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REPORT NO. 1

REVIEW AT CONCLUSION OF FIRST SAMPLING

PROGRAMME

at

ANCHOR OPEN CUT

BLUE TIER TIN DEPOSITS

Lottah, Tasmania

by

J. L. Morton

15 August, 1963.

Accompanying Report:

Plan of Portion of Anchor Open Cut	No. A52	Scale: 1"=40'
Section at 5000N Anchor Open Cut	No. A53	Scale: 1"=40'
Section at 5100N Anchor Open Cut	No. A54	Scale: 1"=40'
Section at 5200N Anchor Open Cut	No. A55	Scale: 1"=40'
Section at 5300N Anchor Open Cut	No. A56	Scale: 1"=40'
Section at 5400N Anchor Open Cut	No. A57	Scale: 1"=40'
Section at 5500N Anchor Open Cut	No. A58	Scale: 1"=40'
Seismic Traverse: Section 5200N	No. A59	Scale: 1"=10') 10Ms)

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SUMMARY

Sampling test work along east wall of Anchor Open Cut, Blue Tier, Tasmania, has been completed. Results show a thin, but well defined body of ore grading .57% Sn, overlain by 79 feet of barren rock. A zone within the area tested grades about .90% Sn.

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INTRODUCTION

A programme of exploration at the Blue Tier Tin Prospect, Lottah, Tasmania, was carried out between 14th May and 15th July, 1963.

This work was based on the revised schedule and costs dated 27th May, 1963.

FIELD WORK

Field work was carried out in two parts:-

1. The writer, assisted by a Party Supervisor and 2 field assistants carried out the following work between 14th and 22nd May, 1963:-
(Please refer 40 scale Plan of Portion of Anchor Workings).

Access tracks cut and base camp established.

2, 300 feet of grid cut and accurately surveyed.

Seismic Refraction Traverse along Section 5200N.

5 Sample channels marked on east face of Anchor Open Cut.

Preliminary Radiometric Investigations.

Somewhat less work was achieved and in greater time than planned due to unusually wet conditions. Rain fell for 6 of the 7 days in the field.

At the conclusion of this part it was found that the original schedule dated 30th April, 1963, was impractical due to hardness of the rock. A new schedule was planned and adopted - employing machinery.

2. Party Supervisor (J. M. Brook) and 2 field assistants carried out sample cutting, reducing and quartering between 22nd May and 15th July, 1963. The following are details:-

Stages erected using bush timber scaffolding and plank decks, at five points along east face of Anchor Open Cut. Please refer 40 scale Cross Sections 5100N, 5200N, 5300N, 5400N, 5500N and 40 scale Plan of Portion of Anchor Workings.

A portable compressor (Model GR100), hired from Tasmanian Dept. of Mines, was established in the cut. Jackleg and special short steel suitable for working off scaffolding was provided.

Standard 4" x 2" sample channels were cut at each section using the above equipment. 50 pounds of rock was collected from each 5 feet of channel. This was put through $\frac{3}{8}$ " screen and quartered

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to 10 lbs. Duplicates were dept.

34 samples were cut over a total channel length of 170'.

Assaying was carried out by the Dept. of Mines in Launceston.

At the conclusion of work all equipment was returned and stored at Dorset Tin, South Mt. Cameron.

PURPOSE OF PROJECT

The project was designed as a reconnaissance exercise, aimed at gaining the following data for planning future work:-

Geology

Grade in % Sn.

Distribution of values

Suitable methods of exploration.

GEOLOGY

The geology of Blue Tier is discussed at length in the writer's Preliminary Summary Geological Report dated 3rd January, 1963.

The current report deals with a small portion of the field, namely the eastern wall of Anchor Open Cut. Ore occurs in a 'floor' type deposit. Tin is confined to the lower portion of a flat lying body of greisen which was mapped and is shown on sections 5100N, 5200N, 5300N, 5400N and 5500N. Sampling did not determine the top of ore at Section 5100N, but at 5200N, top of ore occurs at about 25 feet below top of greisen. This distance decreases going north until at Section 5500N top of greisen to top of ore is only 10 feet.

Bottom of ore was not determined at any point, except, possibly 5400N. Greisen in the area is overlain by granite in two distinct stages of decomposition. Near surface granite is completely decomposed with feldspars converted to kaolin. This has been termed kaolinised granite, and extends to depths up to 60 feet. About 15 feet of slightly decomposed granite occurs between kaolinised granite and greisen. There is a very sharp contact between the decomposed granite and greisen.

GRADE

Five channels were cut along the east face of ANCHOR OPEN CUT.

Results are summarised as shown in Table 1.

Section	Av. Grade of Ore Section % Sn	Depth of Ore Section in Feet	Depth of Cover in Feet			Grade x Depth of Ore	Depth Ore + barren Greisen	Average Grade Ore + Greisen	Remarks
			Greisen	Decomp. Granite	Total				
5075N	.22	10	25	55	80	2.20	35	.06	Bottom not determined.
5200N	.94	15	25	40	65	14.10	40	.35	Bottom not determined.
5300N	.88	20	20	75	95	17.60	40	.44	Bottom not determined.
5400N	.22	15	15	70	85	3.30	30	.11	
5500N	.28	10	10	60	70	2.80	20	.14	Bottom not determined.
Totals		70	95	300	395	40.000	165		
Averages	.57	14	19	60	79		33	.24	

TABLE 1.

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Explanation of Table 1:-

Average grade of ore section, Column 1, is based on uncut values. Cover is divided into two sections, Column 3, because decomposed granite was stripped and not treated, but barren greisen was treated.

Actual ore treated is represented by Column 5, and average grade of ore treated is shown in Column 6.

Overall average grade of ore section, Column 1, is calculated by dividing total Column 4 by total Column 2.

From the above table it can be stated that 14 feet depth or more, of ore averaging .57% Sn occurs along the anchor face for a distance of 425 feet, or more. This is covered by a capping of hard barren greisen averaging 19 feet in depth, which is in turn covered by decomposed granite averaging 60 feet in depth, or total barren cover averaging 79 feet.

DISTRIBUTION OF VALUES

There is a marked cut-off of values at the top of the ore zone, which is always below top of greisen. Values within the ore zone fluctuate from as low as .12% Sn to a high of 2.30% Sn, but there is a zoning with predominantly high values between 5200N and 5300N, grading off either side. Values are overlain by about 80 feet of waste, comprised mainly of decomposed granite.

SUITABLE METHODS OF EXPLORATION

Three methods tested during the project were as follows:-

1. Sampling with Jackleg.
2. Radiometric to test association of values to radioactivity.
3. Seismic Refraction to test depth of weathered zone and presence of harder rocks at depth.

SAMPLING WITH JACKLEG

This work is judged to be satisfactory, although cost is high for data gained. This work should be supplemented by drilling. Consideration should also be given to testing the complete section by drilling, if further work is planned.

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RADIOMETRIC

All channels were tested at 1 foot intervals and no anomalous readings were recorded. However, radiometric readings have been recorded on the field and testing should be continued at different localities.

SEISMIC REFRACTION

Seismic Refraction could be a useful tool to indicate continuity of ore zones in this type of deposit. A traverse was carried out along section 5200N, please refer Seismic Traverse 50' to 160' E of Stn. 20 along Section 5200N. Only the contact between kaolinised and decomposed granite was picked up in this traverse, due to wind conditions during the whole of the first part of the field programme. The traverse length of 110 feet could not be extended because of the low noise to signal ratio. However, a test was made on greisen which recorded 18,000 ft. per second. It is confidently expected that the lower contact could be easily picked up under suitable conditions.

CONCLUSIONS

The average depth of cover indicated from the current programme demands a substantial increase in depth of ore, if the project be developed as an open cut. The full depth of ore is not known. Average grade of ore mined, calculated at .24% Sn compares satisfactorily with figures quoted in various reports of recovery grades as being between .13% and .20% Sn. The main significance of these figures is that to arrive at this average value a well defined body of ore actually grading .57% Sn has been diluted with barren material. The cause of this was due to the physical nature of the rocks, decomposed granite being removed possibly by sluicing, ripping and scraping. However, it is difficult to see why more attention was not given to separating ore and waste in the harder rocks by simply blasting off the top layer of waste before mining ore. Of even more significance is zoning, discussed under Distribution of Values, indicating an enriched area between 5200N and 5300N grading about .90% Sn. Should this zone repeat to any extent an underground mining project may be warranted.

The results of this programme require revised thinking regarding possibilities of grade at Blue Tier. However, because the programme was not extensive, and did not provide data of a conclusive nature (mainly with respect to depth of ore, and closer spacing of channels would be preferred) it is not possible, at this time, to form any firm theories or

ideas. For this reason bare facts have been recorded on plans and sections without any interpretation.

RECOMMENDATIONS

Two possibilities must be borne in mind for planning future exploration at Anchor Open Cut:-

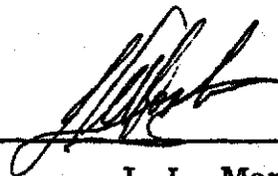
1. Open cut operation, in which depth and extent of ore is the primary target.
2. Underground operation, in which grade distribution and extent is the primary target.

The most satisfactory method of testing both of these possibilities is by drilling vertical holes from surface to the east of the area previously tested. These should be on 100' squares as reconnaissance, to fulfil requirements of both of the above possibilities.

Before this work commences, the bottom of ore should be determined by drilling vertical D.D. Holes from the bottom of each sample channel. This would involve 5 holes, of possibly 50 feet average depth, or 250 feet of drilling.

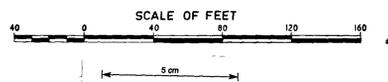
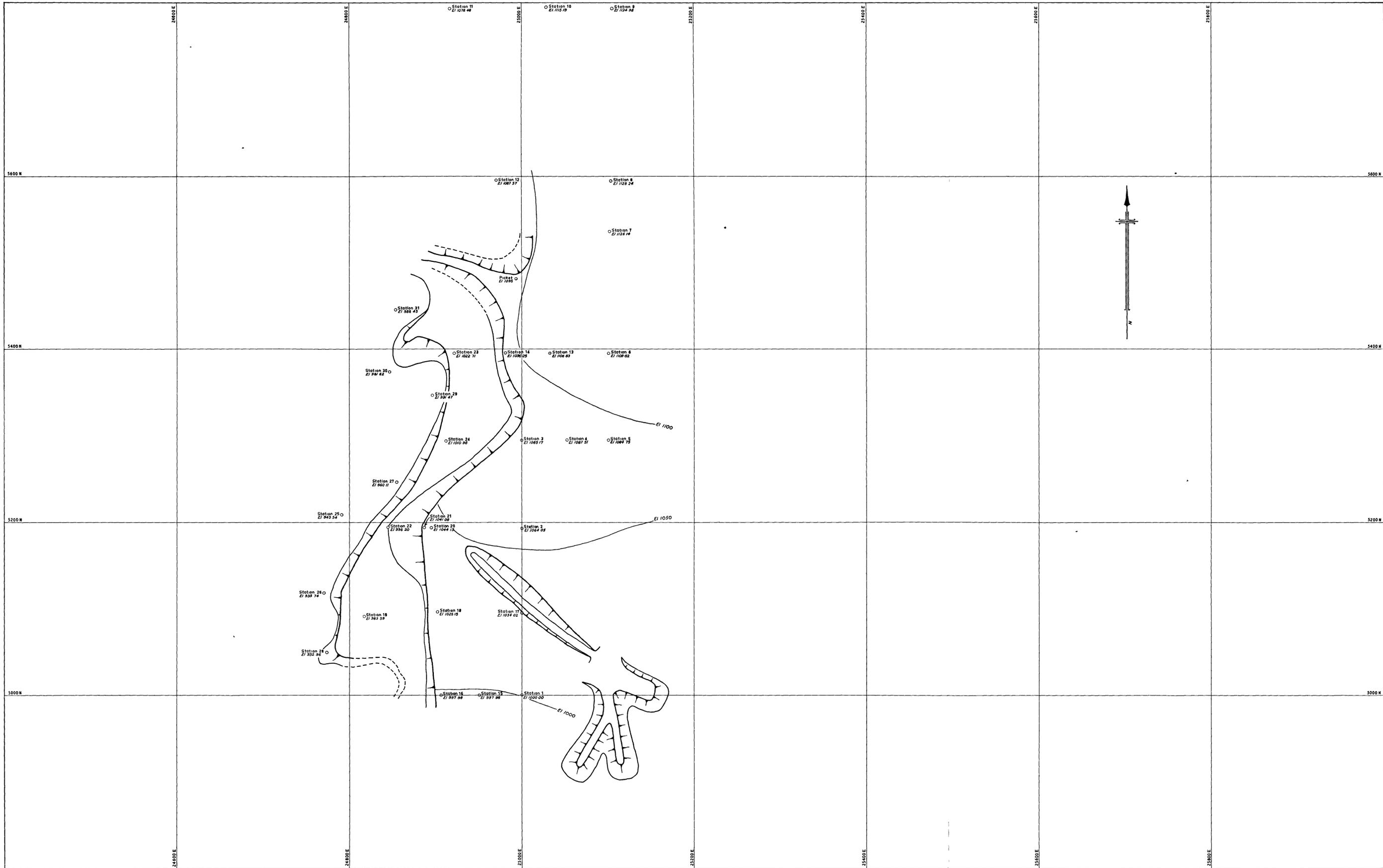
Further sampling of walls of Anchor Cut, to the west should also be carried out, to test for similar conditions found in the current programme.

Due to weather conditions work should be carried out during summer months, if possible.



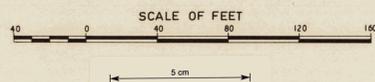
J. L. Morton

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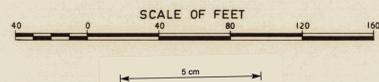
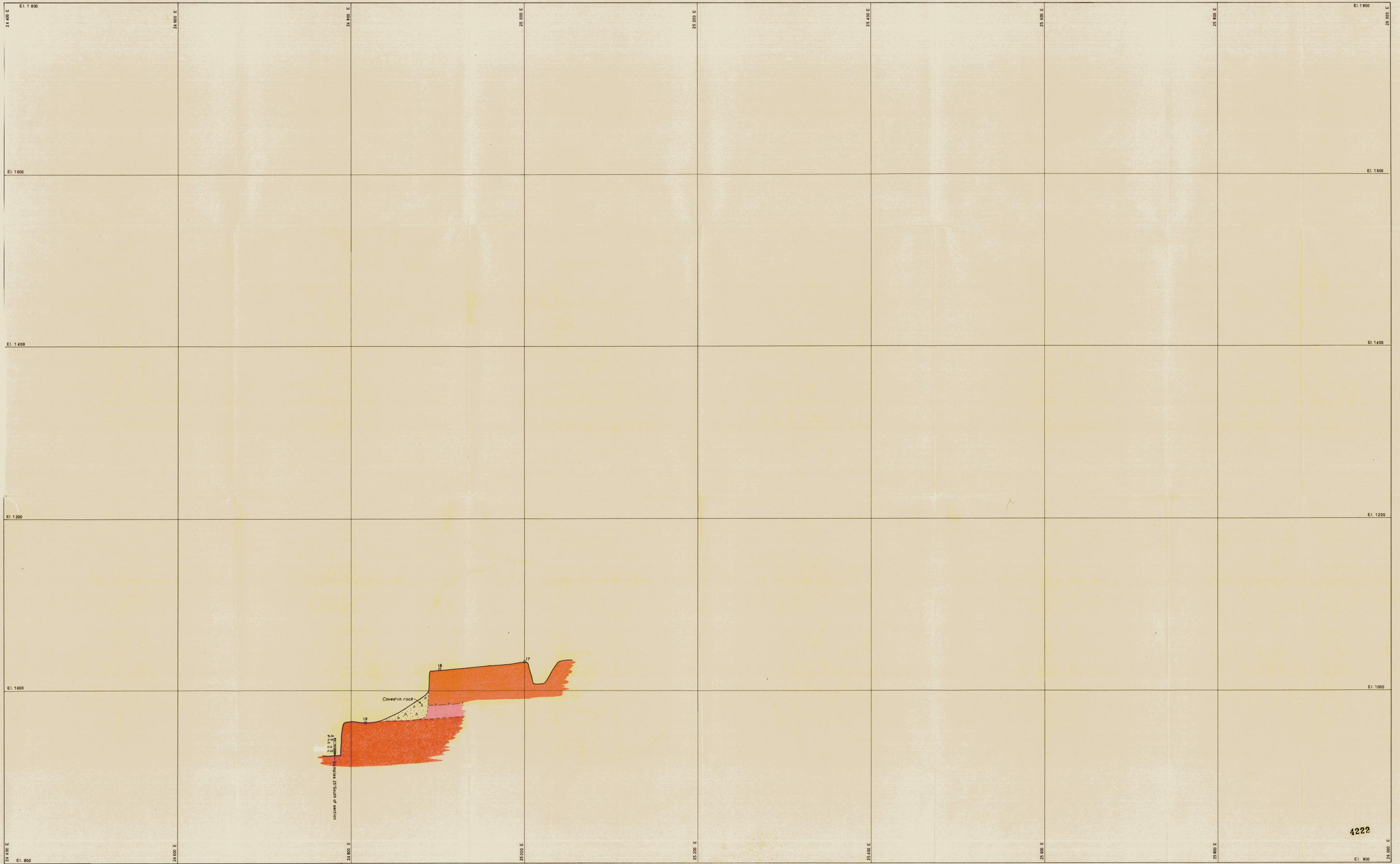
ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
 BLUE TIER TIN PROSPECT
 PLAN OF PORTION OF ANCHOR OPEN CUT

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 Prepared by J.L. MORTON
 of R HARE AND ASSOCIATES
 Drafting by GEODRAFTING SERVICES
 Drawn by C.J.H. Date 8 7 1963
 DRAWING NO A 52



ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
 BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5000 N-ANCHOR OPEN CUT
 LOOKING NORTH

LEGEND		ASSAY LEGEND	
	Kadonised granite		Nil
	Decomposed granite		01 to 99%Sn
	Greisen		10 to 99%Sn
			20 to 49%Sn
			More than 50%Sn



ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5100 N-ANCHOR OPEN CUT
 LOOKING NORTH

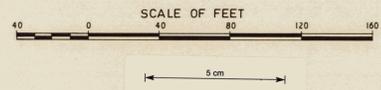
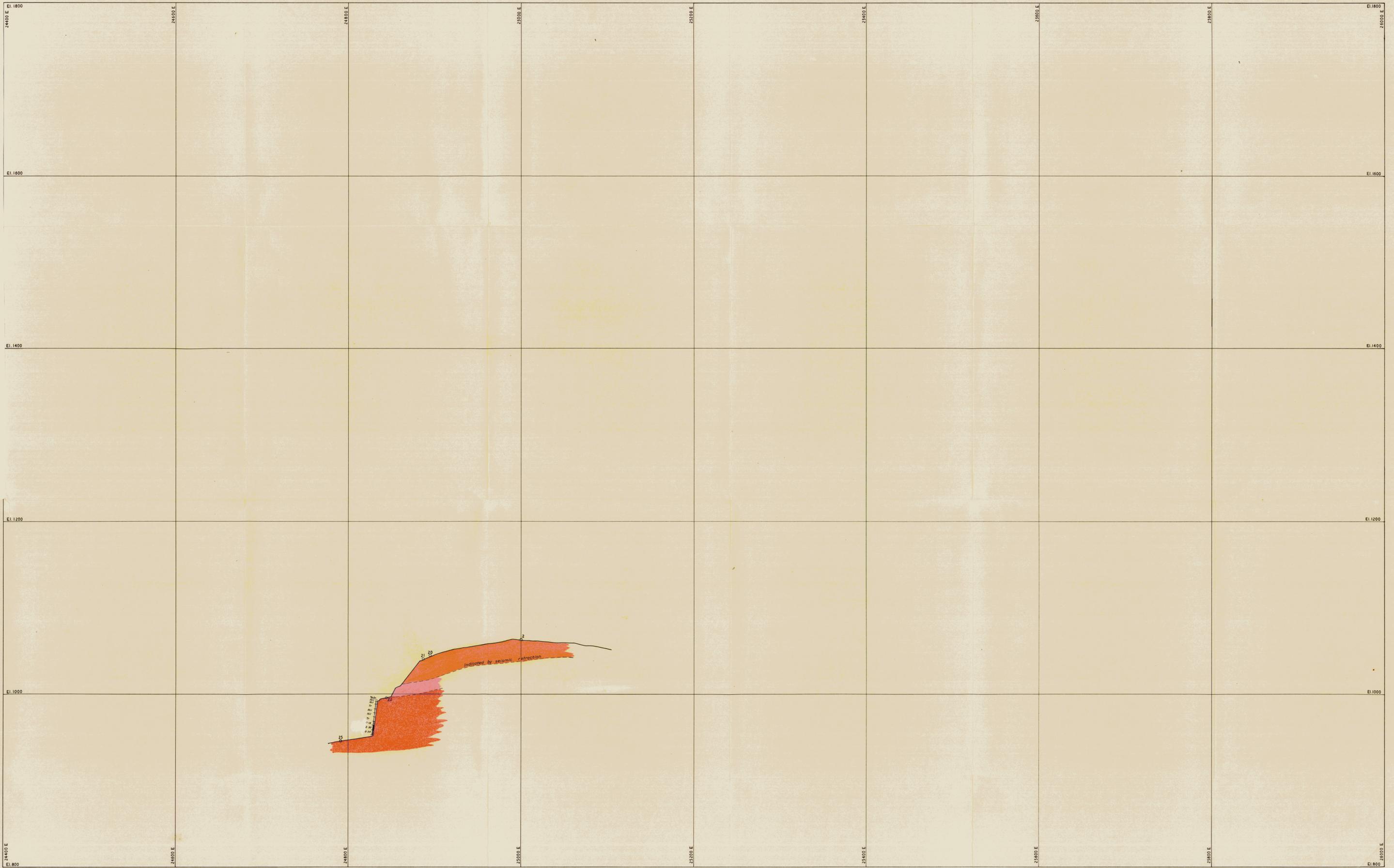
- LEGEND
- Kaolinised granite
 - Decomposed granite
 - Gneiss

- ASSAY LEGEND
- Nil
 - 01 to 09%Sn
 - 10 to 19%Sn
 - 20 to 49%Sn
 - More than 50%Sn

Prepared by: J.L. MORTON
 of R. HARE AND ASSOCIATES
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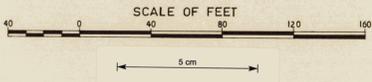
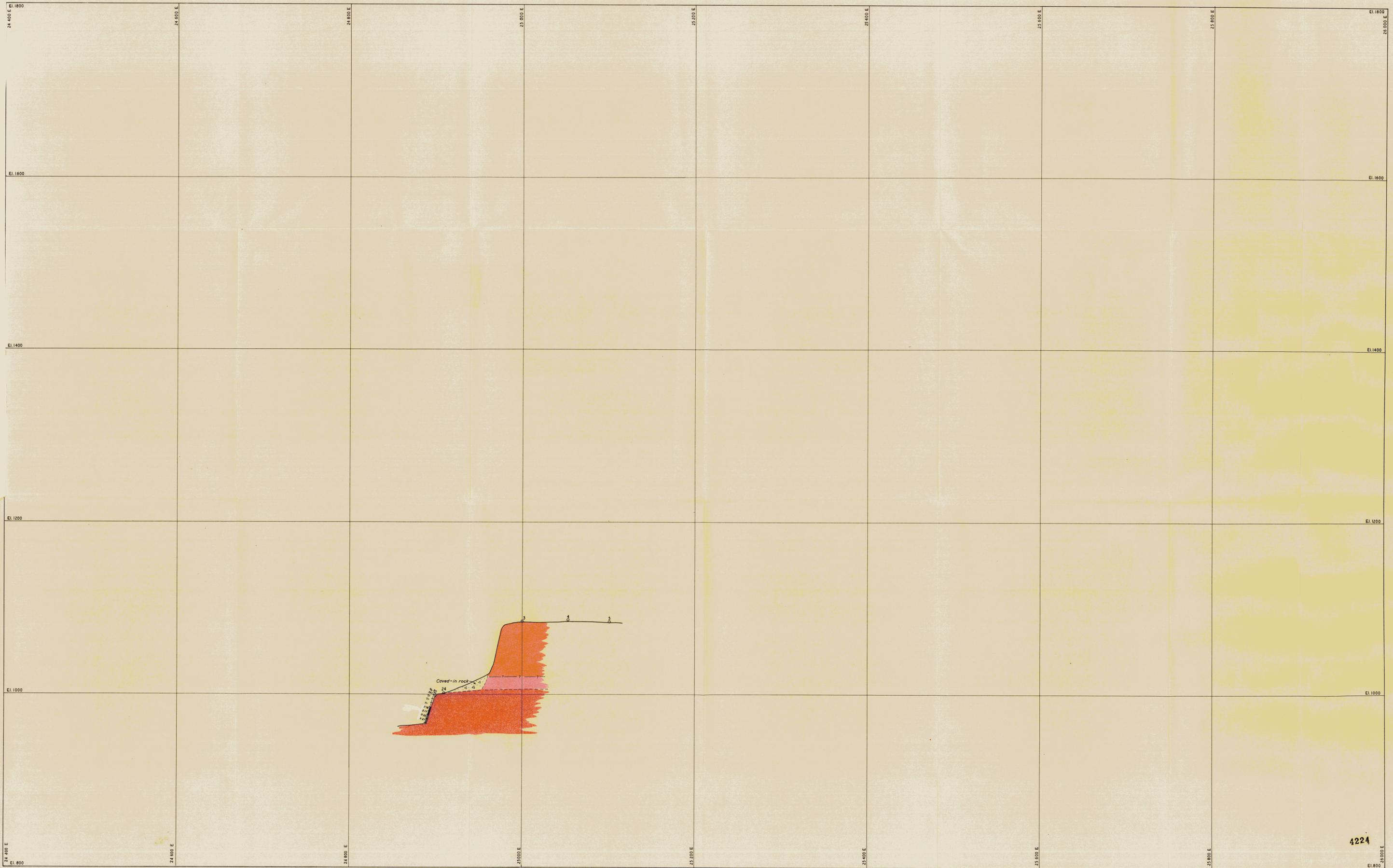
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ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5200 N-ANCHOR OPEN CUT
 LOOKING NORTH

- LEGEND
- Koolinised granite
 - Decomposed granite
 - Gneiss

- ASSAY LEGEND
- Nil
 - 01 to 09%Sn
 - 10 to 19%Sn
 - 20 to 49%Sn
 - More than 50%Sn



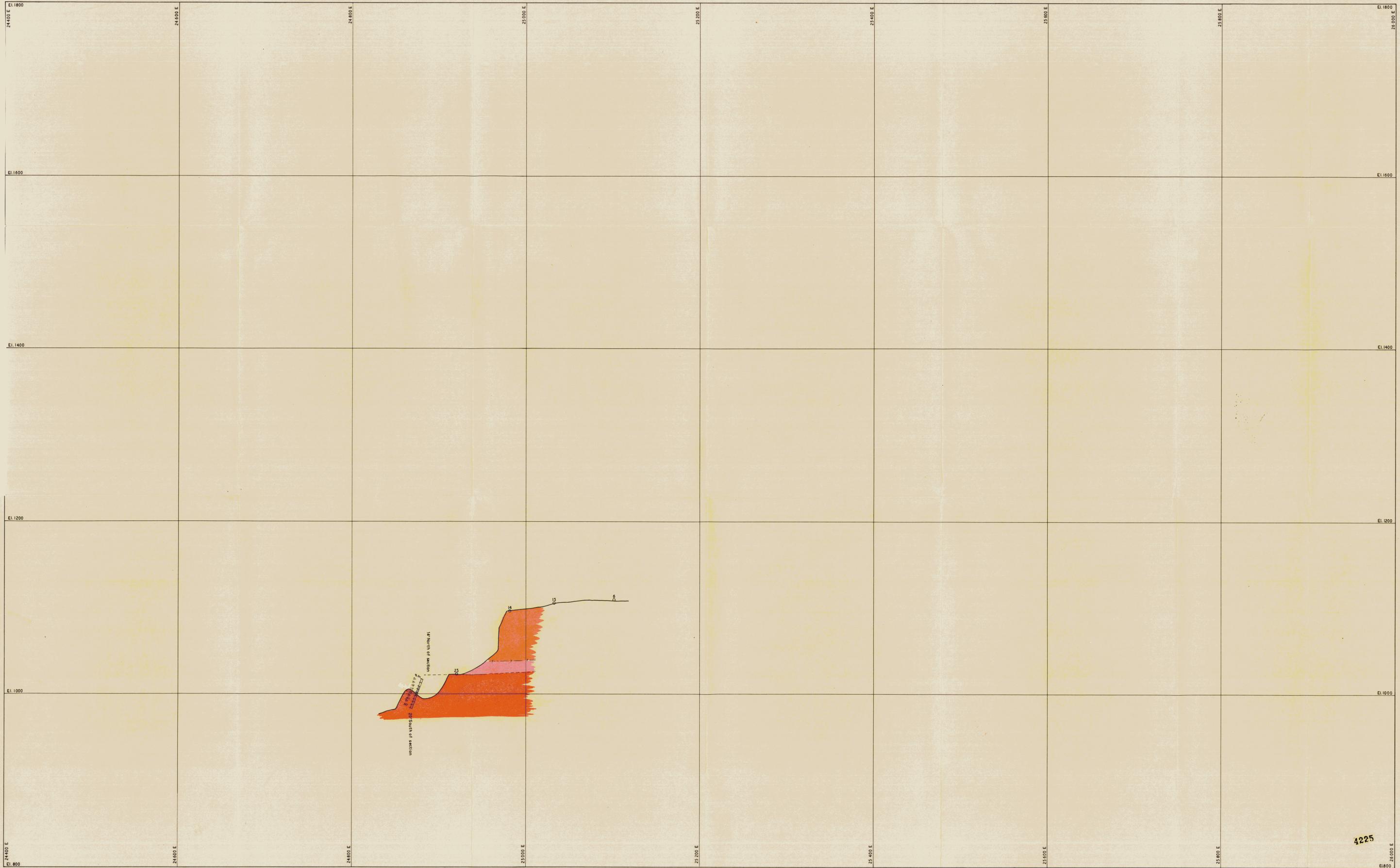
ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
 BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5300 N-ANCHOR OPEN CUT
 LOOKING NORTH

- LEGEND
- Kaolinised granite
 - Decomposed granite
 - Gneiss

- ASSAY LEGEND
- Nil
 - 01 to 09%Sn
 - 10 to 19%Sn
 - 20 to 49%Sn
 - More than 50%Sn

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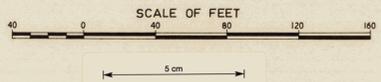
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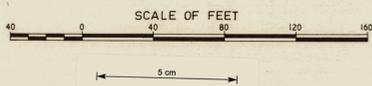
ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
 BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5400 N-ANCHOR OPEN CUT
 LOOKING NORTH

LEGEND
 Kaolinised granite
 Decomposed granite
 Greisen

ASSAY LEGEND
 Nil
 01 to 09%Sn
 10 to 19%Sn
 20 to 49%Sn
 More than 50%Sn



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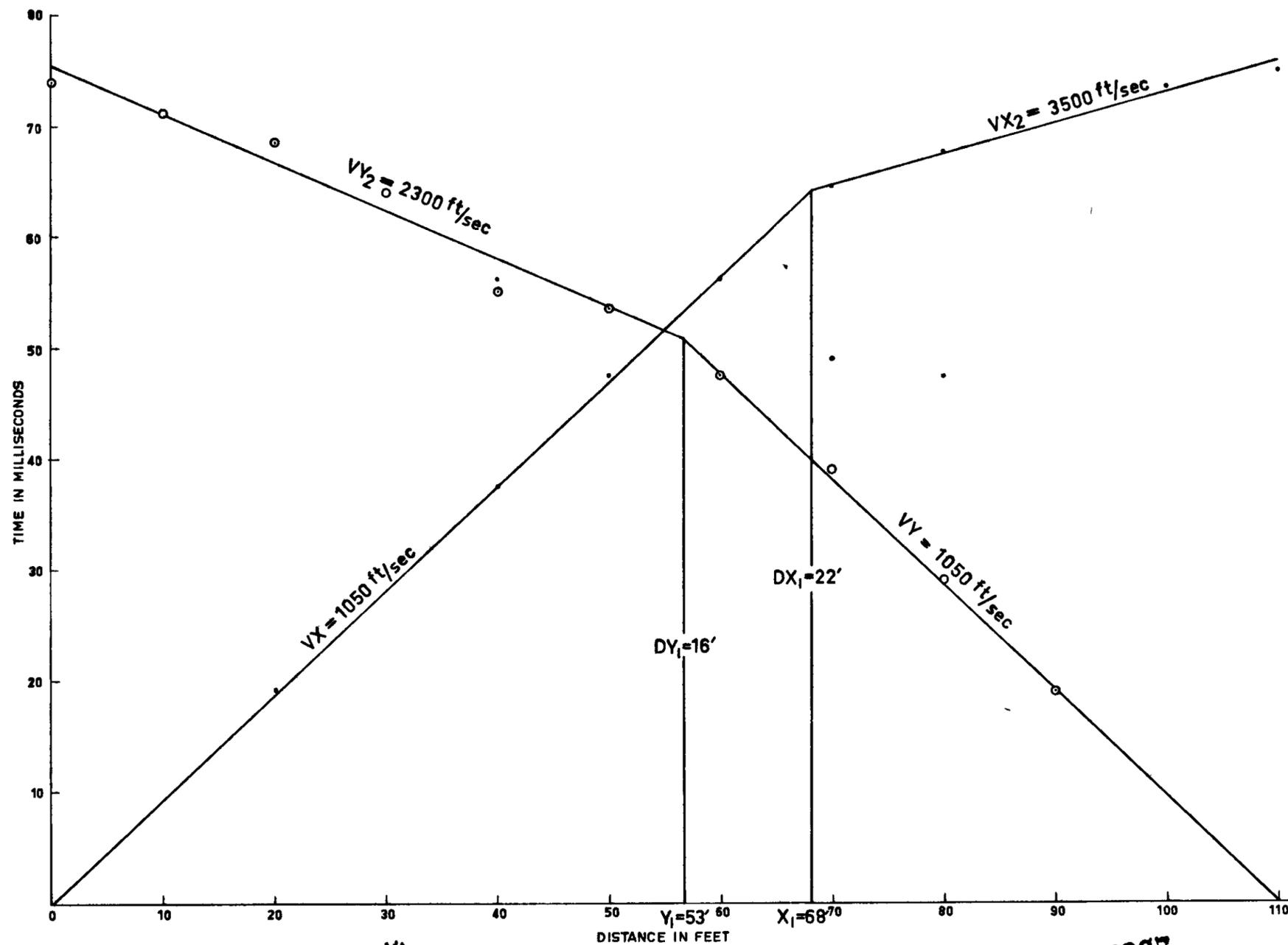


ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
 BLUE TIER TIN PROSPECT
 CROSS SECTION AT 5500 N-ANCHOR OPEN CUT
 LOOKING NORTH

- | | |
|--------------------|---------------------|
| LEGEND | ASSAY LEGEND |
| Kaolinised granite | Nil |
| Decomposed granite | 01 to 09%Sn |
| Gneiss | 10 to 19%Sn |
| | 20 to 49%Sn |
| | More than 50%Sn |

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SEISMIC TRAVERSE
50' to 160' E of Station 20, along Section 5200 N



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of R HARE AND ASSOCIATES

ABERFOYLE TIN DEVELOPMENT PARTNERSHIP
BLUE TIER TIN PROSPECT

Drafting by GEODRAFTING SERVICES
Drawn by C J H Date 25 7 1963

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