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THE ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED.

West Coast Department.

GEOLOGICAL DEPARTMENT.

FIRST AND FINAL Report.

on

GREAT SOUTH COMET LINE

DUNDAS - TASMANIA

October, 1959 — I.S.Gregory

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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
West Coast Department

7735

MEMORANDUM TO :

SUPERINTENDENT

EXPLORATION - Rio Tinto (605-T)
EXPLORATION - Great South Comet (605)

The Report on the Great South Comet prospect by I.S. Gregory is submitted herewith.

You will recall that it was decided at the Rio-E.Z. Exploration meeting on 15th April, 1959 that this department would carry out the underground examination of the Mine. No work was done on the surface as this had already been covered by Rio Austex personnel and is reported in Report No.17/1958 by D. McKenna of Rio Tinto Australian Exploration Pty. Ltd.

We are indebted to Mr. D. King, Geologist-in-Charge of Rio Austex at Zeehan, for the supply of labour and transport assistance during the examination.

To avoid the necessity of making another survey the plans and longitudinal projection produced by Mr. B.L. Taylor of the Tasmanian Government Mines Department were used and it is important to remember when using the longitudinal projection that it is oblique to the grid.

Previous reports have tended to be more favourable than is justified by a purely scientific approach. Small rich lenses of galena and sphalerite do occur and these could be worked profitably by a small syndicate provided that their frequency of discovery was great enough to off-set the development necessary in barren ground.

However, the amount of ore available is totally inadequate to justify interest by either the Rio Tinto or our own Company.

V.M. COTTLE
CHIEF GEOLOGIST

ROSEBERY. 14th October, 1959.

FIRST AND FINAL REPORT

ON THE

GREAT SOUTH COMET MINE

HUNTDAS - TASMANIA

S U M M A R Y

M A P S

ADVANCE SUMMARY:

Mapping of the underground workings at the Great South Comet Mine has outlined a zone of faulting in sandstones which has been mineralised by siderite with minor lead-zinc sulphides. The zone has been exposed over a strike length of 800 ft. and rarely exceeds 10 ft. in width. Branching shears in some places increase the aggregate width of mineralisation to a maximum of 25 ft. where two or three mineralised shears are separated by barren and unsheared sandstones. Small lenses of sulphides, predominantly galena and sphalerite occur within the siderite zone, but are not sufficiently numerous for the whole zone to be regarded as economic ore. In the past mining was selective and present ore indications and largely remnants. One unexploited zinc rich lens at the southern end of 1 level indicates a prospective reserve of 35 tons per vertical foot of ore averaging 8.6% lead, 19.1% zinc, 0.09% copper, 5.7 ozs silver, <0.1 ozs gold per ton. As this lens is not completely outlined, a greater tonnage is possible but the nature of the mineralisation is such that the largest lens already worked in the mine could only have given up to 80 tons per vertical foot. There is no reason to assume that this untested lens would have any greater potential.

In view of the sporadic distribution and small size of the sulphide lenses it is considered that this prospect is not an economic proposition and that no further work is justified.

FIRST AND FINAL REPORT ON GREAT SOUTH COMET MINE

DUNDAS - TASMANIA

(a) INTRODUCTION

Following upon the regional mapping of the Comet - Great South Comet line by Rio Tinto geologist in 1958, the Great South Comet workings were mapped by Company geologist in July 1959. Previous examinations of the workings were made by A. McIntosh Reid (1925) and B.L. Taylor 1950. It should be noted that the plans, cross section and longitudinal projections used in this work are those produced by Taylor (1950) and the method of projection is not that normally used by E.Z. Company.

(b) TITLE, LOCATION AND ACCESS

The mine is held by Rio Tinto as part of ML.4/59. It is on the western slopes of Mount Dundas, approximately 7 miles by road eastward from Zeehan. The last mile of this road can only be traversed by four wheel drive vehicles. The area is highly dissected, consisting of steep slopes and narrow sharp valleys.

(c) HISTORY

The history of the mine is somewhat vague but it is safe to say that Nos.3 and 4 levels were driven and No.1 level had reached half its present length prior to 1925. The only record of production to that date is a report of about 1000 tons of ore of milling grade on dumps. In 1927 the mine produced 378 tons of zinc, 121 tons of lead and 10,906 ozs of silver from stoping on No.3 Level. From 1935-1937 a tribute party produced approximately 19 tons of ore containing 11 tons of lead and 867 ozs of silver before handing over to the Saxon Montana Silver Lead Development Company which produced a further 350 tons of ore of unspecified grade. In the period 1948 - 1950 the Lead and Nickel Mining Company produced 22 tons of lead and 1665 ozs of silver from driving and stoping on 1 level.

These figures indicate a maximum production to date of approximately 3,400 tons of ore of which there is no reliable record of grade.

(d) GEOLOGY

1. Lithology - The workings are in tuffaceous sandstones of the Dundas series - grey, fawn and brown in color, well bedded and relatively undisturbed except in the immediate vicinity of the Great South Comet shear where a cleavage is developed for up to 10 ft. from the shear margin. Minor interbedded grits and siltstones were noted on 1 Level (see Plate 2, blocks H18N & J16N).

Bedding dips in the walls of the drives and crosscuts are generally flat to the east with local steepening in the vicinity of the Great South Comet shear. Occasional flat westerly dips were noted in flat rolls in the sandstones pitching about 25° to the south.

2. Structure - The main structural feature is the Great South Comet shear, which strikes 355° grid and dips generally west at an average of 80°, although locally dips vary from 75°E to 50° west (see Plate 7). The shear is not a simple break, but a zone of shearing and short lived branching faults, which preserve a sub parallel attitude to the main shear.

At its northern end, the Great South Comet shear is truncated by the South Comet Creek fault which is evident as a prominent sheared zone in the first 180 feet of 1 Level (see plate 2, blocks M18N and G19N). The southern continuation has been located in the Adelaide Creek workings (see Plates 5 and 8) where both the width of the shear and its intensity are considerably reduced.

Definite evidence of fault movement (west side north) is noted by McKenna (1958) from surface outcrops, whilst underground, slickensides plunging approximately 20° to the north, and dragged bedding indicate an east side up and south movement.

3. Mineralisation - The sheared and crushed sandstones within the sheared zone have been partially or totally replaced by siderite and calcite gangue varying in width from 6 inches to a maximum of 10 feet. In all cases the walls of the mineralised zone are clear cut and no indications of wall rock replacement were noted. However, small tension fractures are infilled by clearly defined veinlets of gangue and sulphides. In places the shear zone is unmineralised (see Plate 3, block L14N).

Previous writers have regarded the mineralisation as continuous southward to the Adelaide Creek workings but the present writer can see no justification for this assumption. In the Adelaide Creek workings (see Plate 5) there is no strong development of gangue as in the Great South Comet workings and the northern face of the main Adelaide Creek adit is barren sheared sandstones. The only mineralisation seen there consists of two small pods of sulphides 2 feet long and 6 inches wide (see Plate 5). Gossan is well developed over the Great South Comet workings but no gossan formation has been seen or reported on the southern slopes of the ridge above the Adelaide Creek workings.

Whilst the continuity of the Great South Comet shear is not disputed, the assumption that the mineralisation is continuous to the Adelaide Creek workings is untenable and prospective ore reserves calculated on this basis are open to question.

Within the siderite gangue zone, lenticular bodies of sulphides occur. The mineralisation of these lenses is somewhat unusual in that different sections vary in composition from predominantly galena

to predominantly sphalerite and generally speaking the two sulphides are never well intermixed. Previous investigators have noted this but neither they, nor the present writer, have been able to detect any reason for the irregular distribution of lead rich or zinc rich sections. Generally these lenses are short and narrow as is indicated by the stoping pattern on Nos.1 and 3 levels (see Plate 1). From the old plans No.8 stope, which is now inaccessible appears to be the only stope which could have exceeded 250 feet in length.

(e) WORKINGS

Four adits, totalling 1500 ft. are driven along the mineralisation of the Great South Comet shear. Nos.1 and 3 levels constitute 85% of the entire development of the mine. No.4 level (see Plate 4) was in gangue throughout and No.2 Level was in weakly sheared sandstones. Ore production came largely from two narrow lenses developed in Nos. 7 and 8 stopes on No.3 level. Minor quantities were produced from small irregular stopes on No.1 level (see Plate 1). The shape of the stopes and the nature of the remnants make it quite obvious that the mining method was to break the lead rich portions of the sulphide bodies and to cease operations immediately the zinc content became appreciable. No.7 stope (see Plate 6) is a good example of this type of mining. The extremities of the stope show high grade sphalerite but unfortunately the widths are much too narrow to make this ore an economic proposition (maximum width 3½ ft.). The remaining lead rich occurrences do not exceed 6" in width. Taylor reports only one location of lead ore 2'6" wide - this was stoped subsequent to his examination.

(f) ORE POTENTIAL

Taylor, in his assessment of the mine, tends to regard the whole gangue zone and its parallel shears or branch faults as economic mineralisation. Grade mapping of the lode formation clearly demonstrates that this assumption in quite wrong. Taylor's method of sampling was to cut samples across the full width of the lode without splitting samples at change of grade. While this technique is permissable under some circumstances, if it is adopted, samples must be taken at regular intervals along the entire length of the exposed mineralisation and reference to his longitudinal projection will show that Taylor did not do this. The placement of his samples is such that one is given the impression that he sampled the full width of the lode only in those places where some sulphide mineralisation was evident. There are long stretches where no samples have been taken and mapping has shown these areas to be gangue only. It is therefore not permissable to accept Taylor's sampling as representative of the entire lode formation and consequently ore reserves cannot be based on them.

The present writer has restricted his calculation of ore reserves to that particular portion of the lode which contains economic sulphide mineralisation. One zinc rich sulphide lens of note is mapped on 1 level in block L1W (see Plate 2). Here a lens of medium grade

averaging 5½' wide is developed over a length of 65 ft. The southern limit of this lens is not exposed but diminishing grade and width at the southernmost face suggest that its southerly extension may not be very great. There is no reason to believe that the nature of this lens should be any different from those exposed in other parts of the mine where No.8 stope is the only one which could have exceeded 250 ft. in length. L13W lens will contain a minimum of 35 tons per vertical foot averaging 8.6% lead, 19.1% zinc, 0.09% copper, 5.7 ozs silver, 0.1 dwts gold and 17.7% iron. It should be noted that the high iron assay is not due to pyrite but to siderite gangue. Its maximum tonnage assuming that it is as long as the lens in No.8 stope, could only be 140 tons per vertical foot. The maximum vertical distance over which any lens has been stoped is only 50 feet and therefore the writer's estimate of the possible tonnage in L13W lens is 7000 tons.

As all other known sulphide occurrences are in the nature of remnants the total available ore could not be more than 8000 tons assaying 8% lead and 20% zinc.

The possibility of ore repetitions can only be considered in relation to the frequency of occurrence of the sulphide lenses within the lode formation and our study of the mine gives no support to the possibility that the frequency may increase with depth. For reasons stated above (see under Mineralisation) the writer does not believe the mineralisation extends southerly to the Adelaide Creek workings.

On available evidence, the frequency of the sulphide lenses is such that they represent only 11% by weight of the lode formation. It is obvious, therefore, that only if these sulphide lenses are almost pure galena and/or sphalerite could this mine become an economic proposition. The likelihood of such a high grade in the sulphide lenses is not supported by the sampling already completed.

(g) CONCLUSION

It is considered that no further work is justified on this prospect.

(h) ACKNOWLEDGEMENT

The writer wishes to acknowledge assistance and information readily supplied by Rio Tinto Australian Exploration and in particular by Messrs D. McKenna and L. Mayne.

The following reports have been used for reference in the preparation of this report :

Reid A.M. 1925. Tasmanian Geological Survey Bulletin No.36 "The Dundas Mineral Field".

Taylor B.L. 1950. Unpublished report of the Tasmanian Mines Department - "The Great South Comet Mine - Dundas."

McKenna D. 1958. RTAE Report No.17/1958 "The Comet - Great South Comet Line Dundas."

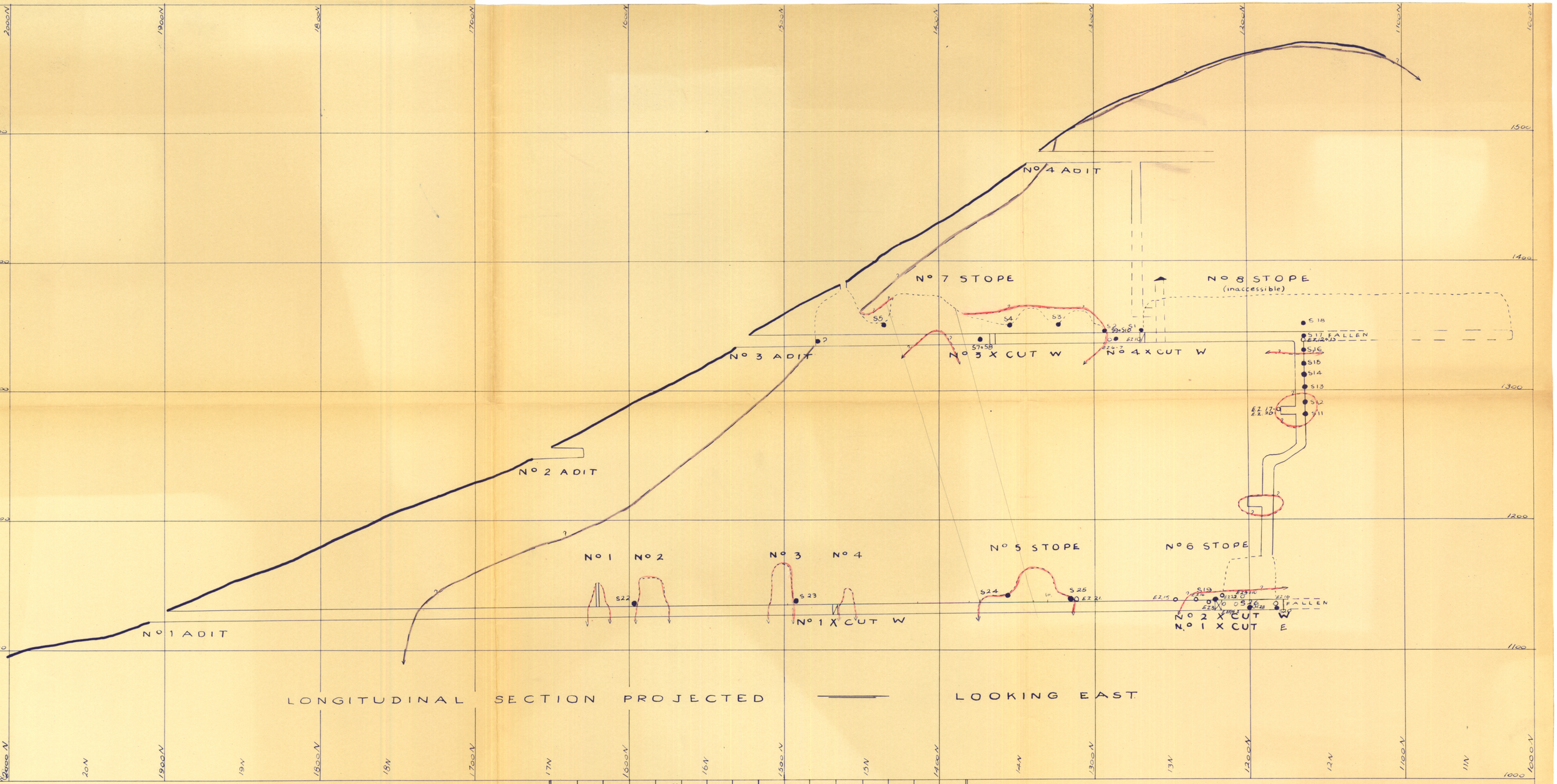
ROSEBERY. 14/10/59 I.S. GREGORY

APPENDIX 1.

SAMPLING PROCEDURE

A total of 22 samples was taken from faces and backs in the E.Z. Company sampling of the Mine. The aggregate length of these was 67 ft. All faces sampled were cleaned off with wire bristle brush and water; where necessary chipped clear of surface deposits and samples cut across recorded widths using hammer and moil. Care was exercised to take approximately 1 pound of material per linear foot of sample. Assay results and relative positions for the samples as shown on Plate 1.

Comparisons between E.Z. and Taylor's sampling cannot be made with any degree of precision because Taylor indicated the position of samples on his plans by dots rather than by linear distances. The exact location of Taylor's samples 6 and 21 is doubtful and their positions are not shown on Plate 1. However, where comparison between samples is fairly sure, it is indicated by brackets and arrows in the centre columns of the assay tables on Plate 1.



LONGITUDINAL SECTION PROJECTED LOOKING EAST

E.Z. Co Sampling

EZ N°	Width	Pb %	Zn %	Cu %	Ag ozs.	Au Cwts	Fe %	
1	48"	2·9	5·1	0·12	0·5	Nil	32·8	
2	66"	3·6	7·4	0·07	2·3	<0·1	20·4	
3	48"	6·2	9·1	0·07	3·5	<0·1	22·8	
4	12"	2·2	2·8	0·07	0·8	<0·1	30·0	
5	36"	1·0	2·9	0·13	0·6	Nil	21·5	→
6	2"	31·5	0·5	0·03	22·2	<0·1	15·4	
7	70"	0·5	2·2	0·12	0·3	Nil	19·3	→
8	54"	3·5	13·4	0·07	2·9	Nil	17·5	
9	6"	44·4	7·8	0·07	43·7	Nil	8·5	
10	36"	5·4	32·0	0·13	4·4	<0·1	14·2	
11	36"	12·6	19·3	0·07	11·2	<0·1	15·8	
12	48"	6·2	3·3	0·07	5·8	Nil	23·1	
13	24"	14·0	5·1	0·03	13·5	Nil	23·7	→
14	54"	11·0	20·2	0·07	3·6	Nil	16·8	
15	48"	3·4	9·5	0·07	1·4	<0·1	31·1	
16	27"	2·8	15·1	0·28	6·8	1·6	27·7	→
17	36"	3·7	4·6	0·05	2·5	<0·1	21·7	
18	27"	2·9	9·7	0·05	1·4	<0·1	20·1	
19	9"	1·4	4·1	0·05	1·0	<0·1	23·1	
20	6"	42·3	11·6	0·02	44·3	Nil	9·4	
21	60"	0·85	7·3	0·26	16·7	0·4	22·7	→
22	60"	3·4	21·1	0·13	3·9	<0·1	18·8	

Taylor's Sampling

S N°	Lode	Width	Pb %	Zn %	Sb %	Ag ozs
1	1	42	3·4	12·4	Trace	1·2
2		41	2·6	7·2	"	0·9
3		59	3·0	10·6	"	0·1
4		24	7·5	15·8	"	0·5
5		23	1·7	4·7	"	1·0
6		48	17·0	13·4	0·08	8·3
7	3	108"	0·4	5·1	—	0·3
8	2	60"	1·4	4·5	—	0·4
9	3	56"	5·1	4·3	Trace	3·5
10	2	40"	1·3	2·8	—	0·5
11		31"	11·7	2·2	0·03	12·9
12		30"	18·1	6·4	—	13·3
13		38"	33	1·5	—	2·6
14		33"	0·9	50	Trace	5·4
15	3	37"	7·0	5·4	—	7·2
16		34"	8·9	3·1	0·03	8·9
17		72"	8·6	5·9	Trace	8·5
18		54"	6·0	3·7	—	4·1
19		120"	3·7	9·0	—	2·1
20		27"	30	13·2	0·03	1·8
21		30"	462	12·6	0·18	42·4
22		68"	1·3	9·9	—	1·7
23	3	48"	0·6	4·8	—	0·4
24		72"	10·7	7·8	0·11	10·4
25		33"	1·4	3·8	—	0·8
26		46"	76	23·1	0·03	7·1

LEGEND
Ore Limit
Gangue Limit

5 cm

PLATE 1

E.Z. Co W.C.D. Geol. Dept. V0 13.

Date 1/7/59 Scale 1"=40' South Comet Grid

GREAT SOUTH COMET MINE
Longitudinal Projection
After Taylor 1950

GREAT SOUTH COMET MINE

Plan of Nos 1, 2 adit levels

Survey Alter Taylor. – Geology by E.Z.Co.

Scale 1"=40' Date 1/7/59

South Comet Grid

From Plan No T.483.

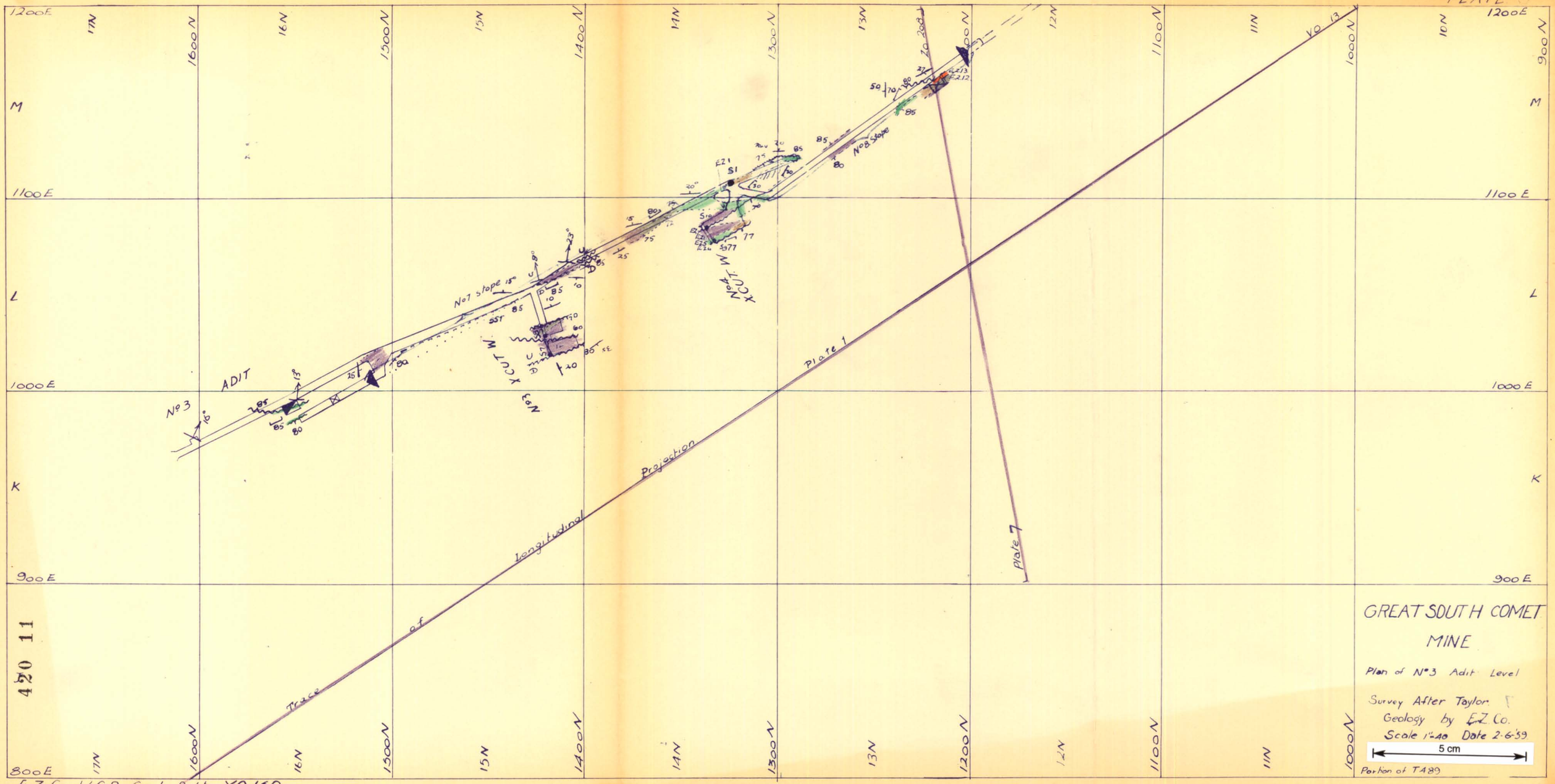
E.Z.Co W.C.D. Geol. Dept. V.O. 12.

PLATE 2.

420 10

5 cm

PLATE 3



420 11

GREAT SOUTH COMET MINE

Plan of N°3 Adit Level

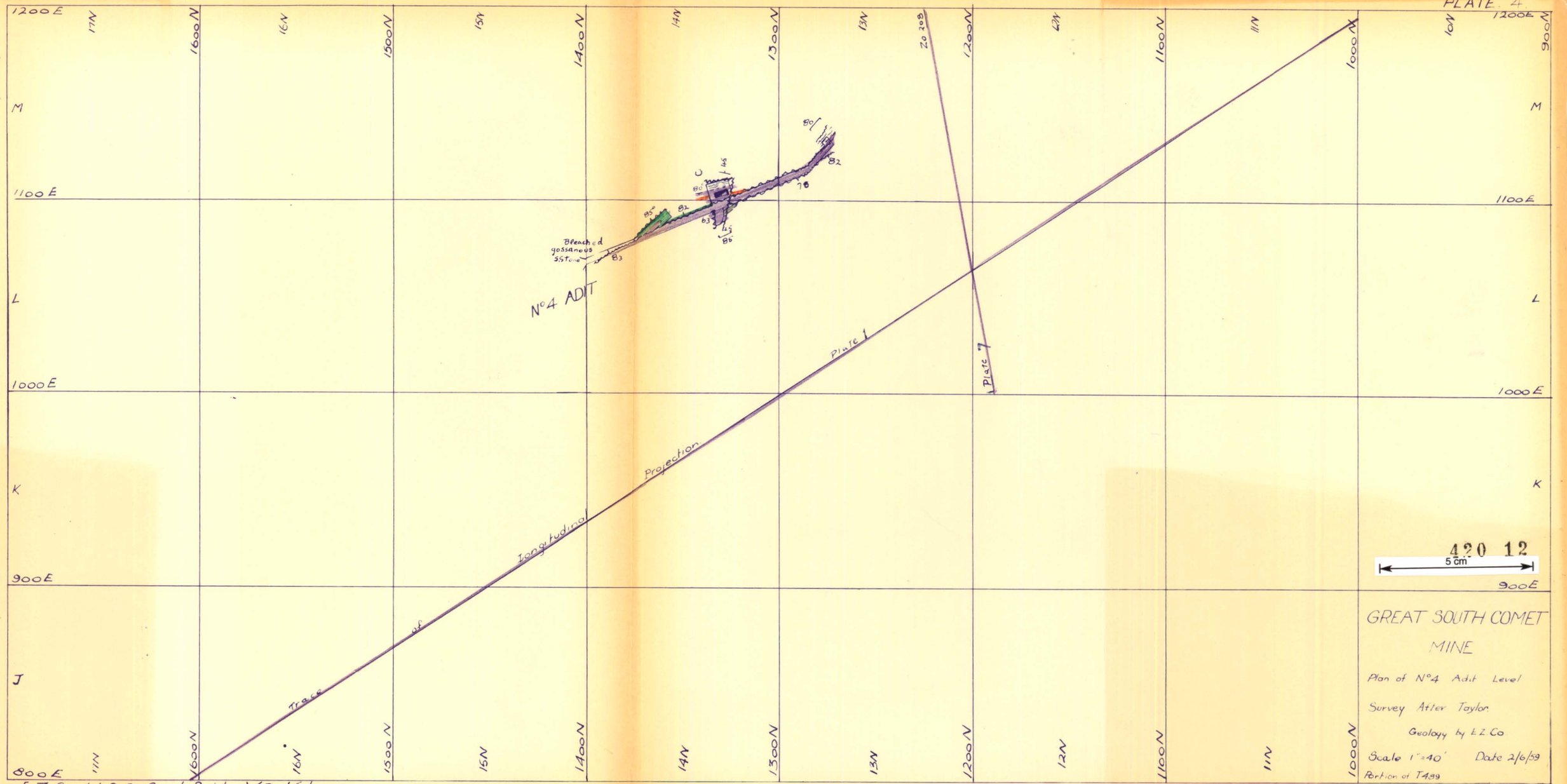
Survey After Taylor
Geology by E.Z Co.
Scale 1"=40 Date 2·6·59

5 cm

Portion of T489

E.Z Co W.C.D. Geol Dept YO 160.

PLATE. 4.



GREAT SOUTH COMET MINE

Plan of N°4 Adit Level

Survey After Taylor

Geology by E.Z.Co

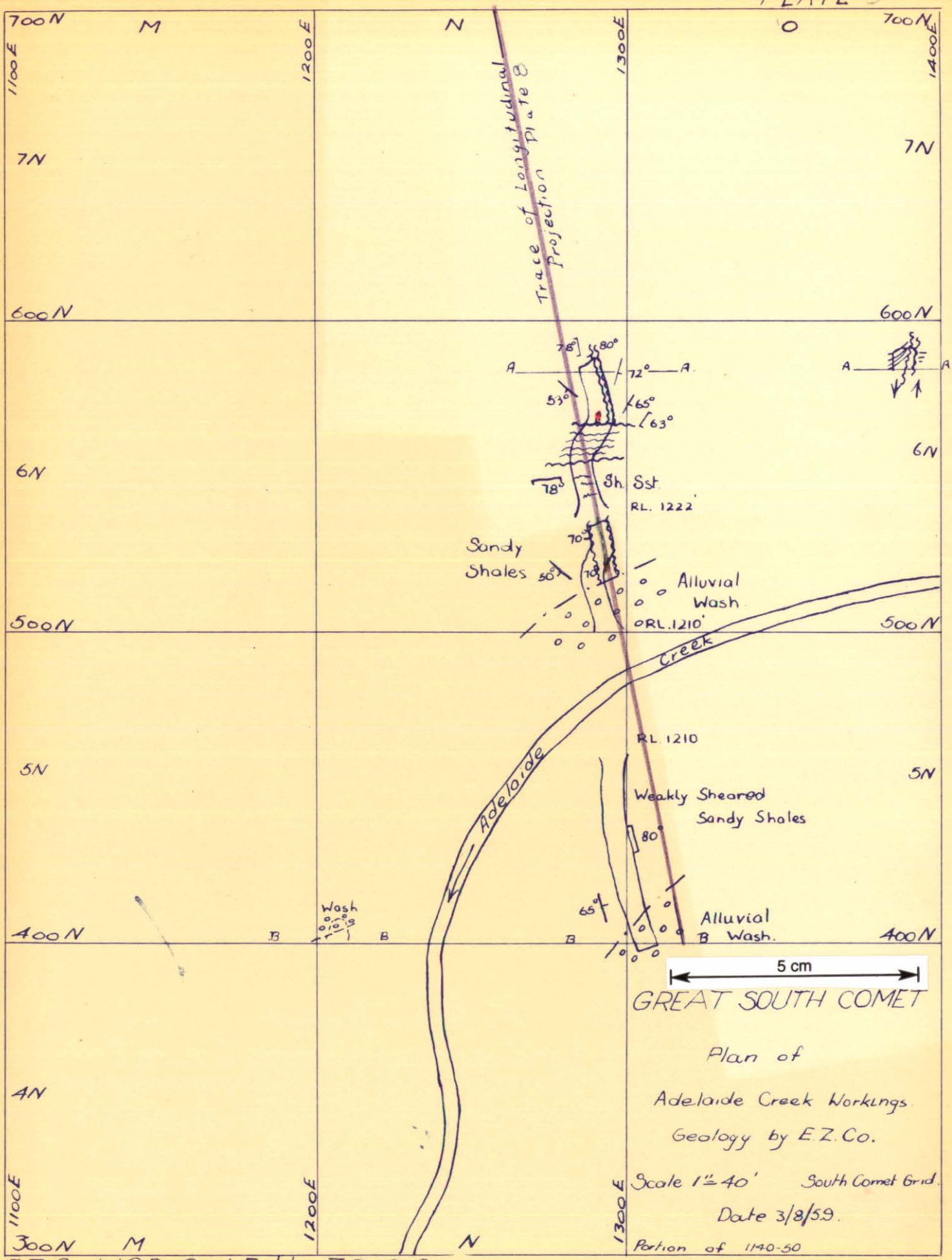
Scale 1"=40' Date 2/6/59

Portion of T499

E.Z.Co. W.C.Q. Geol. Dept YO. 161.

PLATE 5

420 13



GREAT SOUTH COMET

Plan of

Adelaide Creek Workings

Geology by E.Z.Co.

Scale 1" = 40' South Comet Grid.

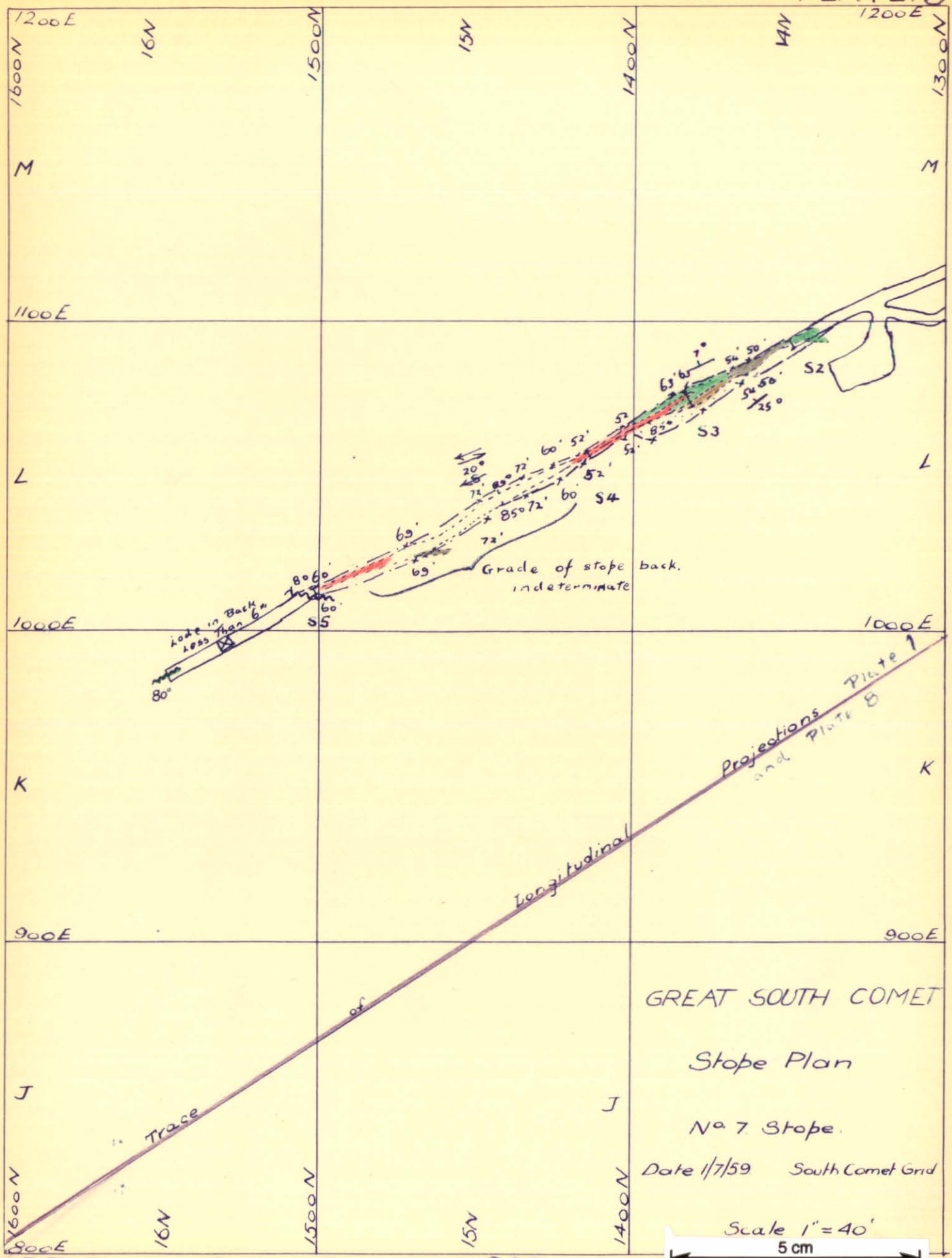
Date 3/8/59.

Portion of 1140-50

E.Z.Co W.C.D. Geol Dept Z.O. 210.

PLATE 6

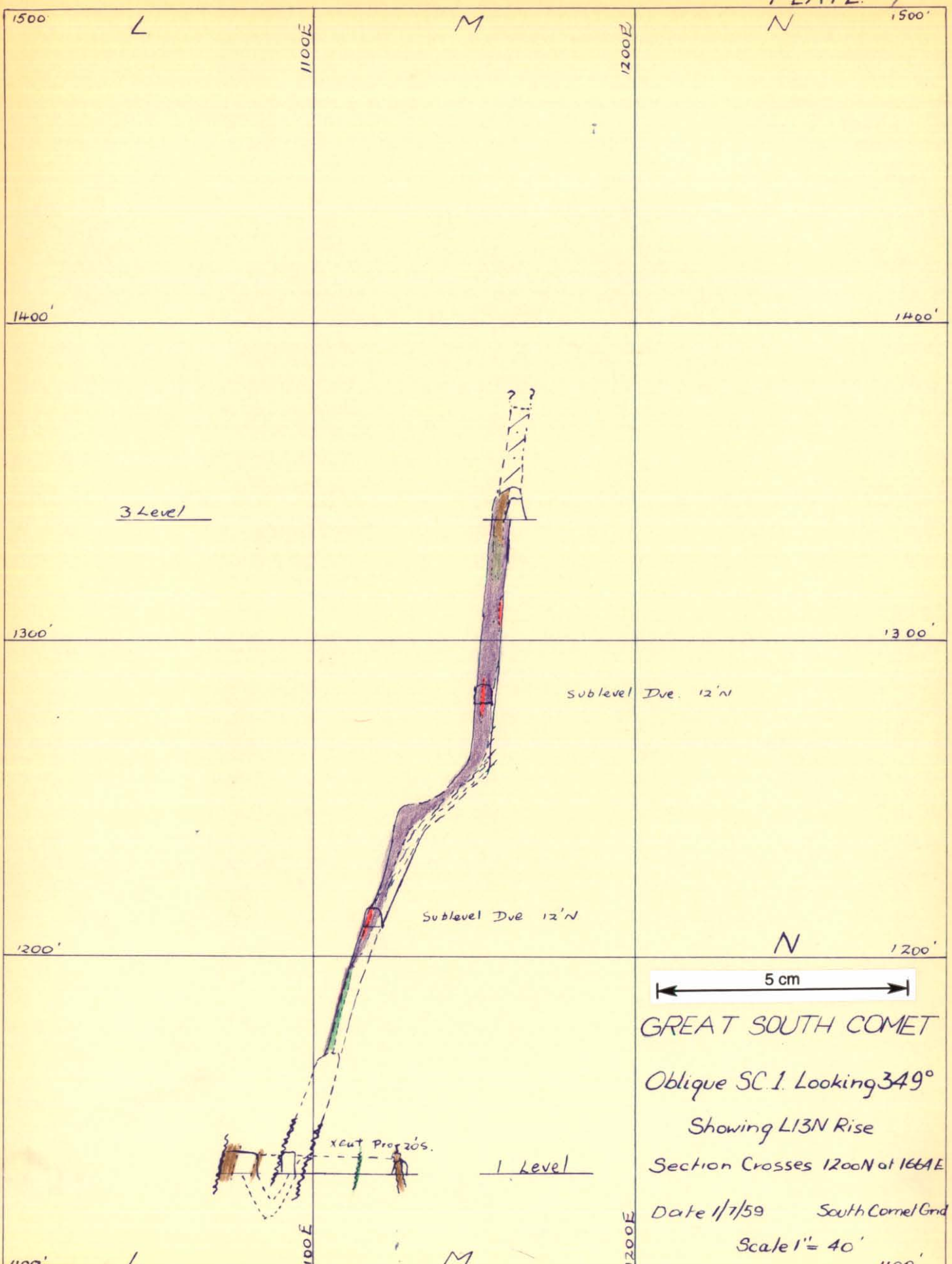
420 14



E.Z. Co. W.C.D. Geol. Dept. Z.O. 209

PLATE 7

420 15



GREAT SOUTH COMET

Oblique SC 1. Looking 349°

Showing L13N Rise

Section Crosses 1200N at 1664E

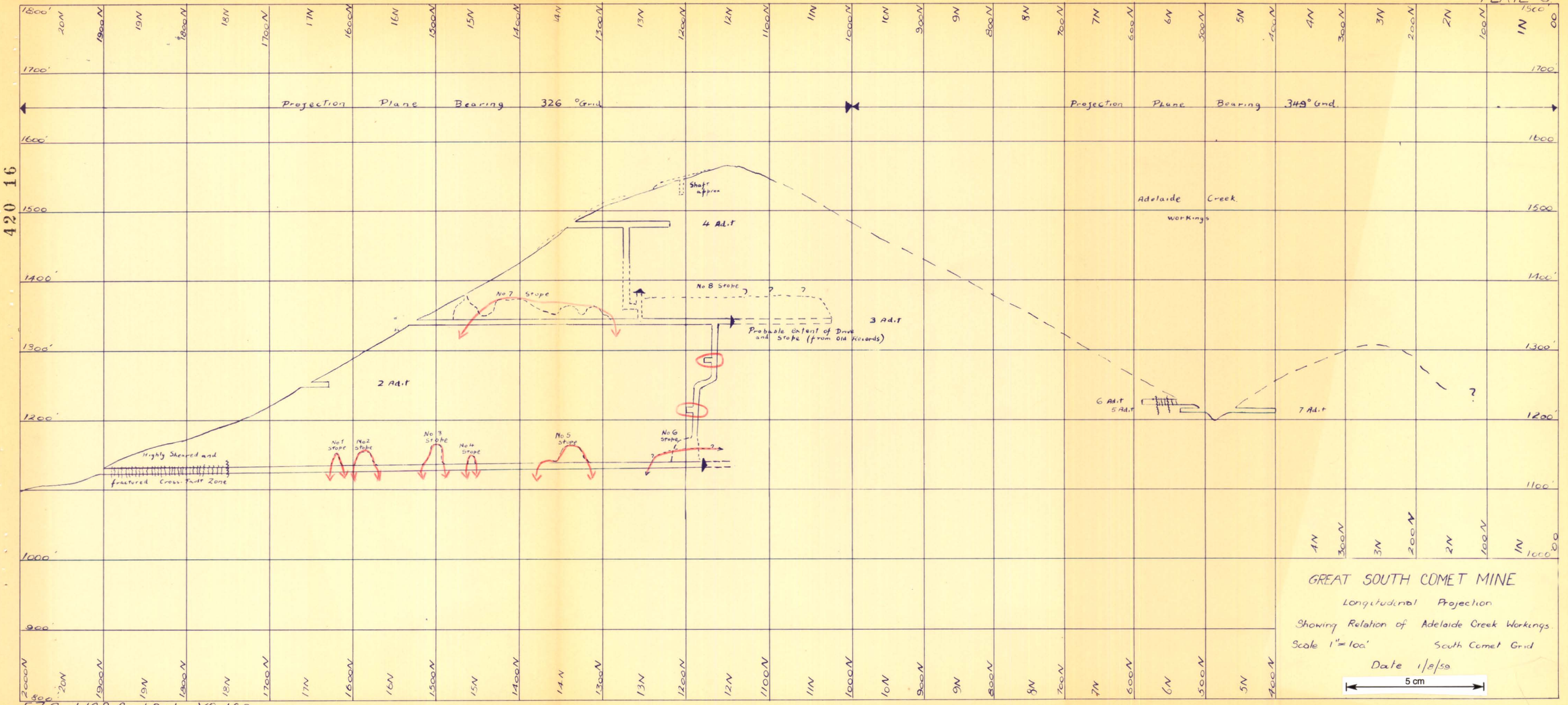
Date 1/7/59 South Comet Grid

Scale 1" = 40'

E.Z. Co WCD Geol. Dept ZO 208

PLATE 8

420 16



GREAT SOUTH COMET MINE

Longitudinal Projection

Showing Relation of Adelaide Creek Workings

Scale 1"=100' South Comet Grid

Date 1/8/59

5 cm

EZCo WCD Geol. Dept. YO. 162