sites.

Pits were sunk on the 250m spaced grid lines at 100 metre intervals. The pits were dug by a Hitachi or Mitsubishi excavator fitted with wide (61cm or 76cm) tracks, either to hardrock basement where possible (70% of the pits) or to a depth of about 6 metres (the reach of the machines). Channel samples were scooped up the side of each pit with the bucket and deposited in a "bin", the samples being about 1 cubic metre. The "bin" was winched onto an FMC "Swampdozer" and carried from the grid lines to the major eastern or western tracks, where a modified tip truck transported the bin to the stockpile area on the old airstrip where the treatment plants were located. Two treatment plants were used. The first ("Bulk Tests P.L.") consisted of a grizzly, flogger trommel and shaking/sluicing table; the second ("Callina N.L.") contained a tip truck, high pressure nozzle, trommel and jigs. The "Bulk Tests P.L." plant ran from 13th April 1988 to 30th May 1988. Its termination was due to slow throughput and poor recovery. The "Callina N.L." plant was engaged on 17th May 1988 and completed the entire treatment programme on June 24th, ahead of the oncoming wet season.

Concentrates obtained from the bulk samples have been/are being despatched to Ammtec in Perth, W.A. for laboratory scale upgrading and analysis. Analysis for gold, PGE and chromite is being undertaken at the Australian Laboratory assay facility at Perth.

During the pitting programme, 102 pits were excavated for 181 samples. Each sample selection was based on the geology/lithologies intersected in each pit. Normally 2 samples were collected per pit. Seven duplicate samples were collected and processed through each plant thus enabling a comparison to be made between the plants. Twenty five pit sites were inaccessible due to extremely soft ground conditions and two pits were abandoned when bedrock was hit close to the surface, (i.e. no sample was taken).

Nine 1 cubic metre samples representing the major lithologies intersected during the pitting programme (clay-gravel) were excavated to determine density, moisture content and expansion co-efficients. This work is not complete and the results will be reported at a later date.

It is intended to trial a lightweight (hand held) but powerful hydraulic auger drill to determine if this method can be utilised to sample the 25 inaccessible sites. If the trial is successful it is proposed to use this equipment to access those pit sites with bedrock deeper than 6 metres.

### 3. RESULTS

#### 3.1 1988 EXPLORATION

To date only one batch of 22 results has been received (out of 181 samples). Consequently no meaningful conclusions can be drawn, at this stage, on the results of the pitting programme. A report on this work will be issued once all the sample results have been received, compiled and plotted, which can then be appended to this annual report.

#### 3.2 1987 EXPLORATION

A total of 30 bulk samples (maximum 40kg) were collected from 10 excavator pits (Figure 2) along the eastern margin of the Adam River and Lanham Creek Plains during the 1986/87 field season. Access to these pits was via the Boulter and Marriott tracks. The lithologies of the pits are depicted in the graphic logs contained in Figures 4 to 13 but in summary all clastic sizes from clay and cobble conglomerate were intersected.

The samples were despatched to AMMTEC in Perth for processing involving washing, screening, tabling, heavy liquid separation, further screening and magnetic separation. Analytical Services analysed the samples using the ICP technique for Au, Pt, Pd, Ru, Rh, Ir, Os, while Ammtec undertook some density measurements.

Appendices II and III contain the two reports on this work. Figures 4 to 13 present the analytical and density data, as does Table 1 below.

TABLE 1

*Concentrates!*

SAMPLE NO.	PIT NO.	INTERVAL	Au	Pt	Pd	Ru	Rh	Ir	Os	Cr%	SG
311908	ABS-1	0.3-1.5m	7.7m	4	10	55	3.5	9.0	12	12	0.88
311909	"	1.5-3.4m	2.0m	28	13	34	4.5	9.0	12	28	0.90
311910	"	3.4-5.1m	56	-	1.5	3.5	-	2.0	4	1.1	0.95
311911	ABS-2	1.0-2.2m	24	2.5	2.5	8.5	1.0	2.0	2.0	4.4	0.95
311912	"	2.2-4.5m	52	34	7.0	40	6.5	14	20	42	1.01
311913	"	4.5-5.0m	76	220	2.0	430	22	3.5m	2.9m	41	0.89
311914	ABS-3	2.0-2.4m	-	-	N/A	1.5	N/A	1.0	-	18	N/A
311915	"	2.4-3.0m	390	57	2.5	40	8.0	21	14	33	1.03
311916	ABS-4	0.4-1.5m	64	110	2.5	48	11	26	30	37	0.86
311917	"	1.5-2.6m	14	27	1.5	40	7.5	44	24	33	1.03
311918	"	2.6-3.7m	6	64	N/A	270	N/A	1.7m	2.0m	37	N/A
311919	ABS-5	0.15-0.70m	1.7m	14	2.5	31	3.0	29	38	20	0.82
311920	"	0.70-1.1m	100	13	3.0	26	4.0	6.0	8	13	1.00
311921	"	+	14	200	N/A	11	N/A	14	16	14	N/A
311922	ABS-6	0.15-0.85m	150	9.0	2.0	34	5.5	13	18	47	1.10
311923	"	1.0-2.7m	? 67m	39	27	480	29	1.9m	2.1m?	25	0.86
311924	"	2.7-2.8m x	-	6.5	2.5	14	3.0	6.0	8	31	0.99
311925	"	2.8-3.0	-	6.5	2.5	14	3.0	6.0	8	31	0.99
311926	ABS-7	0.35-0.90m	210	27	2.0	27	4.0	8.5	12	23	0.86
311927	"	0.90-1.1m	70	22	3.0	35	8.0	12	14	33	1.01
311928	"	1.1-1.8m	2	27	N/A	68	N/A	320	300	36	N/A
311929	ABS-8	0.55-0.95m	-	-	N/A	4	N/A	16	14	20	N/A
311930	"	0.95-1.1m	80	29	6.0	70	8.5	130	160	38	1.14
311931	ABS-9	0.2-1.1m	-	-	N/A	1	N/A	2.5	4	6.8	N/A
311932	"	1.1-2.0m x	-	-	N/A	-	-	-	-	-	-
311933	"	2.0-2.5m	170	-	49	22	0.5	10	14	5.1	0.97
311934	"	2.5-2.65m	4	-	N/A	-	N/A	1.5	2	2.7	N/A
311935	ABS-10	0.2-1.3m	-	24	N/A	110	N/A	710	860	35	N/A
311937	"	1.3-1.95m	4	9.5	N/A	15	N/A	12	8	35	N/A
311938	"	1.95-2.2m	-	14	N/A	31	N/A	16	18	40	N/A

+ 6cm gravel sample taken from 1m depth

x this sample interval combined with the previous one

- below detection limit, Au 2ppb, Pt 0.5ppb, Ru 0.5ppb, Os 2ppb

N/A Not analysed, not done

m ppm or g/t - All other analyses ppb except Cr which is a percentage

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Six heavy concentrate samples contained anomalously high gold and/or PGE's (311908, 311909, 311913, 311918, 311919 and 311923) ranging from 1.7-7.7 g/t Au and 4.0-7.1 g/t PGE, which provided enough encouragement to continue with an expanded pitting programme in 1988.

#### 4. CONCLUSION

The pitting programme on the Adams River and Lantham Creek Plains resulted in 102 pits for 181 samples. Twenty five sites were inaccessible, and about 30% of the pits did not reach bedrock. Sample treatment has been completed and only 1 batch of analyses (22 samples) have been received. A full geological report will be presented on this work once all the results have been compiled and interpreted.



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**METALS EXPLORATION LTD.** (INCORPORATED IN VICTORIA)

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TELEPHONE (09) 480 3232. TELEX AA197373 DRMPH. FAX (09) 480 3111

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**EXPENDITURE STATEMENT  
ADAMSFIELD EL 4/85**

I, IAN RAYMOND HOLZBERGER of 619 MURRAY STREET, WEST PERTH, in the STATE OF WESTERN AUSTRALIA, do solemnly and sincerely declare:

THAT an amount of \$459,792.34 has been expended on Exploration Licence No. 4/85 Adamsfield during the twelve month period to June 1988 and is made up as follows:

Air Photos and Mapping	\$ 532.83
Assaying	\$ 7,050.62
Cartage	\$ 575.05
Consulting Fees	\$ 8,339.57
Contractors - General	\$ 31,145.61
Contractors - Environmental	\$ 2,443.00
Contractors - Drafting	\$ 1,078.21
Couriers	\$ 1,565.71
Data Processing	\$ 6,322.60
Drafting Supplies	\$ 963.12
Earthmoving	\$ 198,156.75
Field Expenses	\$ 3,729.38
Fuel Oil & Power	\$ 2,282.15
General Expenses	\$ 2,296.79
Geophysical Surveys	\$ 3,026.10
Hire Equipment	\$ 51,131.55
Light & Power	\$ 391.18
Indirect Re-Imbursables	\$ 9,986.76
Technical Services	\$ 56,913.65
Messing	\$ 4,165.92
Metallurgical Research	\$ 17,181.76
Motor Vehicle Costs	\$ 8,437.55
Other Exploration Expenses	\$ 5,142.49
Repairs & Maintenance	\$ 454.53
Site Preparation	\$ 212.50
Survey Fees	\$ 14,846.60
Tenement Rent	\$ 1,320.00
Travel & Accommodation	\$ 20,100.36
	<u>\$459,792.34</u>

And I make this solemn declaration conscientiously believing the same to be true and by virtue of Section 106 of the Evidence Act 1906.

Declared before me at Perth )  
this 19<sup>th</sup> day of July 1988)

*Argonnes*  
Authorised person

*Ian R Holzberger*

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APPENDIX I

**An Archaeological Survey of Proposed Mineral  
Exploration Works in the Vicinity of Adamsfield,  
Southwest Tasmania.**

A Report to Metals Explorations Ltd.

by

G.B.Prince

February, 1988.

**Contents.**

1. Introduction.
2. The Survey.
3. Results.
4. Discussion.
5. Recommendations.
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## 1. Introduction

This survey was undertaken on behalf of Metals Exploration Ltd. according to the brief provided (see Appendix). The object was to locate and record historical archaeological features affected by proposed mineral exploration activities in the vicinity of Adamsfield, Southwest Tasmania.

These proposed activities include track construction in the Adam Plain area, at the eastern margin of the Ragged Range, and line cutting and gridding across the Adam Plain from that track to the existing Marriot Track.

Additional line cutting and gridding is proposed for the Main Creek Area 2, north of the Adamsfield track, and west of the recently constructed Bolton Track, and also in two areas near Hall's Open Cut, the Packers Spur West Area and the Main Creek Area 1.

An earlier survey (Prince 1987) preceding preliminary exploration works confirmed that there were extensive archaeological remains in the area, including landscape modifications and artefacts associated with early alluvial mining activities, in addition to structural remains associated with the operations of the early Lode Company.

A review of the history of mining activities in this area is given in the earlier report (Prince 1987) and will not be repeated here.

## 2. The Survey.

Following an introduction to the proposed areas of exploration by field staff of Metal Explorations Ltd., the relevant areas were surveyed for archaeological features during six days of field work in December 1987 and January 1988.

Several areas of proposed works were examined. In the Adam Plain area, a vehicular track is to be constructed along the western margin of the plain, at the base of the Ragged Range, and 8 grid lines are to be cut in an east/west direction connecting this track with the existing Marriot Track on the eastern margin of the plain. These tracks have been numbered from north to south and given the prefix "AP" (see Map 1).

In Main Creek Area 2, on the Adam Plain, north of the Adamsfield track, and east of Football Hill, 4 grid lines are to be cut, running north across the plain from the Adamsfield track. These have been numbered from west to east, and given the prefix "MC" and the suffix "A". The easternmost of these, MC4A, intersects the existing Bolton Track approximately 400m north of the Adamsfield Track (see Map 1).

In Main Creek Area 1, on the eastern side of Hall's Open Cut Pit, a track is to be constructed running approximately parallel to Main Creek (roughly east/west). This has been identified as "MC1".

North of the Open Cut, in the Packer Spur West Area, a track is to be constructed running approximately north for about 1km from the north end of the existing track, which runs north/south past the 4WD hut. This track is identified as "PS1".

These tracks and grid lines have been marked in the field by the staff of Metals Explorations.

All proposed tracks were traversed on foot, and additional transects were walked in areas of proposed intensive line cutting and gridding, such as at Main Creek Area 1, and all archaeological features observed were recorded in as much detail as was possible in the available time.

### 3. Results.

More than fifty archaeological features were recorded during the survey, of which more than sixty percent would be directly impacted by the proposed exploration activities. These are listed in Table 1.

The majority of these were minor landscape modifications such as small trenches or ditches, but a number of other features were also recorded.

In the area of the proposed **Ragged Range Track**, most features recorded were minor landscape modifications such as ditches, pits, and mounds of excavated material, located in or near natural watercourses on the western margin of the Adam Plain. A number of features similar to those recorded on the proposed track alignment occur outside the corridor of impact. AF88-03, in particular, provides an apparently representative sample of the types of features located within the track corridor and will not be affected by the proposed works. The extensive water race AF88-01 is crossed by the proposed track alignment in the vicinity of Line AP5 (Plates 1 to 4).

In the **Adam Plain Area** the majority of features recorded were also minor landscape modifications associated with early mining activities. The highest concentration of such features occurs on the lower slopes of Football Hill, at the eastern margin of the Adam Plain. A number of large ponds and extensive areas of spoil heaps, with associated artefacts, also occur in this area, as does the sheet metal pipe AF88-09 (Plates 5 to 12). Several of the features recorded occurred outside the area of impact of the proposed works.

In **Main Creek Area 2** the situation is similar, with a number of minor landscape modifications occurring on the plain itself (Plate 13), and evidence of more extensive workings appearing at the margins, on the lower slopes of Football Hill.

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of 1881-1882*  
**Main Creek Area 1** also has a number of minor landscape modifications occurring along the proposed track alignment (Plates 14 and 15), but the creek bed itself contains a complex of features unique in the study area. AF88-33, 34, and 36 (Plates 16 to 24) provide extremely interesting examples of extensive earth and stone works associated with apparently intensive mining activities in the area. AF88-36 is unique among the features recorded in that artefacts apparently *in situ* were observed, suggesting that this area may provide a suitable site for future archaeological excavation.

The proposed track in the **Packers Spur West Area** follows a similar route to a disused track (AF88-38), corded in places, which it intersects in a number of locations. A timber bridge on this old track (AF88-37) lies within the corridor of impact of the proposed Metals Exploration track (Plates 25 to 28). The extent of vegetation regrowth on this track, and the similarity of the cording present to that on the remaining sections of the historic Adamsfield track, suggest that it also dates from the early mining period. No other significant features were recorded in this area.

The **Open Cut Area**, adjoining the Packers Spur Area to the north and Main Creek Area 1 to the west, contains a number of features, most of which are apparently associated with the workings of the old Lode Company. Predominant among these are the trench/adit AF88-39, which contains the only recorded wooden mining structural remains in the study area, and the remains of the 5-shaft stamper battery (AF88-54) associated with these workings (Plates 29 to 44).

#### 4. Discussion.

It is apparent from the results that the most common archaeological features in the study area are minor landscape modifications resulting from small-scale alluvial mining activities, which were the dominant form of mineral extraction occurring in this area during the historical period.

As noted in the preliminary report (Prince 1987), the Adamsfield osmoridium field was predominantly worked by individuals or small teams of two or three men working small claims using simple hydraulic extraction methods.

The archaeological remains reflect this situation, and the most common features are small excavations and water transport ditches, the latter often only 50cm wide and 50cm deep. Excavations and mounds of redeposited material commonly occur in and near natural watercourses on the slopes adjacent to the Adam Plains, and are therefore in the line of proposed and existing tracks on the margins of these plains.

Assessment of the cultural significance of archaeological sites, or features within those sites, is generally according to aesthetic, historic, scientific and social values, and includes such attributes as rarity, representativeness, and the ability to contribute further scientific information (Australia ICOMOS, 1987).

The significance of the features recorded in this survey require assessment at the site level, as the significance of the site itself has already been established (Prince 1987).

Individually, the minor landscape modification features characteristic of this site cannot be seen to be of major archaeological significance. However, it is important that they are recorded to a sufficient level to ensure the conservation of the information that they may contain, which in this situation appears to be confined to some record of the nature and distribution of the mining activities in the area.

Many of these landscape modifications are linear in configuration and therefore the impact of proposed works is often limited to a minority portion of affected features, and examples of similar features also occur outside areas of proposed impact.

It is therefore considered that recording of minor landscape modifications at the level of this survey constitutes a sufficient mitigation procedure for the effect on these features of the proposed exploration works.

Several of the other features recorded in the study area, however, are considered to be of particular significance to the historical Adamsfield mining field, due to their rarity within the site, their ability

to contribute to our understanding of the past activities in the area, or other relevant criteria, and these require alternative mitigation procedures.

Features of particular significance within the area include the water race (AF88-01), the complex of features in Main Creek Area 1 (AF88-33 to 36), the remains of the Lode Company operations (AF88-39 to 44), and the stamper battery (AF88-54).

The most successful form of impact mitigation is usually *avoidance*, and it would be preferable if the proposed exploration activities avoid certain features in the area, including those mentioned above.

In most instances, discussions with the representatives of Metals Exploration Ltd. suggest that this will not pose any impediment to the proposed exploration works. In the case of the water race (AF88-01) for example, moving the track line a few metres to the east in the affected area will be sufficient to protect the feature, and a similar situation exists with other cases.

The Main Creek Area 1 presents a particular problem in that the features present in this area, notably AF88-33 and AF88-36, are complexes of landscape modifications and built structures, with associated artefacts, extending for considerable distances along the creek. Proposed grid lines in this area intersect AF88-33, and appear to intersect the eastern sections of AF88-36, although this is somewhat uncertain given the difficulty of precise location of points in the field (See Map 2).

At this stage it is suggested by company representatives that exploration work along these grid lines may be restricted to equipment transported on foot, and if this is the case then the impact on these sites will be insignificant. If, however, any excavation or earth moving for vehicular access is conducted along these grid lines, then the potential for impact on these features is greatly increased.

In the event of such track construction occurring, it is considered that the company should take extreme care to avoid AF88-36, and to minimise the disturbance to AF88-33 and other features in the area. Grid line 2, where it crosses Main Creek in this area, seems likely to affect AF88-36. As the features recorded occur within a narrow corridor along the creek, however, it should be possible to avoid crossing the creek in the vicinity of AF88-36 by utilising the existing track AF88-32 and limiting the construction of Grid Line 2 to areas north and south of AF88-36.

A similar situation exists in the vicinity of Halls Open Cut, where there are extensive remains of the operations of the Lode Company. Previous exploration works have resulted in some minor disturbance to this feature (AF88-39) where drill pad construction has resulted in material being pushed into the trench. This feature and others associated with it should not be further disturbed by the proposed exploration activities.

Although field staff of the company indicated only the northerly track PS1, maps provided indicate a

series of grid lines in the Open Cut area. As with the lines in MC1, if these are limited to foot access, there should be no significant affect on the archaeological features. If vehicular access is intended, however, there is likely to be considerable disturbance to these features unless extreme care is taken by the company. Any track construction for exploration lines across the Open Cut area should only occur up to the trench (AF88-39) from either side, and the trench itself and the features within it should not be disturbed by excavation, infilling or other earthworks.

In the event that there is an irreconcilable conflict between the proposed exploration works and the recommended avoidance of AF88-36 and AF88-39, then alternative mitigation procedures, such as detailed recording of these features before disturbance, require consideration. Consultation with Metals Exploration Ltd. representatives, however, indicate that avoidance of these features is a viable option within the present requirements of the company's program.

## 5. Recommendations.

It is therefore recommended that Metals Exploration Ltd, in the course of proposed mineral exploration works in the vicinity of Adamsfield....

1. Avoid disturbance to the water race AF88-01 by moving the proposed Ragged Range Track construction line approximately 10m east, between the intersection of the track with AP5 and the point to the southeast where the proposed track alignment diverges from the water race.
2. Terminate AP2 at its eastern end on the western side of the pond and associated features AF88-13, or divert the line around this on the northern side if the line must be connected to the Marriot track.
3. Avoid disturbance to AP88-36 and minimise disturbance to AP88-33 in the Main creek Area 1.
4. Avoid disturbance to the remains of the Lode Company operations in the vicinity of Hall's Open Cut, in particular the trench AF88-39 and associated features, and the stamper battery AF88-54.
5. Avoid disturbance to the wooden bridge AF88-37 by relocating the proposed track 5 or 10 metres east or west of the present alignment in this area, and minimise disturbance to the disused track AF88-38.

## 6. References.

- Prince, G.B., 1987. "A Preliminary Archaeological Survey of Proposed Mining Exploration Activities in the vicinity of Adamsfield, Southwest Tasmania." Report to Metals Exploration Ltd.
- Australia ICOMOS, 1987. "The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter). Guidelines to the Burra Charter : Cultural Significance. Guidelines to the Burra Charter : Conservation Policy." Australia International Council On Monuments and Sites, Sydney.

7. Tables

Feature	Plate	Description	Affect'd?
<b>Adam Plain Area</b>			
AF88-01	1 2	Disused water race exceeding 1500m in length, and 1.25m wide x 1.0m deep, contouring around east margin Ragged Range, intersected by proposed track in the vicinity of lines AP5 & AP6.	Yes?
AF88-02		Alluvial workings in watercourse immediately south of Barrets Creek. Complex of ditches, pits, and mounds of redeposited alluvial gravel from ~25m west of intersection of Ragged Range track with AP5, extending westwards for a considerable distance.	No
AF88-03	3	Alluvial workings; pit and ditching, redeposited gravels and fines, located 10m north of AP5 and approximately 50m east of the Ragged Range track alignment. Pit >30m long x 14m wide x 3m deep, with watercourse feeding from ditch 7.0m long x 0.75m wide x 1.0 m deep entering SW corner. Coarse alluvials are redeposited on the south side of the floor of the pit, with fines on the north side.	No
AF88-04	4	Mounds of redeposited coarse alluvials on the Ragged Range track alignment in watercourse north of Scanlon's Creek, just south of AP6.	Yes
AF88-05		Ditch or water race of undetermined length and 0.75m wide x 0.5m deep across slope of hill crossed by Ragged Range track alignment about 100m south of AP6.	Yes
AF88-06		Mounds of redeposited coarse alluvials, pits and associated water diversion ditch adjacent to Scanlons Creek on the Ragged Range track alignment.	Yes
AF88-07	5	Ditch intersected by AP1 ~200m east-southeast of Morley's cabins. Length exceeding 50m and 0.5-1.5m wide x 1.0m deep, running in direction 330 <sup>o</sup> .	Yes
AF88-08	6	Pond 7m long x 5m wide x 1.0-1.5m deep, approx. 100m ESE of AF88-07, close to AP1.	?
AF88-09	7	Riveted ~25cm diameter sheet metal pipe running parallel to Adamsfield track between track and AP1, perpendicular to AF88-07. Distance between joints ~90cm.	No
AF88-10		Ditch or water race of undetermined length, and 0.5m wide x 0.5m deep, located 7m south of AP2, some 150m east of edge of plain.	No
AF88-11		Ditch across slope on the western margin of Football Hill intersected by AP1 7m west of Marriot track. This feature is ~75-100m in length and cut by the Marriot track at the northern end, where it is 0.30m wide x 0.25m deep, widening to 0.75m for most of its length, and further widening to 1.0m before opening on to the plain at its southern end.	Yes
AF88-12		Water filled excavation 7-10m x 7m x 1.5-2.0m with redeposited gravels on south side, located 30m west of the Marriot track on AP1. The west end opens onto the eastern edge of the Adam Plain.	Yes

Feature	Plate	Description	Affect'd
AF88-13		Complex of excavations and large residual pond with associated artefacts at the intersection of AP2 and the Marriot track. The large pond has excavations ~2m deep entering the east side, including a ditch running E/W which has been cut by the Marriot track. On the western side of the pond is a large area of redeposited alluvials with iron and wooden artefacts present. The wood consists of split boards 8-15mm thick x ~120mm wide of varying lengths. A rectangular piece of flat iron sheet 700mm x 400mm was recorded, in addition to a piece 120mm x 600mm overall, with a curved excision ~450mm overall on one of the long edges. The pump engine previously recorded (Prince 1987) stands on the eastern margin of the pond, at its northern end, near a sawn stump 1.10m high and 0.45m diameter. This stump has a loop of wire encircling it at height of 0.60m, and several embedded nails.	Yes
AF88-14	8	Shallow ditch, probably a water race, running approximately E/W, and located approximately 60m east of the trees at the western margin of the plain, and approximately 75m south of AP2.	No
AF88-15		Excavation intersected by Marriot track and AP3, ~4-5m wide x 2-3m deep adjacent to track, becoming wider and shallower downslope towards Adam Plain, opening into a pond/bog ~10m west of the track. A ditch 0.75 wide x 1.0-1.5m deep exits the S side of the excavation ~3m W of the track and runs across and slightly downslope towards the plain for ~10m, becoming slightly wider and shallower towards the S end.	Yes
AF88-16	9 10	Small trench 3.0 x 2.0 x 1.5m, orientated ~NE/SW with water to a depth of 1.0m, located on the southern margin of a small hillock on the western side of the plain, between AP3 & AP4. A shallow ditch ~50m in length, running ~E/W, enters the eastern corner.	Yes
AF88-17		Ponds and extensive area of redeposited alluvials at on the Adam Plain at the eastern end of AP6. (See Prince 1987)	No?
AF88-18	11	Pond, mid plain, adjacent to AP6, on the north side.	Yes?
AF88-19		Ditch running approximately NE/SW, crossed by the Marriot track just north of its intersection with AP7, and intersected by AP7 ~7m west of the Marriot track. The feature is ~30m long overall and 1.0m wide x 1.5m deep at the NE end, grading to 1.5-2.0m wide x 0.6m deep at the SW end, where it opens out.	Yes
AF88-20	12	Trench 2.5m long x 0.75m wide x 0.6m deep, orientated N/S, and located ~15m north of AP7 and ~100m west of the Adam River. Redeposited alluvial material excavated from the trench forms a low mound on the western margin.	No

Feature	Plate	Description	Affect'd?
<b>Main Creek Area 2</b>			
AF88-21		Ditch, probably a water race, 0.5-0.6m wide x 0.8-0.9m deep and with a length exceeding 10m, intersected by MC3A at an angle of $\sim 60^{\circ}$ , approximately 20m north of the Adamsfield track.	Yes
AF88-22	13	Small trench, 1.65m long x 0.5-0.6m wide x 0.5-0.6m deep, intersected by MC3A at an angle of $\sim 30^{\circ}$ , approximately 45m north of Adamsfield track.	Yes
AF88-23		Ditch 0.5m wide x 0.4m deep and exceeding 10m in length, intersected by MC3A at $\sim 90^{\circ}$ , $\sim 100$ m north of the Adamsfield track. On the southern side of this feature, a slight mounding is apparent, where excavated material has been redeposited.	Yes
AF88-24		Small (dry) pond $\sim 10$ m SW of AF88/23, with a possible shallow ditch entering from the eastern side.	No
AF88-25		Small trench 1.25 x 0.4 x 0.4m on MC3A, parallel to it, about 150m north of Adamsfield track.	Yes
AF88-26		Small trench 1.0 x 0.75 x 0.25m at $\sim 70^{\circ}$ to MC3A, Approximately 175m north of Adamsfield track.	Yes
AF88-27		Extensive area of redeposited material from alluvial mining activities located along MC4A approximately 50m north of the Adamsfield track. A number of associated artefacts including pick and mattock heads, occur in the area. (See Prince 1987)	Yes

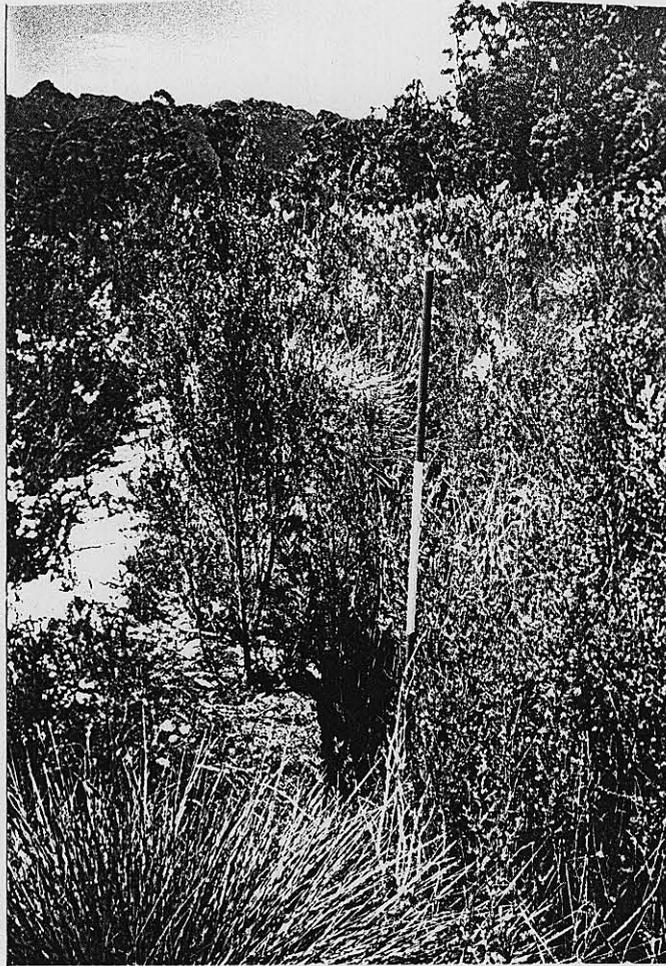
Feature	Plate	Description	Affect'd?
<b>Main Creek Area 1</b>			
AF88-28		Ditch 0.3m wide x 0.2m deep of undetermined length, running north/south and located approximately 10m west along MC1.	Yes
AF88-29	14	Excavation 1.5m x 1.0m x 0.7m, orientated northeast/southwest, and located approximately 40m west along MC1 and ~10m southwest of Main Creek.	Yes
AF88-30		Ditch, probably a water race, 0.5m wide x 0.5m deep, of indeterminate length, very overgrown, running ~parallel to Main Creek and located around 100m west along MC1.	Yes
AF88-31	15	Several mounds of redeposited stone occurring in a clearing ~20m across, some 160m west along MC1, a few metres north of the track.	No?
AF88-32		Recent mineral exploration grid track running north/south, crossing Main Creek around 250m west along MC1.	—
AF88-33	16	Complex of features associated with an open flat area of possibly redeposited alluvium adjacent to the southern side of Main Creek approximately 325m west along MC1. A ditch 3-6m wide x 1-2m deep, and exceeding 75m in length, runs east/west along the northern boundary, separated from Main Creek by a residual embankment ~5m high. A diversion channel 1.5m wide x 1.5m deep, cut into rock, connects the creek with the eastern end of the ditch. The south bank of the ditch is of boulders and may represent a retaining wall for the finer alluvial material redeposited on its southern side. No evidence of alluvial workings were observed on the slopes around these flats, and mining activities in this area appear to have been confined to the immediate vicinity of the creek itself.	Yes
	17		
	18		
AF88-34	19	Linear built stone feature 10m long x 1.0m wide x 0.75m high in bed of Main Creek, approximately 10m east of track AF88-31 and parallel and adjacent to the present (summer) main water channel, on its northern side. On the southern side, redeposited material was also present.	No?
AF88-35	20	Section of iron pipe, ~0.9m in length, in creek bed 10m east of above.	No?
AF88-36	21	Complex of landscape modifications and built features, with associated artefacts, on Main Creek, extending from some 50m east of track AF88-31 upstream to around 50m west of the beginning of MC1. At the eastern (downstream) end, an area around 30m x 30m, centred on the creek bed, contains a number of built linear stone features and excavated channels. Upstream from this are other built stone features including substantial retaining walls up to 2m in height, and mounds of redeposited excavated material. Artefacts observed in this area included portions of leather shoes apparently <i>in situ</i> , and a square nosed shovel in the creek bed around 20m east of the beginning of MC1.	?
	22		
	23		
	24		

Feature	Plate	Description	Affect'd?
<b>Packers spur Area</b>			
AF88-37	25 26	Small wooden bridge 1.5m in width, spanning watercourse as part of old track, some 300m north along PS1. The structure is largely overgrown with moss, and abuts onto a corded section of track on the southern side of the creek, and laid cobbles on the northern side (at least on the west side of the track).	Yes
AF88-38	27 28	Disused track, running approximately north from the vicinity of the northern end of the remains of the Lode Company workings, along a similar line to PS1, and intersected by it in several places, such as at the bridge AF88-36 and again around 75m north of that point, where a relatively open area of Eucalypt forest occurs, with some evidence of soil disturbance from alluvial mining or associated activities having occurred there. Several cut tree stumps are present. The track is considerably overgrown, and is most visible in those sections where it has been cut into the slope and a resulting embankment occurs. In some sections, such as in the gully where AF88-37 occurs, the track has been levelled by filling above the existing terrain, and in some areas logs or stones have been laid along the track boundaries.	Yes
<b>Halls Open Cut Area</b>			
AF88-39	29 30	Trench of variable depth and width, extending from Hall's Open Cut northwards to the vicinity of the beginning of PS1. At the southern end, where it departs from the excavation at Hall's O/C, the trench varies in width from ~4m to 5m, and in depth from around 3m to 4m. This feature is the remains of the workings of the Lode Company and has a number of associated features and artefacts. At a number of places the trench has subsided or collapsed, and its original depth is uncertain. Dense vegetation also obscures part of the trench. A number of structural features are present within the trench which will be dealt with separately.	No?
AF88-40	31 32 33	Timber support structures within AF88-39, consisting of horizontal boards 15-16cm wide x 4cm thick retaining the walls of the trench, and supported by vertical timbers generally approximately round in section, with overall diameter around 16-17cm. Steps have been cut in these to accomodate cross braces. In some places wedges have been inserted between the horizontal boards against the wall, and the vertical posts. These timber structures appear to be restricted to the area of the trench north of the new section of road (drill pad ?) originating at the 4WD hut. In the northernmost section of the trench, between the Metalex drill pad marked AHP7 and the bulldozed area where PS1 originates, some cross bracing timbers are in place between the vertical posts. In this section of the trench, relatively undisturbed, it appears that the average distance between vertical posts is about 1.5m, and cross braces appear to occur between every second pair of vertical posts. The presence of debris to around the level of the cross-braces suggests that considerable filling of the trench has occurred since the operation period.	No?
AF88-41		Excavation, exceeding 3m in depth, located on western margin of AF88-39 around 30m north of new road section originating at 4WD hut.	No?
AF88-42		Hole, ~4m deep, with Fe pipe in southeastern corner, located approximately 10m north of AF88-41.	No?

Feature	Plate	Description	Affect'd?
AF88-43	34	Shaft or pit, in AF88-39, located just south of Metalex drill pad AHP7. This feature has timber structures bracing the walls, and is filled with water to approximately 30cm below the level of the floor of AF 5 above. A length of wire rope with an iron hook on one end, and an iron ring on the other, is located at the entrance. Water filled; depth uncertain, but >2m.	No?
AF88-44	35 36	Remains of timber structure, possibly a bridge, collapsed into trench AF88-39 in the section north of drill pad AHP7. Associated with box-like timber structure at present ground level in trench on eastern side.	No?
AF88-45	37 38	Machinery, engine block and pulley wheels, located south across track from 4WD hut, on the edge of the track junction.	No?
AF88-46	39	Timber and iron artefacts adjacent to east side of track, approximately 25m south of 4WD hut. The timber has the appearance of track or tramway base and appears to be <i>in situ</i> . Lengths of 1/2" (?) iron pipe and round bar are also present. This feature has been disturbed in the past and as only a small section remains, its original function is difficult to determine.	Yes?
AF88-47		Machinery adjacent to the south side of small track entering Open Cut area from track running past 4WD hut. (See Prince 1987)	No?
AF88-48	40	Remnant timbers, almost certainly from the Lode Company workings, redeposited in the excavated material in the southwest area of the Open Cut.	Yes?
AF88-49	41	Extensive area of redeposited material from the Lode Company excavations, east of the north/south track, in the area bounded to the north by the new track running east from the 4WD hut, and in the south by the new track entering the Open Cut area. Bounded on the east side by trench AF88-38.	Yes?
AF88-50	42	Pile of cut timber on the southwest corner of the Open Cut area, just north of the Main Creek channel, and east of the vehicular creek crossing. Of uncertain origin, but at least some pieces may derive from the Lode Company workings.	Yes?
AF88-51	43	Extensive area of mounds of redeposited coarse excavated material on the southwest corner of Hall's Open Cut, slightly south of AF88-49. The similarity of this material to AF88-48, and its dissimilarity to the material from the Open Cut, which appears to overlay it, suggests that it derives from the excavations of the Lode Company.	Yes?
AF88-52		Linear low mound of redeposited alluvial gravels approximately 12m wide forming the north bank of the Main Creek channel between the vehicular crossing and the point where the creek enters a rocky channel just west of the origin of track MC1. Overlain at the eastern end by material from the Open Cut excavation.	No
AF88-53		Ditch, probably a water race, 0.5m wide x 0.5m deep, of indeterminate length running parallel to Main Creek in dense scrub, approximately 25m north of the creek channel. Overlain at the eastern end by material from the Open Cut excavation.	No

Feature	Plate	Description	Affect'd?
AF88-54		Remains of 5 shaft stamper battery located on the northern bank of Main Creek at the southern edge of redeposited material from the Open Cut, approximately half way between the vehicular creek crossing and the cut rock face at the eastern edge of the Open Cut pit. (See Prince 1987)	Yes?
AF88-55	44	Iron shaft and pulley wheels located in bed of Main Creek channel approximately 10m east of the vehicular creek crossing. The wheels are of sheet metal, rather than cast construction, and may be associated with the stamper battery AF88-54.	No?

8. Plates.



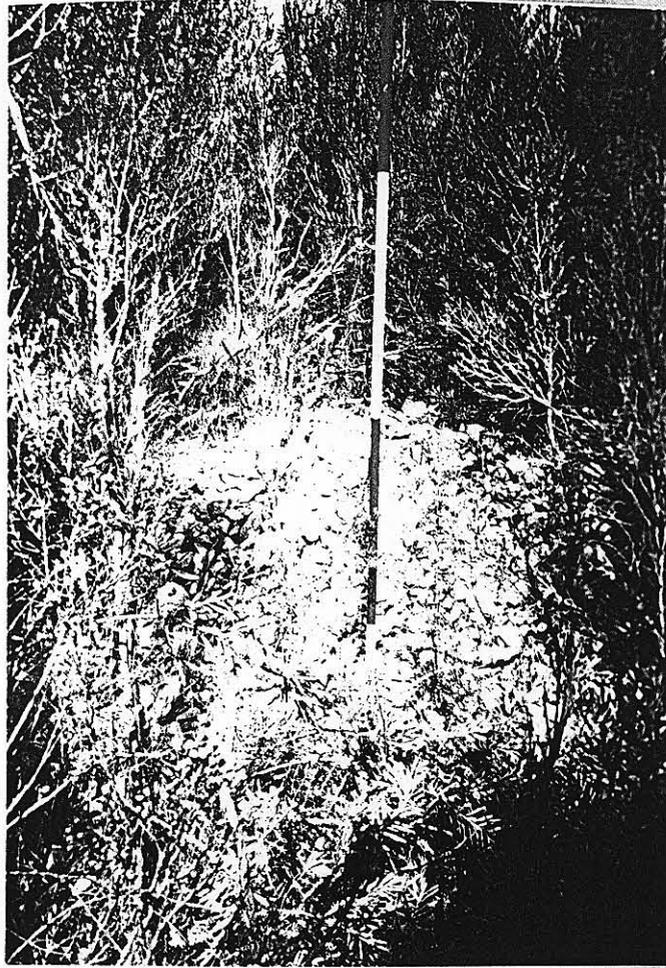
**Plate 1.** Water race AF88-01. The ditch lies at the base of the ranging pole. Excavated material is visible to the left of the pole. The Sawback range can be seen in the background.



**Plate 2.** Adam Plain at the west end of AP5. Water race AF88-01 is visible just beyond the tree in the midground, and continues across to the base of the trees in the mid left background.



Plate 3. AF88-03. Alluvial workings just south of the west end of AP5. The ranging pole is in a ditch which enters the pit in the background. View approximately NE.

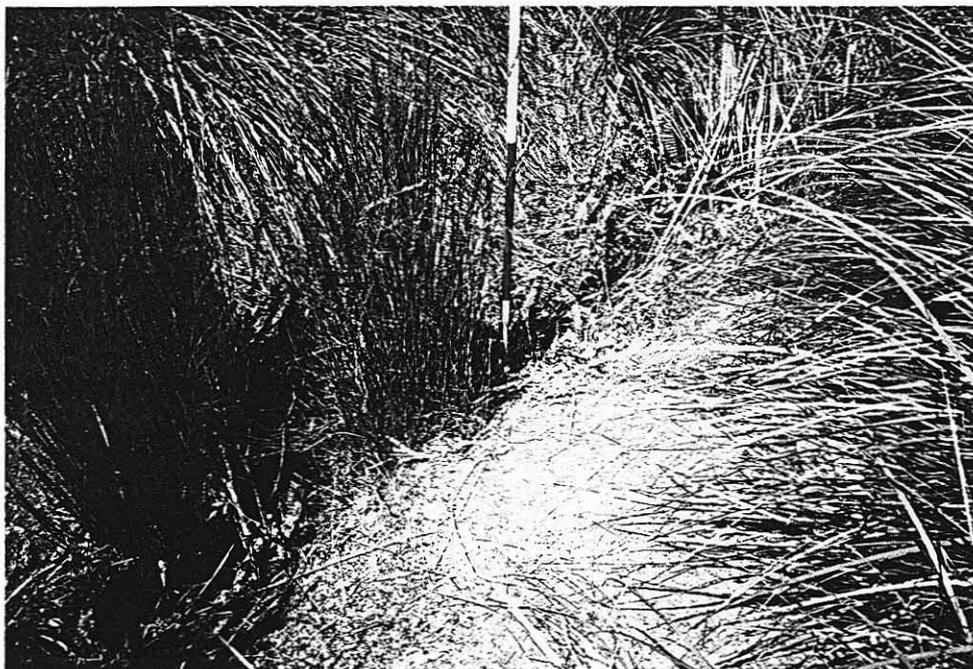


**Plate 4.** AF88-04. Mounds of excavated material in the vicinity of Scanlons Creek, proposed Ragged range track.

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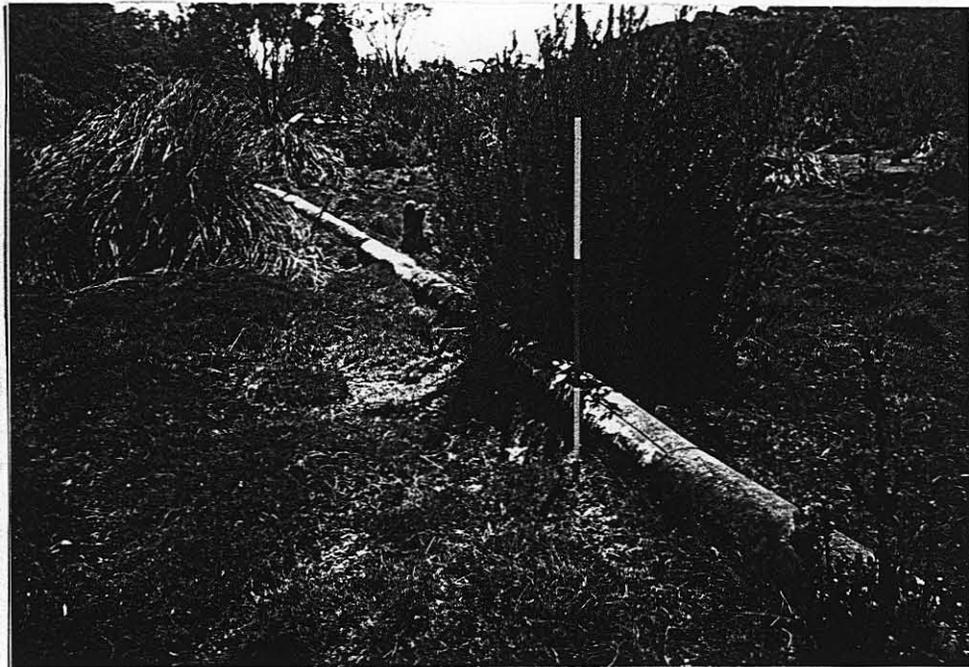
**Plate 5.** AF88-07. Ditch or water race intersected by AP1 approximately 200m SE Morley's cabins.



**Plate 6.** Pond AF88-08.

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**Plate 7.** AF88-09. Riveted sheet metal pipe parallel to AP1.



**Plate 8.** AF88-14. Ditch approximately 75m south of AP2.

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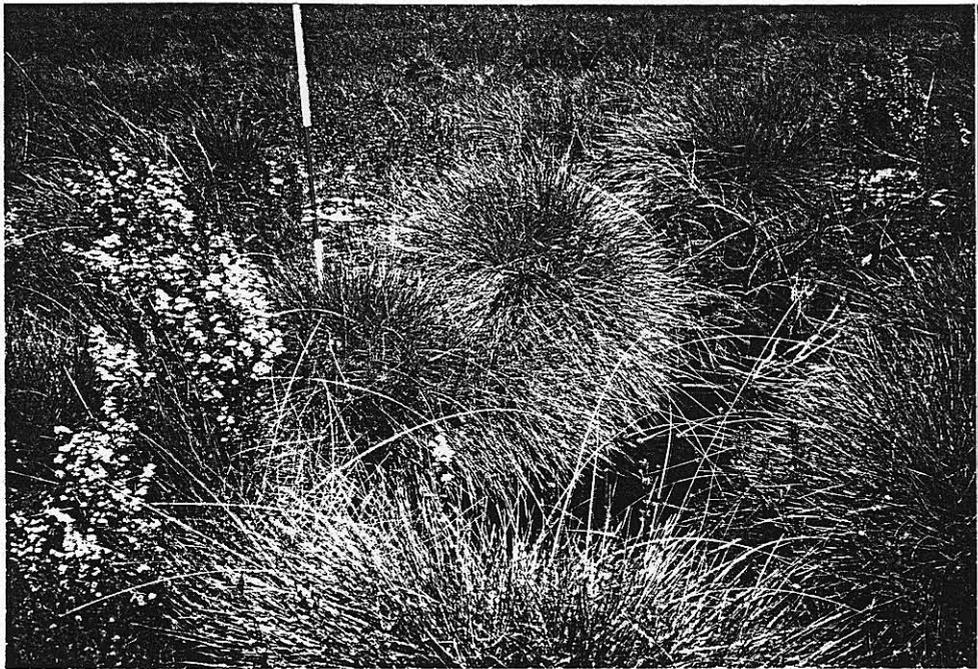


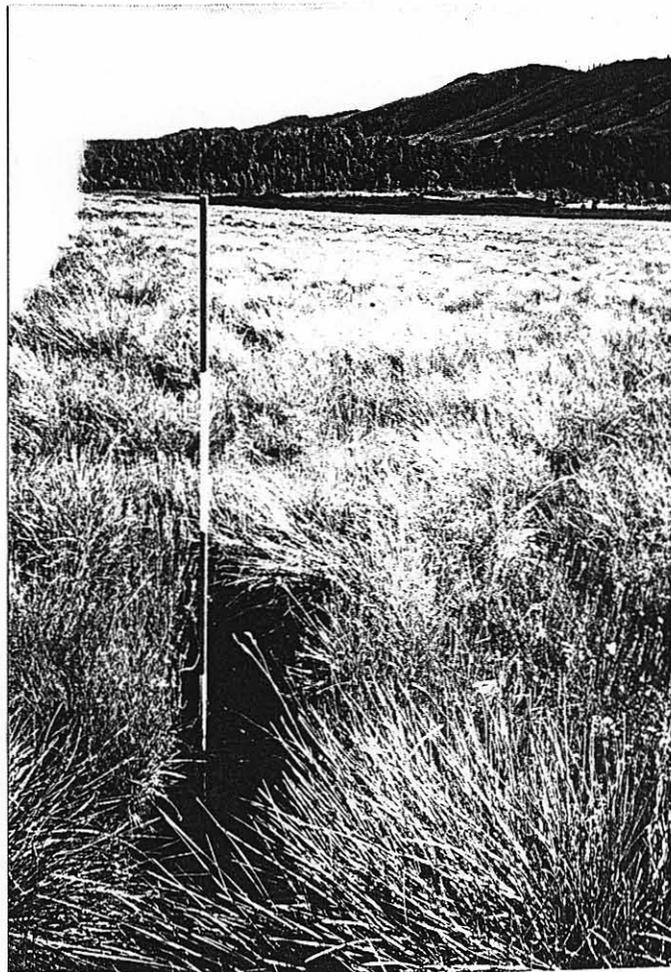
Plate 9. Trench AF88-16.



Plate 10. Long shallow ditch entering eastern corner AF88-16.



**Plate 11.** Pond AF88-18 Adjacent to AP6, mid plain.



**Plate 12.** Trench AF88-20, 15m north of AP7 and 100m west of the Adam River.

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Plate 13. Trench AF88-22, 20m north of the Adamsfield track on MC3A.

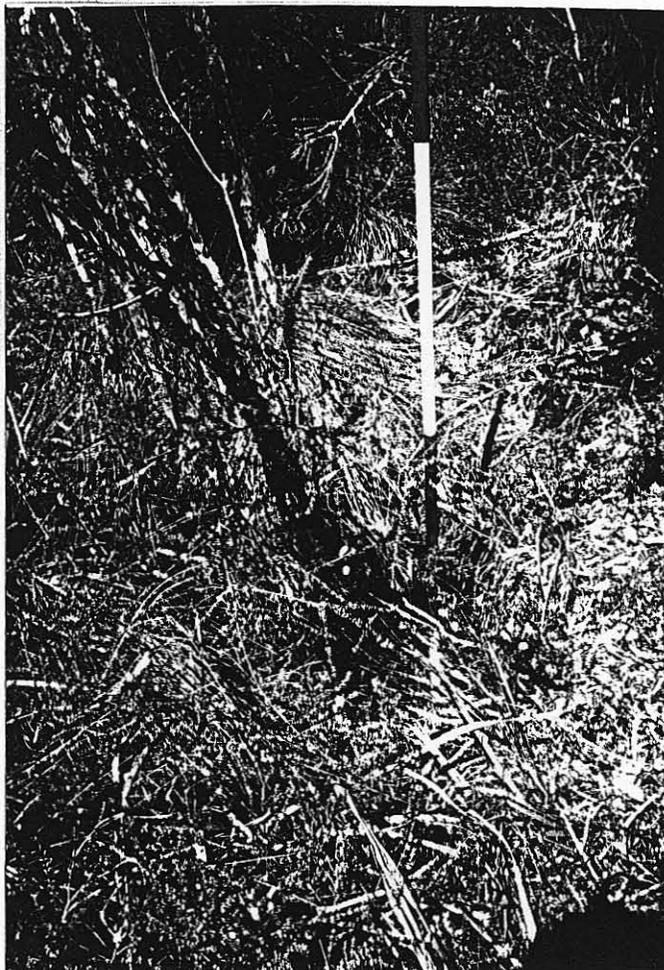


Plate 14. Trench AF88-29, approximately 40m west along MC1.

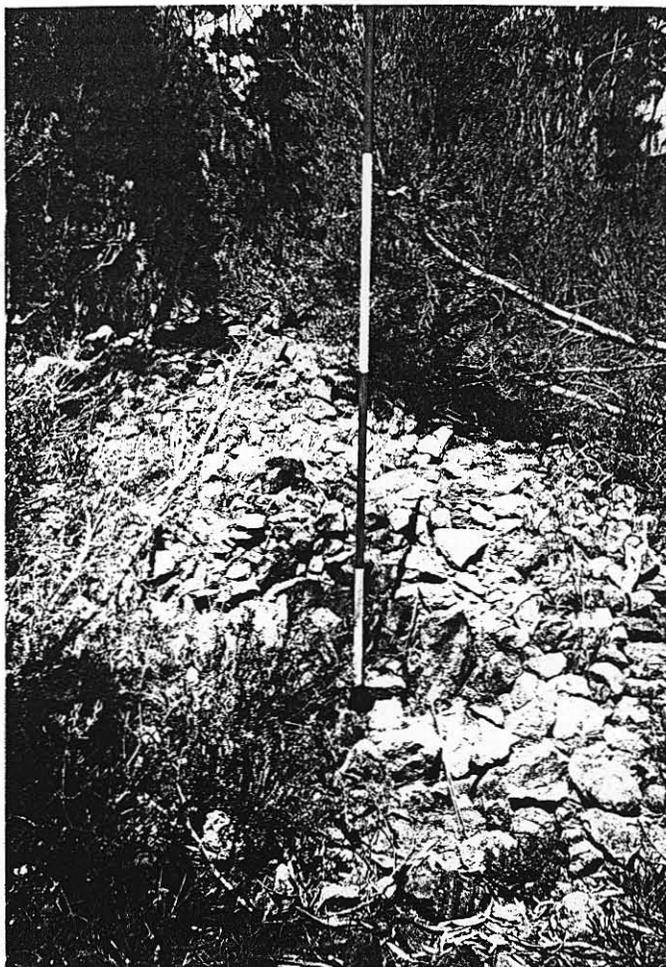


Plate 15. AF88-31. Mounds of excavated stone ~160m west along MC1.

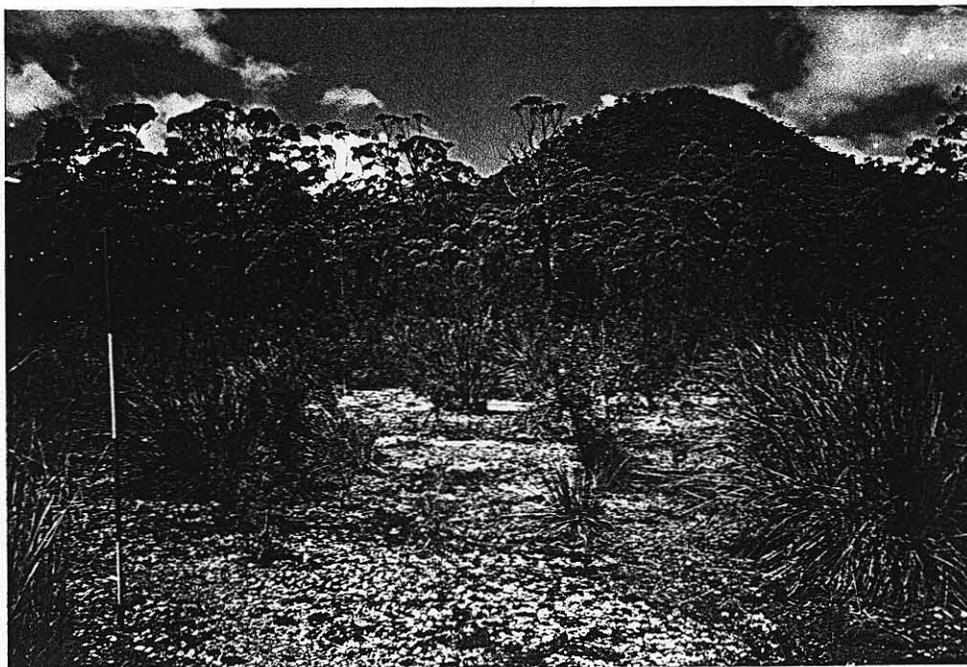


Plate 16. AF88-33. Flat area of possibly redeposited alluvials crossed by MC1 approximately 325m west of origin of track.



Plate 17. AF88-33. Ditch and bank of excavated stone, north boundary of flat area.



Plate 18. AF88-33. Water diversion channel cut into rock at eastern end of ditch.



**Plate 19.** AF88-34. Linear built stone feature in bed of Main Creek ~10m east of track AF88-32.



**Plate 20.** AF88-35. Section of iron pipe 10m east of AF88-34.



**Plate 21.** AF88-36. Southeastern view, ~50m east of track AF88-32, showing built stone retaining or water diversionary walls on the south side of Main Creek.



**Plate 22.** AF88-36. Built stone walls in the Main Creek channel upstream of those shown in Plate 21.



Plate 23. AF88-36. Remains of leather shoe apparently *in situ*.

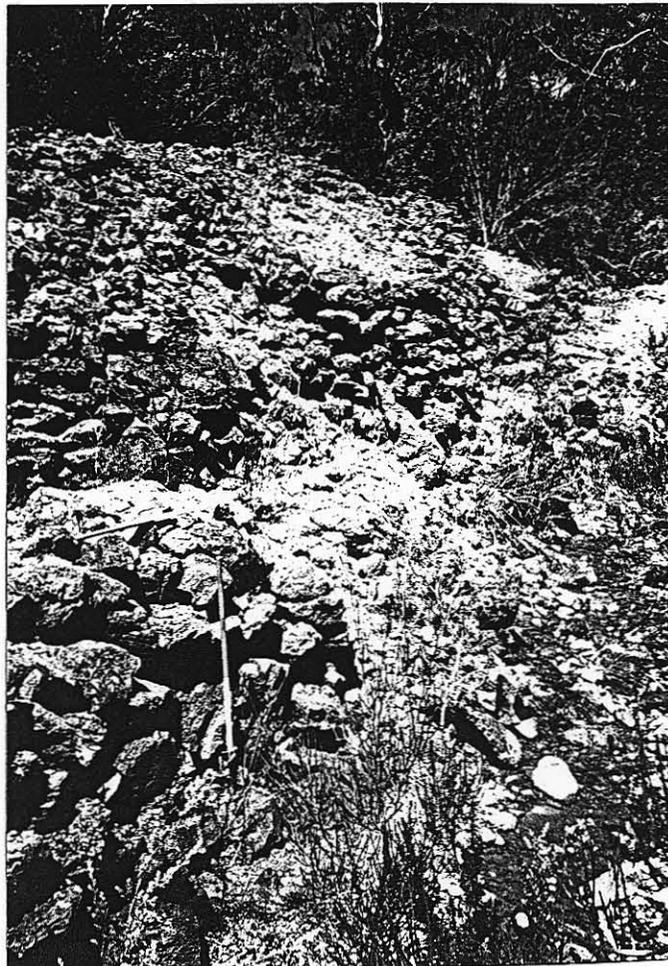


Plate 24. AF88-36. Wall and stacked stone, northern margin of Main Creek.



Plate 25. AF88-37. Small wooden bridge on disused track 300m north along PS1, viewed towards the north.



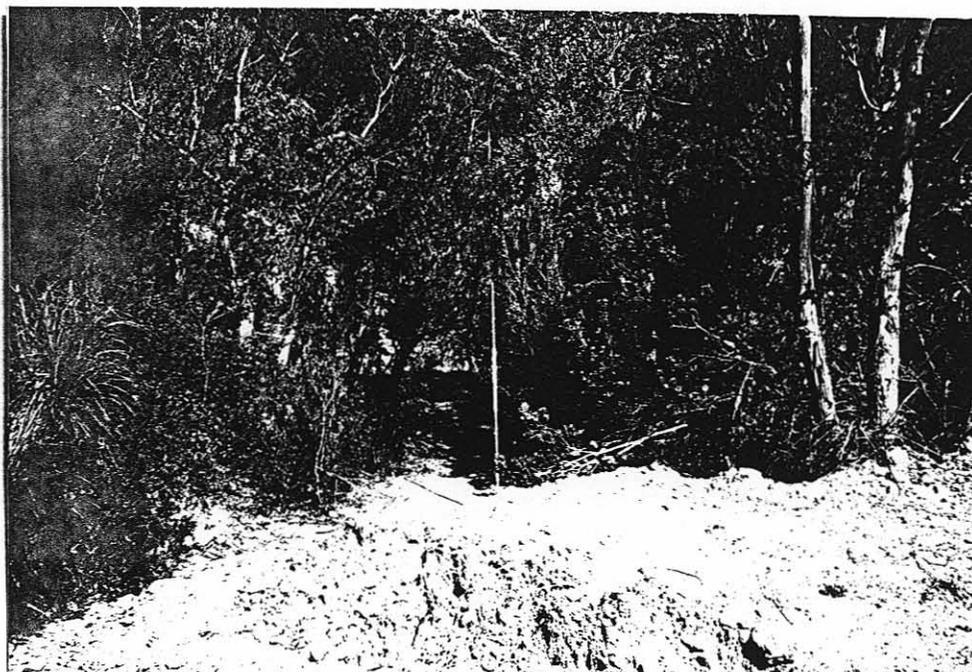
Plate 26. AF88-37. Side view, looking west.



**Plate 27.** AF88-38. Disused track running north from the northern end of the Lode Company trench, intersected by PS1. View south.



**Plate 28.** AF88-38. Track passes through area of open Eucalypt and Ti-tree forest, possible an area of past mining activities. View west.



**Plate 29.** AF88-39. Lode Company trench, running NW from the Open Cut. View south from new track running east from 4WD hut.



**PLate 30.** Metals exploration track running east from 4WD hut, crossing Lode Company trench AF88-39. View west from same position as Plate 29.



**Plate 31.** AF88-39. Lode company trench ~20m NW of intersection with track running east from 4WD hut. The trench is 2-3m deep at this point and shoring timbers are visible behind the *Ghania* in the right hand background of the photograph (see Plate 32).



Plate 32. AF88-40. Timber supports in trench AF88-39.



Plate 33. AF88-40. Shoring post and collapsed cross brace in trench AF88-39, north of Drill pad AHP7.



Plate 34. AF88-43. Shaft or pit, in trench AF88-39, 3m southeast of drill pad AHP7.



**Plate 35.** AF88-44. Collapsed timber structure in trench AF88-39. Two long timbers appear to have spanned the trench, with cross timbers attached. View west.



Plate 36. AF88-44. View east.

035



Plate 37. AF88-45. Machinery located south across track from 4WD hut.



Plate 38. AF88-45. Flywheel (?) on edge of track a few metres south of machinery in Plate 37 above.



**Plate 39.** AF88-46. Timber structure, possibly part of a tramway associated with the Lode Company?



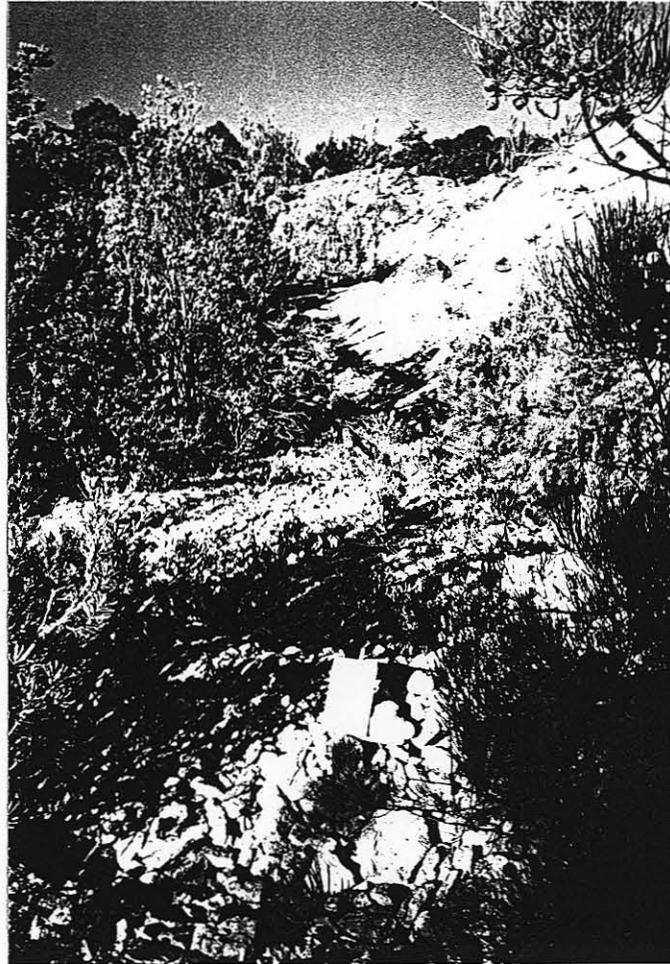
**Plate 40.** AF88-48. Remnant timbers, probably from the Lode Company excavations, in the southwest area of the Open Cut.



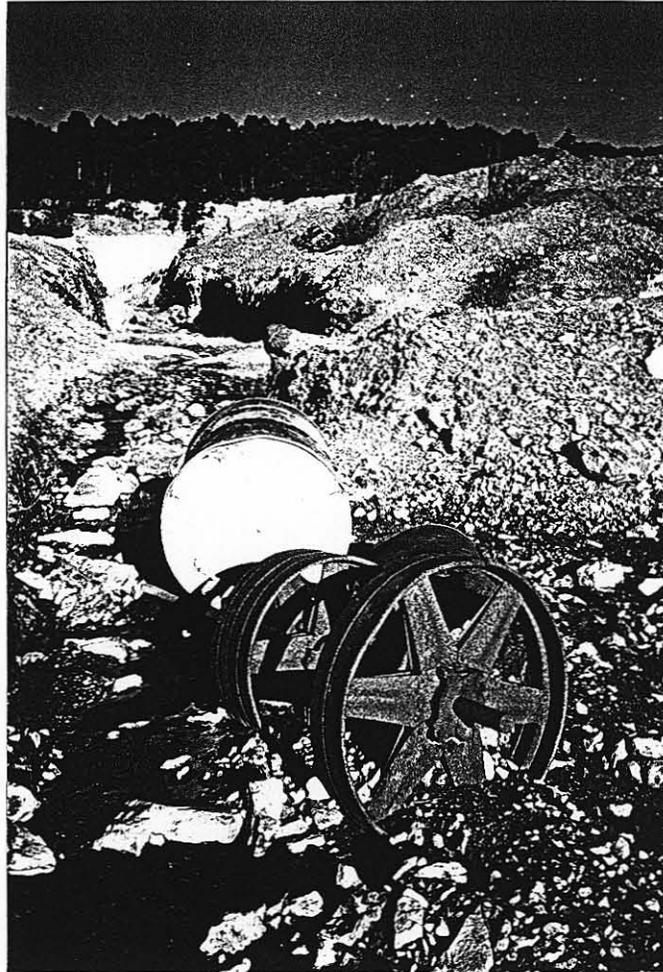
**Plate 41.** AF88-49. Extensive area of excavated material from the Lode Company operations, west of Trench AF88-39 and north of the new track entering the west side of the Open Cut.



Plate 42. AF88-50. Pile of cut timber on southwest margin of the Open Cut.



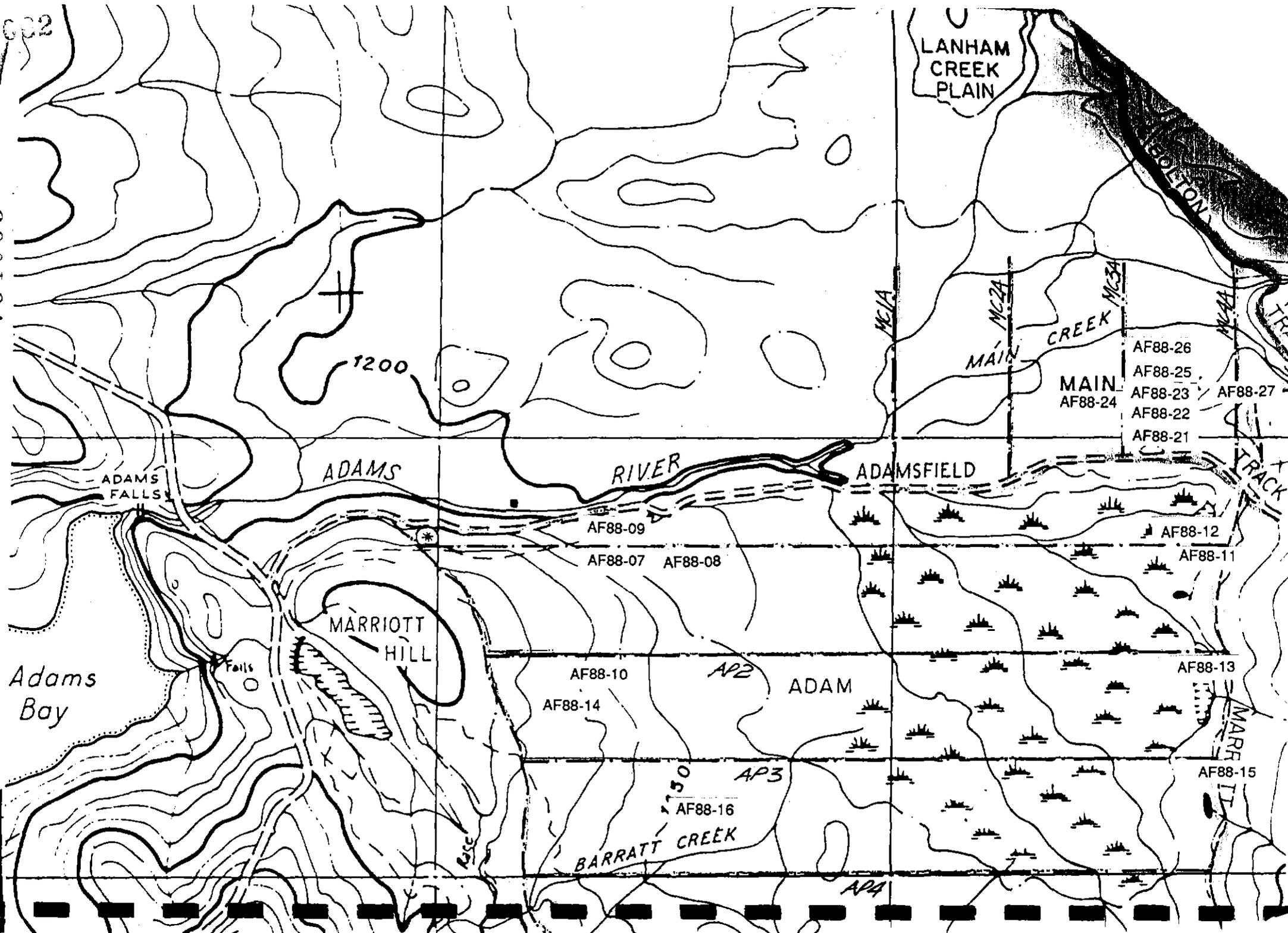
**Plate 43.** AF88-51. Excavated material, probably from the Lode Company operation, on the southwest margin of the Open Cut.



**Plate 44.** AF88-55. Iron shaft and wheels, located in the bed of Main Creek approximately 10m east of the vehicular crossing.

9. Maps.

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LANHAM CREEK PLAIN

- AF88-26
- AF88-25
- AF88-23
- AF88-22
- AF88-21
- AF88-27

MAIN  
AF88-24

ADAMS FALLS

ADAMS

RIVER

ADAMSFIELD

Adams Bay

MARRIOTT HILL

AF88-10  
AF88-14

AP2  
ADAM

AF88-13

AF88-16

BARRATT CREEK

AF88-15

AP4

BOLTON

MC2A

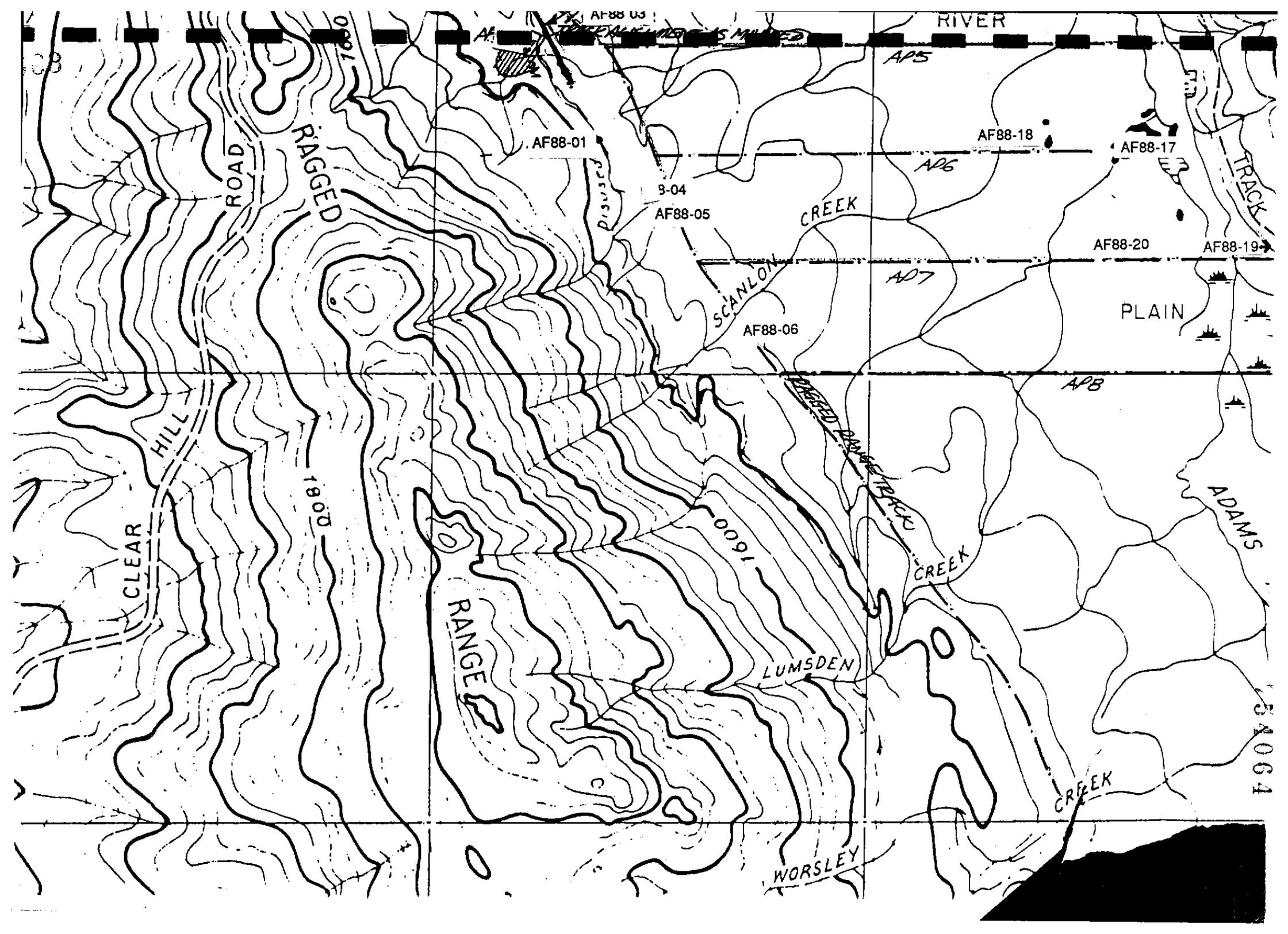
MC3A

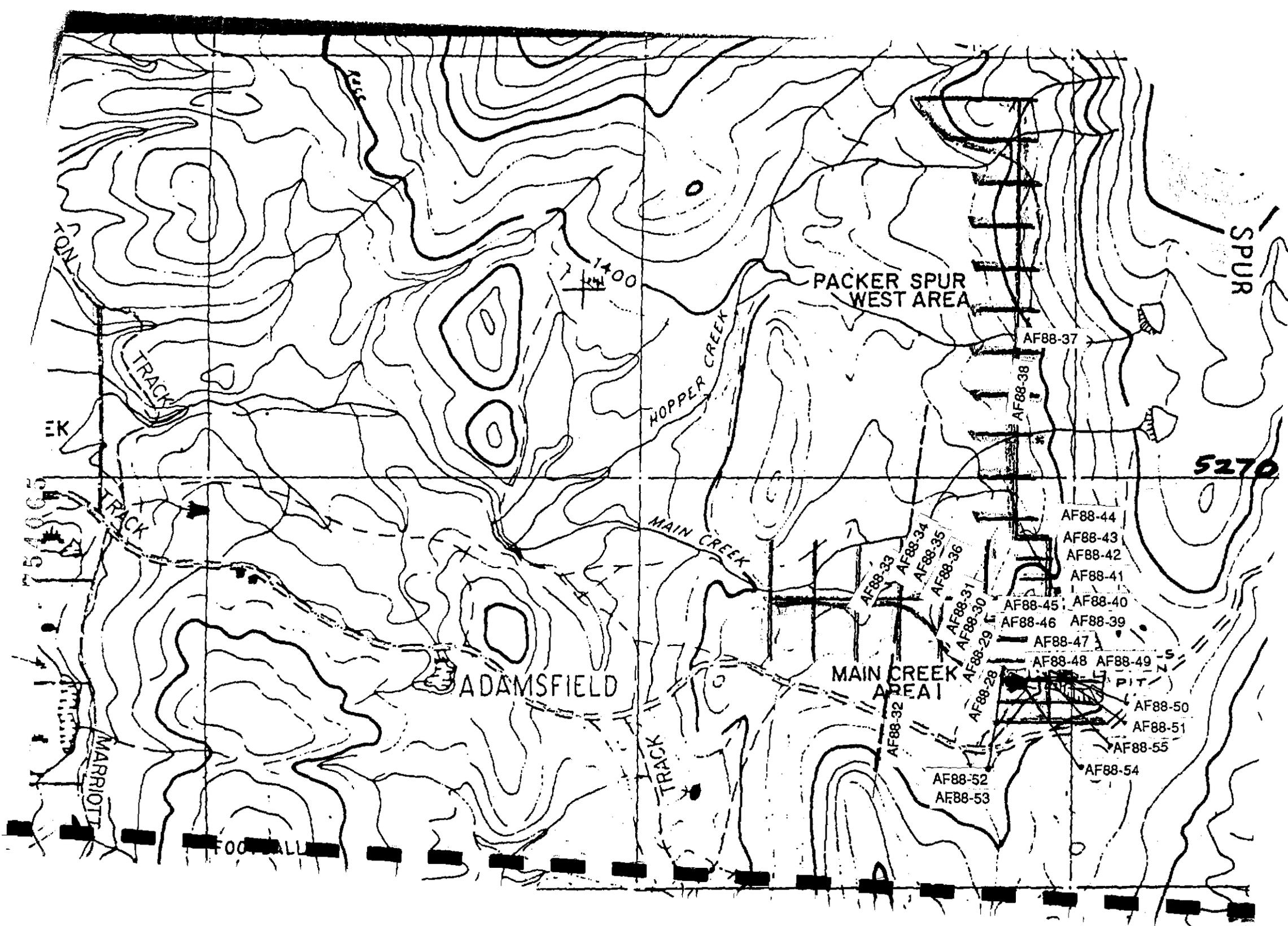
MC4A

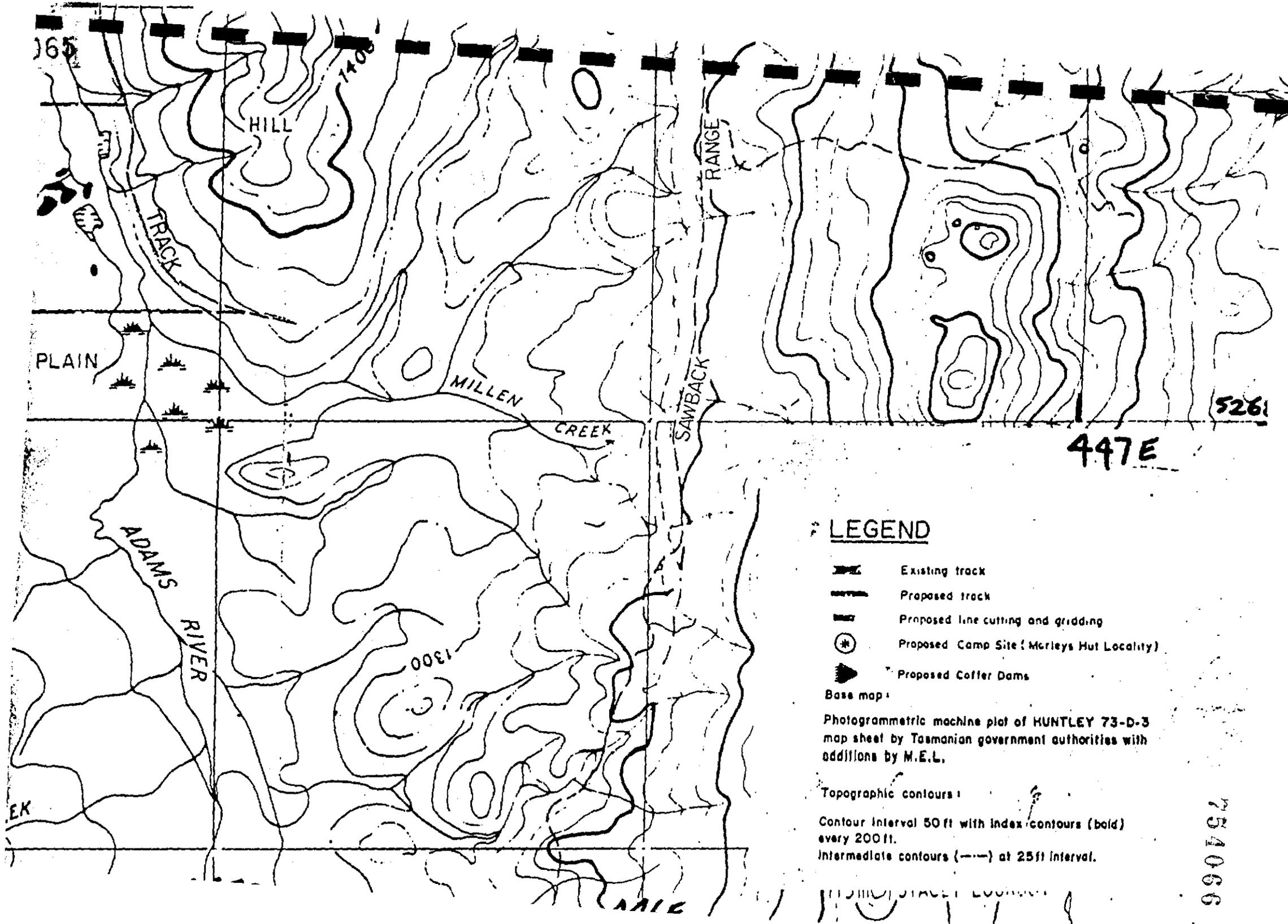
MARRIOTT

TRACK









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006

10. Appendix.

067

ADAMSFIELD HISTORIC MINING SITE  
Brief for Archaeological Consultant in regard to  
mineral exploration by Metals Exploration Ltd (1987/88)

The subject of this investigation is the Adamsfield Historic Mining Site. The aim of the project is to identify and record all cultural resources that will be impacted by the proposed exploration programme of Metals Exploration Ltd (see attached description of programme and map).

Specifically the Archaeologist is required to:

1. Traverse by foot all proposed tracks and gravel pit locations during which all visible cultural resources (structures, landscape modifications and artefacts) should be identified and recorded.
2. Make an initial assessment on the significance of cultural resources identified.
3. Assess the impact of proposed exploration activities on cultural resources and recommend on measures to minimise impact if required.

The final report should include:

1. Copy of the brief.
2. Authorship.
3. A brief summary of investigation undertaken in connection with the project and results obtained.
4. A summary of historical aspects of the site relevant to areas investigated.
5. A detailed description of all cultural resources identified in areas of exploration impact.
6. A detailed site plan showing locations of all cultural resources identified.
7. An initial assessment of the significance of cultural resources identified.
8. Assessment of the impact of proposed exploration activities on cultural resources.
9. Recommend on measures required to minimise impact of exploration activities on cultural resources.

2/..

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2.

All original photographs and copies of all relevant field notes and drawings must be lodged with the Department of Lands, Parks and Wildlife in a form suitable for entry into the Historic Sites Index.

In doing the work it should be borne in mind that the data collected is to be used as part of the input into a full archaeological study of Adamsfield which it is hoped to undertake under the auspices of the National Estate.

Encl

APPENDIX II

AUSTPALIAN METALLURGICAL AND MINERAL TESTING CONSULTANTS PTY LTD

PREPARATION AND ANALYSES OF

SOIL AND ROCK SAMPLES

FOR

METALS EXPLORATION LTD

SEPTEMBER 1987

AMMTEC JOB NO. A 1322

C71

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(1)

SUMMARY

- (1) Ten soil samples were concentrated using screening, Wilfley table and TBE heavy liquid and the resulting concentrate submitted to Analytical Services WA Pty. Ltd. for analyses.
  
- (2) Two rock samples were ground to be less than 212 $\mu$ m then concentrated using Wilfley table and TBE heavy liquid, the resulting concentrate was separated using magnetic separation and the products submitted to Resource Development Laboratories for analyses.

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## 1.0 INTRODUCTION

Mr. Will Dahmen representing Metals Exploration Ltd. requested that a programme of sample preparation be conducted on 10 soil samples originating from the Adamsfield project and 2 rock samples. The sample preparation was to include:

- (1) The soil samples were to be dried screened at 1mm and the >1mm portion tabled. The table concentrate was to be concentrated using TBE heavy liquid and the sinks portion despatched for analysis.
- (2) The rock samples were to be stage crushed and ground to be 100% <math>\leq 12\mu\text{m}</math> then passed over the Wilfley table. The table concentrate was to be passed through TBE heavy liquid and the sinks portion screened at 106 and 53  $\mu\text{m}$ . Each fraction was then to be magnetically separated and all fractions submitted for analyses.

## 2.0 ANALYTICAL

All soil sample products were analysed by Analytical Services (WA) Pty. Ltd. and all rock sample products were analysed by Resource Development Laboratory.

## 3.0 SOIL SAMPLE TESTING

### 3.1 Samples Received

Originally 30 soil samples each amounting to approximately 40kg of very wet clay material were received for this work. It was decided by the client to proceed with the required testwork on only 10 samples. Details of the 10 samples tested are shown in Table 1.

### 3.2 Sample Preparation

The 10 soil samples were prepared in accordance with the flowsheet shown in Figure 1. The procedure included:

- (1) The wet clay samples were spread on the floor and periodically broken up and turned to promote drying.

- (2) The dry material was screened on 1mm and the >1mm portion received.
- (3) The <1mm portion was passed over the Wilfley table and a concentrate amounting to approximately 20% of the feed weight produced.
- (4) The coarse portion of the table tailing was reserved.
- (5) The table concentrate was dried and passed through TBE heavy liquid (SG 2.96).
- (6) The TBE floats portions were weighed and reserved while the sinks portions were weighed and despatched for analyses to Analytical Services WA.

### 3.3 Results

The results of analyses of the sinks portions of the 10 soil samples are shown in Table 2.

## 4.0 ROCK SAMPLE TESTING

### 4.1 Samples Received

2 rock samples each amounting to approximately 40kg were received for this work. Details of the samples are shown in Table 3.

### 4.2 Sample Preparation

The rock samples were prepared in accordance with the flowsheet shown in Figure 2, the procedure included:

- (1) The samples were weighed then crushed to be <2mm.
- (2) The entire sample was stage ground to be 100% <212  $\mu$ m in the laboratory rod mill.

- (3) The ground slurry was filtered and the material dried.
- (4) The dried material was passed over the Wilfley table and a concentrate amounting to approximately 20% of the feed removed.
- (5) The coarse portion of the table tailing was reserved.
- (6) The table concentrate was dried then passed through TBE (SG 2.96) the floats portions were reserved.
- (7) The TBE sinks were screened on 106 and 53 $\mu$ m.
- (8) The three size fractions were passed over a belt magnetic separator with a field strength of approximately 8000 Gauss.
- (9) Both magnetics and non magnetics were weighed and sub samples submitted for analyses to Resource Development Laboratory.

#### 4.3 RESULTS

The results of analyses of the magnetic separation products of the concentrated rock samples are shown in Table 4.

FIGURES

G77

- 5 -

FIGURE 1

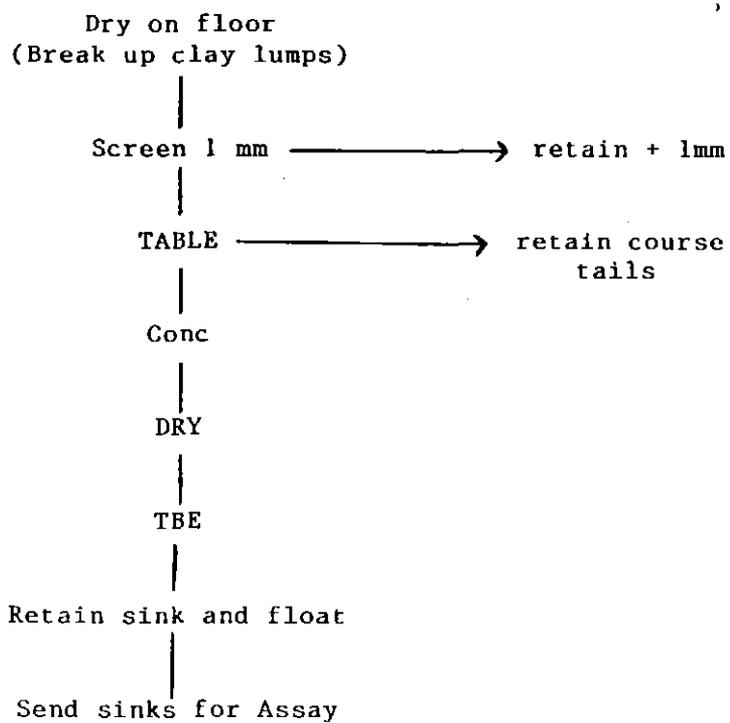
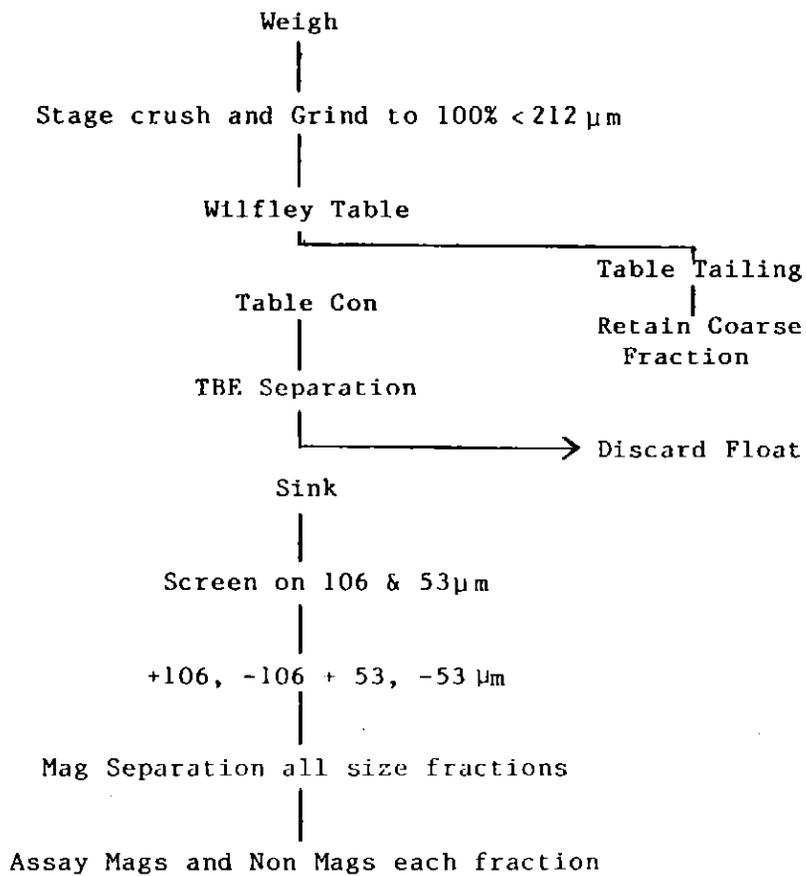
FLWSHEET SHOWING THE SAMPLE PREPARATION OF SOIL SAMPLES

FIGURE 2

FLWSHEET SHOWING THE SAMPLE PREPARATION OF ROCK SAMPLES



TABLES

TABLE 1

DETAILS OF SOIL SAMPLES TESTED

Sample No.	Weight Received Kg	Weight - 1mm Kg	Weight Table Conc Kg	Weight TBE, Sink Fraction Grams
311914	27.1	25.5	1.75	11.7
311918	42.3	9.2	3.75	1243.0
311921	12.1	8.3	2.10	102.7
311928	42.4	12.5	5.25	2651.7
311929	37.9	34.3	1.70	13.9
311931	28.2	24.1	1.85	9.9
311934	31.6	16.3	1.45	15.0
311935	38.9	23.3	4.99	2633.6
311937	36.9	21.4	3.27	1550.2
311938	37.8	23.1	4.72	1225.2

TABLE 2

RESULTS ANALYSES TBE SINK FRACTIONS SOIL SAMPLES

Sample No.	Analyses					
	Au ppb	Pt ppb	Ru ppb	Ir ppb	Os ppb	Cr %
311914	<2	<0.5	1.5	1.0	< 2	18
311918	6	64	270	1.7 ppm	2.0 ppm	37
311921	14	200	11	14	10	14
311928	2	27	68	320	300	36
311929	<2	<0.5	4	16	14	20
311931	<2	<0.5	1	2.5	4	6.8
311934	4	<0.5	<0.5	1.5	2	2.7
311935	<2	24	110	710	860	35
311937	4	9.5	15	12	8	35
311938	<2	14	31	16	18	40

TABLE 3DETAILS OF ROCK SAMPLES RECEIVED

Sample Mark	Weight Received - Kg
A	34.3
B	46.5

TABLE 4

DETAILS OF ANALYSES OF MAGNETIC SEPARATION PRODUCTS - ROCK SAMPLES

Sample	Size Fraction $\mu\text{m}$	Product	Weight (grams)	Weight %	Analyses Data in ppm unless stated otherwise							
					Au	Cr %	Co	Ni	Cu	Pd	Pt	
A	+ 106	Mags	940	14.17	< 0.005	25.9	154	530	4	< 0.005	< 0.05	
		Non Mags	67	1.01	0.635	4.03	32	135	234	< 0.005	< 0.05	
	- 106 + 53	Mags	4301	64.81	< 0.005	27.2	171	590	14	< 0.005	< 0.05	
		Non Mags	345	5.20	0.994	17.3	110	330	182	< 0.005	< 0.05	
	- 53	Mags	647	9.75	0.117	27.0	163	990	47	< 0.005	< 0.05	
		Non Mags	336	5.06	0.750	26.2	154	470	66	< 0.005	< 0.05	
				6636	100.00							
	B	+ 106	Mags	3800	35.13	0.020	32.8	148	530	6	< 0.005	0.20
			Non Mags	153	1.41	0.980	14.4	75	920	30	< 0.005	< 0.05
		- 106 + 53	Mags	5130	47.42	0.009	32.8	155	610	3	< 0.005	0.23
Non Mags			366	3.38	0.416	28.0	169	610	24	< 0.005	< 0.05	
- 53		Mags	940	8.69	0.058	32.2	172	920	21	0.014	0.80	
		Non Mags	429	3.97	0.235	31.7	165	650	11	< 0.005	< 0.05	
				10818	100.00							

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APPENDIX III

AUSTRALIAN METALLURGICAL AND MINERAL TESTING CONSULTANTS PTY. LTD.

METALLURGICAL PREPARATION OF SOIL

AND ROCK SAMPLES

FOR

METALS EXPLORATION LTD.

DECEMBER, 1987

AMMTEC JOB NO. A 1465

8 7795-00  
—

*Dec 1977*

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*18/29.*  
*ATD*

*192*

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APPENDICES

APPENDIX I	ANALYSES RESULTS OF SOIL SAMPLE PRODUCTS
APPENDIX II	ANALYSES RESULTS OF ROCK SAMPLE MAGNETIC PRODUCTS

(1)

SUMMARY

DD

- (1) Eighteen soil samples were concentrated using screening tabling and TBE heavy liquid and the heavy product submitted for analyses.

AZ

- (2) The rock sample magnetic products assayed in previous testwork (AMMTEC Report No. A 1322) were submitted to Analytical Services W.A. Pty. Ltd. for check analyses.
- (3) Analyses and sample preparation details are reported.

## 1.0 INTRODUCTION

Mr. T. Summonds representing Metals Exploration Ltd. requested that a programme of metallurgical sample preparation be conducted on several rock and soil samples originating from various projects.

The testwork which was an extension of an earlier programme (AMMTEC Report No. A 1322) was to include :

- (1) Analyses of the magnetic separation products from the earlier testwork by Analytical Services W.A. Pty. Ltd.
- (2) Drying, screening tabling and TBE concentration of several soil samples and analysis of the sinks portion from each sample by Analytical Services W.A. Pty. Ltd.

## 2.0 ANALYTICAL

All analyses associated with this testwork were conducted by Analytical Services W.A. Pty. Ltd.

## 3.0 SOIL SAMPLE TESTING

### 3.1 Sample Preparation

The 18 samples were prepared in accordance with the flowsheet shown in Figure 1. The procedure included :

- (1) The wet clay samples were dried by a combination of solar and oven drying.
- (2) The dry material was screened on 1mm and the >1mm portion reserved.
- (3) The <1mm portion was split and a bulk density test conducted on a portion, then the material recombined.
- (4) The <1mm material was passed over the Wilfley table sand a concentrate amounting to approximately 20% of the feed produced.
- (5) The coarse portion of the table tail was reserved.
- (6) The table concentrate was dried and passed through TBE heavy liquid (SG 2.96).

- (7) The TBE floats portions were weighed then reserved while the sinks portions were weighed and portions despatched for analyses.

### 3.2 Results

The details of the sample preparation and bulk density testing are shown in Table 1 while the results of analyses of the sinks products are shown in Appendix I.

### 4.0 ROCK SAMPLE PRODUCT ANALYSIS

The magnetic products produced and analysed for the previous testwork by Resource Development Laboratory, Perth were submitted to Analytical Services W.A. Pty. Ltd. for check analyses, the results of these analyses are shown in Appendix II.

TABLE

TABLE 1

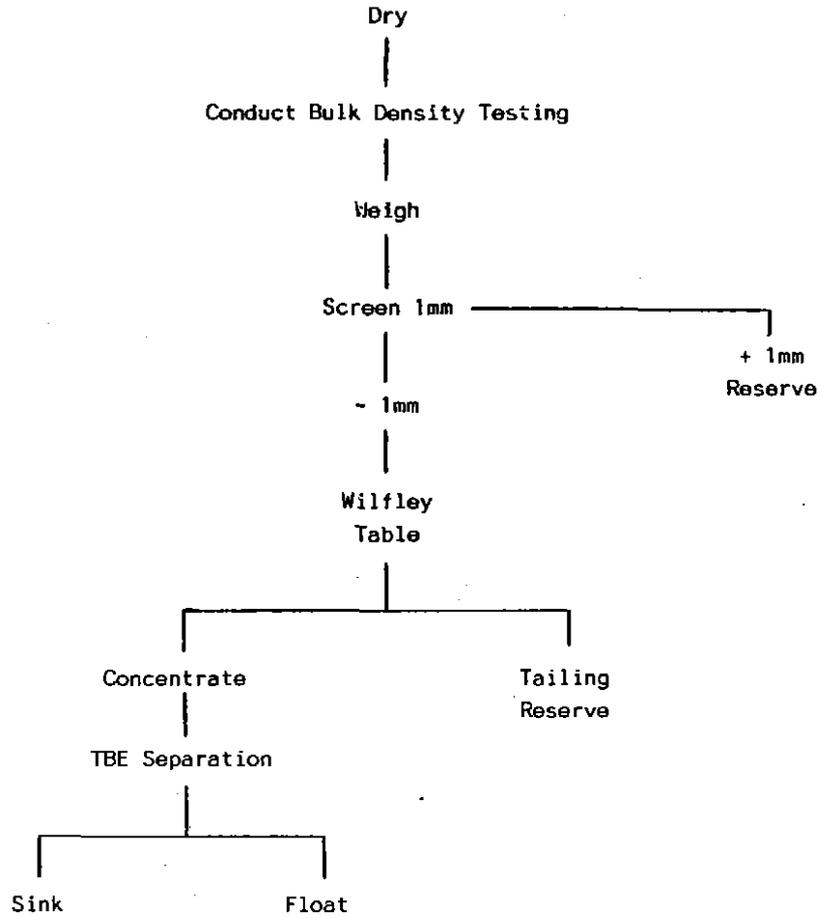
DETAILS OF SAMPLE PREPARATION AND BULK DENSITY TESTING OF SOIL SAMPLES

Sample No.	Dry Weight Received (Kg)	Uncompacted Bulk Density (tonnes/m <sup>3</sup> )	Weight -1mm (Kg)	Weight Table Con (Kg)	Weight TBE Sink Product (grams)
311908	22.2	0.884	15.0	2.5	3.4
311909	30.5	0.904	28.1	3.9	2.9
311910	33.0	0.949	21.0	1.5	41.4
311911	17.9	0.954	14.2	1.3	209.7
311912	35.3	1.012	16.3	5.2	1813.0
311913	26.0	0.885	19.4	1.9	91.1
311915	36.4	1.025	24.4	3.1	38.6
311916	18.8	0.863	17.0	1.7	23.9
311917	28.1	1.029	22.6	2.3	194.4
311919	19.6	0.823	18.5	3.2	7.3
311920	28.4	1.001	21.1	5.5	37.2
311922	35.1	1.101	24.3	6.4	36.4
311923	20.6	0.861	13.5	1.3	2.5
311925	35.9	0.992	18.7	4.3	2149.0
311926	25.7	0.860	22.5	2.6	79.8
311927	30.0	1.008	20.2	3.0	678.3
311930	40.3	1.141	13.9	3.0	22.5
311933	28.4	0.974	16.4	3.1	1.8

FIGURE

FIGURE 1

FLWSHEET FOR SAMPLE PREPARATION OF SOIL SAMPLES



APPENDIX I

035

Reference Number 35871

2 DEC., 1987

Order Number 3618

AMTEC Pty. Ltd.  
\*\*\*\*\*

6 Macadam Place  
Balcatta WA 6021

Analysis of Mineral Samples  
\*\*\*\*\*

TD



Authorised By : T.K.Chan

Analysed By :  
ANALYTICAL SERVICES (WA) PTY L  
19 Augusta St  
WILLETTON WA 6155  
Telephone 354 1888  
Telex AA 94767  
Facsimile 457 2569

096

REFERENCE NUMBER 35871

Order No 3618

Page 1

\*\*\*\*\*

SAMPLE NUMBER	Au ppb	Pt ppb	Pd ppb	Ru ppb	Rh ppb	Ir ppb	Os ppb	Cr %
A1465 / 311908	7.7m	4.0	10	55	3.5	9.0	12	12
A1465 / 311909	2.0m	28	13	34	4.5	9.0	12	28
A1465 / 311910	56	<0.5	1.5	3.5	<0.5	2.0	4	1.1
A1465 / 311911	24	2.5	2.5	8.5	1.0	2.0	2	4.4
A1465 / 311912	52	34	7.0	40	6.5	14	20	42
A1465 / 311913	76	220	2.0	430	22	3.5m	2.9m	41
A1465 / 311915	390	57	2.5	40	8.0	21	14	33
A1465 / 311916	64	110	2.5	48	11	26	30	37
A1465 / 311917	14	27	1.5	40	7.5	44	24	33
A1465 / 311919	1.7m	14	2.5	31	3.0	29	38	20
A1465 / 311920	100	13	3.0	26	4.0	6.0	8	13
A1465 / 311922	150	9.0	2.0	34	5.5	13	18	47
A1465 / 311923	67m	39	27	480	29	1.9m	2.1m	25
A1465 / 311925	< 2	6.5	2.5	14	3.0	6.0	8	31
A1465 / 311926	210	27	2.0	27	4.0	8.5	12	23
A1465 / 311927	70	22	3.0	35	8.0	12	14	33
A1465 / 311930	80	29	6.0	70	8.5	130	160	38
A1465 / 311933	170	<0.5	49	22	0.5	10	14	5.1

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REFERENCE NUMBER 35871

Order No 3618

PAGE 2

\*\*\*\*\*

Sample Preparation

\*\*\*\*\*

The samples have been sorted and dried. The whole sample has then been pulverised in a Ring Pulveriser.

Sample Analysis

\*\*\*\*\*

An 'm' Suffix after a result implies results are expressed in ppm for this sample

Au Pt Pd Ru Rh Ir Os

have been determined by Fire Assay of the sample (in NEW pots) using Nickel Sulphide as the collection media. The Platinoids have been recovered from the Nickel Sulphide and analysed by ICP-Mass Spectrometry.

Cr

has BEEN BROUGHT INTO SOLUTION BY FUSION WITH SODIUM PEROXIDE. THIS FUSION PROCEDURE RESULTS IN TOTAL EXTRACTION OF THE ELEMENTS OF INTEREST. THE DIGEST HAS BEEN ANALYSED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROPHOTOMETRY.

Sample Storage

\*\*\*\*\*

Sample pulps and residues will be stored free of charge for

ONE MONTH after reporting.

Samples are then Palletised, and a fee of \$1.00 per day per Pallet required is levied.

APPENDIX II

754100

009

42

Reference Number 35484A

11 NOV., 1987

Order Number 3503

AMTEC Pty. Ltd.  
\*\*\*\*\*

6 Macadam Place  
Balcatta WA 6021

Analysis of Mineral Samples  
\*\*\*\*\*

Analysed By :  
ANALYTICAL SERVICES (WA) PTY LTD  
19 Augusta St  
WILLETTON WA 6155  
Telephone 354 1888  
Telex AA 94767  
Facsimile 457 2569



Authorised By : T.K.Chan

100

42

REFERENCE NUMBER 35484A

Order No 3503

Page 1

\*\*\*\*\*

SAMPLE NUMBER	Cu ppm	Co ppm	Ni ppm	Cr ppm
A1322 A +106 MAGS	60	280	720	27%
A1322 A +106 NON MAGS	300	< 20	40	4.5%
A1322 A -106 +53 MAGS	< 20	280	700	29%
A1322 A -106 +53 NON MAGS	280	160	3000	17%
A1322 A -53 MAGS	80	260	1300	28%
A1322 A -53 NON MAGS	100	220	460	25%
A1322 B +106 MAGS	140	220	760	37%
A1322 B +106 NON MAGS	100	120	1200	13%
A1322 B -106 +53 MAGS	40	240	940	36%
A1322 B -106 +53 NON MAGS	80	180	900	29%
A1322 B -53 MAGS	20	220	1300	32%
A1322 B -53 NON MAGS	< 20	200	940	32%

101

REFERENCE NUMBER 35484

Order No 3503

PAGE 2

\*\*\*\*\*

Sample Preparation

\*\*\*\*\*

No sample preparation was required on these samples.

Sample Analysis

\*\*\*\*\*

An 'm' Suffix after a result implies results are expressed in ppm for this sample

Au Pt Pd Ru Rh Ir Os

have been determined by Fire Assay of the sample (in NEW pots) using Nickel Sulphide as the collection media. The Platinoids have been recovered from the Nickel Sulphide and analysed by ICP-Mass Spectrometry.

Sample Storage

\*\*\*\*\*

Sample pulps and residues will be stored free of charge for

ONE MONTH after reporting.

Samples are then Palletised, and a fee of \$1.00 per day per Pallet required is levied.

Reference Number 35484

11 NOV., 1987

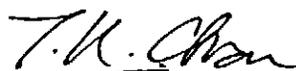
Order Number 3503

AMTEC Pty. Ltd.  
\*\*\*\*\*

6 Macadam Place  
Balcatta WA 6021

Analysis of Mineral Samples  
\*\*\*\*\*

Analysed By :  
ANALYTICAL SERVICES (WA) PTY LTD  
19 Augusta St  
WILLETTON WA 6155  
Telephone 354 1888  
Telex AA 94767  
Facsimile 457 2569



Authorised By : T.K.Chan

103

12

REFERENCE NUMBER 35484

Order No 3503

Page 1

\*\*\*\*\*

SAMPLE NUMBER	Au ppb	Pt ppb	Pd ppb	Ru ppb	Rh ppb	Ir ppb	Os ppb
A1322 A +106 MAGS	6	3.0	4.5	170	11	12	16
A1322 A +106 NON MAGS	120	2.5	9.5	26	1.0	<0.5	< 2
A1322 A -106 +53 MAGS	2	96	5.0	110	20	15	18
A1322 A -106 +53 NON MAGS	1.2m	3.5	1.5	150	10	12	20
A1322 A -53 MAGS	98	11	1.5	110	12	12	16
A1322 A -53 NON MAGS	720	5.5	1.0	200	15	18	32
A1322 B +106 MAGS	54	2.5	9.5	170	12	16	22
A1322 B +106 NON MAGS	440	57	48	140	22	32	130
A1322 B -106 +53 MAGS	6	100	8.0	77	24	15	14
A1322 B -106 +53 NON MAGS	560	110	4.5	170	23	30	100
A1322 B -53 MAGS	42	1.1m	24	150	77	52	42
A1322 B -53 NON MAGS	230	90	1.5	160	38	40	110

X

12400 29480



104

REFERENCE NUMBER 35484A

Order No 3503

PAGE 2

\*\*\*\*\*

Sample Preparation

\*\*\*\*\*

No sample preparation was required on these samples.

Sample Analysis

\*\*\*\*\*

A '%' Suffix after a result implies results are expressed in % for this sample

Cu Co Ni Cr

have BEEN BROUGHT INTO SOLUTION BY FUSION WITH SODIUM PEROXIDE.

THIS FUSION PROCEDURE RESULTS IN TOTAL EXTRACTION OF THE ELEMENTS OF INTEREST.

THE DIGEST HAS BEEN ANALYSED BY ATOMIC ABSORPTION SPECTROPHOTOMETRY.

Sample Storage

\*\*\*\*\*

Sample pulps and residues will be stored free of charge for ONE MONTH after reporting.

Samples are then Palletised, and a fee of \$1.00 per day per Pallet required is levied.

**AMMTEC**APPROVED RESEARCH  
ORGANISATION No. 1780AUSTRALIAN METALLURGICAL AND MINERAL TESTING CONSULTANTS PTY. LTD.  
6 Mac Adam Place, Balcatta, Western Australia 6021

December 17, 1987

Mr. T.G. Summons  
Principal Geologist Eastern Australia  
Metals Exploration Ltd  
80 Collins Street  
MELBOURNE VIC. 3000

Dear Sir,

Please find enclosed two copies of a report detailing metallurgical preparation of soil and rock samples.

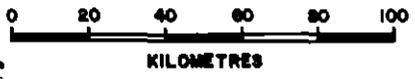
Also please find enclosed our Invoice No. A 1669 for \$7795.00 covering the cost of performing and reporting the programme.

Yours faithfully,

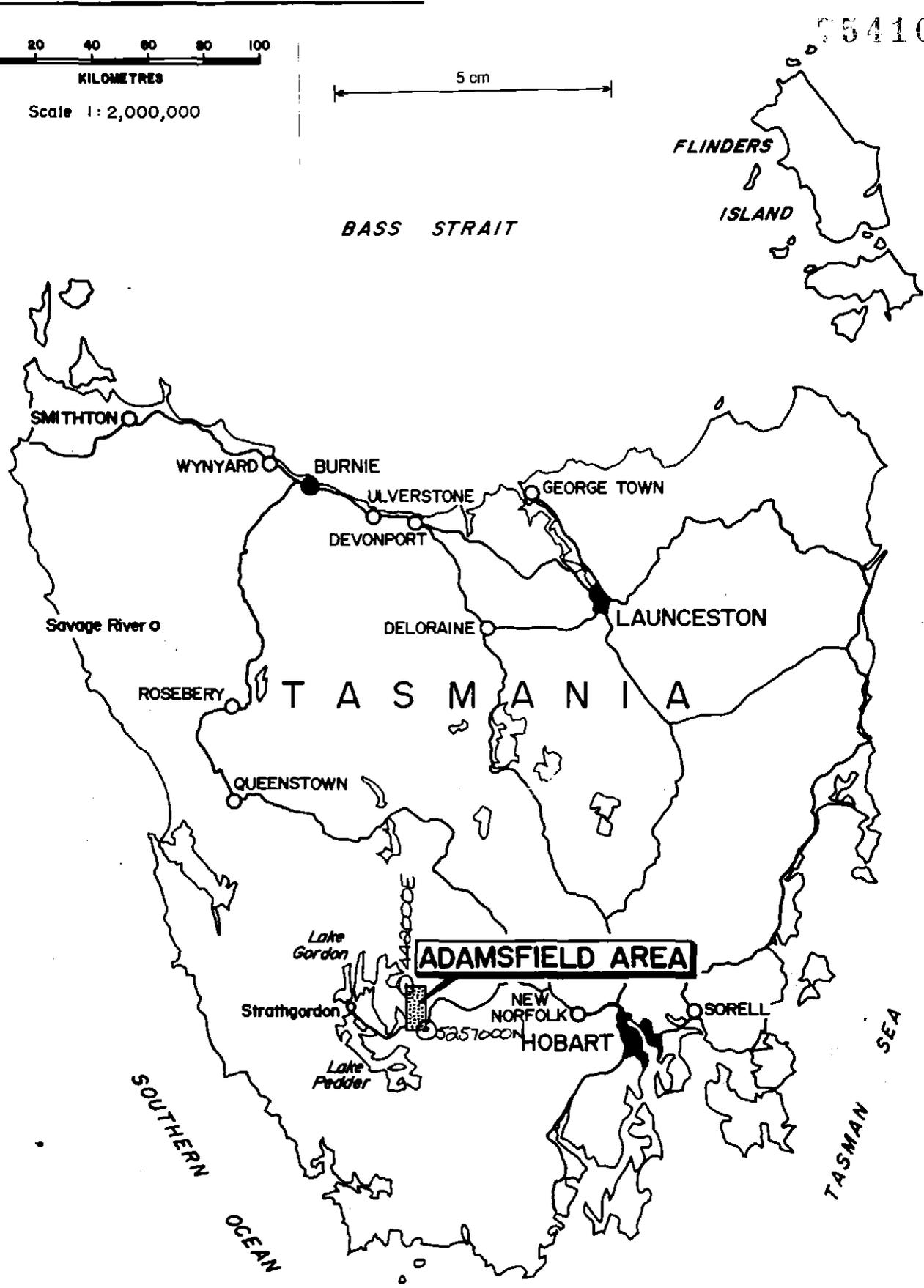
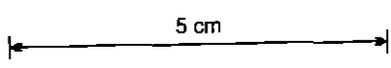
G.W. LLOYD  
MANAGING DIRECTOR

Encl.

*sent to Perth 21.12.87*  
*ADAMSFIELD*



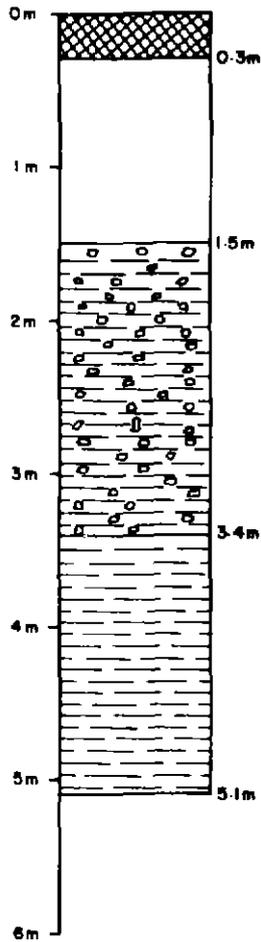
Scale 1:2,000,000



AMG REFERENCE POINTS ADDED

METALS EXPLORATION LIMITED  
 LOCATION OF EXPLORATION LICENCE 4/85

107



Dark brown humic clays

White + green silty clay containing up to 40% poorly indicated angular gravel fragments

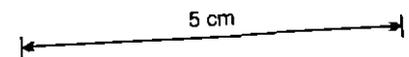
Orange clays (40% silt)

Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G
FROM	TO										
0.3	1.5	311908	12	4	10	55	3.5	9	12	7.7m	0.88
1.5	3.4	311909	28	28	13	34	4.5	9	12	2.0m	0.90
3.4	5.1	311910	1.1	X	1.5	3.5	X	2	4	56	0.95

m ..... ppm or g/t  
N/A ..... not analysed for

754108



**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
ABS - 1**

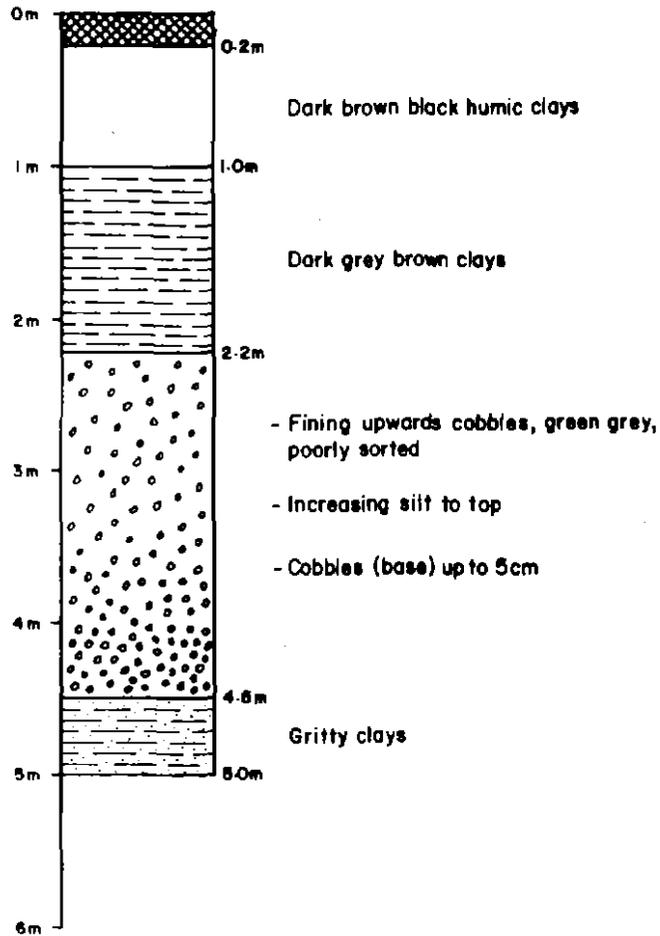
250mS on Marriott track (Auger line A)

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 4

88 - 2842

108

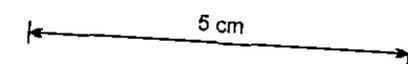


Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
1.0	2.2	311911	4.4	2.5	2.5	8.5	1.0	2.0	2.0	24	0.95
2.2	4.5	311912	42	34	7	40	6.5	14	20	52	1.01
4.5	5.0	311913	41	220	2.0	430	22	3.5m	2.9m	76	0.89

m ..... ppm or g/t  
 N/A ..... not analysed for

754109



**LEGEND**

- |  |                            |  |                    |
|--|----------------------------|--|--------------------|
|  | Peat, vegetated layer (Ao) |  | Scattered chromite |
|  | Mud, dark humic clays      |  | Sand               |
|  | Clay                       |  | Gravel             |
|  | Chromite layers            |  | Basement rock      |



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
 EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
 ABS-2**

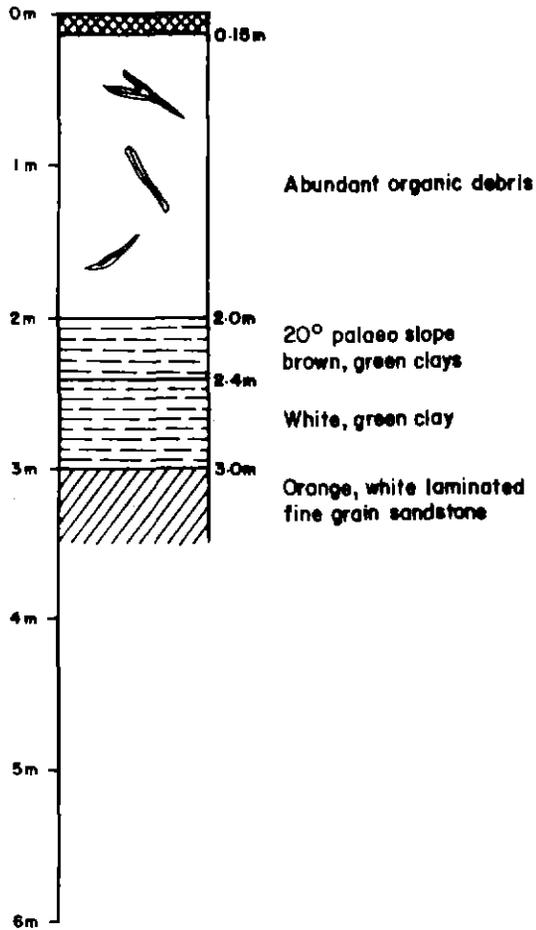
550mS on the Marriot track

DATE JUNE 1988  
 SCALE VERT. 1:50

FIGURE 5

88 - 2842

100

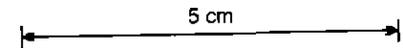


Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
2.0	2.4	311914	18	X	N/A	1.5	N/A	1	X	X	N/A
2.4	3.0	311915	33	57	2.5	40	8	21	14	390	1.03

m .....ppm or g/t  
N/A .....not analysed for

754110



**LEGEND**

- |  |                            |  |                    |
|--|----------------------------|--|--------------------|
|  | Peat, vegetated layer (Ao) |  | Scattered chromite |
|  | Mud, dark humic clays      |  | Sand               |
|  | Clay                       |  | Gravel             |
|  | Chromite layers            |  | Basement rock      |



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ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

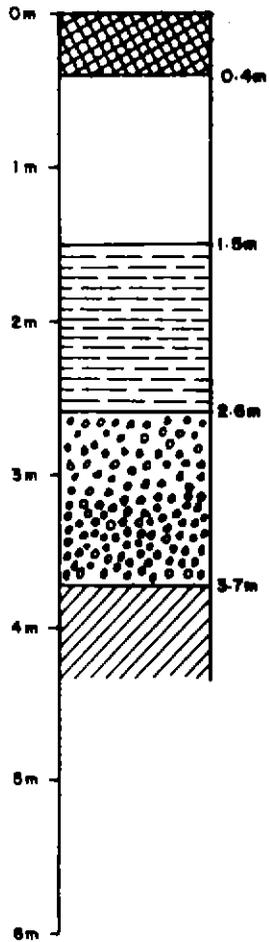
**SECTION OF BULK SAMPLE PIT  
ABS-3**

800mS on Marriott track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 6

88 - 2842



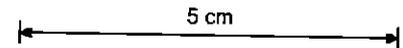
Light brown sandy clays

Green-grey gravels grading to cobbles (10 cm) well rounded qtz, sandstone fragments

Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
0.4	1.5	311916	37	110	2.5	48	11	26	30	64	0.86
1.5	2.6	311917	33	27	1.5	40	7.5	44	24	14	1.03
2.6	3.7	311918	37	64	N/A	270	N/A	1.7m	2.0m	6	N/A

m ..... ppm or g/t  
N/A ..... not analysed for



PBA111

**LEGEND**

- Peat, vegetated layer (Ao)
- Mud, dark humic clays
- Clay
- Chromite layers
- Scattered chromite
- Sand
- Gravel
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
ABS - 4**

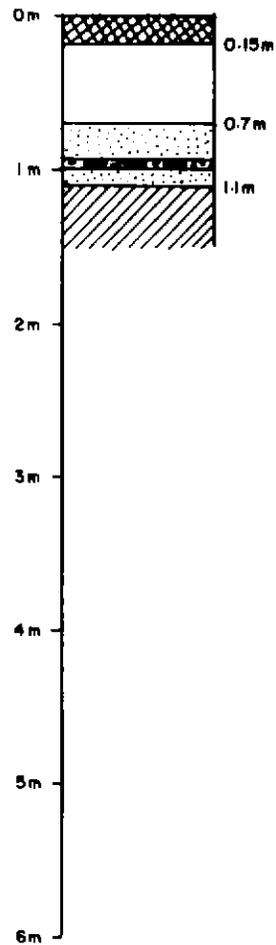
15mN of Auger line C  
1050m on Marrtott track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 7

88 - 2842

111



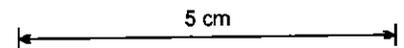
Pale brown sands, well sorted  
Gravel layer (0.94 - 1.0m) 10% chromite  
Pale green sandstone

CO-ORD		SAMPLE NUMBER	% CHROMITE	Results in ppb, X = below detection limit								
FROM	TO			Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.	
0.15	0.7	311919	20	14	2.5	31	3	29	38	1.7m	0.82	
0.7	1.1	311920	13	13	3	26	4	6	8	100	1.00	
0.94	1.0	311921	14	200	N/A	11	N/A	14	16	14	N/A	

m .....ppm or g/t  
N/A .....net not analysed for

in gravel layer

754112



**LEGEND**

- Peat, vegetated layer (Ao)
- Mud, dark humic clays
- Clay
- Chromite layers
- Scattered chromite
- Sand
- Gravel
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

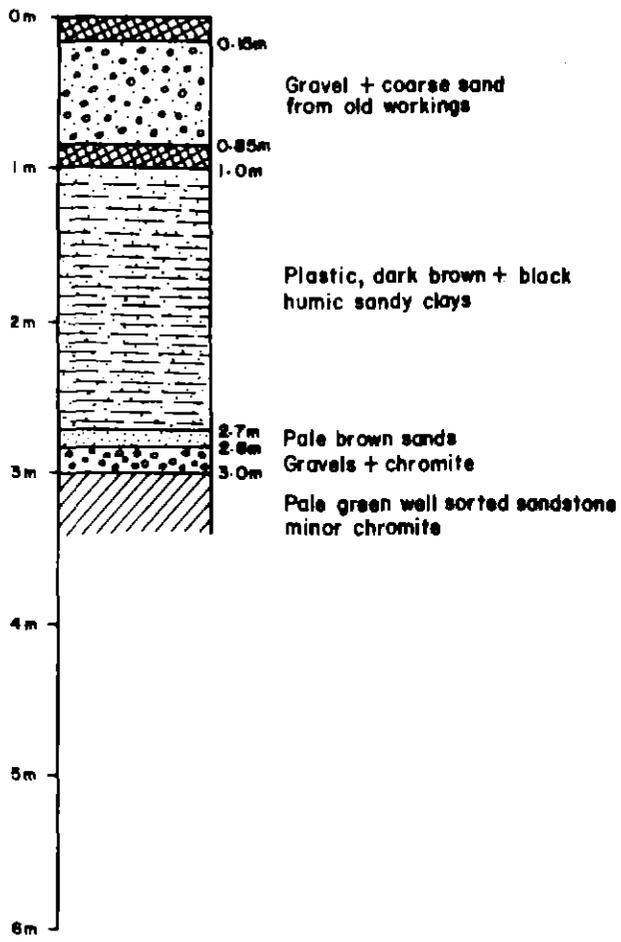
**SECTION OF BULK SAMPLE PIT  
ABS - 5**

1350 m on Marriott track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 8

88 - 2842



Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	%CHROMITE	P1	Pd	Ru	Rh	Ir	Os	Au	S.G
FROM	TO										
0.15	0.85	311922	47	9	2	34	5.5	13	18	150	1.10
1.0	2.7	311923	25	39	27	480	29	1.9m	21m	67m	0.86
2.7	2.8	311924	THIS INTERVAL INCLUDED WITH THE ONE BELOW								
2.8	3.0	311925	31	6.5	2.5	14	3	6	8	X	0.99
3.0			5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

m ..... ppm or g/t  
 N/A ..... not analysed for

754113



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ADAMSFIELD PROJECT, TASMANIA  
 EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
 ABS - 6**  
 1650m on Marriott track

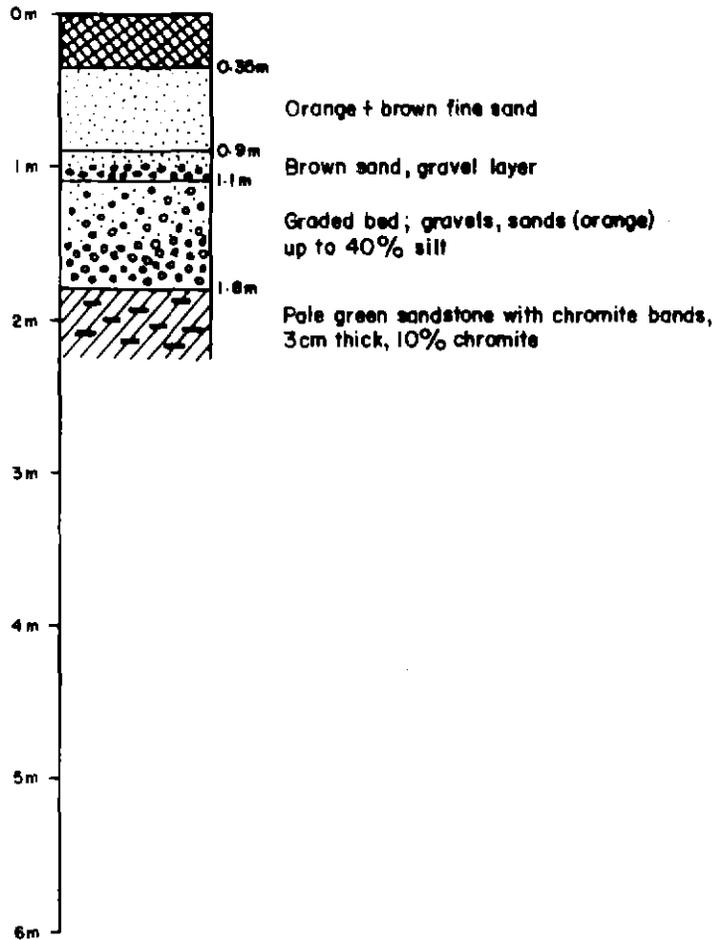
**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock

88 - 2842

DATE JUNE 1988  
 SCALE VERT. 1:50

FIGURE 9

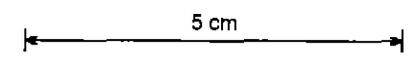


Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
0.35	0.9	311926	23	27	2	27	4	8.5	12	210	0.86
0.9	1.1	311927	33	22	3	35	8	12	14	70	1.01
1.1	1.8	311928	36	27	N/A	68	N/A	320	300	2	N/A
1.8		311907	10	N/A							

m ..... ppm or g/t  
N/A ..... not analysed for

754114



**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

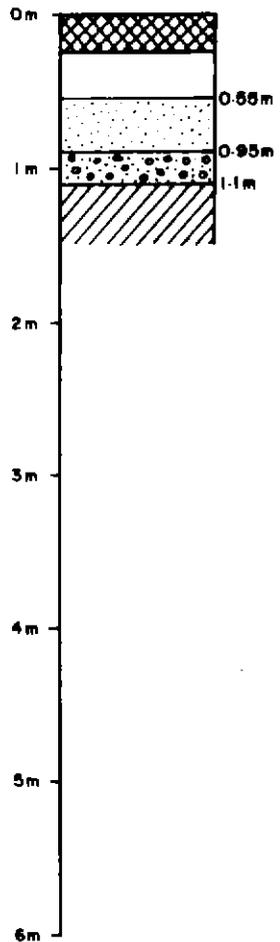
**SECTION OF BULK SAMPLE PIT  
ABS - 7**  
1950m on Marriott track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 10

88 - 2842

114

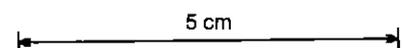


Well sorted fine grain brown sands  
Gravel + sands  
Quartzite + pale green sandstone

Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
0.55	0.95	311929	20	X	N/A	4	N/A	16	14	X	N/A
0.95	1.1	311930	38	29	6	70	85	130	160	80	1.14

m ..... ppm or g/t  
N/A ..... not analysed for



**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
ABS - 8**

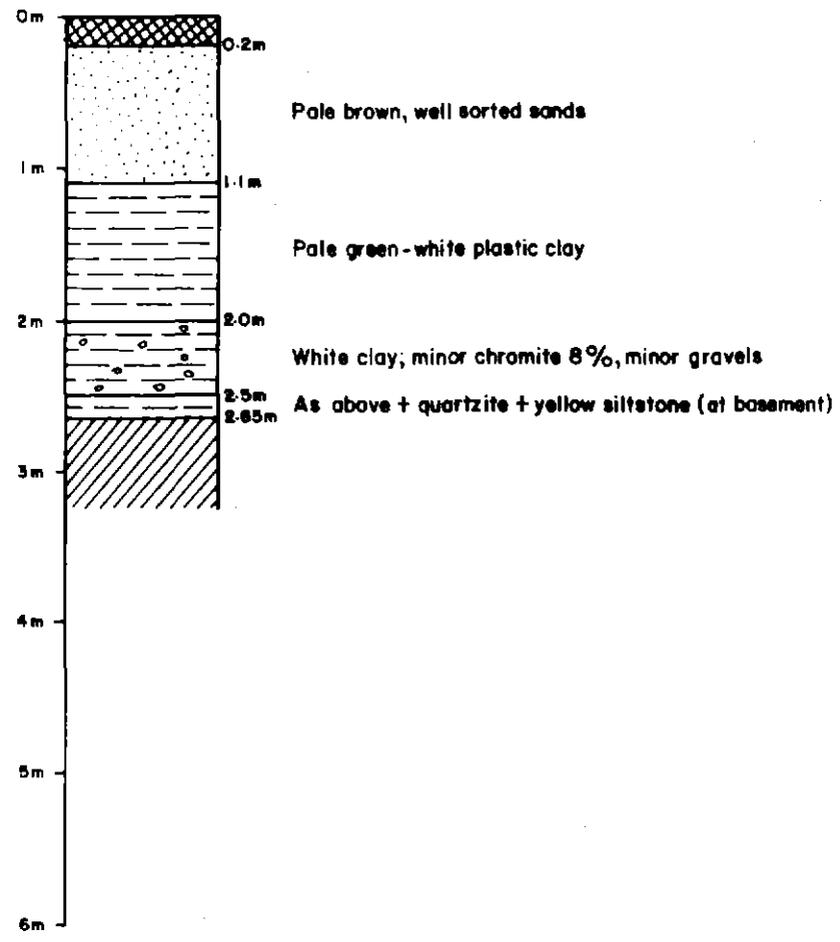
810mN on Bolton's track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 11

88 - 2842

754115

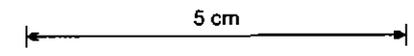


Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	%CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
0.2	1.1	311931	6.8	X	N/A	1	N/A	2.5	4	X	N/A
1.1	2.0	311932	-	THIS INTERVAL INCLUDED WITH THE ONE BELOW							
2.0	2.5	311933	5.1	X	49	22	0.5	10	14	170	0.97
2.5	2.65	311934	2.7	X	N/A	X	N/A	1.5	2	4	N/A

m ..... ppm or g/t  
N/A ..... not analysed for

75/1116



**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

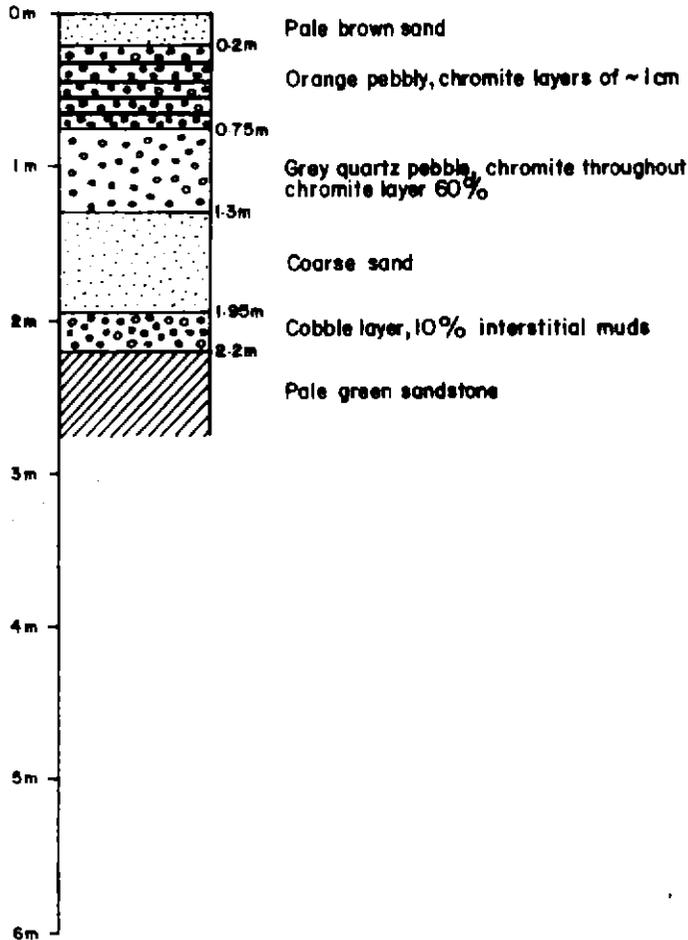
**SECTION OF BULK SAMPLE PIT  
ABS-9**

610mN on Bolton's track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 12

88 - 2842

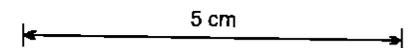


Results in ppb, X = below detection limit

CO-ORD		SAMPLE NUMBER	% CHROMITE	Pt	Pd	Ru	Rh	Ir	Os	Au	S.G.
FROM	TO										
0.2	0.75	311935	35	N/A	110	N/A	710	860	35	X	N/A
0.75	1.3										
1.3	1.95	311937	35	9.5	N/A	15	N/A	12	8	4	N/A
1.95	2.2	311938	40	14	N/A	31	N/A	16	18	X	N/A

m ..... ppm or g/t  
N/A ..... not analysed for

754117



**LEGEND**

- Peat, vegetated layer (Ao)
- Scattered chromite
- Mud, dark humic clays
- Sand
- Clay
- Gravel
- Chromite layers
- Basement rock



**METALS EXPLORATION LIMITED**

ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

**SECTION OF BULK SAMPLE PIT  
ABS - 10**

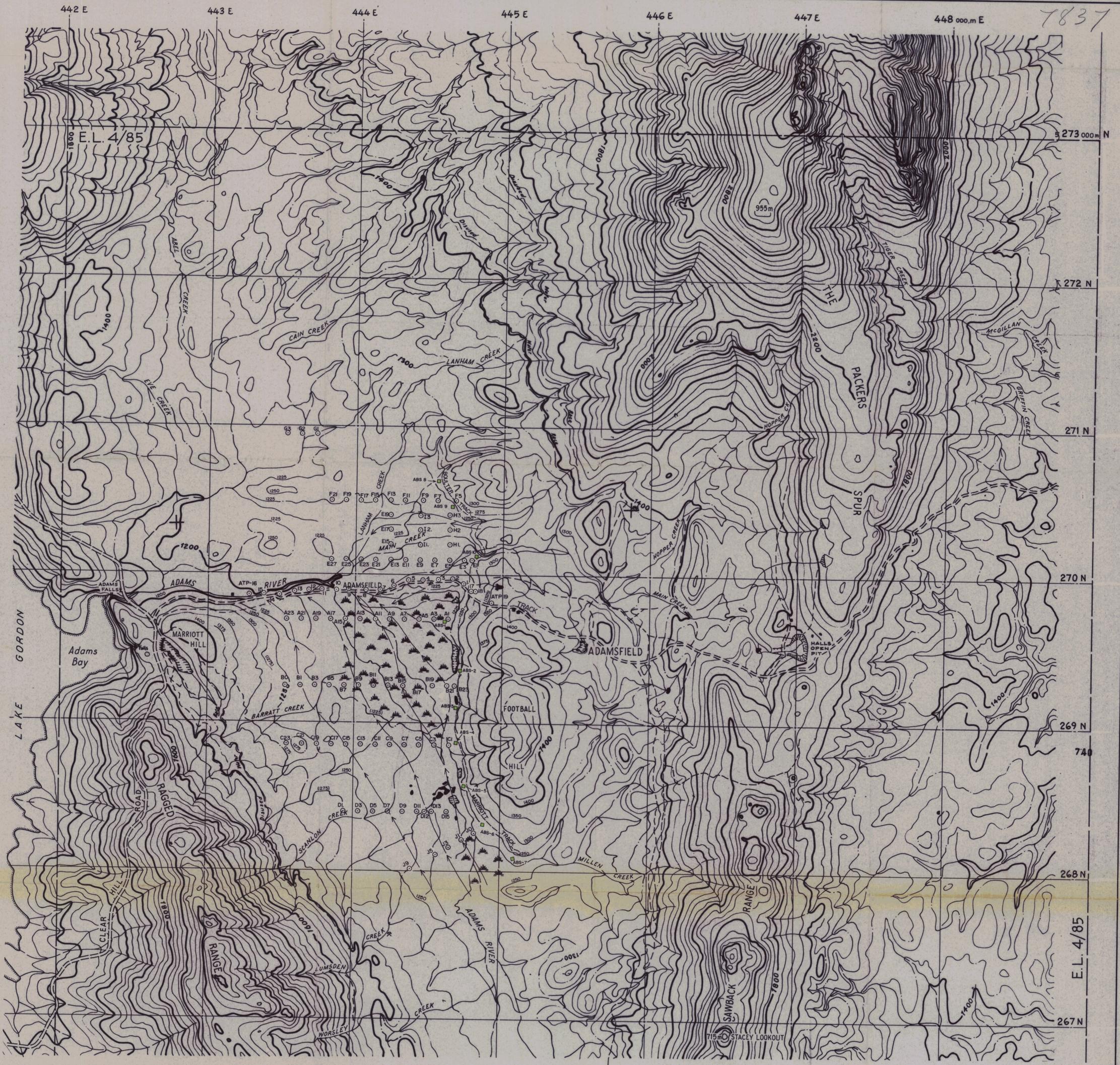
260mN on Bolton's track

DATE JUNE 1988  
SCALE VERT. 1:50

FIGURE 13

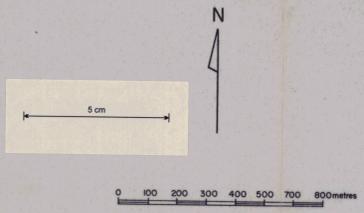
88 - 2842

7837



LEGEND

- A13 B9 E17 etc. Auger drill holes
- ATP-4. Percussion drill holes
- ABS-5. Bulk sample site
- Stream Palaeo Channel
- New Track



88-2842

METALS EXPLORATION LIMITED

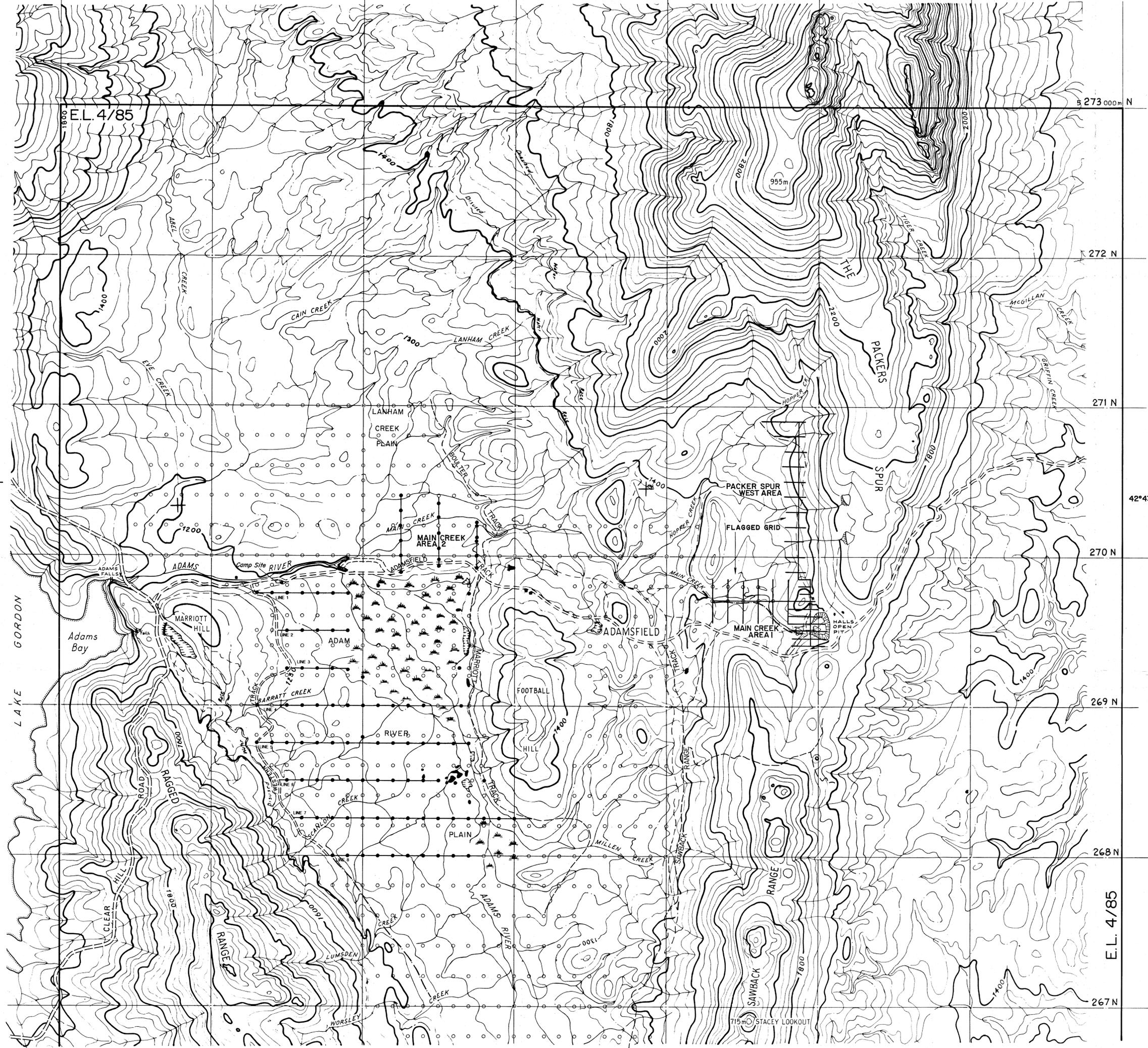
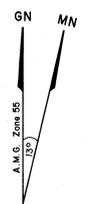
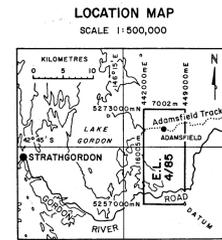
ADAMSFIELD PROJECT, TASMANIA  
EXPLORATION LICENCE 4/85

PLAN OF DRILL HOLES  
(ON THE ADAMS RIVER-LANHAM  
MAIN CREEK PLAIN AND THE  
ADAMSFIELD TRACK) AND  
BULK SAMPLE SITES  
(ON BOULTER AND MARRIOTT  
TRACKS)

DATE: JUNE 1988  
SCALE: 1:10 000  
FIGURE: 2  
DRG NO: 02/AD/1/06

442 E 443 E 444 E 445 E 146°20' 446 E 447 E 448 000 m E

7838



Base map:  
Photogrammetric machine plot of HUNTLEY 73-D-3  
map sheet by Tasmanian government authorities with  
additions by M.E.L.

Topographic contours:  
Contour interval 50 ft with index contours (bold)  
every 200 ft.  
Intermediate contours (---) at 25 ft interval.



- LEGEND
- Completed pit sites with grid line
  - Proposed pit sites for 1988/89
  - Proposed track
  - ▽ Proposed coffer dam

88-2842  
754119

METALS EXPLORATION LIMITED

ADAMSFIELD PROSPECT, TASMANIA  
NORTHERN PART OF E.L. 4/85

LOCATION OF PIT SITES  
AND FLAGGED GRIDS  
1988 FIELD PROGRAMME

SCALE 1:10,000  
DRAWN JUNE 1988

FIGURE 3  
Drg No 02/AD/11/89