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A REVIEW OF THE AREA EAST OF THE TYNDALL RANGE

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1. INTRODUCTION

This report is a review of the exploration undertaken over the Cambrian compartment East of the Tyndall Range and includes : the Anthony Creek, Lake Selina, Lake Rolleston and Lake Dora/Spicer areas. (Fig. 1).

No work has been undertaken in this area since 1972-73 and a review of the area similar to that undertaken over the Western part of the licence area (Annual Report E.L. 9/66, 1974-75) is required in order to assess the overall potential of the licence area, in the light of further advances in our understanding of the Mt. Read Volcanics and to allocate priorities.

2. SUMMARY OF EXPLORATION PROGRAMMES

Investigations into the area prior to the Consolidated Syndicate were limited to some investigations by R.T.A.E., around Lake Dora, during the summer of 1958. They undertook a geological mapping programme and outlined a Turam anomaly to the West of the old workings just South of Walford Peak (see Section 6.5). The Consolidated Syndicate commenced work in the area during 1969-70 : A geophysical grid, with grid-lines 800' apart, totalling 394,800' was pegged between Lake Dora (Southern boundary of E.L. 9/66) and Anthony Creek (184N). Geological mapping, a ground magnetic survey and an I.P. survey were undertaken over this grid as far North as line 80N (East of Lake Selina). Testing of I.P. anomaly A1 by diamond drilling was commenced and diamond drill hole Selina 1 completed and diamond drill hole Selina 2 commenced during the year (Annual Report E.L. 9/66, 1969-70).

During 1970-71 the geological mapping, and ground magnetics were extended to the Northern end of the grid (184N), the I.P. survey was extended to 160N, West of the baseline, while the soil geochemistry was undertaken as far as 128N. Lines 16S to 40N were extended Westwards, a total of 25,800', to cover the area N.W. of Lake Rolleston and surveyed with I.P. and magnetics. Testing of I.P. anomaly A1 by diamond drilling continued with the completion of diamond drill holes Selina 2, 3 and 4 and the commencement of Selina 5. A costean was also excavated on line 120N (Annual Report E.L. 9/66, 1970-71). In addition geological mapping was undertaken between Lakes Dora and Spicer (Annual Report E.L. 10/69, 1970-71).

In 1971-72 diamond drilling was continued of anomaly A1 with the completion of diamond drill holes Selina 5 and 6. A one day helicopter excursion utilising four geological teams undertook a geological mapping and stream sediment sampling programme in the Anthony Creek Gorge area (Annual Report E.L. 9/66, 1971-72).

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The drilling programme on anomaly A1 was completed during 1972-73 with the drilling of diamond drill hole Selina 7 (Annual Report E.L. 9/66, 1972-73) and with the exception of Mr. J. L. Walshe's study of Trace Elements in Sulphides, no work has been undertaken in the area since that date.

3. GEOLOGY

With the exception of the reconnaissance mapping between Lakes Dora and Spicer and in the Anthony Creek Gorge area, the majority of the mapping was limited to the traverse lines. The mapping is shown in Figs. 2a and 2b.

The Cambrian sequence lies unconformably on the Precambrian Quartzites of the Sticht Range. The basal unit consists of : conglomerates, quartzites, black shales and dolomites which have been correlated with the Lower Cambrian Success Creek Group (Annual Report E.L. 9/66, 1970-71), they have been termed the Sticht Range Sequence by Corbett et al (1974). These sediments pass conformably upwards into a sequence composed largely of acid lavas and pyroclastics, which form the majority of the Cambrian Sequence in the area. North of Lake Selina much of the sequence appears to have been intruded by a Cambrian granite (adamellite), similar to the Cambrian Murchison Granite, which outcrops near : line 48N, in the Anthony Creek Gorge area and has been intersected in diamond drill holes Selina 5 and 6.

No definite structure has been identified within the Cambrian; both Bradley (1956) and Solomon (1964) concluded that the Cambrian rocks in the Lake Dora region were folded into an anticline : However, the Sticht Range Sequence at the base of the Cambrian, outcropping along the Eastern side of the Cambrian compartment dips and faces West. Mineralisation consisting of veinlets and disseminations of pyrite with magnetite, haematite and minor chalcopyrite, galena and sphalerite occurs in sheared and altered volcanics in the Selina and Lake Dora areas, which also appear to face West.

The volcanics are overlain to the West by Owen Conglomerate. South of Lake Rolleston there appears to be a normal transition; with the volcanics being overlain unconformably by Jukes Conglomerate. This, in turn, passes up into the Owen Conglomerate, which dips steeply West. North of the "Corridor" of volcanics on the Eastern side of Lake Rolleston, the contact is obscured by Pleistocene glacial and fluvioglacial material, but appears to be faulted, at least in part, e.g. diamond drill hole Selina 7.

The area was severely affected by Pleistocene glaciation and nearly all the Cambrian rocks from line 48S to 80N are obscured by glacial and fluvioglacial material and much of the Lake Dora/Spicer region exhibit strong glacial erosion features (Bowden, 1974).

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4. GEOPHYSICS (Figs. 3a, 3b)

4.1 Magnetics

Ground magnetics were undertaken over the grid by Syndicate personnel using a McPhar M700, fluxgate magnetometer. Readings were taken at 100' intervals, corrected for daily drift and forwarded to C.G.G. for contouring, interpretation, etc.

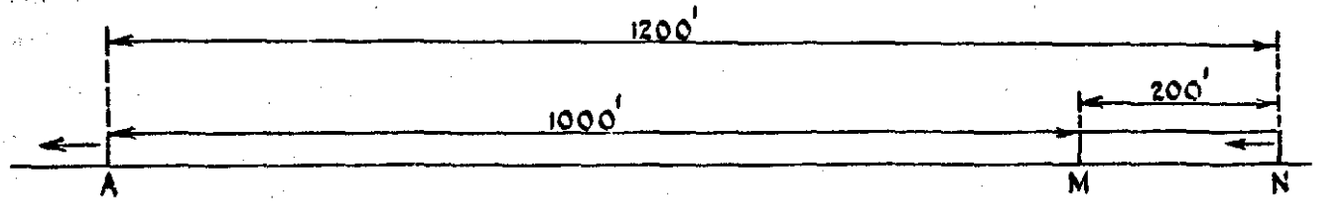
The numerous magnetic anomalies outlined by the survey appear to be concordant with the geological strata and C.G.G. used the results to aid in the interpretation of the I.P. data (see Section 4.2). The magnetics outlined three broad areas:

1) A central area where magnetic anomalies are numerous; amplitudes being sometimes larger than 2000 gammas.
2) An Eastern area where magnetic profiles are flat and smooth.
3) An area similar to the Eastern area, in the S.W. corner (lines 110S to 114S).

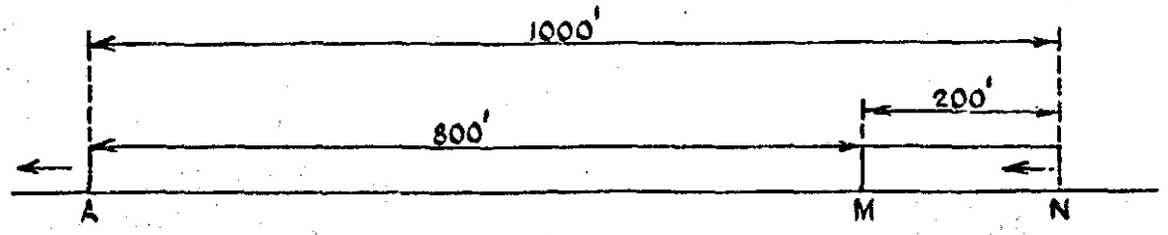
Lines 96N to 160N were resurveyed in 1973 using a Geometrics G816 Proton magnetometer. However, little or not interpretation has been undertaken utilising the data.

4.2 Induced Polarisation

C.G.G. undertook double assymetrical pole-dipole I.P. over the majority of the Selina/Rolleston/Dora grid. Electrical soundings were undertaken prior to the survey to ensure that the I.P. decay voltage was due to formations within the bedrock. A 200' potential dipole was selected with 'n' values of 5 and 4 for receivers 1 and 2 respectively.



Receiver 1



Receiver 2

Readings were taken at 200' intervals. Concurrent resistivity and S.P. readings were also taken.

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Scintrex Pty. Ltd. re-examined the C.G.G. data in 1973 (Scintrex Report C-033) and concluded that the pole-dipole of high 'n' values, I.P. method, adopted by C.G.G. was entirely valid and had little to add to C.G.G.'s conclusions.

C.G.G. also undertook a gradient array I.P. survey over the Western extension of lines 40N to 16S, in an attempt to obtain an accurate structural map of the bedrock beneath the deep moraine, N.W. of Lake Rolleston. Four current electrode blocks were employed with electrode separations of 6,560' and receiving dipoles of 50', with readings taken at 50' intervals. The transverse faults shown on Fig. 3a between lines 32N and 24N and 00 and 8S are, in fact, believed to represent the margins between the current electrode blocks.

C.G.G. distinguished between three types of anomalies.

(a) I.P. anomalies located in resistant areas where the polarisable body coincides with a magnetic body : A1, A2, A9, A10, A12.

(b) I.P. anomalies and part anomalies located in resistant areas, but not associated with any particular magnetic anomaly : Southern end of A1, Southern part of A2, A11, A13, A14, A15, A17.

(c) I.P. anomalies associated with conductive anomalies and generally S.P. anomalies, but not associated with any magnetic anomaly : A3, A4, A5, A6, A7, A8, A16.

The anomalies are discussed in greater detail in Section 6.

4.3 Turair (Fig. 4)

An orientation Turair E.M. survey was carried out by Scintrex Pty. Ltd. over the North Selina area (Scintrex Report No. T.1031A). Fifteen line miles were flown being made up of 12 East-West lines and 4 North-South lines. The East-West lines being nominally 800' apart. The following account is taken largely from the Annual Report E.L. 9/66, 1972-73.

Turair is a semi-airborne E.M. system employing a fixed source (a grounded loop) and a moving receiver (mounted in a helicopter). The survey had two objectives : (1) to evaluate the effectiveness of Turair in locating and defining disseminated sulphides. If effective it would provide a cheaper more rapid reconnaissance geophysical tool than the I.P. methods currently employed.

(2) if the Turair was not successful in detecting the broad zone of disseminated mineralisation, it may have delineated more conductive zones, possibly associated with base metal sulphides within the area of mineralisation.

Neither objective was effectively achieved by the Turair survey : "The records are characterised by an extremely high signal amplitude, which is for the most parts just off the scale. This was mainly due to the small loop employed and the highly resistive ground". Before the survey was undertaken, Scintrex knew that the ground was highly resistive through results from other surveys and in the light of this should probably have used a larger loop; which may have given more meaningful results. Scintrex also state that "the records are apparently unaffected by the high signal", but the records are very poor : "There are some extremely weak distortions but they are usually about or less than 0.1 percent and 0.1 degrees, which is usually taken as the noise level of the system. In view of .... the lack of other anomalies and the interest of the area the extremely weak distortions are considered". Some doubt remains as to whether Scintrex would have considered these weak distortions had they not known of the pre-existing I.P. anomalies, or if the area had been part of a larger survey.

A total of 27 anomalous electromagnetic responses were recorded by Scintrex Pty. Ltd., but as stated above, all the conductors were very weak. Conductor D was the most promising and this together with conductor C were obviously due to the mineralisation already outlined. Conductors A, E, F and H occur at the swamp/conglomerate contact and probably relate to a horizontal current sheet over the swamp. Conductor B could possibly relate to the same source, but it also coincides with a marked resistivity low within the conglomerate and is possibly due to a shear.

The Turair electromagnetic system does not appear to be suitable as a reconnaissance tool in the search for disseminated sulphides and the survey added little to our understanding of the Selina area.

5. GEOCHEMISTRY (Figs. 5a, b, c)

As stated in Section 3 much of the area, particularly between lines 48S and 80N is covered by glacial moraine, varying between 30' and 500' in thickness, which renders normal soil geochemical sampling ineffective. In the original survey no attempt was made to sample the main area of moraine/out-wash : However, examination of the results suggests that some areas of moraine were sampled, e.g. the Eastern side of line 64S, and this data was treated together with results from areas of residual soils. There also appears to have been no attempt to examine separately the results for the three elements analysed for (Cu, Pb and Zn) and all values over 200 p.p.m. were regarded as 1st order anomalies, 150-200 p.p.m. as 2nd order anomalies and 100-150 p.p.m. as 3rd order anomalies.

0 007 The original data for the three elements has been separated and reinterpreted. In order to try and overcome the problem of data being collected from both residual and transported soils, all copper values <10 p.p.m. and all lead and zinc values <25 p.p.m. have been regarded as being from moraine and discarded. This obviously is not completely accurate, e.g. 88N, 18W has a copper value <10 p.p.m. and has therefore been excluded, while the lead value of 100 p.p.m. and the zinc value of 50 p.p.m. have been included; however, it does eliminate, essentially, samples collected over moraine. Background (median) values have been calculated for the remaining samples:

Copper	-	20 p.p.m.
Lead	-	50 p.p.m.
Zinc	-	50 p.p.m.

The copper, lead and zinc values have then been contoured (Figs. 5a, 5b, 5c) for values above this background.

Copper, lead and zinc anomalies correspond reasonably well with I.P. anomalies : A1, A2, A13 and A14. However, the geochemically anomalous areas either side of the baseline on lines 88N to 120N are either not supported by geophysics or have not been surveyed (Fig. 3b and Figs. 5). I.P. anomalies : A9, A10, A11, A12 and those West of A1 are covered by thick moraine/outwash material and have not been checked with geochemistry.

Geochemical sampling is required over all the I.P. zones, the results from residual and transported soils being treated separately. Careful geological mapping is also required over lines 88N to 128N to try and explain the geochemical anomalies unsupported by the geophysics.

6. ANOMALIES (Fig. 3a, 3b)

6.1 Anomalies A1/A17

Length : in excess of 12,800' (3900 m). A1 runs from line 40N to 136N (9,600') and A17 which is considered to be an extension of A1 continues Southwards to 8N (3,200'). North of 136N the anomaly appears to continue as numerous separate zones (diamond drilling confirms that Northwards the mineralisation separates into several lenses) and the anomalous zone could be considered as continuing to 160N, a total distance of 15,200' (4600 m+).

Width : varies but C.G.G. considered the source of the anomaly to be approximately 300' (100 m) in width and outcropping. Diamond drill hole Selina 4 intersected mineralisation with a true width in excess of 500' (150 m).

Chargeability : of both background and the anomaly appear to increase Northwards (percentage of sulphide in the anomalous zone increases Northwards). South of traverse 88N, there is a 20 m.s. anomaly on a background of <5 m.s. North of traverse 88N the anomaly increases to a maximum of 70 m.s., on lines 120N and 128N, on a background of approximately 10 m.s. North of 88N the anomaly also coincides with a conductive axis.

Resistivity : The anomaly is generally marked by values less than 1000 ohm.m. on a background of approximately 3000 ohm.m. On lines 128N and 136N values drop to less than 300 ohm.m.

S.P. : A narrow but strong S.P. anomaly of -400 m.v. occurs on lines 128N and 136N. C.G.G. suggested that it is probably due to an almost outcropping narrow pyrite lode (massive pyrite was intersected in an adit, on line 128N, immediately West of the S.P. anomaly).

Magnetics : North of line 48N the I.P. anomaly is associated with a weak magnetic anomaly which increases Northwards, towards the Jukes Breccia, to a maximum in excess of 2000 (vertical field).

Geochemistry : Geochemical soil anomalies for copper, lead and zinc are coincident with the geophysical anomalies. (Compare Figs. 5 with Fig. 3b).

Testing: of this extensive anomaly has been by a costean between lines 120N and 128N and by seven diamond drill holes in two geographically separate areas (Fig. 6). Diamond drill holes Selina 1, 2 and 3 were drilled on lines 72N, 64N and 48N respectively and diamond drill holes Selina 4, 5, 6 and 7 on lines 120N, 128N, 136N and 112N respectively. The drill logs and drill sections can be found in Appendix 1.

The costean revealed pyrite bearing acid volcanics with some molybdenite films on schistosity surfaces. Diamond drill holes Selina 1, 2 and 3 intersected a zone of weakly disseminated pyrite mineralisation in weakly sheared acid volcanics, with minor amounts of copper, lead and zinc, which appear to increase Southwards, i.e. from diamond drill hole Selina 1 to diamond drill hole Selina 3. Diamond drill holes Selina 4, 5 and 6 indicated a zone of strong pyrite mineralisation in excess of 1,200' (365 m) in length and 500' (150 m) in width. The grade and intensity of mineralisation decreases Northwards from traverse 120N to 136N with the mineralisation breaking up into a number of narrower zones (Fig. 6). This is reflected in the geophysical results (Fig. 3b).

Comments : The possibility has been raised that anomaly A1 consists of two close "en echelon" zones, rather than one continuous zone. From traverse 136N to 112N, consecutively diamond drill holes Selina 6, 5, 4 and 7, the strong pyrite mineralisation converges on the Owen Conglomerate contact and the I.P. anomaly is coincident with a conductive axis. South of line 112N the conductive axis terminates and the I.P. axis bends Eastwards away from the contact. Diamond drill holes Selina 1, 2 and 3 intersected weak pyrite mineralisation, but with higher base metal values than the zone to the North, and separated from the Owen Conglomerate by a sequence of hematitic tuffs and sediments (Tyndall Group?). This change is also reflected in the geochemistry; the copper contours "bend" with the I.P. axis and values on the Southern half of the anomaly, for copper, lead and zinc, are higher (a reflection of the higher base metal values?) and are more obviously coincident with the I.P. axis. Although this could be due to the limited number of samples over the Southern half of the anomaly and/or the nature of the material sampled.

6.2 Anomalies A2, A9, A10, A11, A12

Length : A2 is in excess of 1,600' (490 m) running from traverse 32N to 48N.

A9/A10 are considered to be the same anomaly offset by a small fault and are in excess of 3,200' (975 m) from 16S to 16N.

A11 occurs only on line 16S and is a maximum of 800' (240 m) in length.

A12 is in excess of 2,400' (730 m) running from 80S to 56S. If A9, A10, A11 and A12 are the same "horizon" the anomalous zone could be in excess of 10,400' (3170 m) in length.

Width : C.G.G. appear to have made no comment on the width of the anomalies and no widths can be determined from the data available.

Chargeability : A2 is a 13 m.s. anomaly on a background of approximately 5 m.s.

A9 has a chargeability of 7 m.s. and A10 approximately 15 m.s. on a background of approximately 3/4 m.s.

A11 has a value of 9 m.s. on a background of 6 m.s.

A12 reads up to 12 m.s. on a background of 3 m.s.

These anomalies are fairly weak (see comments) and do not always appear on both sets of data from receivers 1 and 2.

Resistivity : A2 appears to have little or no drop in resistivity associated with it.

A9/A10 has a small reduction, approximately 30%, in resistivity from about 2000 ohm.m. to approximately 1000/1500 ohm.m.

A11 has no obvious reduction in resistivity.

A12 has a roughly 50% reduction in resistivity from 1500 ohm.m. to less than 700 ohm.m. on line 56S and to 1500 ohm.m. from a background of 3000 ohm.m. on line 72S.

Anomalies A9, A10, A11 and A12 all appear to be on a general resistivity gradient which falls to the West.

S.P. and Conductivity : There are no S.P. or conductivity effects associated with any of these anomalies.

Magnetics : With the exception of A11, which has no magnetic expression, the anomalies, A9, A10 and A12, lie within a well defined magnetic anomaly on the Eastern edge of the magnetically active area. Their magnetic axes which coincide with the I.P. axes have values up to 1300 γ on a background of less than 300 γ .

Anomaly A2 is associated with a well defined magnetic anomaly, up to 1600 γ on a background of approximately 300 γ , on line 48N, where the bedrock appears through the moraine cover; but elsewhere it has no magnetic expression.

Geochemistry : Geochemical soil anomalies for copper, lead and zinc coincide with the Northern end of A2 where the bedrock outcrops through the moraine (Figs. 5). Elsewhere on A2 and on A9, A10, A11 and A12 there has been no soil sampling undertaken, due to the thickness of moraine.

Testing : An attempt was made to excavate two costeans on anomaly A2, but they failed to reach bedrock and no geochemical sampling data is available to the writer. No attempt has been made to test any of the other anomalies.

Comments : These anomalies are similar to anomaly A1, being in resistant areas and largely associated with magnetic anomalies (only A11, the Southern parts of A2 and A1 have no magnetic expression). Pyritic volcanics, very similar to those intersected on A1 are exposed in a small trench on anomaly A2 and anomalies A9, A10, A11 and A12 appear to be all part of one zone.

These anomalies are overlain by thick moraine and are much weaker than the majority of A1, although this also weakens to the South, where it is covered by moraine. Electrical soundings undertaken over the moraine at 24N—800W, 8S—450E and 16N—1600W show that

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the top of the moraine is very resistant, about 8000 ohm.m., while the bottom is conductive with a resistivity of approximately 100 ohm.m. The bedrock has a general resistivity of 2000 ohm.m. and any I.P. "signal" from an anomalous zone will be considerably reduced by the 20x more conductive overburden. These weak anomalies could be more significant than their present magnitude suggests.

6.3 Anomalies A3, A4, A5, A6, A7

These are one continuous anomaly along the Eastern side of the Cambrian compartment (surveyed area). The anomalies consist of strong coincident chargeability, resistivity and conductive axes; they have strong complicated S.P. anomalies and no magnetic expression and are believed to be related to graphitic black shales in the Lower Cambrian Sticht Range Sequence. These shales outcrop near line 120S and 160N. The anomalies are not regarded as having any economic significance.

6.4 Anomalies A13, A14, A15

Length : A13 has a length of 1,600' (490 m) from traverse 56S to 72S. A14/A15 is considered to be the same anomaly and extends from 32S to 64S, a distance of 3,200' (975 m).

Width : A13 appears to have a width up to 300' (100 m). A14/A15, no width estimate could be made from the data available.

Chargeability : A13 is more apparent on receiver 1 than receiver 2 and is an anomaly of 16 m.s. on a background of about 6 m.s. A14 is more apparent on receiver 1, while A15 is more obvious on receiver 2. An anomaly of approximately 20 m.s. on a background of 5 m.s. to the East and 15 m.s. to the West.

Resistivity : There is no obvious resistivity low connected with A13. A small, 50%, reduction in resistivity is apparent, on receiver 1 over A14. No resistivity low is apparent over A15 which has very high resistivities, $>$ 10,000 ohm.m.; apparently related to the Owen Conglomerate immediately to the West.

S.P. and Conductivity : There are no S.P. or conductivity effects connected with these anomalies.

Magnetics : These anomalies occur in a magnetically active area, but are not associated with any particular magnetic anomaly.

Geochemistry : Soil geochemical anomalies particularly for lead and zinc (Figs. 5b, 5c) are associated with A13 and A14.

Testing : No attempt has been made to test any of these anomalies.

Comments : All three anomalies lie in a "corridor" of strongly sheared and altered volcanics, between two "areas" of Owen Conglomerate (Fig. 2a). Anomaly A15, which is probably an extension of A14, appears from geological mapping and the resistivity data to be, in fact, beneath the Owen Conglomerate. The Cambrian Volcanics/Owen Conglomerate contact, in this area, dips steeply to the West.

6.5 Anomalies A8, A16

Length : C.G.G. believe A8/A16 to be the same anomaly separated by a fault. The anomaly extends from 110S to 136S, a total distance of 2,600' (790 m).

Width : No width estimates are given by C.G.G. Estimates from contours suggest the anomalous zone is approximately 300' (100 m) in width.

Chargeability : The anomaly has a value of approximately 20 m.s. with a background to the East of 4 m.s. and to the West, 12 m.s. A conductive anomaly is associated with A8.

Resistivity : The anomalies lie on the edge of an area of low resistivities. The majority of the area has resistivities of approximately 500 ohm.m. on a background of over 3000 ohm.m.

S.P. : anomalies occur to the West of A16 and the Southern end of A8.

Magnetics : Although C.G.G. classed the anomalies as one they also place A16 in the magnetically active area, while A8 has no magnetic response associated with it.

Geochemistry : No data is available to the writer.

Testing : No attempt has been made to test either of these anomalies.

Comments : C.G.G. suggested that these anomalies were similar to A4, A5, A6 and A7 having conductive and S.P. anomalies associated with them. However, they are buried beneath moraine, adjacent to the Lake Dora mineralisation and are considered to be an interesting target. R.T.A.E. outlined a Turam anomaly in a similar position in 1958.

A re-examination of the data by Scintrex in 1973 (Scintrex Report C-033) suggested that an anomalous zone to the East of that outlined by C.G.G. was worthy of investigation and indicated a second anomaly of 16 m.s. on a background of about 5 m.s. to the East of the baseline of line 144S (Fig. 3a).

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6.6 Anomalies A18, A19, A20, A21, A22, A23, A24, A25, A26

These are all anomalies, including conductive as well as chargeable axes, outlined, under the moraine, to the North West of Lake Rolleston, by the gradient array survey. C.G.G. suggested that the resistant area to the East was related to the Cambrian Volcanics, while the anomalies in the centre of the area, which are in a resistivity low, including : A20, A21, A22 and A23 are related to the Gordon Limestone; the conductive areas to the West, including : A24, A25, A26, which are in a resistive environment, being over Owen Conglomerate. This may be true, although the conductive areas over the Owen Conglomerate are hard to explain. C.G.G. suggested that they may be related to anomalies beneath the Owen Conglomerate. However, this is doubtful due to the thickness of Owen Conglomerate thought to be in the area.

An alternative explanation is that anomaly A1/A17 marks mineralisation near the Cambrain Volcanic/Owen Conglomerate contact, as drilled further North. The Eastern resistive area coincides with Owen Conglomerate, while the conductive and chargeable anomalies, in the resistive low, in the centre of the area are related to a Northward extension of the "corridor" of volcanics, containing anomalies A13, A14/A15, to the S.E. of Lake Rolleston. The conductive areas, A24, A25 and A26 being related to Gordon Limestone, which is not very thick, the high resistivity being due to the underlying Owen Conglomerate.

7. CONCLUSIONS AND RECOMMENDATIONS

The main requirement in the area is geological mapping; to bring the coverage of the area up to the standard of other Cambrian areas around Queenstown and together with comprehensive soil geochemical sampling help in the evaluation of the anomalous zones. From diamond drilling and mapping to date it would appear that the known mineralisation, at Selina and Lake Dora, could be immediately below the Tyndall Group. If the more detailed mapping can show this in fact to be the case it would place the mineralisation on the same "time-plane" as the Mt. Lyell, Howard's Anomaly and Henty Fault Zone mineralisation and would increase the potential of the anomalous zones.

Further diamond drilling is required on all the anomalous zones, with the exception of A3 - A7, although due to the ambiguity in the positioning of pole-dipole anomalies, some detailing with geophysics will be required, to accurately locate the drilling targets:

1) A1/A17 (Section 6.1) : The degree and style of mineralisation/ alteration in the vicinity of lines : 120N, 128N, 136N is considered to be similar to that at Mt. Lyell. Diamond drill hole

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Selina 4 was still in mineralisation when terminated and a further deep hole is recommended for the area of 120N/128N.

A second drill hole is recommended to test the anomaly in the vicinity of 24N. The anomaly extends approximately 3,000' (1000 m) further South under the moraine than originally realised and previous drilling (Selina 1, 2 and 3) showed an increase in base metals, within the mineralisation, Southwards. The area would possibly require a small gradient array I.P. survey, utilising one block, to confirm the existence of the transverse fault, outlined by C.G.G., between lines 32N and 24N and to accurately locate the drilling target. This fault only shows on the chargeability; it is not evident on the resistivity and is suspected as just representing the boundary between gradient array blocks.

2) Anomalies A2, A9, A10, A11 (Section 6.2) are of the same type as A1 and drill holes are recommended to test A2, A9 and/or A12. These anomalies being under deep moraine can only be evaluated by diamond drilling. Due to the poor positioning qualities of pole-dipole I.P. it may be useful to run gradient array I.P. along the drilling profiles before positioning the drill sites.

3) Anomalies A13, A14/A15 (Section 6.4) occur on the steeply, wooded Eastern side of Lake Rolleston. Workings are reported in the area and should geological mapping confirm the interest of the zone, anomalies A13 and A14 should be tested by diamond drilling.

4) Anomalies A8, A16 (Section 6.5) : The C.G.G. and Scintrex interpretations of the geophysical data in this area are not entirely in agreement. It is recommended that detailed geophysics, consisting of gradient array I.P., be carried out over the anomalous areas to accurately position the anomalies prior to diamond drilling.

5) The cause of the anomalous zones, beneath the deep moraine, North-West of Lake Rolleston is subject to debate (see Section 6.6). It is recommended that one of the anomalous axes, in the central, low resistivity area, be diamond drilled; C.G.G. recommended A20. If the anomalies originate from within Cambrian Volcanics, a large area of apparently anomalous volcanics, previously unknown, will be opened up for exploration.

In addition to the evaluation of the anomalous zone already defined, it is recommended that the exploration coverage, consisting of : geological mapping, geochemical soil sampling, ground magnetics and I.P. be extended Northwards into the Anthony Creek Gorge area. (Several magnetic anomalies have already been outlined in this area (Fig. 3b) in similar

geological positions to the Northern end of A1 and A9/A10). The coverage should also be extended Southwards to Lake Spicer (E.L. 10/69) to complete the coverage of the A8 anomalous area and the Lake Dora mineralised zone.

K. Wells
Senior Geologist - Exploration

QUEENSTOWN
November, 1975

517017

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Consolidated Syndicate Report

THE [illegible]T LY[illegible]ND R[illegible]AY C[illegible]NY LIMITED

DIAMOND DRILL RECORD

517019

Page 1

018

Hole Number	SELINA 1
Location	Line 72 North, 100'E on ROLLESTON GRID, MT TYNDALL LEASE
Level	
Co-ordinates	100E {~~N 541,473.7~~ ~~E 365,824.2~~ Yards. State Zone 7} N. 834 000 yds E. 354 000 yds State Grid — LINE 72 N. (Rolleston Grid)
Collar R.L.	1771.7'
Length	711'

Purpose: To test the I.P. and magnetic anomaly on Line 72N, ~~&~~ west of the main baseline of the Rolleston Grid, Mt Tyndall

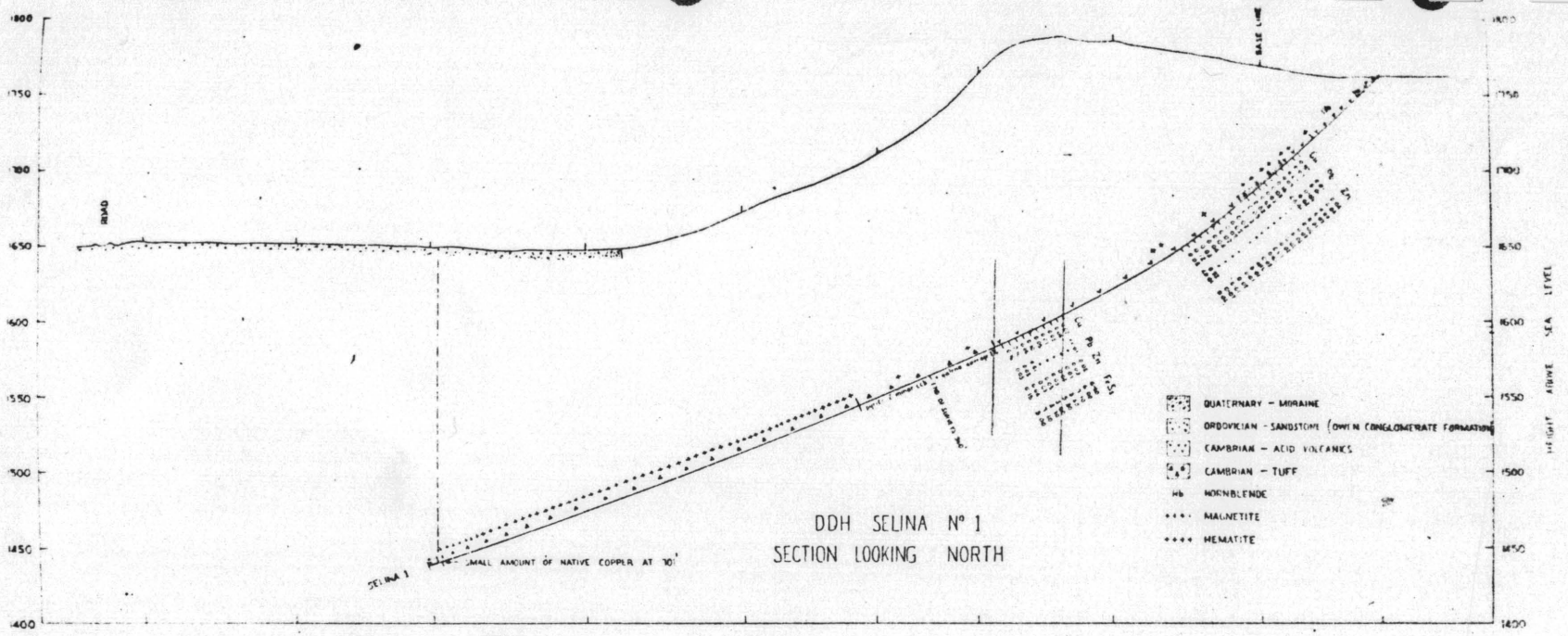
Survey Depth	00	20'	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320
Bearing	243° (255°23'(6,0))	—	—	242°	238°	251°	252°	252°	251°	252°	250°	251°	250°	250°	250°	251°	252°
Inclination	-45°	-43°	-42½°	-42°	-42°	-41°	-40°	-38°	-36°	-31°	-29½°	-28°	-27°	-27°	-27°	-25°	-24°

Rod Size	Bx Wireline
Machine	E52 (Grom Renison Ltd)
Logged by	A. WOODWARD, K. WELLS
30' Plans	
30' Sections	
100' Plans	
100' Sections	

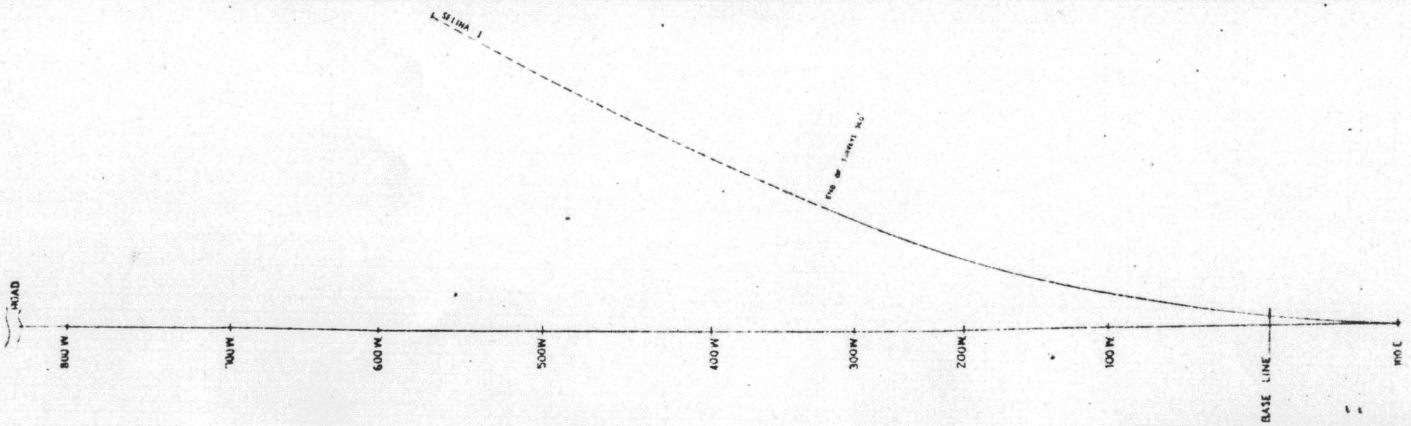
Comments

Commenced	9th April 1970.
Completed	18th June 1970

019



DDH SELINA Nº 1
SECTION LOOKING NORTH



PLAN OF DDH SELINA Nº 1 AND LINE 72 N (BEARING 242°)

THE MOUNT LYELL M. & R. COY. LTD.
GEOLOGICAL DEPARTMENT
LAKE SELINA GRID
LINE 72 N.
GEOPHYSICAL, GEOCHEMICAL & DRILLING RESULTS MAP 7

5 cm

517020

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

HOLE NUMBER SELINA 1

Survey Depth	340'	360'																			
Bearing	256°	254°																			
Inclination	-23½	-23°																			

Survey Depth																					
Bearing																					
Inclination																					

Survey Depth																					
Bearing																					
Inclination																					

Survey Depth																					
Bearing																					
Inclination																					

Survey Depth																					
Bearing																					
Inclination																					

Survey Depth																					
Bearing																					
Inclination																					

020

5/7/021

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 512

Page

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 1

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION	ASSAYS From	ASSAYS To	ASSAYS Ft.	ASSAYS % Cu.	ASSAYS % FeS_2	ASSAYS Oz. Au. % Pb	ASSAYS Oz. Ag. % Zn	Sample Number	BULK ASSAYS From	BULK ASSAYS To	BULK ASSAYS Ft.	BULK ASSAYS % Cu.	BULK ASSAYS % FeS_2	BULK ASSAYS Oz. Au.	BULK ASSAYS Oz. Ag.	REMARKS
0	20	0	0	0 - 20 Unconsolidated sand and gravel.																
20	29	6½		20 - 60																
29	39	9	90	Pale green siliceous volcanic with phenocrysts of quartz and a dark green mineral (hornblende). Thin honeycomb veins of quartz and hornblende. Most of the hornblende in thin streaks and veinlets or small blebs. Flakes of kaolin on fracture planes and coating quartz veins. Specks of pyrite at 30' and 35'. Dark green 'chloritic' ground mass prominent for a few inches in places.															
39	50	9																		
50	58½	7½																		
58½	63½	3½		60 - 73 Pink quartz becomes dominant over white quartz in rock for short distances. At 65' quartz vein (less than 1 cm) with pyrite crystals. Some hematite veins associated with pyrite.															
63½	68	3½																		
68	73	7½	75	73 - 76 Rock more chloritic with reddish-pink quartz Evidence of shearing with quartz and py. veins.																
				76 - 78 Dark almost black rock. High S.G. Magnetite predominant with red and pink quartz (jasper). Disseminated sulphides (5 - 10%) py and minor ccp. with quartz veining (less than 2 cms).	75	80	5	0.07	NIL ?	0.01	0.04									
73	87	8		78 - 87 Dark green quartz chlorite rock with a little disseminated sulphide (1%) - py. with very minor ccp. Vuggy quartz veins with white and pink quartz and kaolin schistosity dipping 70 deg. to E. Rock possibly fragmental. Minor veins of sulphides (less than 1 mm) with ccp. and py. hematite and magnetite. Possibly some pyrrhotite associated with the py.	80	85	5	0.07	NIL	0.01	0.04									
87	96	8		87 - 123 Quartz chlorite tuff with magnetite and hematite. Mostly white quartz. Minor disseminated sulphides (1%) as py. Vugs with quartz and pyrite. A little ccp. Bands of fragmental rock alternate with fine grained chlorite rock.	85	90	5	0.07	NIL	0.03	0.03									
96	100	4½			90	95	5	0.07	NIL	0.02	0.02									
100	110	9½	95		95	100	5	0.16	NIL	<0.01	0.01									
110	120	10	100		100	105	5	~~0.260~~ 0.07	NIL	<0.01	0.02									
					105	110	5	~~0.490~~ 0.07	NIL	<0.01	0.03									
					110	115	5	~~0.730~~ 0.07	NIL	<0.01	0.02									

021

SI7022

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 1

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
120	130	10	100	123 - 134 Predominantly pink quartz in quartz chlorite schist. Patches of disseminated hematite with pyrite. At 129½ 5 mm quartz vein with ccp. and hematite.
130	140	10	100	134 - 168½ White fine grained quartz and chlorite rock with minor sulphides some pink quartz hematite and jasper veinlets.
140	145	4¾		
145	153	7½		
153	158	5	100	
158	168	10	"	Quartz veins and vugs with py. and pyrrhotite.
168	179	10½		
179	184	9½	95	168½ - 169½ Disseminated ccp., py. and galena crystals in quartz, chlorite schist. 40% of rock is sulphides.
	194	10	100	
	204	10	"	
	214	9½	93	
	224	9½	95	
	230	1	100	169½ - 266½ Dark green quartz chlorite schist with
	240	10	"	
	250	"	"	disseminated py. (1%) and thin hematite,
	260	"	"	magnetite and quartz veins. Occasional predominance of pink quartz. Kaolin on fracture planes. Quartz sometimes vuggy (less than 5 mm).
260	270	10	100	266½ - 313 Increase in % of sulphides to 5% - py. and
	280	"	"	
	290	"	"	pyrrhotite. Disseminated in dark green
	300	"	"	fine grained quartz chlorite schist. Minor
	310	"	"	amount of ccp.
310	320	9½	98	313 - 410½ % of sulphides - pyrite with minor ccp. and
	330	9½	95	galena, average about 1% in dark green fine
	340	9½	95	grained quartz chlorite schist. Some
	350	10	100	sericite?
	363	1	10	Schistosity dips 80 deg. to E at 332 -
	370	9¾	98	sulphides as veinlets or blebs or in small
	380	10	100	quartz veins. Occasional small veinlets (less
	390	10	"	than 1 cm) of hematite. Rock possibly fragmental
	400	"	"	in places.
	410	"	"	
				410½ - 412 Quartz chlorite sericite(?) schist with hematite staining and small hematite veins more prominent.
	410	420	10	
		430	"	

ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.
115	120	5	0.28	0.3 / NIL	<0.01	0.02
	125	"	1.00	0.3 / NIL	<0.01	0.02
	130	"	1.36	0.3 / NIL	<0.01	0.01
	135	"	1.65	0.3 / NIL	0.01	0.02
	140	"	0.47	0.3 / NIL	<0.01	0.02
	145	"	0.24	0.3 / NIL	<0.01	NIL
	150	"	1.64	0.3 / NIL	<0.01	0.01
	155	"	1.32	0.3 / NIL	<0.01	0.01
	160	"	0.04	NIL	<0.01	0.02
160	165	5	1.68	0.3 / NIL	<0.01	0.02
165	170	5	0.12	0.4	0.32	0.07
170	175	5	0.05	NIL	<0.01	0.02
265	270	5	0.02	6.9	<0.01	0.02
	275	"	0.06	6.0	<0.01	0.03
	280	"	4.75	0.3 / 4.1	<0.01	0.01
	285	"	0.07	3.5	<0.01	0.04
	290	"	0.05	5.3	<0.01	0.03
	295	"	0.10	3.0	<0.01	0.03
	300	"	0.06	3.7	0.01	0.03
	305	"	0.10	7.4	0.03	0.04
	310	"	0.16	4.4 / 3.0	0.03	0.15

Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS, Oz. Au.	Oz. Ag.	REMARKS

517023

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212

Page 023

DIAMOND DRILL RECORD

HOLE NUMBER SEL 1

SEL 1

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
436	440	4	100	412 - 703
	450	10	100	Dark grey/red fragmental quartz, hematite,
	460	9	90	chlorite schist. Small quartz fragments up to
	465	4½	90	2 - 3 mm in a mainly hematite matrix.
	470	5	100	Some more chloritic sections e.g. 476½ - 481
	480	10	-	where hydromicas also occur. Some magnetite
	490	-	-	also occurs. The rock is probably a tuff.
	491½	½	"	S.C.A. 80 deg. at 479'. Milky quartz veins
	500	9½	93	occur at 441 - 449, 451 - 453 and 545½ - 546,
	505½	5½	100	651½ - 652½, 675½ with associated dark green
	510	4½	-	chlorite and dark grey micaceous hematite.
	520	10		S.C.A. 90 deg. at 536'.
	523	3	"	From 567 no detectable magnetite, though
	530	7	"	some may occur. No visible mineralisation.
	537	7	"	S.C.A. 90 deg. 643'.
	540	3	"	
	550	10	"	
	552	2	100	
	560	8	"	
	561	7	-	
	570	3	"	
	580	10	-	
	590	10	-	
	595	5	-	
	600	5	-	
	609	9	-	
	610	1	-	
	620	10	-	
	624	4	-	
	630	6	-	
	638	8	-	
	640	2	-	
	650	10	-	
	653	2½	-	After 674' although still same rock type a
	661	8	100	sheared quartz, hematite tuff, the rock has
	670	3½		become a lot harder, more siliceous. Hydromicas
	673	2¾		also occur subparallel to schistosity.
	676	3	100	S.C.A. 80 deg. at 680'. Rock type continues,
	681	5	-	a hematite rich siliceous tuff. Hematite
	686	5	-	content gradually decreasing as silica content
	695	9	-	rises. S.C.A. 90 deg. at 690'.
	698½	1½	-	700 a small amount of Native Cu occured associated with a minor qtz vein.
	703	6½	-	703 - 711
	706½	3½	-	Reddish medium grained hematitic sandstone.
	711	4½	-	The rock contains small pebbles of quartz up 5 mm and the rock gives the impression of being fine grained Owen conglomerate . After 706½ it becomes coarser.
				END OF HOLE

ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.	Sample Number

BULK ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.

REMARKS

661 - 674 the core is badly broken and recovery poor. Possible a fault zone.
Quartz veins with associated chlorite at 689'.
695 and 702 core shattered 702½-703.

705 the rock shows small scale folding. in a thin mudstone band

01/2024

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 211

Page 1

DIAMOND DRILL RECORD

024

Hole Number	SELINA 2
Location	Line 64N, 800W on the ROLLESTON GRID, MT TYNDALL LEASE
Level	
Co-ordinates	
Collar R.L.	
Length	776'
Survey Depth	
Bearing	
Inclination	
Rod Size	Bx Wireline
Machine	E 52 (from RENISON LTD)
Logged by	K. WELLS
30' Plans	
30' Sections	
100' Plans	
100' Sections	

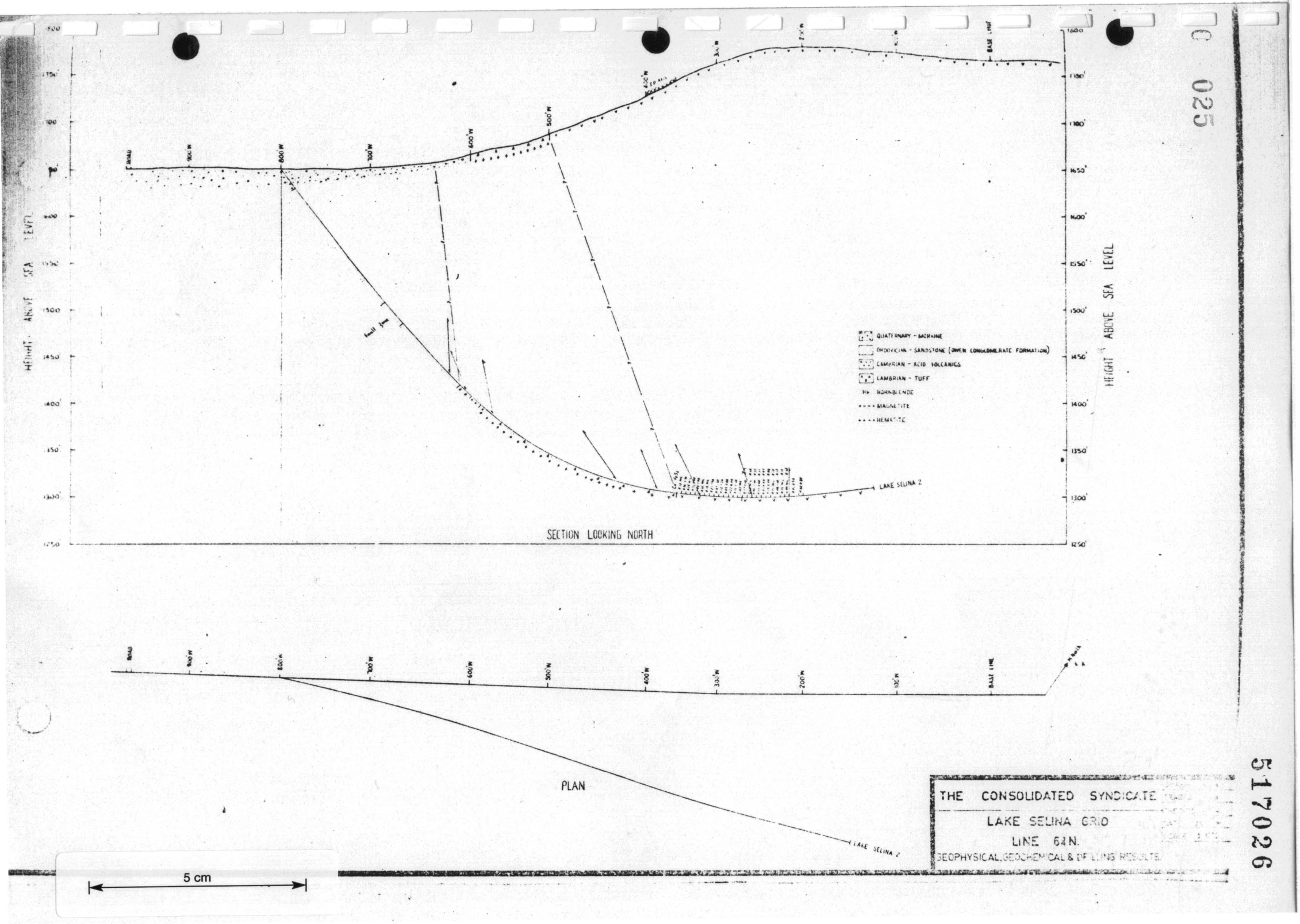
Purpose

Comments

Commenced

Completed

5170.25


HEIGHT ABOVE SEA LEVEL
HEIGHT ABOVE SEA LEVEL
BASE LINE
LAKE SELINA 2
QUATERNARY - MORAINE
ORDOVICIAN - SANDSTONE (DAVEN CONGLOMERATE FORMATION)
CAMBRIAN - ACID VOLCANICS
CAMBRIAN - TUFF
Hb HORNBLENDE
MAGNETITE
HEMATITE
SECTION LOOKING NORTH
PLAN
LAKE SELINA 2
THE CONSOLIDATED SYNDICATE
LAKE SELINA GRID
LINE 64N.
GEOPHYSICAL, GEOCHEMICAL & DRILLING RESULTS
5 cm
020
517026

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

020

HOLE NUMBER LAKE SELINA No 2

Survey Depth	00'	20'	40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240'	260'	280'	300'	320'	340'	360'	380'	400'	420'
Bearing				72°	73°	73°	73°	73°	74°	74°	75°	75°	75°	74°	74°	76°	76°	76°	77°	77°	78°	84°
Inclination	-55°	-54°	-53°	-53½°	-53½°	-53½°	-53°	-53°	-52°	-52°	-50°	-49°	-48½°	-48°	-47°	-45°	-43½°	-41°	-38°	-35°	-31°	-27°

Survey Depth	440'	460'	480'	500'	520'	540'	560'	580'	600'	620'	640'	660'	680'	700'	776'							
Bearing	78°	77°	76°	78°	78°	78°	78°	92°	75°	76°S	76°	75°	74°	74°	NO SURVEY							
Inclination	-26°	-23°	-19½°	-16°	-13°	-10°	-08°	-05½°	-03½°	-01½°	00°	+02°	+02½°	+03°	NO SURVEY							

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212

Page 1.

DIAMOND DRILL RECORD

HOLE NUMBER S2

120

S2

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
0	25	0	0	0 - 25
	27	2	100	Unconsolidated fluvio-glacial sands and
	37	5	50	gravels.
	43	6	100	
	45	2	100	25 - 297
	55	10	100	White-pink, coarse-fine grained grits and
	58	3	100	quartzites, with small veins and patches
	65	7	100	of soft green "clay".
	69	4	100	Part of the Owen Conglomerate series. Fine
	76	7	100	grained white quartzites, often cherty
	80	4	100	looking, especially after 58' alternate
	81	1	100	with dark red, more typically Owen, very
	83	2	100	coarse grained grits (fine grained
	84	1	100	conglomerates).
	89	5	100	At 180' rock very sheared and quartz
	93	4	100	veining 195' - 200'; 207' - 210'.
	98	5	100	Core badly broken - probably represents a
	104	6	100	fault zone - perhaps a "roll" of "Cambrian".
	114	10	100	After 210' rock becomes more massive a
	118½	4½	100	dark red fine grained quartzite - Owen.
	123	4½	100	From 264' the rock is less siliceous and
	126	3	100	finer grained. Exhibits shearing and some
	131	5	100	quartz veins.
	139	8	100	S.C.A. = 40 deg. at 283'.
	140	1	100	Rock becomes finer and finer grained and
	149	9	100	more sheared up to contact.
	154	5	100	
	168½	14½	100	297 - 315
	175	6½	100	Red/green sheared breccia. Maybe sheared
	185	10	100	Owen but thought possibly to be a Cambrian
	190	5	100	"conglomerate".
	201	11	100	S.C.A. = 25 deg. at 305'.
	204	3	100	Lower contact marked by heavy quartz veining.
	206	2	100	
	208	1	50	315 - 329
	209	1	100	A dark green hard porphyritic rock. Quartz
	233	14		phenocrysts up to 2 mm in a quartz chlorite
	236	3		groundmass. Some dark red hematite.
	244	8	100	Relatively unsheared and possibly an
	245	1	100	intrusion in the lower 18" of the intrusion,
	250	5	100	the rock is almost pure hematite with some magnetite and
	254½	4½	100	chalcopyrite, the latter approx. 1 - 2%.
	263	8½	100	
	271	8	100	329 - 565
	273	2	100	A dark red soft highly sheared hematitic
	275	2	100	"tuff" - similar to that found along the
	277½	2½	100	Cambrian/Ordovician contact in D.D.H.
	284	6½	100	Selina 1.
	290	5		Sericite developed along the planes of
	291½	1½	100	schistosity.

ASSAYS From	To	Ft.	% Cu.	% FeS_2	Oz. Au.	Oz. Ag.	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS_2	Oz. Au.	Oz. Ag.	REMARKS
															Quartz vein at 48'.
															Core broken 276 - 277½.
															Quartz vein at 286'.

51702B

DIAMOND DRILL RECORD

HOLE NUMBER S2

820

S2

FOOTAGE From	To	RECOVERY Ft.	%	DESCRIPTION
291½	295	3½	100	S.C.A. = 40 deg. at 345'.
	302	7	100	S.C.A. = 40 deg. at 470'.
	304	2	100	After 507' the rock becomes more chloritic.
	310	6	100	S.C.A. = 60 deg. at 554'.
	312	2	100	
	320	8	100	565 - 695
	330	10	100	Green hard quartz chlorite schist. Varies
	333	3	100	between medium grained and porphyritic.
	338	5	100	Some small magnetite veins occur subparallel
	345	7	100	to schistosity.
	352	7	100	Pyrite occurs disseminated in small veins
	360½	8½	100	subparallel to schistosity.
	373	12½	100	Some minor ccp also occurs.
	386	13	100	At 626 and 628 some minor native Cu occurs.
	400	14	100	S.C.A. = 60 deg. at 597'.
	415	15	100	S.C.A. = 70 deg. at 645'.
	425	10	100	S.C.A. = 90 deg. at 685'.
	434½	9½	100	
	444½	10	100	
	455	10½	100	
	462½	7½	100	
	472	8	80	
	485	13	100	
	490	5	100	
	493	3	100	
	498	5	100	
	507	9	100	
	512	5	100	
	519	7	100	
	525	6	100	
	535	10	100	
	545	5	50	
	553	8	100	
	564	11	100	
	574	9	90	
	582	8	100	
	585	3	100	
	595	10	100	
	597	2	100	
	605	8	100	
	611	6	100	
	615	4	100	
	625	10	100	
	635	10	100	
	640	5	100	
	645	5	100	
	655	10	100	
	665	10	100	
	680	15	100	
	685	5	100	
	695	7	70	

ASSAYS %Pb %Zn From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.	Sample Number
565	570	5	0.13	NIL	0.01	0.06	
	575	"	0.16	1-1	0.01	0.06	
	580	"	0.24	NIL	0.01	0.05	
	585	"	0.22	0.9	NIL	0.04	
	590	"	0.08	1-9	0.01	0.05	
	595	"	0.12	NIL	NIL	0.01	
	600	"	0.15	NIL	0.01	0.01	
	605	"	0.21	1-5	0.05	0.07	
	610	"	0.07	1-3	0.02	0.04	
	615	"	0.12	1-5	0.01	0.02	
	620	"	0.45	3-6	NIL	0.02	
	625	"	0.22	6-0	0.01	0.02	
	630	"	0.11	1-1	0.01	0.04	
	635	"	0.05	NIL	0.01	0.05	
	640	"	0.07	1-1	0.02	0.08	
	645	"	0.06	NIL	0.03	0.14	
	650	"	0.08	2-1	0.04	0.31	
	655	"	0.05	0.6	0.02	0.11	
	660	"	0.07	0.8	0.01	0.07	
	665	"	0.15	0.4	0.03	0.06	
	670	"	0.15	NIL	0.05	0.13	
	675	"	0.08	1-2	0.02	0.10	
	680	"	0.15	NIL	0.06	0.11	
	685	"	0.07	"	0.09	0.14	
	695	10	0.01	4-5	0.02	0.07	

BULK ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.

REMARKS

Quartz veins at 609 and 613 contains minor ccp.

Small vein of calcite at 677'.

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212

DIAMOND DRILL RECORD

HOLE NUMBER S2

S2

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
695	705	10	100	695 - 776
	711	4		Basically similar to previous type but
	712	1	100	contains phenocrysts of felsprr in quartz
	718	6	100	chlorite groundmass. Shearing very poor.
	719	1	100	After 722' small flecks and veins of
	726	7	100	calcite occur.
	736	10	100	Fine grained pyrite occurs disseminated
	746	10	100	throughout the rock.
	750	4	100	No visible ccp.
	756	6	100	
	766	10	100	
	776	10	100	END OF HOLE

ASSAYS From	To	Ft.	% Cu.	% FeS_2	% Pb Ounces	% Zn Ounces	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS_2	Oz. Au.	Oz. Ag.
695	700	5	0.04	0.8	0.01	0.06								
	705	"	0.02	Nil	0.01	0.05								
	710	"	0.01	"	0.01	0.03								
	715	"	0.02	0.6	0.01	0.03								
	720	"	0.01	Nil	0.01	0.02								
	725	"	0.01	"	0.01	0.02								
	730	"	0.01	"	0.01	0.03								
	735	"	0.01	0.2	0.03	0.06								
	740	"	0.10	0.94	Nil	0.15								
	745	"	0.01	0.19	0.03	0.16								
	750	"	0.01	0.37	0.03	0.15								
	755	"	0.02	0.19	0.05	0.09								
	760	"	0.01	0.37	0.01	0.02								
	765	"	0.02	0.75	0.03	0.10								
	770	"	0.07	0.19	0.03	0.04								
	776	6	0.01	0.55	0.01	0.16								

REMARKS

Core badly broken 704' - 719'.

023

THE MOUNT LYELL ... NG AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD

Page 030

Hole Number	L. SELINA 3
Location	LINE 48 N ON THE ROLLESTON GRID MT. TYNDALL E.L. 9/66
Level	SURFACE
Co-ordinates	
Collar R.L.	
Length	922'
Survey Depth	0'
Bearing	
Inclination	-60°
Rod Size	B.X.W.L.
Machine	F 52 A
Logged by	K. WELLS
30' Plans	
30' Sections	
100' Plans	
100' Sections	

Purpose: To test the coincident I.P and magnetic anomalies on LINE 48N, west of the main baseline on the Rolleston Grid Mt. Tyndall

Comments:

Commenced	8 · 12 · 70
Completed	26 · 12 · 70

THE MOUNT LYELL MINING AND RAILWAY COMPANY
LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

HOLE NUMBER L.S. 1037

Survey Depth	20'	40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240	260	280'	300'	320'	340'	360'	380'	400'	420'	440'
Bearing	CASING DOWN TO 80'			269°	270°	269°	268°	266°	266°	266°	266°	266°	266°	266°	265°	265°	264°	264°	263°	263°	262°	262°
Inclination	-57°	-57°	-57°	-56°	-55°	-54½°	-53½°	-52°	-52°	-52°	-51°	-51°	-50°	-49½°	-49°	-48°	-47°	-45°	-43°	-42°	-42°	-37°

Survey Depth	460'	480'	500'	520'	540'	560'	580'	600'	620	640'	660'	~~700'~~	~~720'~~	~~740'~~	~~760'~~	~~780'~~	~~800~~		680'	700'	720'	740'
Bearing	282(?)	282°	282°	263°	262°	265°	262°	261°	261°	260°	260°								260°	260°	260°	258°
Inclination	-35°	-33°	-31°	-30°	-29°	-28°	-27°	-26°	-25°	-24½°	-23½°								-23°	-21°	-20°	-19°

Survey Depth	760	780'	800'	820'	840'	860'	880'	900	920'													
Bearing		260°	259°	259°	259°	259°	258°	257°	257°													
Inclination		-18°	-17°	-16°	-15°	-14°	-13½°	-14°	-13°													

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

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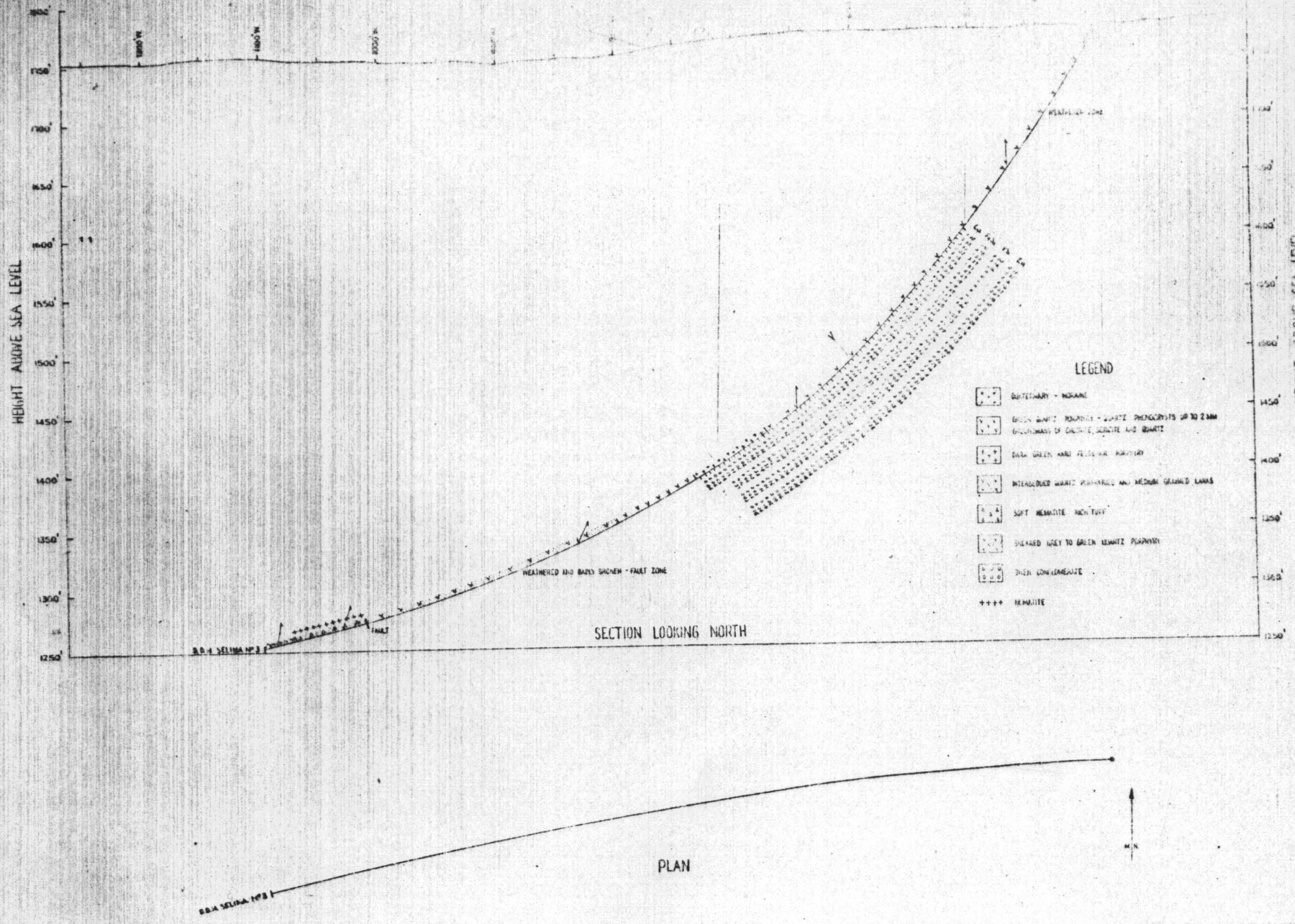


THE CONSOLIDATED SYNDICATE
LAKE SELINA GRID

5 cm

032

517033

THE MOUNT LYELL MIN AND RAILWAY COMPANY LIMITED

Form 212

Page 1.

DIAMOND DRILL RECORD

HOLE NUMBER L. S. 3

L. S. 3

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
0	19	4		0-20
	45	2		Owen Conglomerate Rubble
	50	5	100	20-200
	59	2½		Grey green sheared quartz porphyry(tuff?)
	60	1	100	Quartz phenocrysts in a sericite,chlorite,quartz
	66	6		matrix.
	72	6		The rock is highly weathered and bleached.
	77	5		the upper 65' is also strongly iron stained
	82	5		and most affected byweathering. The amount
	86	4		of weathering decreases with depth.
	89	2½		Felspar sometimes occurs in,possibly, less
	99	10	100	weathered patches eg at 140'
	106	7	100	No visible mineralisation possiblyleached
	110	4	100	out.
	122	8	100	SCA= 40° at 145
	126	4		
	130	4		
	133	3		
	135	2		
	138	3		
	141	3		
141	149	8	100	200-450
	153	4		
	160	6		Unweathered green poorly sheared quartz
	164	4	100	porphyry. Probably the unweathered equivalent
	100	2	100	of the previous rock type.
	170	4		Quartz phenocrysts up to 2mm in diameter
	174	4		in a green chlorite,sericite,quartz matrix.
	177	3		
	180	3		
	189	9		Mineralisation occurs,very fine grained,
	191	2		usually pyrite but some minor cop.,occurs
	195	4		in blebs but more usually as small
	200	5		"vienlets" subparallel to the schistosity.
	210	2	20	
	215	3	60	
	239	14	100	Quartz viens occur 300-320 with associated
	237	8	100	dark green chlorite.
	247	8	80	Some minor sulphides occur associated with
	254	7	100	rose quartz: very minor cop and galena.
	256	1½	75	Both py and cop less than 1%
	261	5	100	After 340' visible mineralisation decreases
	265	4	100	but minor py and cop still occurs
	270	5	60	
	280	10	100	SCA= 60° at 250'
280	290	10	100	450-522
	309	19	100	
	311	12	100	Similar appearance to previous rock type
	320	9	100	but more massive and harder with phenocrysts
	330	10	100	of feldspar.

ASSAYS %Pb %Zn

From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.
210	215	5	0·03	1·31	0·04	0·11
	220	"	0·03	0·75	0·16	0·31
	225	"	0·03	1·50	NIL	0·14
	230	"	0·03	3·37	"	0·06
	235	"	0·03	1·87	"	0·07
	240	"	0·06	1·87	"	0·07
	245	"	0·02	0·37	"	0·08
	250	"	0·03	0·19	NIL	0·08
	255	"	0·06	0·19	"	0·10
	260	"	0·04	0·37	0·19	0·15
	265	"	0·10	0·37	0·49	0·12
	270	"	0·17	1·50	1·16	0·20
	275	"	0·30	2·25	0·25	0·19
	280	"	0·74	1·12	2·13	0·16
	285	"	0·22	0·94	0·07	0·13
	290	"	0·16	0·94	0·29	0·13
	295	"	0·01	0·94	NIL	0·06
	300	"	0·02	0·19	0·26	0·08
	305	"	0·01	1·12	NIL	0·12
	310	"	0·02	0·19	0·10	0·20
	315	"	0·06	0·37	0·12	0·13
	320	"	0·04	0·19	0·16	0·16
	325	"	0·05	NIL	0·09	0·18
	330	"	0·01	0·75	0·04	0·10
	335	"	0·02	0·75	0·05	0·21
	340	"	0·04	1·12	0·04	0·09
	345	"	0·02	1·12	0·05	0·66
	350	"	0·01	0·55	0·04	0·06
	355	"	0·02	0·94	0·04	0·04

Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.

REMARKS

033

5170 34

DIAMOND DRILL RECORD

HOLE NUMBER L. S. 3

L. S. 3

FOOTAGE From	To	RECOVERY Ft.	%	DESCRIPTION
	342	12	100	A dark green/grey quartz felspar porphyry
	349	7	100	with phenocrysts up to 2mm in a quartz,
	358	9	100	chlorite matrix.
	362	2	50	
	369	7	100	
	374	5	100	Mineralisation is very poor: extremely
	378	4	100	fine grained cpp in very small vienlets
	383	5	100	subparallel to schistosity occurs only
	390	7	100	occasionally. Some galena occurs similarly
	397	7	100	and also in a small chlorite rich quartz
	406	9	100	vein at 512'
	411	5	100	
	421	10	100	
	422	1	100	Shearing is very poor, but:-
	432	10	100	SCA= 50° at 416'
	437	5	100	
	446	9	100	
	452	7	100	
	461	8	100	
461	465	4	100	522-595
	470	9	90	
	471	1	100	Similar to 200-450 and grey/green quartz
	481	10	100	porphyry. Occasionally quartz phenocrysts
	490	9	100	sheared matrix of sericite, chlorite and
	497	7	100	quartz.
	503	6	100	SCA= 40° at 555'
	513	10	100	Apart from a small blob of f.g.pyrite in a
	521	8	100	"chloritic" pod at 558' there is no apparent
	526	5	100	mineralisation. (~~apparent~~).
	527	1	100	
	533	1	100	
	536	3	100	
	538	1½	75	
	542	4	100	
	545	3	100	
	550	5	100	
	556	6	100	
	563	7	100	
	567	4	100	
	571	4	100	
	582	11	100	
582	587	5	100	
	596	9	100	595-835
	606	10	100	
	615	9	100	Grey porphyritic- medium grained quartz
	618	2	66	sericite schist.
	628	7	70	The whole rock is weathered, bleached iron-
	633	½	10	stained, badly broken and pitted, with
	638	5	100	extensive sericitisation.
	645	7	100	This badly broken area probably represents

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	%Pb Oz.Au.	%Zn Oz.Ag.
355	360	5	0·26	0·37	0·03	0·18
	365	"	0·13	1·31	1·01	0·15
	370	"	0·09	2·25	0·02	0·07
	375	"	0·06	0·94	0·01	0·06
	380	"	0·08	0·75	NIL	0·08
	385	"	0·03	0·27	0·01	0·08
	390	"	0·05	0·37	Alb2.	0·11
	395	"	0·06	0·37	0·02	0·04
	400	"	0·08	0·55	NIL	0·06
	405	"	0·10	NIL	0·02	0·07
	410	"	0·10	0·94	0·07	0·07
	415	"	0·05	0·75	0·02	0·16
	420	"	0·10	0·55	0·09	0·13
	425	"	0·06	0·94	0·04	0·17
	430	"	0·10	0·94	0·04	0·17
	435	"	0·05	0·19	0·07	0·10
	440	"	0·02	0·19	0·16	0·18
	445	"	0·14	0·55	0·06	0·18
	450	"	0·60	NIL	0·09	0·18
	455	"	0·09	1·50	0·16	0·16
	460	"	0·01	0·75	0·06	0·08
	465	"	0·02	NIL	0·08	0·06
	470	"	0·07	1·31	0·14	0·12
	475	"	0·05	0·19	0·05	0·06
	480	"	0·02	0·55	0·01	0·09
	485	"	0·02	1·50	0·01	0·02
	490	"	0·02	0·94	0·03	0·10
	495	"	0·01	NIL	0·05	0·04
	500	"	0·11	0·37	0·03	0·15
	505	"	0·05			
	510	"	0·05			
	515	"	0·04			
	522	7	0·04			
	525	3	0·012	0·10	0·011	0·024
	530	5	0·027	0·18	0·033	0·015
	535	"	0·01	0·37	0·041	0·038
	540	"	0·028	0·18	0·026	0·027
	545	"	<0·01	0·10	0·021	0·016
	550	"	0·01	NIL	0·059	0·052
	555	"	0·012	NIL	0·033	0·098
	560	"	0·011	0·13	0·017	0·027
	565	"	<0·01	NIL	0·039	0·083
	570	"	0·01	NIL	0·035	0·092
	575	"	<0·01	NIL	0·10	0·078
	580	"	0·166	1·44	0·019	0·027
	585	"	0·015	2·62	0·065	0·15
	590	"	0·033	0·75	0·049	0·12
	595	"	0·03	0·42	0·04	0·08
	600	"	0·02	0·09	<0·01	0·02
	605	"	0·03	0·10	0·03	0·04

Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.

REMARKS

Core badly broken 566-575

034

84-12-085

DIAMOND DRILL RECORD

HOLE NUMBER L. S. 3

L. S. 3

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
	651	5	100	a fault zone and under which deep weathering
	661	10	100	has penetrated.
	666	5	100	The rock appears to be interbanded quartz
	676	10	100	perphyryies and medium grained igneous
	683	7	100	volcanics, but the weathering has obscured
	693	10	100	many features.
	697	4	100	There is no mineralisation; any that might
	707	8	80	have occured has been leached out.
	715	8	100	
	725	10	100	
	730	5	100	
	740	10	100	
	748	8	100	
748	758	10	100	SCA= 40° at 637
	776	17	100	SCA= 70° at 786
	778	2	100	
	786	8	100	
	794	8	100	825-895
	801	6	100	
	804	3	100	This rock is separated from the peevious
	816	12	100	rock type by a quartz vein associated with
	823	7	100	much core loss- a fault.
	830	6	100	A grey/red soft hematite rich "tuff". This is
	838	1	100	probably equivalent to the hematic tuff along
	848	10	100	the Cambrian- Ordovician contract in L.S.1 and
	857	8	100	to the hematic tuff zone in L. S. 2 However
	866	9	100	here it has been strongly bleached by weathering
	873	7	100	penetrating from the overlying fault zone
	883	7½	95	SCA= 60° at 855'
	890	7	100	
	895	5	100	
	900	5	100	
	908	6	100	
908	913	5	100	895-912
	914	½	50	
	917	3	100	Light grey/green porphyritic quartz sericite schist
	922	5	100	- very poor shearing.
				Bleached and sericited with some hydromicas
				Phenocrysts possibly originally felspar
				SCA = 70° at 910
				No mineralisation.
				912-917
				A coarse grained purple/dark grey rock.
				Volcanic or possibly a sediment? Shows some
				sort of shearing or banding at a high angle
				with the core axis (30°) Composed of : quartz
				and sericite and hydromicas and thought to be
				igneous originally (possibley a reworked tuff)

ASSAYS From	To	Ft.	% Cu.	% FeS₂	% Os. Au.	% Os. Ag.
605	610	5	0.07	0.28	0.02	0.02
	615	"	0.03	0.13	0.03	0.03
	620	"	0.04	0.05	0.15	0.15
	625	"	0.10	0.40	0.09	0.12
	630	"	0.03	0.22	0.12	0.20
	635	"	0.07	0.09	0.03	0.01
	640	"	0.09	0.05	0.02	0.01
	645	"	0.03	0.15	0.04	0.03
	650	"	0.05	0.13	0.05	0.01
	655	"	0.01	Sample lost	0.17	0.20
	660	"	0.02	0.30	0.01	0.04
	665	"	<0.01	0.20	0.01	0.03
	670	"	<0.01	0.10	<0.01	0.01
	675	"	0.04	0.20	0.01	0.02
	680	"	0.03	0.20	<0.01	<0.01
	685	"	<0.01	0.40	<0.01	0.01
	690	"	<0.01	0.10	<0.01	<0.01
	695	"	0.02	0.20	0.01	<0.01
	700	"	0.04	0.40	<0.01	0.03
	705	"	0.02	0.60	<0.01	0.05
	710	"	0.13	0.80	<0.01	0.03
	715	"	0.06	2.60	<0.01	0.02
	720	"	0.08	2.80	<0.01	0.02
	725	"	0.07	1.50	<0.01	0.01
	730	"	0.05	0.40	<0.01	0.01
	735	"	0.08	1.50	0.01	0.03
	740	"	0.31	3.40	<0.01	0.02
	745	"	0.07	0.20	"	0.03
	750	"	0.04	0.10	"	0.03
	755	"	0.11	0.40	"	0.04
	760	"	0.04	0.10	"	0.01
	765	"	0.23	0.40	"	0.05
	770	"	0.02	0.10	"	0.03
	775	"	0.03	0.10	"	0.01
	780	"	0.13	0.10	"	0.06
	785	"	0.08	0.10	"	0.04
	790	"	0.17	0.20	"	0.01
	795	"	0.02	0.10	"	0.01
	800	"	0.07	0.10	"	0.01
	805	"		0.40		
	810	"		0.40		
	815	"		0.80		
	820	"		0.40		
	825	"		0.20		
	830	"	<0.01	c. Cu.	0.01	<0.01
	835	"	<0.01	"	<0.01	<0.01
	840	"	"	"	"	"
	845	"	0.05	0.06	"	"
	850	"	0.01	0.08	"	"
	855	"	0.15	6.10	"	"

Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS₂	Os. Au.	Os. Ag.

REMARKS

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212

Page 4.

DIAMOND DRILL RECORD

HOLE NUMBER L. S. 3

036

L. S. 3

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				917-922 Recrystallised White/brown Owen Conglomerate. END OF HOLE

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	% Pb	% Zn	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	REMARKS
855	860	5	<0.01	0.04	0.01	<0.01									
	865	"	0.02	0.04	0.03	"									
	870	"	0.01	0.08	0.01	"									
	875	"	0.05	0.04	<0.01	"									
	880	"	0.01	"	"	"									
	885	"	0.01	"	"	"									
	890	"	<0.01	0.07	"	"									
	895	"	0.02	0.06	0.01	"									
	900	"	<0.01	0.04	0.02	"									
	905	"	0.01	"	0.03	"									
	912	7	0.02	0.06	0.02	"									

Job 441467

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form

Page 037

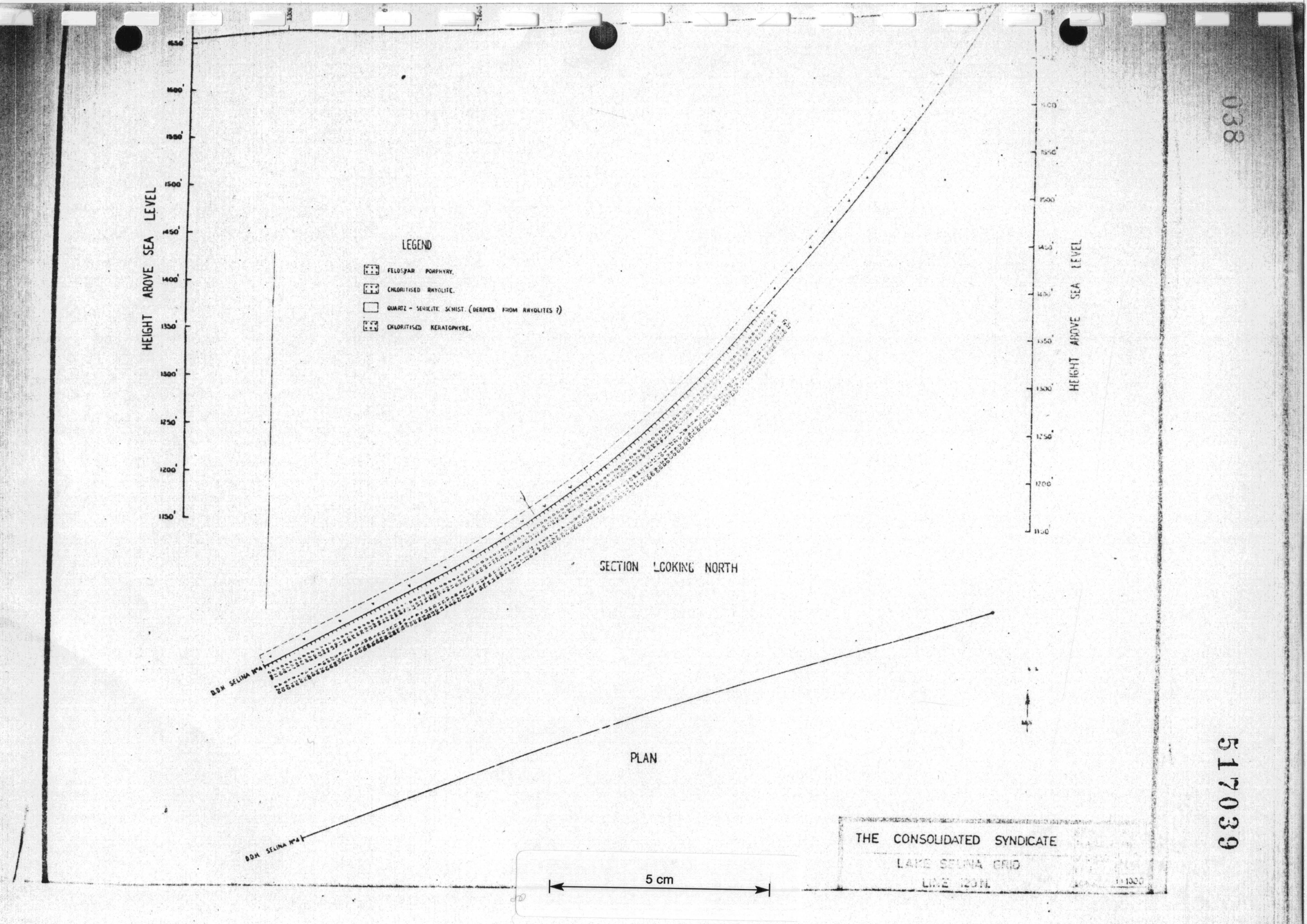
DIAMOND DRILL RECORD

Hole Number	SELINA NO. 4		Purpose: To test coincident magnetic and I.P. anomalies on Line 120N Lake Selina - Rolleston Grid.
Location	120N/225oW Selina Grid		
Level	SURFACE		
Co-ordinates	~~120N/225oW~~ N27625.60	E35257.70	
Collar R.L.	1687.37		
Length	1059'		

Survey Depth	00'	Actual 00'																	
Bearing	Planned 270° MAG.	262°29'																	
Inclination	-58°	-58°																	

Rod Size	NQ, BQ	Comments	
Machine			
Logged by	J.P. McKIBBEN (0-900') K. WELLS (900-1059')		
30' Plans			
30' Sections			
100' Plans		Commenced	11 April, 1971.
100' Sections		Completed	25 May, 1971.

51703


HEIGHT ABOVE SEA LEVEL
1550'
1500'
1450'
1400'
1350'
1300'
1250'
1200'
1150'
LEGEND
FELDSPAR PORPHYRY.
CHLORITISED RHYOLITE.
QUARTZ - SERICITE SCHIST. (DERIVED FROM RHYOLITES ?)
CHLORITISED KERATOPHYRE.
BDH SELINA N°4
SECTION LOOKING NORTH
PLAN
BDH SELINA N°4
5 cm
THE CONSOLIDATED SYNDICATE
LAKE SELINA GRID
LINE 120 N.
1:1200
HEIGHT ABOVE SEA LEVEL
1600'
1550'
1500'
1450'
1400'
1350'
1300'
1250'
1200'
1150'

038

517039

THE MOUNT LYELL MINING AND RAILWAY COMPANY
LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

C.R. 00

HOLE NUMBER SELINA 2

Survey Depth	00'	15'	35'	55'	75'	95'	115'	135'	155'	175'	195'	215'	235'	255'	275'	295'	320'	340'	360'	380'	400'	420'
Bearing		248°	250°	252°	254°	252°	254°	255°	255°	255°	255°	255°	256°	256°	256°	256°	255°	255°	254°	254°	255°	255°
Inclination	-58°	-58°	-58°	-57½°	-56°	-55°	-54°	-53½°	-53°	-53°	-52°	-52°	-52°	-52°	-52°	-51°	-50½°	-50½°	-50°	-50°	-49°	-48½°

Survey Depth	440'	460'	480'	500'	520'	540'	560'	580'	600'	620'	640'	660'	680'	700'	720'	740'	760'	780'	800'	820'	840'	860
Bearing	255°	272°(?)	256°	273°(?)	252°	254°	254°	252°	254°	251°	250°	250°	250°	255°(?)	250°	250°	249°	249°	249°	249°	249°	248°
Inclination	-48°	-47½°	-46½°	-46°	-45°	-44½°	-44°	-42°	-42°	-40°	-39°	-38°	-38°	-37°	-35°	-35°	-34°	-34°	-35°	-35°	-35°	-34°

Survey Depth	880'	900'	920'	940'	960'	980'	1000'	1020'														
Bearing	248°	248°	248°	249°	251°	296°(?)	262°(?)	253°														
Inclination	-34°	-32°	-31½°	-31°	-30°	-29½°	-29°	-29°														

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

THE MOUNT LYELL MI G AND RAILWAY COMPANY
LIMITED

Form 812

DIAMOND DRILL RECORD

HOLE NUMBER Selina No. 4

040

Selina No. 4

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION	ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	REMARKS
0	10	7	70	0-17																0-10' WX casing
10	30	20	100	Massive grey porphyritic rocks with																10- NQ
30	40	9	90	mottled creamy blocks of porphyry																
40	80	40	85	throughout. Specks of rounded white																
80	100	40	85	feldspar in grey fine grained groundmass.																
100	130	30	75	Good 30° joint planes with yellow-brown																
130	170	40	100	iron stained faces.																
170	200	30	100																	
200	222	22	98	17-100																
				Massive, well jointed (50°), slightly broken, med. grey dense crystalline lava with few rounded quartz and feldspar phenocrysts in dense grey groundmass. Few patches of creamy block material in grey groundmass. Well jointed (50°) with yellow -brown limonite joint coatings. Chlorite becoming present from 80 to 100.															
				100-130																
				Quite broken, well jointed (50-60°) slightly chloritised dense, massive grey fine grained lava. Minor jasper veinlets. Quite broken by joints-faces of joints have thin limonite coating.																
				130-222																
				Dark purplish brown, dense massive keratophyre. Quite broken due to strong 45-50° jointing throughout. From 139'-159' a zone of light salmon pink keratophyre with few quartz veins. Core is slightly chloritised on joint faces. Small thin veinlets of quartz in places. Few veinlets and gashes of chlorite.															
222	256	34	98																	
256	271	15	95	222-271																
271	304	38	100	Very broken zone in pinkish-brown massive																
303	363	60	100	keratophyre with stronger chloritisation																
363	281	18	100	throughout. Good 45° jointing. Smashed																6" runs common
				zones throughout. Core becoming pinker and coarser grained from 235' onwards. Chlorite coating joint faces. Quite smashed from 256-271 but not sheared or pulverised.																
				271-293																
				Massive greyish pink slightly chloritised and epidotised keratophyre with 70° jointing. Some flat (10°) parting planes with strong dark brown iron staining																

5170411

THE MOUNT LYELL MI[illegible]G AND RAILWAY COMPANY LIMITED

Form 212

Page 2

DIAMOND DRILL RECORD

HOLE NUMBER Selina No. 4

Selina No. 4

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION	ASSAYS From	ASSAYS To	ASSAYS Ft.	ASSAYS % Cu.	ASSAYS % Pb, Oz-Au.	ASSAYS Oz-Ag.	Sample Number	BULK ASSAYS From	BULK ASSAYS To	BULK ASSAYS Ft.	BULK ASSAYS % Cu.	BULK ASSAYS % Pb, Oz. Au.	BULK ASSAYS Oz. Ag.	REMARKS
				throughout.														
				293-304 Massive greenish pink-purple keratophyre with 80°, 20° jointing. Few thin quartz-albite-chlorite veinlets and some joint faces are coated with epidote. Chlorite blebs, streaks and stringers throughout core. Minor thin smash zone at 300'.														NQ seated at 304'.
				304-381 Strongly 70° jointed massive, slightly chloritised pink-brown keratophyre with chlorite coatings on joint faces. Few ⅛" quartz veins at 350' & minor iron staining. Core appears agglomeratic from 342' to 350' and 360' to 363'. Core mottled with some patches of stronger chloritisation giving a greyish-green colour to the keratophyre.														
381	414	33	80															
414	450	36	100															
450	586	136	100	381-413' 5" Broken, strongly 60° jointed iron stained keratophyre with joint faces coated with dark-light brown iron stained films. Core becomes increasingly chloritised from 411-413'.														
				413'5"-461 Light grey, uniform, sheared highly siliceous quartz-chlorite-sericite (?) schist (only minor chlorite) with a 50° fracture - core fairly massive, good sticks. Mineralisation occurs throughout as medium to coarse grained disseminated Py - also as ¼-3/8" veinlets of massive Py parallel to schistosity. Minor interlacing thin quartz veinlets in places as segregations.	413	415	2	0.06	1.4	0.01	<0.01							
						420	5	0.06	21.9	0.015	<0.01							
						425	"	0.05	22.8	0.016	<0.01							
						430	"	0.05	16.4	0.016	<0.01							
						435	"	0.05	15.5	<0.01	<0.01							
						440	"	0.02	20.9	<0.01	<0.01							
						445	"	0.01	12.9	<0.01	<0.01							
						450	"	0.01	14.6	<0.01	<0.01							
						455	"	0.03	22.8	<0.01	<0.01							
						460	"	0.03	17.2	<0.01	<0.01							
				461-523'6" Similar sheared highly siliceous quartz-chlorite schist to above but with much stronger chlorite giving a mottled dark-green to grey appearance. Highly siliceous core with wispy chlorite throughout. Fine to medium grained disseminated Py throughout. Also segregated veinlets and clots of coarse-medium grained Py scattered throughout. Good 60-70° schistosity throughout (Note: 10° difference	460	465	5	0.09	9.4	<0.01	<0.01							
						470	"	0.10	7.6	<0.01	<0.01							
						475	"	0.05	13.2	0.014	0.014							
						480	"	0.05	8.4	<0.01	0.016							
						485	"	0.15	12.3	<0.01	0.018							
						490	"	0.05	9.5	<0.01	0.010							
						495	"	0.07	20.5	<0.01	<0.010							
						500	"	0.05	6.8	<0.01	0.01							
						505	"	0.06	5.22									
						510	"	0.07	32.5									
						515	"	0.07	16.7									

DIAMOND DRILL RECORD

HOLE NUMBER Selina No. 4

Selina No. 4

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION	ASSAYS From	ASSAYS To	ASSAYS Ft.	ASSAYS % Cu.	ASSAYS % FeS$_2$	ASSAYS Oz.Au-Oz.Ag. %Pb	ASSAYS %Zn	Sample Number	BULK ASSAYS From	BULK ASSAYS To	BULK ASSAYS Ft.	BULK ASSAYS % Cu.	BULK ASSAYS % FeS$_2$	BULK ASSAYS Oz. Au.	BULK ASSAYS Oz. Ag.	REMARKS
				from that above). Minor albite in places.	515	520	5	0·05	19·3											
596	642	56	100			525	"	0·05	23·0											
				423'6"-540		530	"	0·05	24·1											
				As 413'5" to 461' but Py stronger and coarser grained. Silghtly more chlorite developed.		535	"	0·06	25·6											
						540	"	0·05	24·5											
				540-596	540	545	5	0·04	9·7	<0·01	<0·01									
				Highly siliceous dense quartz schist with 45° schistosity. Core is pinkish to light grey in colour due to presence of clots and veinlets of albite throughout. Very massive core strong schistosity planes coated with thin layer of epidote. Fine grained sparser Py scattered less strongly throughout, sometimes forming ⅛" veinlets of coarse grained Py. Only minor chlorite. This zone may have been originally a quartz keratophyric rock		550	"	0·03	11·0	0·01	0·01									
						555	"	0·02	9·7	<0·01	<0·01									
						560	"	0·02	8·9	<0·01	<0·01									
						565	"	0·04	17·0	<0·01	<0·01									
						570	"	0·04	10·7	<0·01	<0·01									
						575	"	0·03	12·0	<0·01	<0·01									
						580	"	0·03	21·6	<0·01	<0·01									
						585	"	0·06	17·6	<0·01	<0·01									
				596-606	585	590	5	0·04	17·8	<0·01	<0·01									
				Light grey sheared quartz-sericite schist with some pink albite lenses throughout- also as veins and coarse grained clots. Quite siliceous core with only minor chlorite.		595	"	0·04	20·4	<0·01	<0·01									
						600	"	0·04	21·3	<0·01	<0·01									
						605	"	0·04	21·7	0·016	0·034									
692	659	17	100	606-630	605	610	5	0·06	21·8	0·01	0·018									
				Very similar to 540-596', Light grey-pink sheared quartz-sericite schist with wisps of pink albite and knots and lens shaped patches of albite. Coarse grained patches and veins of pyrite throughout but only minor disseminated Py. Good 45° schistosity.		615	"	0·04	19·8	<0·01	<0·01									
						620	"	0·05	25·5	<0·01	<0·01									
						625	"	0·07	14·2	<0·01	<0·01									
						630	"	0·05	14·2	<0·01	<0·01									
				630-642	630	635	5	0·05	25·4	<0·01	<0·01									
				Typical light grey siliceous quartz schist with good 45° schistosity-veinlets (⅛") of coarse Py with minor traces of Cp - Py generally appear more "strassy" in colour. Disseminated fine grained Py throughout core. A slightly "brecciated" zone from 637-642 with quartz veining & chlorite giving brecciated appearance.		640	"	0·05	15·4	<0·01	<0·01									
				642-659	640	645	5	0·05	19·5	<0·01	<0·01									
				Pinkish -grey, slightly sheared typical quartz sericite rock derived from kera-taphyre(?). Fairly massive core with		650	"	0·05	11·9	<0·01	0·016									
						655	"	0·03	13·5	<0·01	<0·01									
						659	4	0·05	11·8	<0·01	<0·01									

042

517043

DIAMOND DRILL RECORD

HOLE NUMBER Selina No. 4

Selina No. 4

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				50° fracture. Weakly disseminated Py and a few scattered coarser grained veinlets and patches. Minor epidote on schistosity planes.
659	726	67	100	
726	754	28	100	659-754 Massive red grey or slightly pinkish grey fine grained siliceous, slightly sheared rock with some minor albite knots at 690-695. May originally have been keratophyre or dacite (??). Only weakly sheared but good 45-50° joints and few 35° schistosity. Strongly chloritised patches from 690-695 and also 713-746 but chloritised throughout. The chloritised patches appear somewhat brecciated due to veining by chlorite. Only scattered coarse grained Py veinlets, patches and few blebs - quite uniformly distributed but not particularly strong. Few blebs of Cp up to ⅛" across rarely from 720-730'. Some stronger coarse Py veinlets from 740-746'.
754	900	146	100	754-1029 Massive sticks red grey to dark green chloritised dense fine grained siliceous light grey rock (possibly originally keratophyre or dacite). Core has brecciated texture due (?) to fine chlorite veining. Some zones of pink albite slats. Good 75-85° fracture. Mineralisation consists of relatively coarse grained Py blebs sparsely throughout sometimes segregated into ⅛" veinlets of coarse grained Py. Specks of Cp scattered sparsely throughout - sometimes discrete in chlorite but usually associated with Py blebs. Chloritisation appears to be stronger from 830-900. Rock type continues after 900', although patchy zones of pink albite and more chloritic zones although basically the same with the brecciated texture due to chlorite veining.
900	910	10	100	
	920	10	100	Mineralisation throughout (similar to
	924	4	100	previous) although a relatively barren
	930	6	100	patch 1007-1020.
	940	10	100	
	950	10	100	1029-1059
	960	10	100	Very similar to above rock type but darker

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	% Pb	% Zn
659	665	6	0.12	14.3	<0.01	<0.01		
	670	5	0.05	10.0	<0.01	<0.01		
	675	"	0.05	14.7	<0.01	<0.01		
	680	"	0.13	9.8	<0.01	0.01		
	685	"	0.07	9.9	0.04	<0.01		
	690	"	0.05	11.9	<0.01	<0.01		
	695	"	0.05	15.0	<0.01	0.017		
	700	"	0.03	9.7	<0.01	<0.01		
	705	"	0.04	8.1	<0.01	<0.01		
	710	"	0.04	5.5	<0.01	<0.01		
	715	"	0.09	5.8	<0.01	0.01		
	720	"	0.06	4.0	<0.01	0.01		
	725	"	0.24	6.5	<0.01	0.013		
	730	"	0.12	2.6	<0.01	0.013		
	735	"	0.05	4.4	<0.01	<0.01		
	740	"	0.06	8.3	<0.01	<0.01		
	745	"	0.06	9.9	<0.01	0.013		
	748	3	0.06	14.4	<0.01	<0.01		
	755	7	0.05	7.99	<0.01	<0.01		
	760	5	0.10	21.69	<0.01	<0.01		
	765	"	0.15	10.3	<0.01	0.02		
	770	"	0.18	5.22	<0.01	0.016		
	775	"	0.10	4.27	<0.01	0.015		
	780	"	0.09	5.43	0.01	0.01		
	785	"	0.23	4.25	<0.01	0.03		
	790	"	0.12	4.66	0.01	0.018		
	795	"	0.02	16.91	0.03	0.03		
	800	"	0.04	11.88	<0.01	0.016		
	805	"	0.11	14.44	<0.01	0.02		
	810	"	0.09	10.19	0.01	0.01		
	815	"	0.10	16.14	<0.01	0.019		
	820	"	0.04	13.62	<0.01	<0.01		
	825	"	0.09	11.05	<0.01	0.014		
	830	"	0.12	16.66	<0.01	0.014		
	835	"	0.05	17.68	<0.01	0.01		
	840	"	0.05	10.53	<0.01	0.016		
	845	"	0.10	9.61	<0.01	0.025		
	850	"	0.11	10.40	<0.01	0.03		
	855	"	0.04	9.44	<0.01	0.015		
	860	"	0.14	13.75	<0.01	0.015		
	865	"	0.06	12.19	<0.01	0.01		
	870	"	0.08	11.97	<0.01	0.01		
	875	"	0.04	12.06	<0.01	0.016		
	880	"	0.03	14.87	<0.01	0.01		
	885	"	0.06	12.52	<0.01	0.01		

Sample Number

BULK ASSAYS From To Ft. % Cu. % FeS$_2$ Oz. Au. Oz. Ag.

REMARKS

045

517044

DIAMOND DRILL RECORD

HOLE NUMBER Selina No. 4

Selina No. 4

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
[illegible]	964	4	100	due to the presence of more chlorite -
	972	8	100	otherwise the same rock type.
	978	6	100	Massive dark grey/green and red siliceous
	980	2	100	volcanics. Still exhibits a brecciated
	988	7½	100	texture due to chlorite veining - the
	998	10	100	chlorite being very dark, almost black
	1006	8	100	in the hand specimen. Parts of the core
	1008	2	100	are almost 100% red albite e.g. 1043-1045',
	1019	10½	100	1051' and 1052'.
	1029	10	100	The rock exhibits some slight shearing
	1033	4	100	but very poor.
	1043	10	100	Mineralisation consists mainly of med
	1053	10	100	grained Pyrite in blebs and veins elongated
	1059	6	100	subparallel to the shearing, often associated with the chlorite. Some minor chalcopyrite occurs, usually associated or mixed in with the pyrite.
				END OF HOLE.

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	REMARKS
					%Pb	%Zn									
885	890	5	0·05	11·88	<0·01	0·01									
	895	"	0·02	6·56	<0·01	0·01									
	900	"	0·05	6·2	0·015	0·014									
	905	"	0·06	7·3	<0·01	0·018									
	910	"	0·08	9·0	<0·01	0·01									
	915	"	0·06	14·9	0·026	0·03									
	920	"	0·04	13·5	0·01	0·012									
	925	"	0·03	12·0	<0·01	<0·01									
	930	"	0·14	11·0	<0·01	0·014									
	935	"	0·06	13·3	<0·01	<0·01									
	940	"	0·05	12·4	<0·01	<0·01									
	945	"	0·07	9·9	0·01	0·02									
	950	"	0·01	10·3	0·01	0·018									
	955	"	0·02	15·9	0·02	0·01									
	960	"	0·10	15·3	0·01	0·02									
	965	"	0·04	8·9	0·01	0·018									
	970	"	0·08	9·3	<0·01	0·015									
	975	"	0·05	8·5	<0·01	0·01									
	980	"	0·17	1·2	0·05	0·07									
	985	"	0·06	6·7	<0·01	<0·01									
	990	"	0·07	8·5	<0·01	<0·01									
	995	"	0·06	20·8	0·01	<0·01									
	1000	"	0·09	20·3	0·01	<0·01									
	1005	"	0·03	18·7	0·02	0·02									
	1010	"	0·04	6·2	0·01	0·02									
	1015	"	0·05	1·3	0·02	0·02									
	1020	"	0·10	2·9	<0·01	0·01									
	1025	"	0·63	13·0	<0·01	0·02									
	1030	"			<0·01	0·01									
	1035	"			0·01	0·01									
	1040	"			<0·01	0·01									
	1045	"			<0·01	0·01									
	1050	"			<0·01	<0·01									
	1055	"			<0·01	<0·01									
	1059	4			<0·01	<0·01									

0044

517045

THE MOUNT LYELL M[illegible]NG AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD

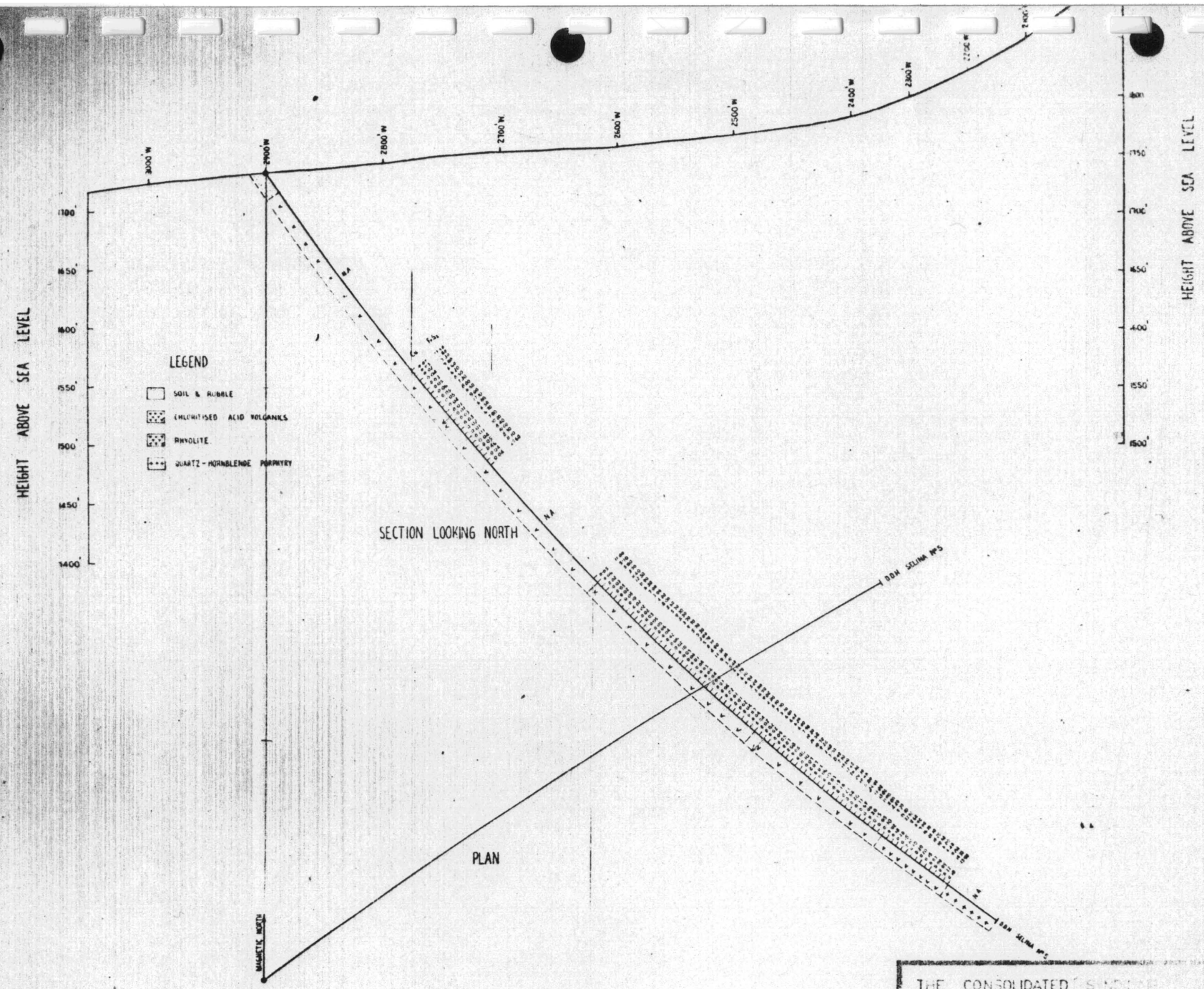
Page 043

Hole Number	SELINA 5		Purpose: To test coincident IP, Resistivity and magnetic anomalies on Line 12SN.
Location	Line 12SN/2900W, Selina Cord. MT. TYNDALL E.L. 9/66		
Level	SURFACE		
Co-ordinates	~~LINE 12SN/2900W~~ N28029·63	E34542·20	
Collar R.L.	SURFACE 1720·93		
Length	902' 2"		

Survey Depth	Bearing	Inclination
00'	53°(MAG)	-55°
Actual 00'	61° 41'	-54°25'

Rod Size	NQ	Comments	
Machine			
Logged by	J.P. McKibbon		
30' Plans			
30' Sections			
100' Plans		Commenced	3rd June, 1971
100' Sections		Completed	16th July, 1971

51 70 46



THE CONSOLIDATED SYNDICATE

LAKE SELINA GRID

LINE 128 N.

GEOPHYSICAL GEOCHEMICAL & DRILLING RESULTS

1:1000

MAR

5 cm

046

517047

THE MOUNT LYELL MINING AND RAILWAY COMPANY
LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

HOLE NUMBER *SELINA 5*

Survey Depth	80'	20'	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420
Bearing	61°41'			HOLE		CASED		TO		300 FT.						053°	051°	053°	066°	059°	066°	066°
Inclination	-54 25	-54½°	-54°	-54°	-54°	-53½°	-53½°	-53½°	-53½°	-53°	-52½°	-52½°	-52°	-52°	-51½°	-51°	-50½°	-50°	-49°	-48°	-45°	-44°

Survey Depth	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860
Bearing	071°	053°	056°	059°	061°	062°	062°	062°	063°	063°	064°	063°	064°	065°	064°	064°	064°	065°	063°	063°	063°	063°
Inclination	-46½°	-46°	-45°	-45°	-44°	-44°	-43°	-43°	-42°	-41°	-41°	-40°	-40°	-40°	-39½°	-39°	-38½°	-38°	-37½°	-37°	-36½°	-36½°

Survey Depth	880	890	E/H. 902'																			
Bearing	063°	064°																				
Inclination	-35½°	-35°																				

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212

Page 1

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 5

SELINA 5

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
0	20	20	30	0 - 20'
20	100	80	70	Soil cover and 6' of fine to medium grained
100	128	28	100	Jukes breccia (?) or Owen conglomerate.
128	170	42	60	
				20 - 76'
				Dark green highly chloritised massive volcanics with strong 30° schistosity. Veins of knotty coarse Py parallel to schistosity. Strongly leached zone from 40 - 76'.
				76 - 100'
				Dark green heavily chloritised massive dacitic or keratophyric (?) zone with knots and veinlets of albite in places. May originally have been a keratophyric conglomerate. Good 45° jointing and 30° weak schistosity.
				100 - 128'
				Heavily chlorirised dark green, broken keratophyre or dacite (?) (massive acid volcanics) with very minor trace of Cp, Py. Broken core with 45° jointing.
				128 - 129'
				Massive white quartz vein with chlorite knots.
				129 - 170'
				Very badly broken zone in heavily chloritised dark green volcanics. Magnetite veining quite strong in places and knots of course grained Py up to 6" wide at 131', 167'. Scattered coarse grained stringers,
170	200	30	100	blebs and veinlets of Py throughout with
200	212	12	100	magnetite patches fairly well developed
212	300	88	100	throughout core - some areas in which
300	362	62	85	magnetite has broken down to haematite.
362	425	63	100	
				170 - 208'
				Core massive, well jointed (45°) equivalent of above. Dark green heavily chloritised fine grained volcanics with magnetite more prominent on schistosity surfaces. Very minor "hairline" veinlets of Py rarely.
				208 - 212'
				Massive magnetite - Py mineralisation in dark green heavily chloritised

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	% Pb	% Zn	Sample Number
208	212	4	0.05	17.5	Trace.		0.01	0.014	

BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.

REMARKS

HQ 0 - 20'
20' - NQ

51049

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 5

SELINA 5

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				keratophyric (?) volcanics. Magnetite is very fine grained and occurs in "wavy" bands. Py is coarse grained and occurs as massive blebs.
				212 - 315' Massive, extremely hard light grey to pinkish acid volcanics with lumps and blebs of pink albite throughout, probably originally a dacite or rhyolite. Weak chloritisation occurs in places. Disseminated fine to medium grained Py occurs weakly to strongly scattered throughout. Occasional magnetite veins containing coarser Py in places. Good 45° jointing.
				315 - 425' Sharp (5°) contact with above occurs at 315' where massive fine grained Py gives way to a broken zone from 300 - 362' with strong 45° fractures. The whole zone consists of heavily chloritised dark green keratophyric (?) tuffs or agglomerates. In places a relict breccia texture can be observed but an agglomeratic phase is seen around 399'. In general the chloritisation obscures the true nature of the rock but it appears rhyolitic or keratophyric in nature. Only weakly disseminated veinlets and blebs of Py and a few magnetite - Py veins. Coarser grained rounded Py grains locally at 390 - 393'.
425	450	25	100	
450	488	38	100	
488	500	12	100	
				425 - 446' Chloritised massive light grey pinkish siliceous volcanics (probably rhyolite) with good 40° joints. A few pink blebs of albite. Minor fine disseminated Py very weakly throughout.
				446 - 488' Chloritised massive, 40° jointed, quartz and keratophyric tuff and agglomerate. Consisting of quartz and keratophyre fragments with chloritic groundmass. Disseminated fine to medium grained Py throughout. Chlorite - quartz vein at 451' with good Cp blebs, with minor trace of Ca.

ASSAYS

From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.	% Pb	Sample Number % Zn
212	215	3	0.05	11.5	NIL	NIL	<0.01	0.01
	220	5	0.02	7.3			"	0.01
	225	"	0.04	9.8			"	<0.01
	230	"	0.03	6.6			"	<0.01
	235	"	0.05	6.2			"	0.016
	240	"	0.06	8.5			"	0.016
	245	"	0.05	7.3			"	0.012
	250	5	0.05	8.0	NIL	0.02	"	0.01
	255	"	0.04	11.5			"	0.014
	260	"	0.01	9.0			"	<0.01
	265	"	0.01	17.3			"	0.015
	270	"	0.03	6.8			"	0.01
	275	"	0.03	6.5			"	0.01
	280	"	0.02	6.7			"	<0.01
	285	"	0.01	7.8			"	"
	290	"	0.01	10.2			"	"
	295	"	0.04	8.4			"	<0.01
	300	"	0.05	10.0	NIL	0.09	<0.01	0.01
	305	"	0.46	8.3			0.02	0.028
	310	"	0.04	11.1			<0.01	0.03
	315	"	0.04	25.6			0.02	0.02
445	450	5	0.05	11.0			<0.01	0.02
	455	"	0.06	5.1			0.01	0.06
	460	"	0.02	5.8			<0.01	0.027
	465	"	0.03	3.7			"	0.027
	470	"	0.03	11.6			"	0.029
	475	"	0.02	12.3			<0.01	0.036
	480	"	0.05	11.9	NIL	0.13	<0.01	0.026
	485	"	0.10	6.5			0.31	0.046
	490	"	0.03	7.0			0.08	0.04

BULK ASSAYS

From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.

REMARKS

NQ seated at 293'
BQ from 293'.

12"

12"

14"

12"

049

517050

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 5

SELINA 5

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				498 - 510' Pinkish grey highly siliceous, massive acid volcanics (probably keratophyre) with very sharp 45° joints. Blebs and minor veinlets of coarse Py and very sparse trace of Cp. Varying chloritisation stronger around joints.
500	550	50	100	510 - 522' Mottled light to medium grey siliceous fine grained volcanics with small rounded, to elongate blebs and flecks of dark green chlorite scattered strongly throughout. Minor quartz-chlorite and one quartz-albite veins. Thin veinlets and stringers of fine to coarse Py throughout weakly, with some scarce blebs of Cp in places.
550	600	50	100	
600	720	120	100	
				522 - 642' Light - mid grey, pinkish highly siliceous and volcanics (rhyolite?) with very fine uniform grainsize. Pink albite veinlets and patches scattered throughout. Good 75° joints and a few 40° joints but slicks generally quite massive and dense. Scattered patches of coarse grained Py throughout, also very fine grained disseminated Py in groundmass throughout. Some Cp blebs in places, sometimes associated with chlorite patches.
				642 - 720' Mottled dark green and pinkish grey highly siliceous, massive dense acid volcanics without shearing. Few weak 45° joints. Rock has high albite content as pink knots and veins and is fairly chloritised - probably originally a keratophyre.
720½	722	1½	100	Medium Py mineralisation throughout as fine
	732	10	100	disseminations and coarse knots and veinlets
	742	10	100	scattered as blebs throughout. Only minor
	746	4	100	visible Cp assoc. with a quartz-chlorite-calcite patch at 642'.
746	902	166	100	720 - 776' After 720' same rock type continues, but mineralisation becomes heavier. Pyrite is medium grained and often quite dense especially in more chloritic areas. Odd streaks and patches of chalcopyrite occur associated with and intimately mixed with

ASSAYS From	To	Ft.	% Cu.	% FeS_2	Oz. Au.	Oz. Ag.	% Pb	Sample Number % Zn	BULK ASSAYS From	To	Ft.	% Cu.	% FeS_2	Oz. Au.	Oz. Ag.	REMARKS
490	495	5	0.02	3.0			<0.01	0.013								
	500	"	0.02	4.0			0.01	0.01								
	505	"	0.03	8.0			0.027	0.11								
	510	"	0.05	5.6			0.023	0.19								
	515	"	0.05	5.7			0.056	0.22								
	520	"	0.06	9.7			0.023	0.06								
	525	"	0.04	5.3			0.056	0.044								
	530	"	0.02	3.7	Nil	0.09	0.027	0.044								
	535	"	0.06	9.1			<0.01	0.024								
	540	"	0.02	5.7			"	0.01								
	545	"	0.10	5.3			"	0.014								
	550	"	0.05	3.8			"	0.014								
	555	"	0.04	5.7			"	<0.01								
	560	"	0.01	8.7			"	"								
	565	"	0.04	4.9			"	"								
	570	"	0.03	13.3			"	<0.01								
	575	"	0.04	9.3			"	0.01								
	580	"	0.04	3.7	Nil	0.03	"	0.01								
	585	"	0.04	5.4			"	0.014								
	590	"	0.01	6.0			"	<0.01								
	595	"	0.05	4.7			"	"								
	600	"	0.02	6.1			"	"								
	605	"	0.01	4.9			"	"								
	610	"	0.01	5.2			"	<0.01								
	615	"	0.02	3.8			<0.01	0.01								
	620	"	0.04	6.5			0.015	0.12								
	625	"	0.07	9.8			0.03	0.04								
	630	"	0.04	4.8	Nil	0.07	0.013	0.03								
	635	"	0.04	5.1			<0.01	0.013								
	640	"	0.02	3.7			<0.01	<0.01								
	645	"	0.02	3.1			0.01	0.03								
	650	"	0.02	6.8			<0.01	<0.01								
	655	"	0.09	6.4			<0.01	<0.01								
	660	"	0.05	6.2			0.096	0.06								
	665	"	0.07	6.4			0.076	0.035								
	670	"	0.08	7.4			<0.01	0.028								
	675	"	0.05	10.3			<0.01	0.019								
	680	"	0.08	16.5	Nil	0.22	<0.01	0.015								
	685	"	0.10	10.7			0.012	0.013								
	690	"	0.07	9.2			0.04	0.025								
	695	"	0.07	3.4			0.033	0.03								
	700	"	0.05	3.3			0.017	0.01								
	705	"	0.06	8.4			0.03	0.02								
	710	"	0.05	7.9			0.10	0.045								
	715	"	0.03	14.8			<0.01	0.012								
	720	"	0.19	17.4			<0.01	0.014								
	725	"	0.14	28.3												
	730	"	0.21	21.3	0.01	0.08										
	735	"	0.54	10.4												
	740	"	0.20	11.8												

51705

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 5

SELINA 5

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				the pyrite. Acid volcanics have in places a brecciated appearance due to chlorite veining intensely developed.
				766 - 844½' Pinkish-grey fine grained acid volcanics (rhyolite) - dense, massive volcanics with good 40 - 45° jointing throughout. Typical of rocks in previous sections. Good Py mineralisation throughout with some traces of Cp. Good splash of massive Cp in a quartz-chlorite vein at 786'. Volcanics have brecciated appearance in places with veins of creamy white calcite(??) surrounding sharp fragments of rhyolite.
				844' 6" - 902' 2" Massive, well jointed (50°) solid mottled brownish-pink porphyritic volcanics. Indistinct bluish-white quartz porphyroblasts, dark olive green rounded chlorite or hornblende flecks (1 m.m. across) in a pinkish fine grained groundness. (Send to Fander for complete description). Joints appear to have minor segregated chlorite rim. Only very minor specks of coarse Py in a few places.
				END OF HOLE

ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.	% Pb	% Zn	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.	REMARKS
760	745	5	0·11	24·9													
	750	"	0·69	19·8													
	755	"	0·06	16·9			<0·01	0·016									12"
	760	"	0·20	11·0			0·01	<0·01									
	765	"	0·15	8·8			0·012	0·012									
	770	"	0·05	4·4	NIL	0·05	0·019	0·01									
	775	"	0·10	9·3			<0·01	<0·01									
	780	"	0·02	15·3			<0·01	0·01									
	785	"	0·18	22·9			0·017	<0·01									12"
	790	"	0·20	9·6			<0·01	0·015									
	795	"	0·15	6·9			<0·01	<0·01									
	800	"	0·10	7·6			<0·01	0·01									
	805	"	0·10	16·10			<0·01	<0·01									
	810	"	0·30	24·10			0·014	0·02									
	815	"	0·20	16·20			0·02	0·02									12"
	820	"	0·15	10·5	NIL	0·27	0·02	0·11									15"
	825	"	0·07	6·0			0·017	0·19									
	830	"	0·09	6·4			0·014	0·24									
	835	"	0·09	9·8			0·04	0·64									
	840	"	0·22	14·3	NIL	1·00	0·16	0·80									
	845	"	0·18	16·9			0·09	0·51									

7C0/1C

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form

Page 052

DIAMOND DRILL RECORD

Hole Number	SELINA 6
Location	MT TYNDALL - E.L. 9/66, Selina grid line 136N, 2700W
Level	SURFACE
Co-ordinates	LINE 136N / 2700W — N28633·61, E34517·84
Collar R.L.	1749.14
Length	1000'

Purpose: To test coincident magnetic and I.P. anomalies on line 136°N.

Survey Depth	00'	20'	40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240'	260'	280'	300'	320
Bearing	72°56'	—	—	—	68°	67°	66°	63°(?)	61°(?)	?	62°(?)	63°(?)	61°(?)	67°	68°	69°	66°
Inclination	-52½°	-52°	-52°	-52°	-51½°	-51°	-51°	-50°	-50°	-49°	-48½°	-48°	-47½°	-47°	-47°	-46°	-46°

Rod Size	BQ WIRE LINE
Machine	F 52
Logged by	K. Wells.
30' Plans	
30' Sections	
100' Plans	
100' Sections	

Comments

Commenced	26/7/71
Completed	8/9/71

517053

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

HOLE NUMBER SELINA 6

Survey Depth	340'	360'	380'	400'	420'	440'	460'	480'	500'	520'	540'	560'	580'	600'	620'	640	660'	680'	700'	720'	740'	760'
Bearing	64°	67°	66°	71°	71°	71°	73°	71°	71°	72°	75°	69°(?)	79°	80°	77°	86°(?)	93°(?)	84°(?)	77°	78°	75°	67°(?)
Inclination	-45°	-45°	-44°	-43½°	-43°	-42°	-41°	-40°	-40°	-39°	-38½°	-38°	-37½°	-37°	-37°	-36°	-35°	-35°	-34°	-33½°	-33°	-32½°

Survey Depth	780'	800'	820'	840'	860'	880'	900'	920'	940'	960'	980'	995'										
Bearing	03°(?)	79°	79°	76°	78°	78°	78°	82°	76°(?)	86°	85°	84°										
Inclination	-32°	-31°	-30°	-29½°	-30°	-28°	-27°	-26½°	-26°	-25°	-25°	-24°										

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
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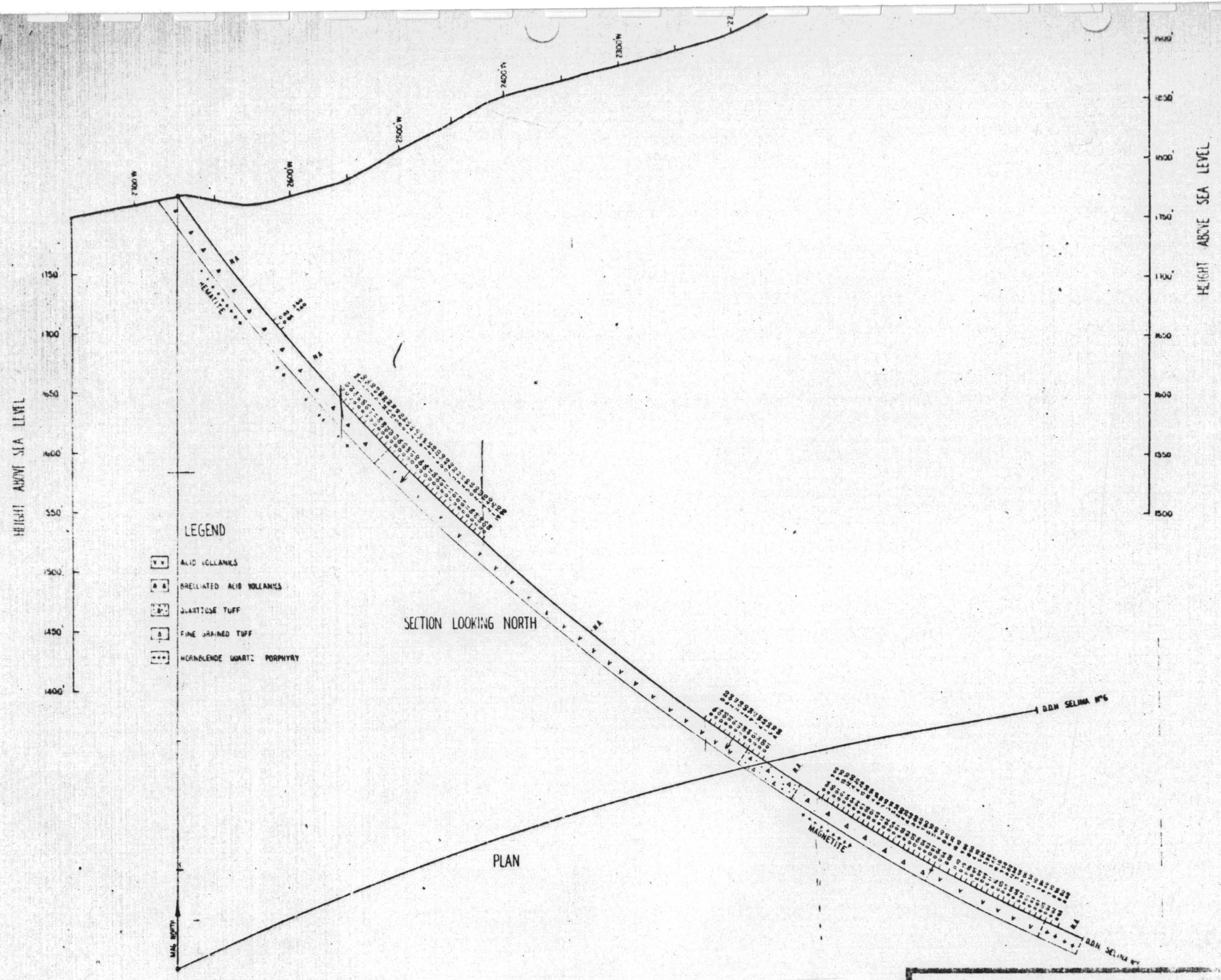
Survey Depth																						
Bearing																						
Inclination																						

053

5170534



5 cm

THE CONSOLIDATED SYNDICATE

LAKE SELINA GRID

LINE 13S N.

1:1000

054

517055

WALCH 404000

THE MOUNT LYELL M[illegible]NG AND RAILWAY COMPANY LIMITED

Form 212

Page 1

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 6

SELINA 6

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION	ASSAYS From	ASSAYS To	ASSAYS Ft.	ASSAYS % Cu.	ASSAYS % FeS₂	ASSAYS Oz. Au. %Pb	ASSAYS Oz. Ag. %Zn	Sample Number	BULK ASSAYS From	BULK ASSAYS To	BULK ASSAYS Ft.	BULK ASSAYS % Cu.	BULK ASSAYS % FeS₂	BULK ASSAYS Oz. Au.	BULK ASSAYS Oz. Ag.	REMARKS
0	10	7½	75	0 - 59'																
	20	10	100	Red - green fine grained - mottled																
	30	10	100	(brecciated) hard siliceous volcanics.																
	36	6	100	Rock varies from being fine grained to																
	43	7	100	tuffaceous and "brecciated" - the																
	48	5	100	brecciation being outlined by veins of																
	58	10	100	pinkish felspar (albite) or reddish																
	61	3	100	hematite.																
	65	4	100	The rock "fragments" are grey/green being																
	73	8	100	mainly siliceous, but some minor chlorite.																
	80	7	100	Massive rock with very poor schistosity																
	85	5	100	S.C.A. = 40° at 38'.																
	92	7	100																	
	96	4	100	59' - 116'																
	101	5	100	Dark red/green fragmental hematitic																
	107	6	100	siliceous volcanics.																
	110	3	100	Basically similar to previous rock type																
	114	4	100	with more hematite and chlorite.																
				Fragmental nature is partly tuffaceous -																
114	116	2	100	rounded quartz fragments less than 1 m.m.																
	118	2	100	in siliceous, chlorite, hematite, matrix																
	122	4	100	and partly brecciation - rock fragments																
	125	3	100	several m.m. across outlined mainly by																
	133	8	100	hematite although occasionally albite.																
	137	4	100	Some quartz/chlorite veining.																
	142	5	100																	
	148	6	100	116 - 264'																
	155	7	100	Still similar to previous rock types,	130	135	5	0.03	3.6	0.028	0.05									Core more broken
	159	4	100	although lighter in colour, however, darker		140	"	0.04	7.4	<0.01	0.013									than before.
	167	8	100	with increasing amounts of hematite.																
	171	4	100	Mainly a fine grained siliceous volcanic																
	180	9	100	rock, occasional brecciated patches and																
	186	6	100	after 1SS some flecks of chlorite up to																
	194	8	100	1 m.m.																
	200	6	100	Mineralisation occurs from 130' - 140'																
	203	3	100	mainly fine grained pyrite associated with																
	208	5	100	chloritic patches, however, a bleb of	210	215	5	0.01	N/L	<0.01	0.018									
	213	5	100	chalcopyrite occurs at 135'.		220	"	0.02	3.5	<0.01	0.014									
	217	4	100	Rock fairly massive and schistosity		225	"	0.04	1.5	<0.01	0.017									
	222	5	100	poorly developed.		230	"	0.01	2.7	<0.01	0.016									
				S.C.A. = 40° at 154'.		235	"	0.05	2.6	0.01	0.01									
222	235	13	100	After 159' rock type continues - a siliceous		240	"	0.05	5.9	0.018	0.019									Rock badly broken
235	245	9	90	acid volcanic with varying amounts of		245	"	0.07	1.3	0.02	0.017									at 2[illegible]', 229', 25[illegible]
	253	8	100	hematite and texture varies from fine		250	"	0.11	32.3	0.11	0.018									and 250'.
	260	7	100	grained to mottled ("brecciated").		255	"	0.09	25.7	0.07	0.02									
	265	3	60	A variety of mineralisation occurs apart		260	"	0.08	15.1	0.03	<0.01									
	273	8	100	from normal hematite, with which there is		264	4	0.02	5.2	<0.01	0.01									
	280	7	100	some minor magnetite, specularite occurs																
	287	7	100	at 195'. Minor pyrite starts to occur																

517056

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 6

SELINA 6

FOOTAGE From	FOOTAGE To	Ft.	RECOVERY %	DESCRIPTION
	293	6	100	at approximately 290' and gradually
	303	10	100	increases in importance until 245' where
	307	4	100	it becomes nearly massive. Minor chalco-
	313	3½	50	pyrite also occurs.
	321	8	100	Whole rock is fairly massive and schistosity
	330	7½		is very poor. S.C.A. = 60° at 218'.
	335	5	100	
	344	9	100	264' - 685'
	351	7	100	Again still siliceous acid volcanics
	357	6	100	however, now darker in colour - green due
	363	6	100	to increased amount of chlorite, no
	370	7	100	significant amount of hematite.
	382	12	100	
382	397	12	80	Rock fine-medium grained rarely "brecciated"
	401	4	100	although albitic and quartz/chlorite veins
	411	9	90	do occur. Fairly massive and schistosity
	425	14	100	virtually non-existent.
	437	12	100	Mineralisation occurs but is very patchy
	449	12	100	with mainly pyrite often associated with
	460	11	100	albite rich areas. Some minor chalcopyrite
	476	14	100	often associated with minor quartz veins
	490	14	100	e.g. 312½'.
	496	6	100	Rock type continues although after 385'
	500	4	100	mineralisation is very patchy and almost
	504	4	100	non-existent. The mineralisation consists
	510	6	100	of pyrite usually arranged in veins, at
	513	3	100	480' "brecciation" is outlined by small
	515	2	100	pyritic veins.
	521	6	100	Dark grey-green siliceous acid volcanics
	529	8	100	continue after 490' - fairly massive with
	538	9	100	very sparse mineralisation consisting of
	550	12	100	veins and blobs of fine grained pyrite. Occasional albite veining also.
550	560	10	100	After 560' rocks have a "flecked"
	564	4	100	appearance - lighter coloured flecks less
	575	11	100	than 1 m.m. in a darker green matrix.
	585	10	100	Mineralisation continues patchy until 625'
	587	2	100	where it starts to increase, mainly fine
	599	12	100	grained pyrite usually in veins, but also
	615	16	100	some chalcopyrite associated with it.
	625	8	80	Possibly some magnetite associated with the
	635	10	100	sulphides. Mineralisation continues but
	645	10	100	poorly until end of rock type.
	655	10	100	
	665	10	100	685 - 736'
	695	30	100	Basically similar to above type but now
	705	10	100	either a tuff or a porphyry.
	715	10	100	Sub-rounded white flecks of quartz up to
	721	6	100	1 m.m. in a greenish matrix. Thought to

ASSAYS

From	To	Ft.	% Cu.	% FeS₂	Oz. Au. %Pb	Oz. Ag. %Zn
264	270	6	0.02	8.3	<0.01	0.02
	275	5	0.03	0.6	<0.01	0.01
	280	"	0.06	1.4	0.07	0.02
	285	"	0.05	2.6	0.016	0.02
	290	"	0.08	1.5	0.01	0.02
	295	"	0.07	0.9	<0.01	0.02
	300	"	0.10	7.6	0.015	0.026
	305	"	0.06	2.2	0.01	0.04
	310	"	0.06	1.2	<0.01	0.036
	315	"	0.12	6.5	0.015	0.02
	320	"	0.06	0.4	0.016	0.014
	325	"	0.04	0.4	<0.01	0.02
	330	"	0.07	2.3	<0.01	0.04
	335	"	0.11	3.1	<0.01	0.016
	340	"	0.13	3.1	0.31	0.045
	345	"	0.01	3.9	0.02	0.01
	350	"	0.07	5.4	<0.01	0.015
	355	"	0.07	0.8	0.015	0.02
	360	"	0.11	2.4	0.04	0.02
	365	"	0.06	1.7	0.02	0.02
	370	"	0.09	1.4	0.01	0.02
	375	"	0.08	2.1	<0.01	0.015
	380	"	0.05	1.7	0.01	0.01
	385	"	0.08	19.9	0.02	0.01
625	630	5	0.06	5.2	<0.01	0.014
	635	"	0.06	6.0	<0.01	0.014
	640	"	0.05	2.1	0.01	0.016
	645	"	0.03	2.5	<0.01	0.02
	650	"	0.02	2.6	<0.01	0.016
	655	"	0.03	2.5	<0.01	0.02
	660	"	0.08	9.1	<0.01	0.02
	665	"	0.04	1.9	0.01	0.02
	670	"	0.03	4.4	<0.01	0.01
	675	"	0.02	1.3	<0.01	0.02
	680	"	0.05	6.7	<0.01	0.02
	685	"	0.01	4.0	0.016	0.025

BULK ASSAYS

Sample Number	From	To	Ft.	% Cu.	% FeS₂	Oz. Au.	Oz. Ag.

REMARKS

12"

12"

Core broken at 363'. 15"

Core broken at 393', 430', 442' and 505 - 525'.

12"

12"

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 6

SELINA 6

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
	731	10	100	be an acid tuff.
	751	20	100	
	761	10	100	
	771	10	100	
	781	10	100	
781	791	10	100	Mineralisation has decreased markedly and
	801	10	100	is usually confined to small veinlets and blebs of pyrite associated with albitic patches e.g. 697' or quartz/chlorite veins e.g. 710'.
				736' - 868'
				The rock is now much finer grained although similar to the previous rock type - a siliceous acid tuff. Albite zones occur,
801	816	15	100	e.g. 751' and chlorite is locally more
	827	11	100	important occasionally outlining
	840	13	100	"brecciation" e.g. 761 - 775'. Minor
	850	10	100	calcite occurs.
	860	10	100	Mineralisation consists of magnetite with
	870	10	100	pyrite in veinlets and blebs scattered
	887	17	100	throughout the core, chalcopyrite also occurs in subordinate but varying amounts. This dark green chloritised fine grained acid tuff continues as far as 868 although after 800' the amount of magnetite decreases. Calcite is quite common usually in small veinlets and often associated with the mineralisation e.g. 865'. Mineralisation consists essentially of fine grained but often massive pyrite in veins, with minor chalcopyrite.
				868' - 972'
				Medium grey fine grained/mottled siliceous acid volcanics. Similar to previous rock type but the chloritization has decreased.
887	901	14	100	Pinkish albite occurs throughout the rock and
	915	14	100	gives the rock the "mottled" effect.
	927½	12½	100	Mineralisation has decreased from the previous
	943	15½	100	rock type and is confined to small veins of fine
	957	14	100	grained pyrite. Calcite occasionally occurs
	975	18	100	in small veinlets with some of the pyrite
	985	10	100	and with some quartz veins.
	1000	15	100	Chloritisation occurs 887 - 900'. Other sulphides occur associated with small quartz/calcite veins e.g. chalcopyrite at 904' and galena at 912½' elsewhere just veins of fine grained pyrite although a

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au. %Pb	Oz. Ag. %Zn	Sample Number	BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	REMARKS
740	745	5	0.04	9.0	<0.01	0.025									12"
	750	"	0.05	9.7	<0.01	0.02									
	755	"	0.01	13.7	<0.01	0.02									
	760	"	0.01	12.0	<0.01	0.02									
	765	"	0.04	4.2	<0.01	0.03									
	770	"	0.04	4.2	<0.01	0.015									
	775	"	0.09	15.5	0.01	0.03									12"
	780	"	0.07	15.5	0.04	0.05									
	785	"	0.05	4.3	<0.01	0.03									
	790	"	0.01	4.1	<0.01	0.026									
	795	"	0.05	7.1	<0.01	0.025									
	800	"	0.12	5.1	<0.01	0.025									
	805	"	0.02	5.3	<0.01	0.03									12"
	810	"	0.04	2.8	<0.01	0.03									
	815	"	0.01	5.2	<0.01	0.03									
	820	"	0.03	4.4	0.08	0.08									
	825	"	0.03	3.8	0.05	0.035									
	830	"	0.05	4.4	<0.01	0.03									
	835	"	0.06	7.8	0.024	0.19									15"
	840	"	0.04	5.7	0.054	0.23									
	845	"	0.03	5.9	0.03	0.08									
	850	"	0.07	9.1	0.014	0.024									
	855	"	0.04	8.3	0.015	0.03									
	860	"	0.04	8.3	0.02	0.05									
	868	8	0.03	18.1	<0.01	0.02									14"
	875	7	0.10	9.8	<0.01	0.015									
	880	5	0.15	8.5	<0.01	0.01									
	885	"	0.06	4.1	<0.01	0.01									
	890	"	0.09	5.8	0.01	0.03									
	895	"	0.09	5.8	0.01	0.03									
	900	"	0.09	5.4	0.02	0.12									
	905	"	0.11	10.1	0.03	0.16									14"
	910	"	0.16	9.5	0.02	0.046									
	915	"	0.05	8.8	0.015	0.02									
	920	"	0.09	13.3	0.08	0.63									
	925	"	0.06	5.0	0.11	0.41									
	930	"	0.08	11.0	0.02	0.04									
	935	"	0.02	13.5	0.01	0.03									12"

057

5120558

DIAMOND DRILL RECORD

HOLE NUMBER SELINA 6

SELINA 6

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
				large, 1 - 2 mm euhedral pyrite grain occurs at 913' within the volcanic rock.
				972' - 1000'
				Greyish brown porphyritic volcanics, similar to the porphyritic volcanics seen at the end of Selina 5. Phenocrysts of white quartz and more of dark green chlorite in a greyish brown (quartzose albite) groundmass. Minor veins of calcite and others of chlorite. No sulphide mineralisation seen.
				END OF HOLE

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	% Pb	% Zn	Sample Number
935	940	5	0.05	3.10	<0.01	0.025			
940	945	"	0.03	7.30	0.01	0.02			
945	950	"	0.07	9.40	<0.01	0.01			
950	955	"	0.05	7.10	<0.01	0.016			
955	960	"	0.02	0.90	<0.01	0.03			
960	965	"	0.02	0.80	<0.01	0.02			
965	972	7	0.03	0.40	<0.01	0.01			

BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.

REMARKS

058

517059

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

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DIAMOND DRILL RECORD

Page 550

Hole Number	SELINA 7
Location	MT TYNDALL, E.L. 9/66, SELINA GRID. LINE 112N, 1990W.
Level	SURFACE
Co-ordinates	N 26519.00 E 35607.40
Collar R.L.	1750.65'
Length	1347'
Survey Depth	00'
Bearing	253°18'
Inclination	-69°50'
Rod Size	HQ 0-790' NQ 790-1300'
Machine	MINDRILL F66C
Logged by	K. WELLS
30' Plans	
30' Sections	
100' Plans	
100' Sections	

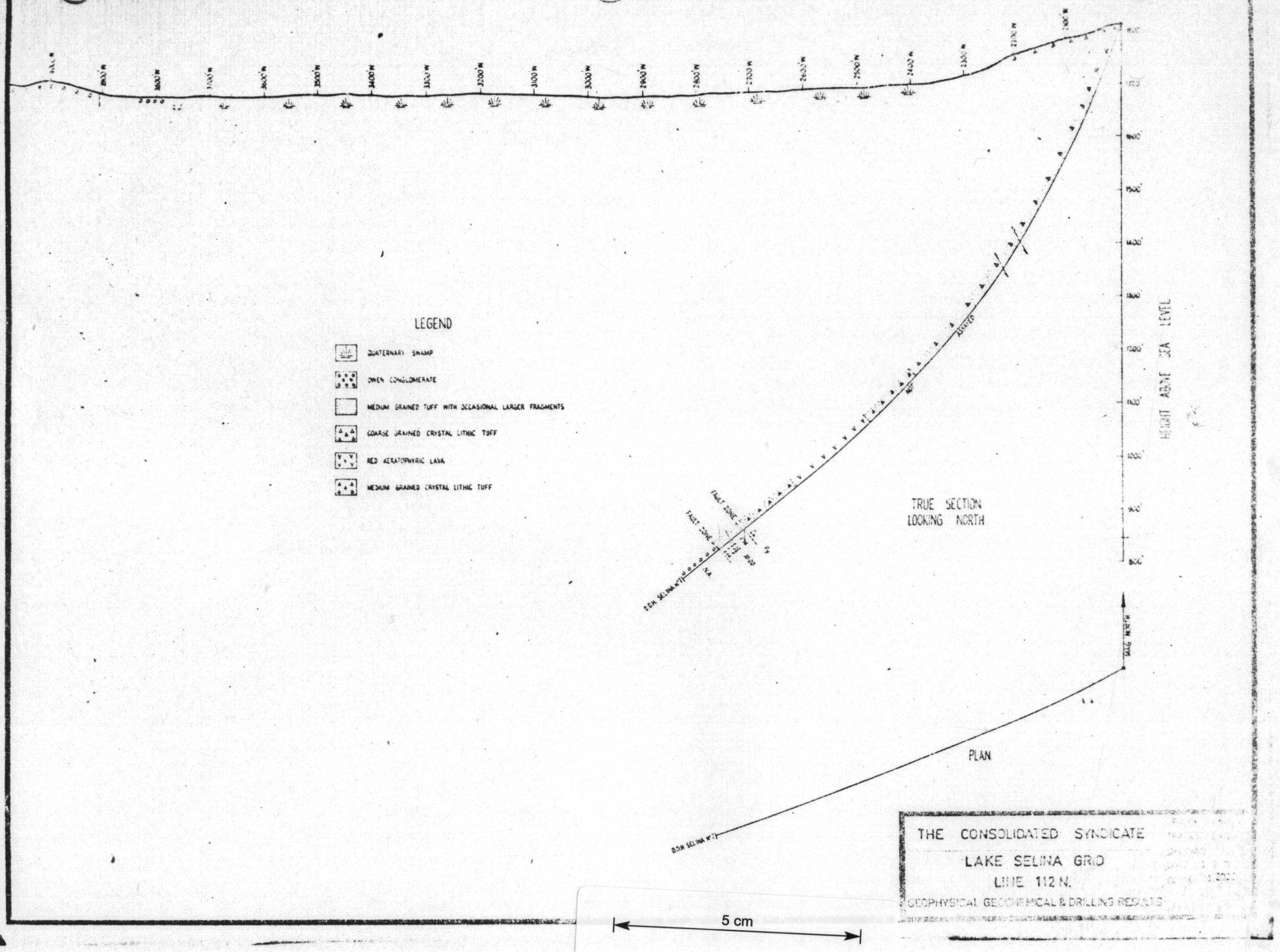
Purpose: TO TEST FOR A DEEPER AND SOUTHERN EXTENSION OF THE SULPHIDE MINERALISATION INTERSECTED IN D.D.Hs SELINA 4, 5 and 6

Comments: HOLE FLATTENED QUICKER THAN EXPECTED :. HQ RODS EXTENDED TO 790' FROM PLANNED DEPTH OF 500'

HOLE STRUCK CONGLOMERATE AT 1265'. ORIGINALLY NOT EXPECTED UNTIL 2000'+. STRUCTURE NOT YET EXAMINED ADEQUATELY

Commenced	1. 12. 72
Completed	29. 1. 73.

51706



THE CONSOLIDATED SYNDICATE

LAKE SELINA GRID

LINE 112 N.

GEOPHYSICAL GEOCHEMICAL & DRILLING RESULTS

060

5170611

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

DIAMOND DRILL RECORD — SURVEY SHEET

HOLE NUMBER SEAINA 7

	State Grid	Mine Grid																			
Survey Depth	00'	20'	40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240'	260'	280'	300'	320'	340'	360'	380'	400'	420'
Bearing	253°18'	241°	243°	244°	244°	243°	243°	242°	242°	242°	242°	243°	243°	243°	243°	245°	245°	245°	245°	246°	246°	246°
Inclination	-65°50'	-70°	-70°	-70°	-70°	-69°	-68½°	-68°	-68°	-67°	-67°	-66°	-65°	-64½°	-64°	-63°	-63°	-63°	-62°	-61°	-60°	-59°

Survey Depth	440'	460'	480'	500'	520'	540'	560'	580'	600'	620'	640'	660'	680'	800'	720'	740'	760'	780'	789'	800'	820'	840'
Bearing	245°	246°	246°	246°	246°	246°	246°	246°	245°	247°	248°	248°	248°	248°	248°	248°	248°	250°	250°	242°?	247°	248°
Inclination	-58½°	-58°	-58°	-57½°	-56°	-55°	-54°	-53°	-52°	-51½°	-51½°	-50°	-49°	-48½°	-48°	-47½°	-46½°	-46°	-46°	-45½°	-45°	-45°

Survey Depth	860'	880'	900'	920'	940'	960'	980'	1000'	1020'	1040'	1060'	1080'	1100'	1120'	1140'	1160'	1180'	1200'	1220'	1240'	1260'	
Bearing	249°	249°	248°	250°	250°	249°	249°	250°	250°	250°	250°	250°	250°	250°	250°	250°	250°	250°	250°	250°	250°	
Inclination	-44°	-44°	-43½°	-43°	-42½°	-42°	-41½°	-41°	-41°	-41°	-41°	-41°	-40½°	-40°	-40°	-40°	-39°	-39°	-38½°	-38°	-38°	

Survey Depth																						
Bearing																						
Inclination																						

Survey Depth																						
Bearing																						
Inclination																						

0	13	13	45	0 - 700'	
	23	10	100	Dark grey/green massive coarse crystal	
	27	4	100	lithic tuff.	
	37	10	100	Quartz fragments usually < 1 mm and larger	
	47	10	100	angular lithic fragments, usually slightly	
	57	10	100	elongated parallel to the poorly developed	
	67	10	100	schistosity, up to 1" long, usually smaller.	
	77	10	100	The groundmass is dark green and consists	
	87	10	100	of : chlorite, quartz, some calcite and	
	97	10	100	minor haematite in places.	
	107	10	100	From 90' numerous small quartz veins often	
	117	10	100	containing red haematite.	
	127	10	100	No visible mineralisation.	
	137	10	100	From 160' rock becomes coarser, particularly	
	147	10	100	the quartz fragments which are up to 3 mm	
	157	10	100	in diameter. Rock very hard.	
	167	10	100	Very minor fine grained pyrite	
	177	10	100	mineralisation at 242'.	
	187	10	100	Rock type continues - a grey green crystal	
	197	10	100	lithic tuff. Hematitic patches occur but	
	207	10	100	also softer zones with some minor sericite in	
	217	10	100	the matrix.	
	227	10	100	Lithic fragments occasionally angular but	
	237	10	100	usually subrounded, usually up to 1" but	
	247	10	100	occasionally bigger. Composition varies	
	256	9	100	from rare dark green chloritic fragments	
	257	1	100	to small light grey fine grained and larger	
	267	10	100	reddish fragments of acid lava. All aligned	
	277	10	100	subparallel to the poorly developed	
	287	10	100	schistosity.	
	297	10	100	S.C.A. = 60° at 450' but core usually	
	307	10	100	fairly massive.	
	327	20	100	From 500' rock appears to be coarser with	
	337	10	100	a greater percentage of lithic fragments.	
	347	10	100	Although basically the same rock type, now	
	357	10	100	better described as a volcanic breccia.	
	377	20	100	Shearing more obvious with fragments	
	387	10	100	streaked out subparallel to the bedding.	
	397	10	100	S.C.A. = 60° at 510'.	
	407	10	100	Very minor fine grained pyrite along shear	
	417	10	100	plane at 519'.	
	427	10	100	Fine grained tuffs occur within the tuff-	
	437	10	100	breccia at 561' - 562' and 576' - 577'.	
	447	10	100	612' - 613' and onwards consists of a	
	457	10	100	mixed zone of the two interbedded rock	
	467	10	100	types. Mainly a green crystal lithic	
	470	3	100	tuff-breccia as described above and a light	
	477	7	100	grey dense very fine grained tuff with	
	487	10	100	occasional green sericite/chlorite patches	
	497	10	100	within it.	

Rock [illegible] weathered [illegible].

Massive quartz vein at 29' and 33'.

Core badly broken and weathered 136' to 139'.

Massive quartz veinin at 214' - 216', 239' and 242'.

Core badly broken at 316' - 319'.
Massive quartz vein with associated chlorite 321' - 323'.

Core broken at 409' 487'.

A fault zone occurs between 445' and 455' where the core is badly fractured and broken.

062

5170 63

497	5[illegible]	10	100	Odd specks of very minor fine grained pyrite at 753'.	Core badly broken with pyrite and chlorite at 7[illegible]'.
	517	10	100		
	527	10	100		
	537	10	100	762' - 892'	
	547	10	100	Basically the same as above but much finer grained. A dark grey/green crystal lithic tuff : rounded crystals of white quartz up to 5 mm., and broken sheared and elongated fragments of pinkish lava up to ½" in a fine grained dark green groundmass of quartz, chlorite, calcite, some sericite and patchy hematite. Occasional narrow light green sericite rich zones. Minor fine grained specks and veinlets of pyrite usually with some small quartz veins. From 887' fragments of a pink acid lava become more frequent - in a fact a gradual change to next rock type.	Core badly broken 767' - 769'.
	557	10	100		
	567	10	100		
	577	10	100		
	587	10	100		
	597	10	100		
	607	10	100		
	617	10	100		
	627	10	100		
	637	10	100		
	647	10	100		
	657	10	100		
	667	10	100		
	687	20	100		
	697	10	100		
	707	10	100		
	717	10	100		
	727	10	100		
	737	10	100		
	757	20	100		
	767	10	100		
	777	10	100		
	787	10	100		
	797	10	100		
797	802	5	100	892' - 1083'	
	807	5	100	Buff to bright pink hard siliceous acid lava. A reddish quartz keratophyre with rounded clear/white quartz phenocrysts upto 5 mm in a dense fine-grained pink groundmass. The rock is fractured with the cracks filled with chlorite and/or dark grey sericite and calcite, which appear as flecks or veinlets in the core. Fracturing in places is more intense and rock appears more like a lithic pyroclastic similar to the previous rock type. Minor quartz and/or calcite veins occur irregularly throughout the core. Minor fine grained pyrite occurs disseminated in the grey groundmass, not in the pink fragments of acid lava.	Core badly broken 852' - 877'.
	817	10	100		
	827	10	100		
	837	10	100		Core badly broken 892' - 893' and at 910'
	847	10	100		
	856	9	100		
	866	2	20		
	873	7	100		Core broken and ground at 947' - 951'.
	877	4	100		
	887	10	100		
	897	10	100		
	907	10	100		Core broken at 1045'.
	917	6	60		
	927	10	100		
	937	10	100		
	947	10	100		
	957	10	100		
	967	10	100		
	977	10	100		

063

5170064

THE MOUNT LYELL MINING AND RAILWAY COMPANY LIMITED

Form 212 No 3

DIAMOND DRILL RECORD

HOLE NUMBER Selina 7

Selina 7

FOOTAGE From	FOOTAGE To	RECOVERY Ft.	RECOVERY %	DESCRIPTION
	987	10	100	1083' - 1195'
	997	10	100	Grey/green hard siliceous crystal lithic
	1007	10	100	tuff. Similar to 0' - 769' but much harder
	1017	10	100	more siliceous. Quartz crystals, usually
	1027	10	100	subrounded upto 5 mm and larger broken
	1037	10	100	fragments of pink acid lava upto 10 cms in
	1047	10	100	a groundmass of quartz, chlorite, dark
	1053	6	100	coloured sericite and very minor calcite.
	1063	10	100	Pyrite < 1% occurs as discrete small fine
	1073	10	100	grained aggregates and stringers. Rare
	1077	4	100	odd fine grained small aggregates of
	1087	10	100	chalcopyrite. Slight increase after 1175'.
	1097	10	100	Rock more sheared and chloritised at 1150'
	1107	10	100	and after this the rock becomes darker with
	1117	10	100	more chlorite in groundmass and in veins.
	1127	10	100	
	1137	10	100	1195' - 1200'
	1147	10	100	Core fractured and broken - fault zone?
	1157	10	100	
	1167	10	100	1200' - 1265'
	1177	10	100	Light grey fine grained rock. Flecks and
	1197	20	100	cracks filled with dark sericite, similar to
	1207	10	100	the keratophyre and superficially looks
	1217	10	100	like a lava. However broken fragments of
	1227	10	100	red acid lava and is probably a tuff. Very
	1237	10	100	hard and siliceous.
	1247	10	100	Grains and veinlets of pyrite occur also
	1257	10	100	minor chalcopyrite. Total sulphide
	1267	10	100	approximately 5% to 10%.
	1277	10	100	
	1287	10	100	1265' - 1347'
	1297	10	100	Faulted contact with dark purple sandstones,
	1307	10	100	grit and fine conglomerate - Owen. Quartz
	1317	10	100	veins occur.
	1327	10	100	Good facing (truncated bedding) at 1270'
	1337	10	100	indicates owen younging towards the
	1347	10	100	Cambrian contact* Poor grading elsewhere
				confirms direction.
				Parts of the Owen sheared and minor sericite
				developed. Pyrite occurs at 1260'.
				Elsewhere pale coloured and appears silicified.
				END OF HOLE
				* B.C.A.: 70

ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.	Sample Number
1200	1205	5'	0.07	10.3			
	1210	"	0.03	12.2			
	1215	"	0.06	9.9			
	1220	"	0.05	5.6			
	1225	"	0.09	7.9			
	1230	"	0.02	10.1			
	1235	"	0.13	13.8			
	1240	"	0.02	9.0			
	1245	"	0.14	8.2			
	1250	"	0.13	12.2			
	1255	"	0.04	12.0			
	1260	"	0.07	15.2			
	1265	"	0.01	5.6			

BULK ASSAYS From	To	Ft.	% Cu.	% FeS$_2$	Oz. Au.	Oz. Ag.
1200	1265	65'	0.07	10.2		

REMARKS

Core badly broken 1247' - 1248', 1252' and 1257'.

064

517065

ROSEBERY

Murchison Highway

WILLIAMSFORD

Mt. Read

Rea Hills

Lake Julia

Lake Westwood

Lake Selina

Lake Ballestan

Lake Hurtley

Lake Dora

Lake Spicer

Henty River

Basin Lake

Lake Margaret

Mt. Tyndall

TYNDALL RANGE

Mt. Gaiki

Mt. Murchison

E.L. 10/69

THE CONSOLIDATED SYNDICATE

MT. TYNDALL LOCATION MAP

E.L. 9/66

FIG. 1

Drawn: R.G.W.

Checked:

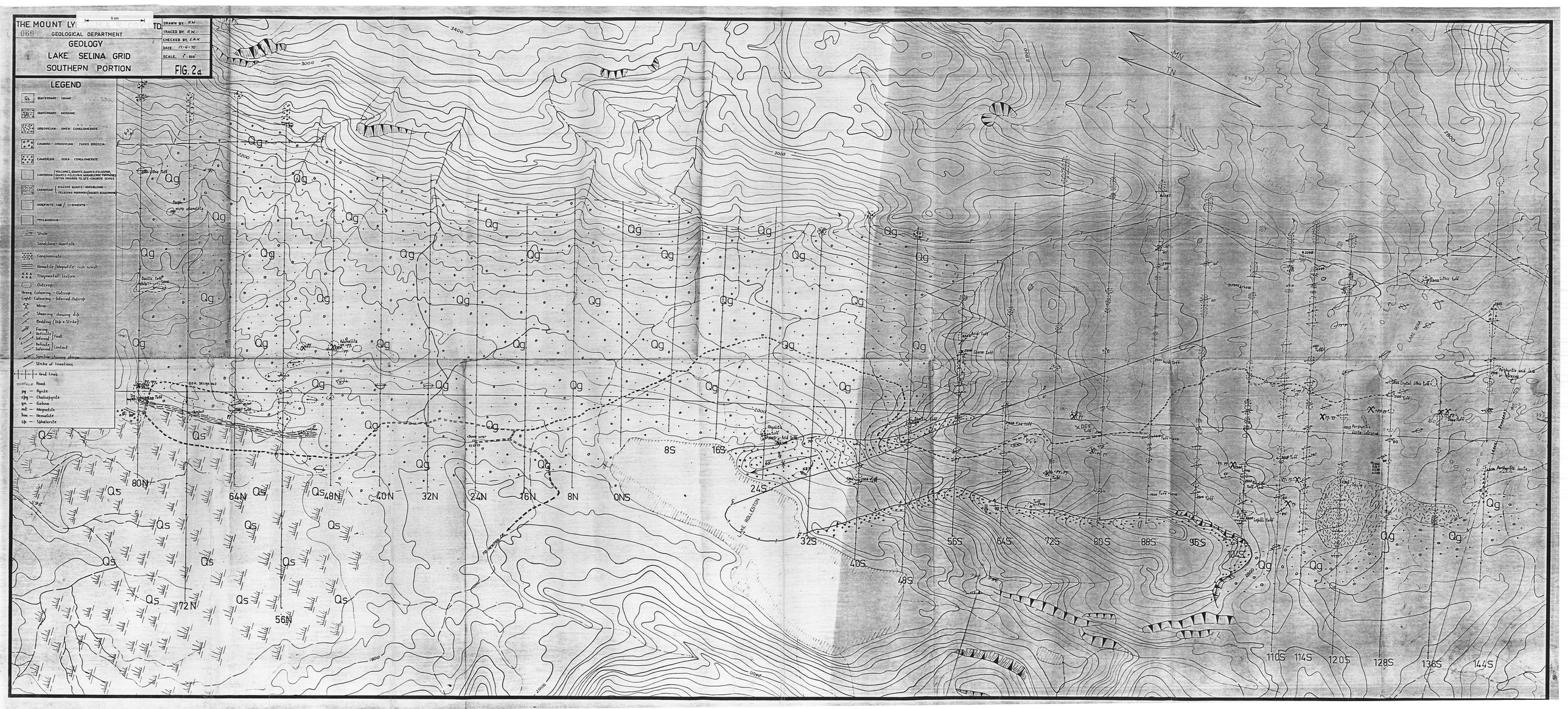
Date: 25:11:'69

Scale: 2" = 1 mile

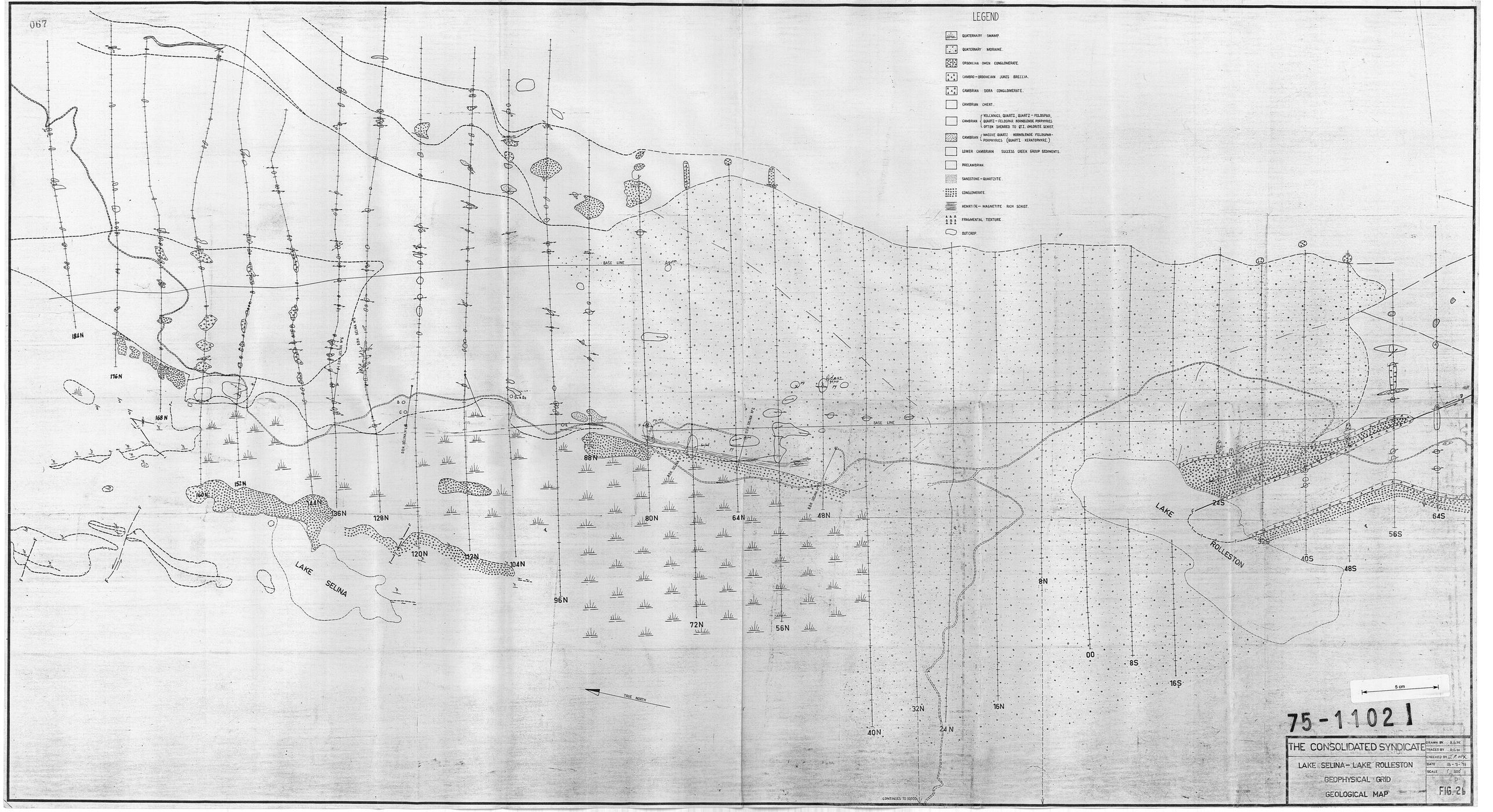
5 cm

Co-ordinates on 2 mile Grid.

by Lands and Surveys Department, Hobart. "Murchison" 40 chain to 1 inch sheets.


THE MOUNT LY
GEOLOGICAL DEPARTMENT
GEOLOGY
LAKE SELINA GRID
SOUTHERN PORTION
FIG. 2a
DRAWN BY: NW
TRACED BY: RN
CHECKED BY: LAK
DATE: 17-6-70
SCALE: 1" 200'
LEGEND
Qs QUATERNARY - SWAMP
QUATERNARY - MORAINE
ORDOVICIAN - GWEN CONGLOMERATE
CAMBRO - ORDOVICIAN - JUKES BRECCIA
CAMBRIAN - DORA CONGLOMERATE
CAMBRIAN - VOLCANICS, GRANITE, QUARTZ-FELDSPAR, PORPHYRY, RHYOLITE, DACITE, ANDESITE, SPHERULITES (often sheared to gneiss, chlorite schist)
CAMBRIAN - MASSIVE QUARTZ - HORNBLENDE - FELDSPAR PORPHYRY (coarse keratophyre)
INDEFINITE AGE / SEDIMENTS
PRE-CAMBRIAN
Shale
Sandstone - Quartzite
Conglomerate
Hematite/Magnetite rich schist
Fragmental texture
Outcrop
Heavy Colouring - Outcrop
Light Colouring - Inferred Outcrop
Mine
Shearing showing dip
Bedding (dip & Strike)
Facing
Definite
Inferred
Fault
Definite
Inferred
Contact
Syncline showing plunge
Strike of lineations
Grid lines
Road
py - Pyrite
cpy - Chalcopyrite
gn - Galena
mt - Magnetite
hm - Hematite
sp - Sphalerite
Qg
Lithic tuff
Rhyolite
micro granophyre
Dacitic tuff
Lapilli tuff
Acid tuff
Coarse tuff
Chert
Rhyolite
Acid tuff
Porphyritic acid lava
Porphyritic dacite
Crystal lithic tuff
Lapilli tuff
Tuff
Tuff-lava
Tuff-breccia
Tuff-lava
Lapilli tuff
Porphyritic dacite
Porphyritic acid lava
Porphyritic dacite
LAKE SELINA
LAKE ROLLESTON
TO WARATAH
MN
TN
80N
64N
48N
40N
32N
24N
16N
8N
ONS
8S
16S
24S
32S
40S
48S
56S
64S
72S
80S
88S
96S
104S
110S
114S
120S
128S
136S
144S
72N
56N

067



75-1102 I

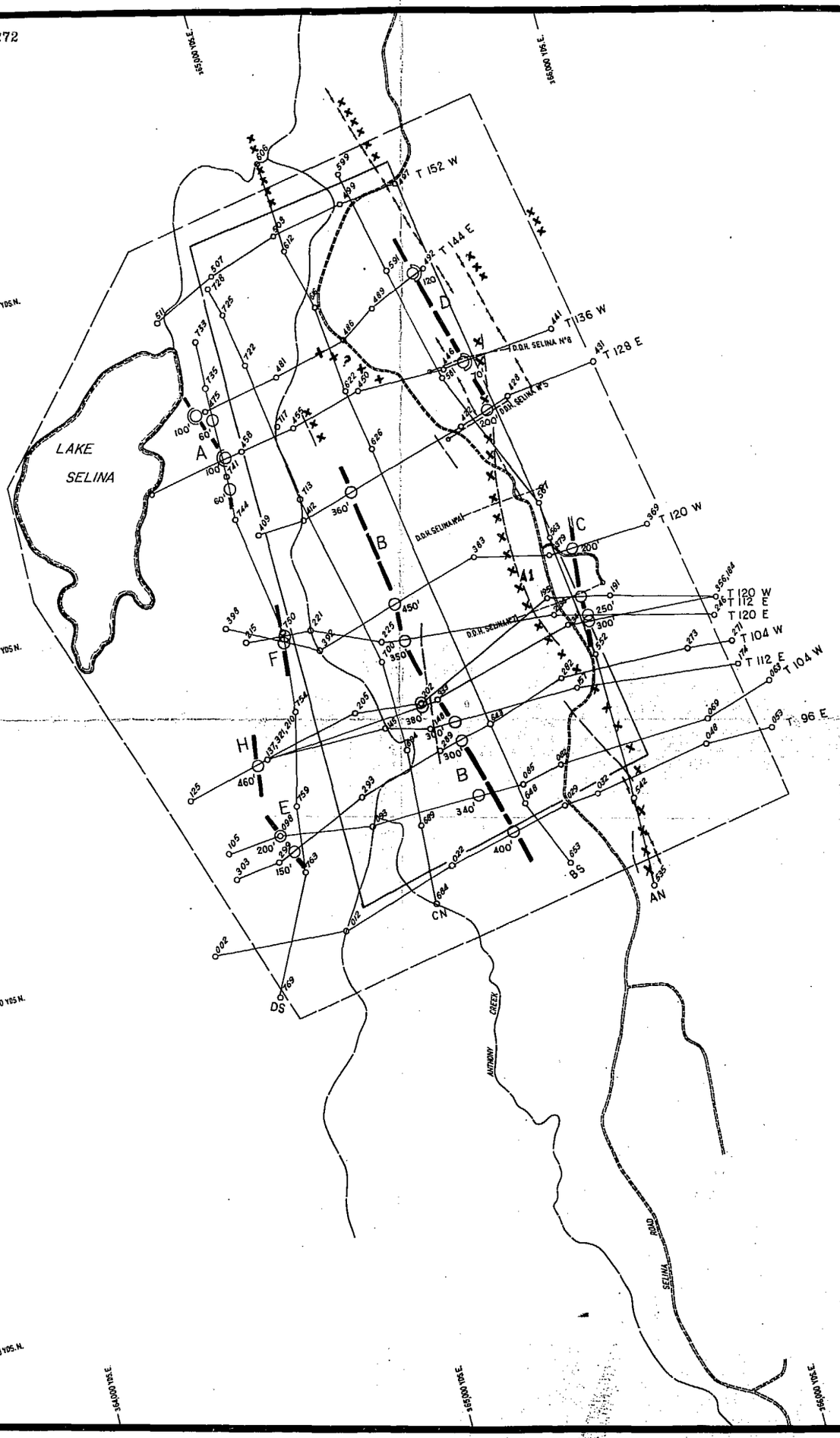
THE CONSOLIDATED SYNDICATE	DRAWN BY R.G.W.
	TRACED BY R.G.W.
	CHECKED BY J.F.H.K.
LAKE SELINA - LAKE ROLLESTON	DATE 13-7-71
GEOPHYSICAL GRID	SCALE 1" = 500'
GEOLOGICAL MAP	FIG. 2b

9271
THE MOUNT LYELL M. & R. COY. LTD.
GEOLOGICAL DEPARTMENT
COMPREHENSIVE GEOPHYSICAL MAP
LAKE SELINA GRID
SOUTHERN PORTION
DRAWN BY. C.G.G.
TRACED BY. R.G.W.
CHECKED BY.
DATE. 16-7-70
SCALE. 1" : 500'
FIG. 3a
LEGEND
5 cm
Axis of polarizable body and anomaly number
Magnetic body
Magnetic trends
Magnetic discontinuity
Conductive axis
Resistant gradient
SCINTREX
Anomalous I.P. zones - interpreted by Scintrex 1973
A1
A2
A3
A4
A5
A6
A7
A8
A10
A11
A12
A13
A14
A15
A16
A17
F1
F2
F3
Limit of magnetic bearing formation
LAKE ROLLESTON
LAKE DORA
TARN 1
CAMP SITE
TO NEWTON CK
80 N
72 N
64 N
56 N
48 N
40 N
32 N
24 N
16 N
8 N
00
8 S
16 S
24 S
32 S
40 S
48 S
56 S
64 S
72 S
80 S
88 S
96 S
104 S
110 S
114 S
120 S
128 S
136 S
144 S
N
FIG. 3a

9273

BASE LINE
BASE LINE
184N
176N
168N
160N
152N
144N
136N
128N
120N
112N
104N
96N
88N
80N
72N
64N
56N
48N
40N
32N
24N
16N
8N
00
8S
16S
24S
32S
40S
48S
56S
64S
A1
A1
A1
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A17
A18
A19
A20
A21
A22
A23
A24
A25
A26
LAKE SELINA
LAKE ROLLESTON
TRUE NORTH
CONTINUES TO 10000
LEGEND
I.P. AXIS
CONDUCTIVE AXIS
MAGNETIC AXIS
S.P. AXIS
ELECTRICAL DISCONTINUITY
POLARIZABLE BODY
GRADIENT ARRAY COVER
NORTHERN LIMIT OF I.P. COVERAGE
5 cm
THE CONSOLIDATED SYNDICATE
LAKE SELINA- LAKE ROLLESTON
GEOPHYSICAL GRID
COMPREHENSIVE GEOPHYSICAL MAP
DRAWN BY R.G.W.
TRACED BY R.G.W.
CHECKED BY J.P.M.C.
DATE 22-3-78
SCALE 1" = 500'
FIG. 3b

9272



LEGEND

TURAIR SURVEY (SCINTREX 1973)

- T 15 W — 1618 — FLIGHT LINE SHOWING LINE NUMBER AND NUMBERED TIE POINTS
- CATEGORY 3: σt < 10 MHOS, SIGNAL/NOISE < 2
- 70' — DEPTH TO CURRENT AXIS IN FEET
- NEAR CONTACT SHOWING SIDE OF MAGNETIC ANOMALY
- B — CONDUCTOR AXIS AND CODE
- SURVEY BOUNDARY
- APPROXIMATE POSITION OF LOOP

I.P. SURVEY (C.G.G. 1971)

- X X X X X — A1 — I.P. AXIS
- CONDUCTIVE AXIS
- MAGNETIC AXIS

73-970

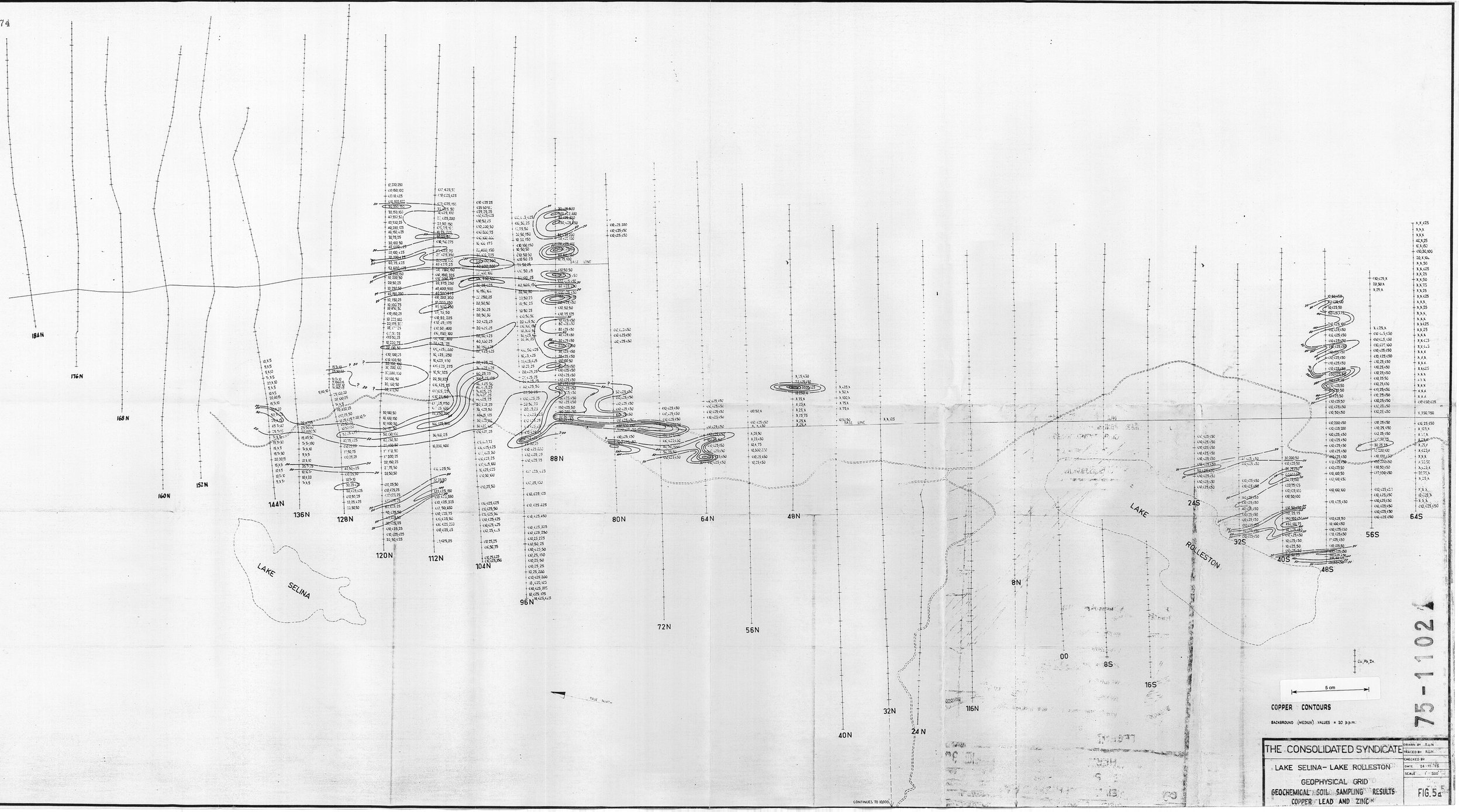
THE CONSOLIDATED SYNDICATE

MT. TYNDALL E.L. 9/66
LAKE SELINA AREA 003
TURAIR (E.M.) COVERAGE
AND I.P. ANOMALIES

DRAWN:	R.G.WILSON.
TRACED:	R.G.WILSON.
CHECKED:	K.WELLS.
DATE:	24-7-73
SCALE:	1:6,000

FIG. 4a

9274



75-11021

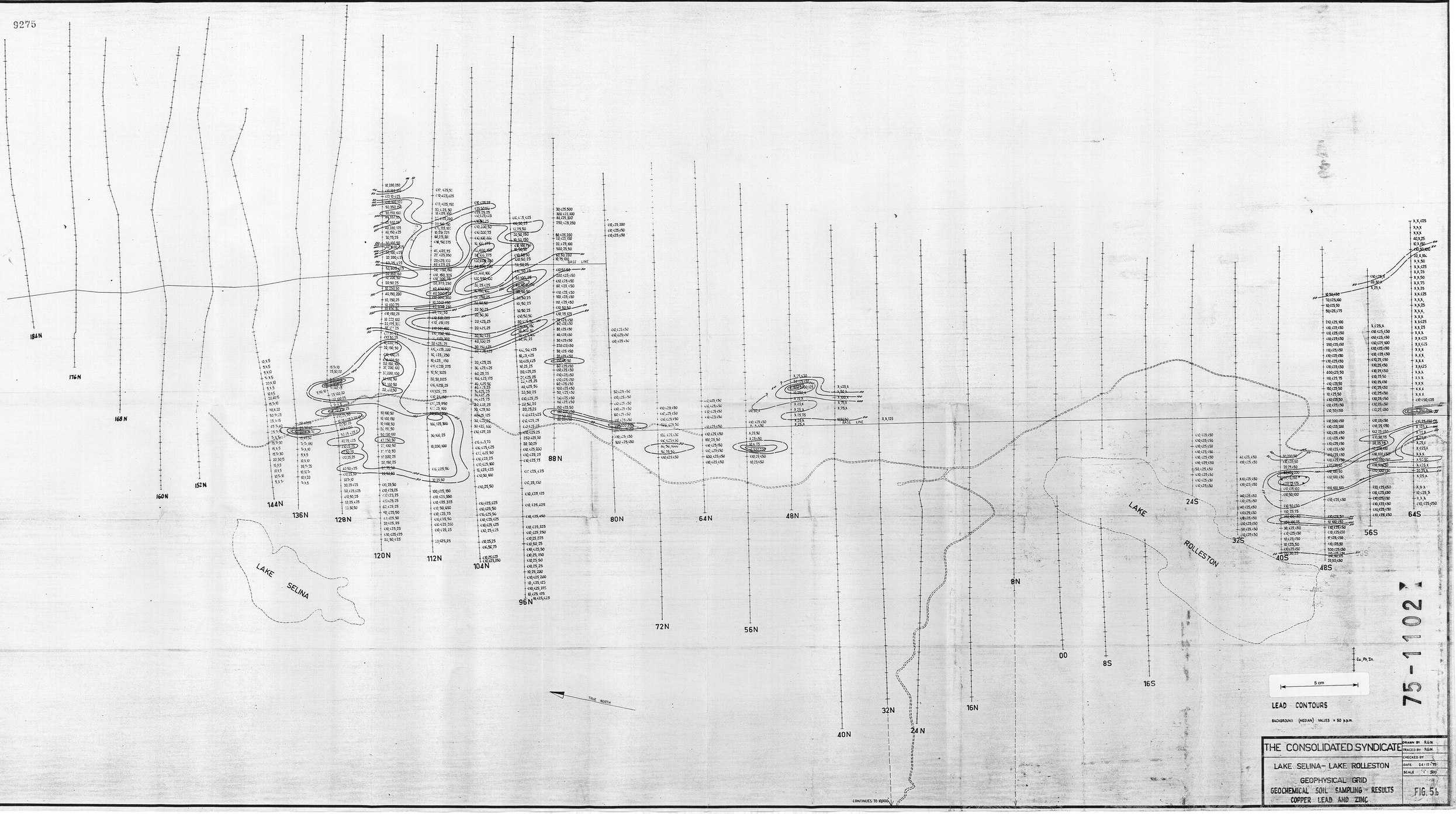
THE CONSOLIDATED SYNDICATE

LAKE SELINA- LAKE ROLLESTON
GEOPHYSICAL GRID
GEOCHEMICAL SOIL SAMPLING RESULTS
COPPER LEAD AND ZINC

DRAWN BY R.G.N
TREATED BY R.G.N
CHECKED BY
DATE 24.11.75
SCALE 1" = 500'

FIG. 5a

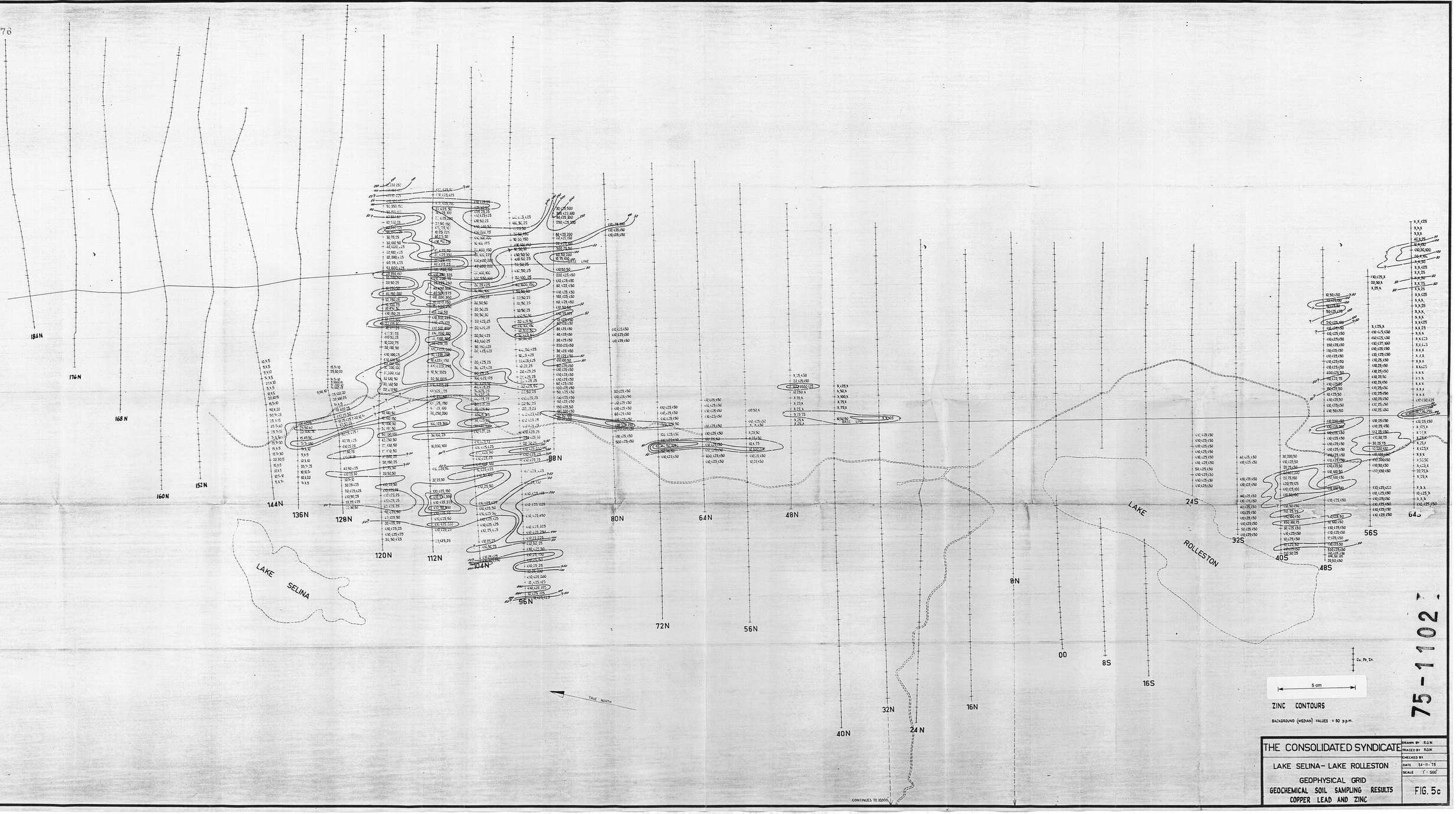
9275



75-1102

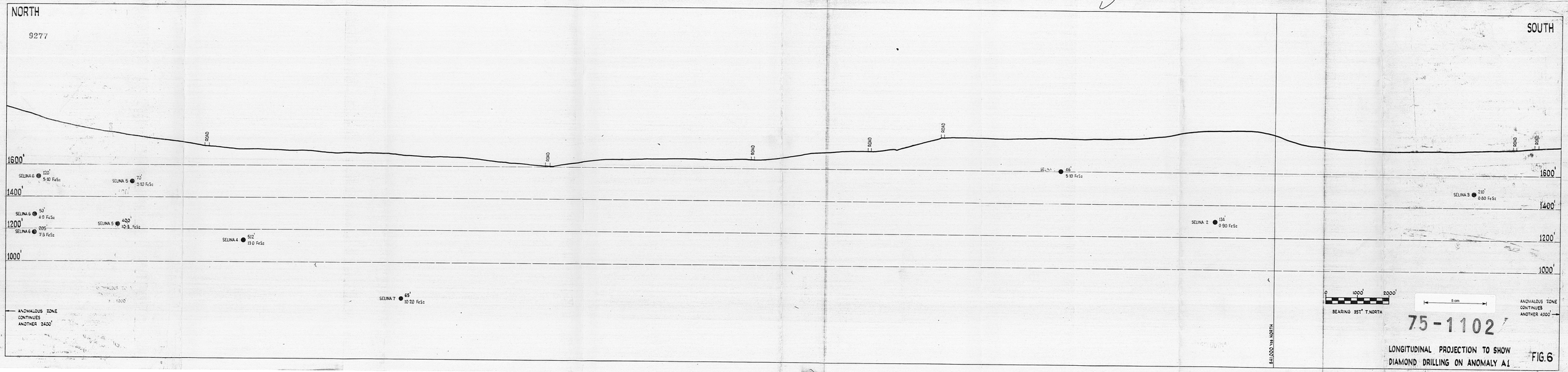
THE CONSOLIDATED SYNDICATE	DRAWN BY R.G.N.
	TRACED BY R.G.N.
LAKE SELINA – LAKE ROLLESTON	CHECKED BY
GEOPHYSICAL GRID	DATE 24-11-75
GEOCHEMICAL SOIL SAMPLING - RESULTS	SCALE 1" = 200'
COPPER LEAD AND ZINC	FIG. 5b

9276



75-1102

THE CONSOLIDATED SYNDICATE	DRAWN BY R.G.N.
	TRACED BY R.G.N.
LAKE SELINA – LAKE ROLLESTON	CHECKED BY
GEOPHYSICAL GRID	DATE 24-11-75
GEOCHEMICAL SOIL SAMPLING RESULTS	SCALE 1" = 500'
COPPER LEAD AND ZINC	FIG. 5c


NORTH
9277
SOUTH
1600'
1400'
1200'
1000'
ROAD
SELINA 6 120' 5.30 FeSz
SELINA 5 70' 11.10 FeSz
SELINA 6 50' 4.0 FeSz
SELINA 6 205' 7.9 FeSz
SELINA 5 400' 10.3 FeSz
SELINA 4 512' 13.0 FeSz
SELINA 7 65' 10.20 FeSz
SELINA 46' 5.10 FeSz
SELINA 2 134' 0.90 FeSz
SELINA 3 210' 0.60 FeSz
ANOMALOUS ZONE CONTINUES ANOTHER 2400'
ANOMALOUS ZONE CONTINUES ANOTHER 4000'
0 1000' 2000'
BEARING 351° T.NORTH
5 cm
84,000 N. NORTH
75-1102
LONGITUDINAL PROJECTION TO SHOW DIAMOND DRILLING ON ANOMALY A1
FIG.6