83-#90

ASSESSMENT REPORT

STEWART MOLY PROJECT

NTS: 82-F-6, 3

NELSON MINING DIVISION

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670

Part 2 of 3

Brian Grant
Senior Geologist
Selco Inc.

April 1, 1983

ASSESSMENT REPORT

STEWART 1, 2, 4, 5, 6, 7 AND 13

STEWART 3, 9, 12, RUBY & FREE SILVER AND ROYAL

STEWART 8, 10, 11, MAGGIE, HOULTON, JOCK 1 AND 2

NTS: 82-F-6

NTS: 82-F-3

LAT: 49°17'N, LONG: 117°17'W

NELSON MINING DIVISION

Previous Owners: Eric W. Denny of Annable Road, RR #1, Nelson, BC V1L 5P4

Jack N. Denny of Taghum Hill, Granite Road, RR #2, Nelson, BC, V1L 5P5.

~~Operator~~ Present Owners: Harp Explorco Ltd.
C/- Selco Inc., 402-535 Thurlow Street, Vancouver, BC V6E 3L2
(FMC 237561)

Brian Grant
Senior Geologist
Selco Inc.

April 1, 1983

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INTRODUCTION

Location

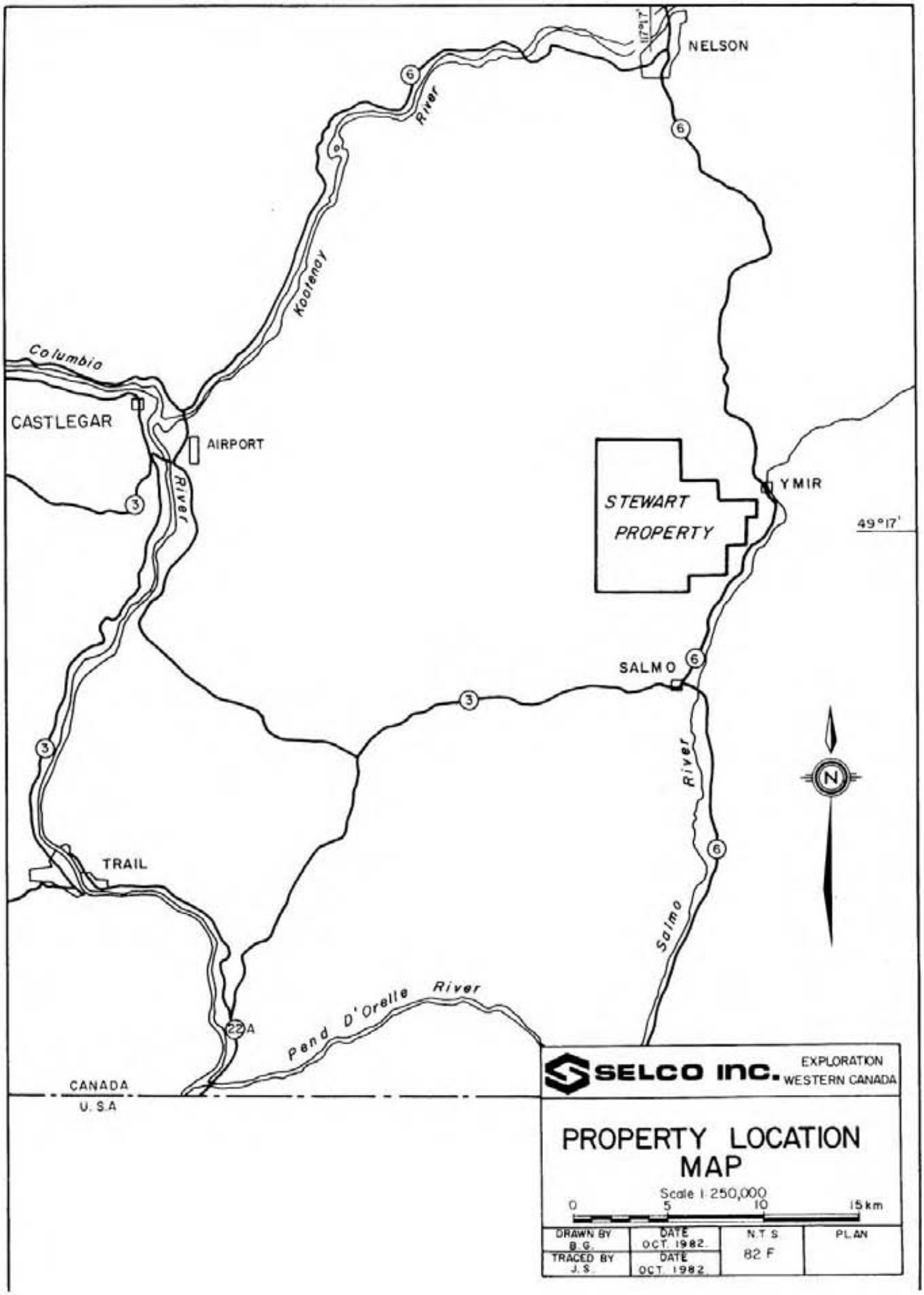
The Stewart claims are centered at approximate latitude 49°17'N and longitude 117°17'W. This location is about 28 km south of the town of Nelson B.C. and about 4 km west of the town of Ymir, B.C. within the Nelson Mining Division. The claim group lies within the drainage basins of Stewart, Quartz, Boulder Mill and Erie Creeks.

Access

Access from Castlegar is via Highway #3 through Salmo and from Nelson via Highway #6 to Ymir. Property access is by a series of logging and forest access roads of four wheel drive standard. The Stewart Creek access is via four wheel drive in all weather while two wheel drive is adequate in dry weather. The Quartz Creek access is very steep and rugged and is passable only by four wheel drive. Access via Boulder Mill and Erie Creek is seasonal and by four wheel drive only.

Physiography

The claims are located in an area of glaciated, moderately rugged terrain with elevations between 750 meters and 1950 meters. The ground supports a variety of vegetation in the lower sections and the summit areas are relatively devoid of trees and support only scrub brush and mosses. Areas which were logged or burnt in past


NELSON
117°17'
6
River
Kootenay
Columbia
CASTLEGAR
AIRPORT
River
3
STEWART
PROPERTY
YMIR
49°17'
SALMO
6
3
3
River
Salmo
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TRAIL
22A
Pend D'Oreille River
CANADA
U.S.A
SELCO INC.
EXPLORATION
WESTERN CANADA
PROPERTY LOCATION
MAP
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J.S.
DATE
OCT. 1982.

years are now host to dense thickets of willow and alders. Overburden is variable in thickness with considerable outcrop along the ridge lines and thick alluvium in the valley bottoms. Soil development is generally poor and is composed predominantly of weathered fines and scree from the slopes and underlying bedrock. Snowfall in the area is moderate to heavy on the higher slopes with ground bare and accessible from about May to November on the average.

History and Economic Assessment

Selco Inc. optioned the Stewart Property in 1982 from Eric and Jack Denny of Nelson, BC, as a result of regional geological evaluation. It is presumed that the property has potential as a porphyry molybdenum system and the exploration efforts of Selco will primarily be to assess the economic viability of the molybdenum mineralization in the area. In addition, in view of historic records indicating the presence of base and precious metals with property boundaries, an appraisal of the economic potential of the Elise Volcanics and Hall Sediments will be carried out in conjunction with the main exploration efforts on the intrusive complex hosting the molybdenum mineralization.

The Ymir area has seen considerable exploration and prospecting for gold and base metals in the late 1800's and early 1900's. At that time there was considerable activity and many pits, trenches,

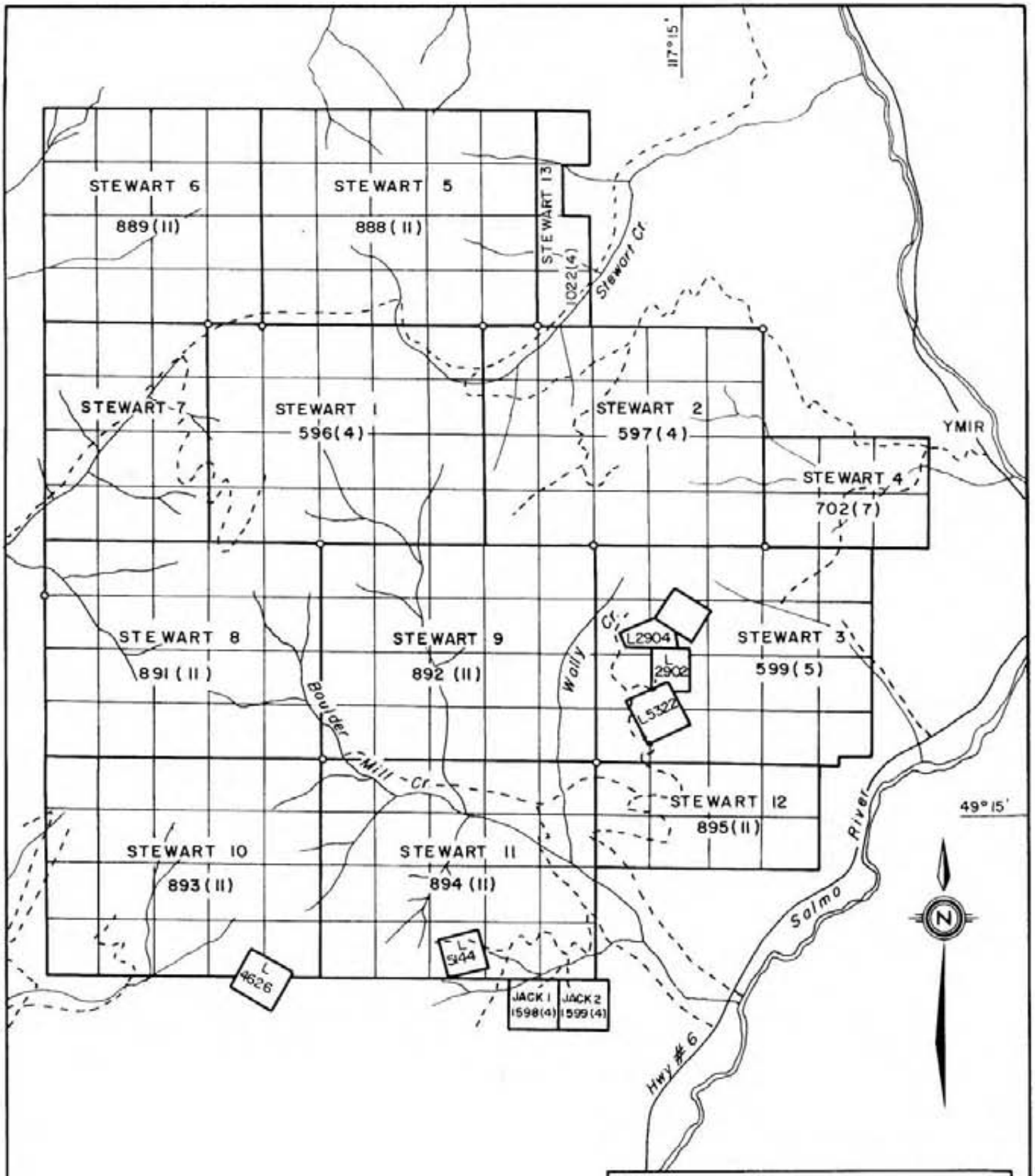
adits and shafts were located on the present Stewart property and in the surrounding countryside. Many of the old properties were significant producers of gold ores and some production of base metals has been documented.

The present Stewart property is the site of the Free Silver and May Blossom properties, located for their base and precious metal potential in 1896. These properties saw intermittent activity up until about the 1930's.

The Arrow Tungsten showings were evaluated on Stewart Creek (Stewart #2), during the period of 1942 to 1952. Copper Horn Mining worked the area of Stewart #4 from 1966 to 1969 as part of their Fresno Group.

Quintana Minerals Corporation held a large property called the Salmo Group in 1969 and 1970 which included what is now the main molybdenum showing of the Stewart Property. Quintana carried out extensive surface exploration for base and precious metals.

During the late 1970's, Eric and Jack Denny of Nelson, carried out propecting surveys of the area and acquired mineral rights to what is now the Stewart Property. In 1979 they optioned the property to Shell Canada Resources Ltd. and Shell carried out a detailed evaluation of the property including geophysical and geochemical surveys,



SELCO INC. EXPLORATION WESTERN CANADA

CLAIM LOCATION MAP

Scale 1:50,000

0 1 2 km

DRAWN BY B. G.	DATE OCT. 1982	N.T.S. 82F	PLAN
TRACED BY J. S.	DATE OCT. 1982		

geological mapping and diamond drilling. The results of their work indicated that the property was host to ore grade concentrations of molybdenum mineralization and that there may be potential to develop sufficient tonnage of ore material to warrant exploitation of the deposit. Due to economic factors Shell dropped out of the mineral exploration scene in 1982 and the property has subsequently been evaluated and optioned by Selco Inc.

Stewart Property Ownership

The Stewart Property is owned by Mr. E. Denny and Mr. J. Denny of Nelson B.C. who have optioned the property to Harp Explorco Ltd. a wholly owned company of Selco Inc. The property consists of a total of 212 claims and claim units as outlined in the schedule of lands.

Schedule of Land

Group 1	Recording Date	# of Units	Record Number	Present Expiry Year
Stewart 1	April 28, 1978	20	596	1986
Stewart 2	April 28, 1978	20	597	1986
Stewart 4	July 14, 1978	6	702	1986
Stewart 5	Nov. 28, 1978	20	888	1984
Stewart 6	Nov. 28, 1978	16	889	1985
Stewart 7	Nov. 28, 1978	12	890	1985
Stewart 13	April 24, 1979	4	1022	1986

Group 2	Recording Date	# of Units	Record Number	Present Expiry Year
Stewart 3	May 8, 1978	20	599	1985
Stewart 9	Nov. 28, 1978	20	892	1983
Stewart 12	Nov. 28, 1978	8	895	1985
Ruby & Free Silver	April 18, 1978	1	593	1986
Royal	April 18, 1978	1	594	1986

Group 3	Recording Date	# of Units	Record Number	Present Expiry Year
Stewart 8	Nov. 28, 1978	20	891	1983
Stewart 10	Nov. 28, 1978	20	893	1983
Stewart 11	Nov. 28, 1978	20	894	1983
Maggie(L5144)	Nov. 28, 1978	1	898	1983
Houlton(L4626)	Nov. 28, 1978	1	896	1984
Jock 1	April 11, 1980	1	1598	1986
Jock 2	April 11, 1980	1	1599	1986

Summary of Work

During the later part of 1982 and early 1983, Harp Explorco carried out the following work on the Stewart Property at Ymir, B.C. which is hereby being submitted for assessment credit.

a) Rock chip sampling and geochemistry - 584 samples

b) Geological description of rock samples - 584 samples

c) Airborne survey - 277 line kilometers

SURVEY OBJECTIVES AND TECHNIQUES

a) Rock Chip Sampling and Geochemistry

A preliminary mapping and sampling program was carried out with a threefold objective:

1) to confirm data compiled by previous operators,

2) to provide a reliable data base from which the economic potential of the intrusive system could be evaluated,

3) and to provide detailed geochemical information from which future surveys could be planned.

Due to the short period of time available, prior to the onset of heavy snow conditions, sampling was confined to the gridded area of the main intrusive complex. Rock chip samples were collected each 50 meters along 100 meter spaced grid lines wherever there was outcrop. Each sample was a combination of several chips collected within a 10 meter radius of the sample site. Every effort was made to collect "fresh" rock material below the surface leaching zone of about 1 cm. Quartz or other veins were avoided in order to eliminate a bias in the whole rock data.

Each sample was split, prior to submission to the geochemical lab, in order to provide a portion for rock geochemistry and a portion for geological appraisal. A total of 584 samples were collected and evaluated.

Each sample was submitted to X-Ray Labs of Toronto for whole rock analysis of major and minor elements including Rb, Sr, and Zr. Each sample was analyzed for fluorine and run through a 30 element emission spectrometer analysis.

b) Geological Evaluation of Rock Samples

Each of the samples collected for geochemical analysis was subjected to geological evaluation with the following objectives:

1) to provide data to aid in the interpretation of the geochemical data,

2) to assist in drawing up a preliminary geological map of the intrusive complex,

3) to identify mineralogy and alteration features of each sample site,

4) to confirm data obtained from previous workers as an aid in evaluating their work as it may pertain to current studies.

In order to plan future surveys a reliable geological map of the main showing area was required. Due to winter weather conditions it was not feasible to carry out detailed surface mapping so the rock geochemical samples were utilized to obtain the necessary information.

Each sample, which was identified by grid co-ordinates, was examined by an experienced geologist with the aid of a binocular microscope. A description of each sample was compiled and a map showing the various rock type locations was drawn up. The map and sample descriptions are appended to this report.

c) Airborne Geophysical Survey

During late 1982 Questor Surveys Ltd. was contracted to carry out a helicopter-borne Input and magnetics survey over the Stewart Property.

Questor has prepared a comprehensive contractors report detailing equipment, survey techniques and principles, and results. This report is appended.

The objectives of this geophysical survey was primarily to test the Elise Volcanics and Hall Sediments, surrounding the main intrusive complex, for conductors which may have potential as base or precious metal targets.

In addition, the survey was aimed at defining the boundaries of the intrusive complex, identifying local fault structures and determining if any phases of the intrusive complex were anomalously magnetic.

SURVEY RESULTS AND INTERPRETATION

a) Airborne Geophysical Survey

The results of this survey are dealt with comprehensively in the contractor's report by Questor Surveys Ltd. which is attached as Appendix I to this report.

b) Geological Evaluation of Rock Samples

Each rock sample collected for geochemical analysis was further evaluated by geological means and the results are presented herein as individual rock descriptions and as a geological map of rock type distributions.

The general results indicated by this study are as follows:

1) The Stewart Property is host to a multiphase intrusive complex which varied in composition over time from relatively mafic to felsic rocks.

2) The more felsic rocks, i.e. aplites and rhyolites, are in an intrusive relationship to their host quartz-monzonites and biotite-augite-monzonites.

3) The complex is host to late stage intrusive diabase dykes and lamprophyre.

4) The textural and mineralogical data indicates that the main quartz-monzonite intrusive may in actual fact be composed of several phases of intrusion.

5) Although most samples showed alteration features, the intrusive history of the complex makes identification of alteration patterns difficult without further detailed ground studies.

6) A preliminary map of rock types and distribution has been prepared and is appended to this report as an aid in evaluating the rock geochemical data.

SAMPLE DESCRIPTION - L0+00

0+50E QMP. Feldspar phenos 1 cm in length. Hornblende to 4 mm has been largely chloritized. Contains about 10% quartz. Slightly sericitized. Moderately hematized.

0+75E QMP. Feldspar phenos to 1.2 cm. Hornblende phenocrysts show partial chlorite alteration. No biotite evident. Contains 10-15% quartz. Slightly sericitized rock. White in colour.

1+50E QMP. Feldspar to 1.8 cm. Contains 15-20% quartz and about 3% hornblende most of which has been at least partially altered to chlorite. Slightly to moderately hematized.

2+00E QMP. Feldspar to 1.5 cm. Hornblende phenos to 3 mm show biotite development. About 15% quartz. Slight to moderate sericitization of matrix material. Slightly hematized. Contains several hairline barren quartz veins as well as fine hematized fractures.

2+25E QMP. Feldspar phenos to 1.5 cm with hornblende phenos to 5 mm. The large mafic crystals indicate that this rock may be equivalent to QMP containing large feldspar phenos as seen on other lines. The hand sample however contains no large phenocrysts. Albite twinning common. Hornblende

2+25E (continued) partially altered to biotite and/or chlorite. Slightly sericitized. Slight to moderate hematization .

3+00E QMP. Feldspar to 1.5 cm. Prominent albite twinning similar to previous sample. Moderately hematized, contains numerous parallel hematite coated hairline fractures probably indicative of shearing. Hornblende to 2 mm.

3+50E QMP. Feldspar to 1 cm. Hornblende laths to 5 mm. 10% quartz. About 50% of the hornblende has been altered to chlorite. Moderately hematized. Also has numerous hematitic fractures. 5% mafics.

4+00E QMP. Similar compositionally to previous sample, but coarser grained. Contains hornblende laths to 7 mm and slightly increased quartz content. Moderately hematized with hematized fractures, etc. 5-7% mafics.

4+75E QMP. Feldspar to 1 cm. Contains <5% mafics - hornblende laths to 2 mm + chlorite after hornblende. 10-15% quartz. Moderately to heavily hematized with numerous hematitic fractures.

5+50E QMP. Feldspars to 1.5 cm. Hornblende laths to 4 mm. Slight to moderate sericitization. 15% quartz. Heavily hematized with hematitic fractures. <5% mafics. Very similar to previous sample.

5+85E QMP. Feldspars to 2 cm. 10% quartz phenos. Pyritic. Contains 5% altered hornblende. Heavily fractured with hematitic fractures. Slight to moderate hematization.

6+50E QMP. Feldspars reach only 5 mm in H.S. Prominent albite twinning. 5% mafics - principally slightly altered hornblende. 10% quartz. Slightly to moderately sericitzed. Slight to moderate hematization. Hematitic fractures.

7+00E QMP. Feldspar to 1.2 cm. Similar compositionally, but coarser grained than previous sample. Hematitic fractures. Moderately hematized.

7+50E QMP. 1 cm feldspar. <3% mafics. 10% quartz. Fractured, but only slightly hematized. Manganese coating on some fractures.

SAMPLE DESCRIPTIONS - L1+00N

0+75W Aplitic rock. Consists of feldspar phenocrysts to 6 mm set in a finer grained matrix consisting of about feldspar, 25% quartz and 2-3% mafics, principally hornblende laths to 1 mm. Contains locally, coarser material with quartz phenos to 2 mm. Slightly pinkish overall due to K alteration.

0+50W Aplite. Consists of 25-30% quartz to 0.5 mm size set in a groundmass of moderately sericitized feldspar. Contains about 3% largely altered mafic material. Hematized on hair line fractures.

0+25W Aplite. Feldspar phenocrysts to 3 mm are set in a moderately sericitized largely feldspathic matrix. Contains 10-15% quartz, much less than in previous sample and 3% mafic material. Slight hematization on fractures.

6+50E QMP. Feldspar phenocrysts to 1 cm. Albite twinning common. Contains 10% quartz and 3-5% hornblende and altered hornblende. Mn staining on fractures. Qtz veining visible 1 mm in width-barren. Slight to moderate hematization.

0+50E QMP. Feldspars to 2 cm. White rock containing 15-20% quartz, slightly sericitized feldspar with albite twinning, 5-7% chloritized hornblende with minor biotite and about 2% magnetite. Fresh rock .

2+00E QMP. Virtually identical to sample described at 1+50E. However, hornblende laths are slightly longer with a length of up to 8 mm.

3+25E QMP. Feldspars to 5 mm with hornblende laths to 7 mm, and about 10% quartz. 40-50% of the hornblende has been chloritized. Slightly sericitized. Slightly hematized with increased hematization on weathered surface. Contains minor biotite after hornblende.

4+50E QMP. Feldspar phenos to 2 cm. Hornblende laths to 4 mm. quartz phenos to 2 mm with quartz forming about 10% of rock. Albite twinning common. Moderately sericitized. The hornblende is partially altered to biotite. Moderately hematized. Contains pyritic hairline fractures.

5+25E QMP. Pyritic feldspars to 8 mm. Coarser grained and much less sericitized than previous sample. Mafic material, originally hornblende, has been largely destroyed with usually only chlorite remaining. Slight to moderate hematization.

5+50E QMP. Feldspars >2 cm. Hornblende to 5 mm. Contains about 10% quartz. The hornblende has been partially altered to chlorite and/or biotite. Slight to moderate hematization, non pyritic. The rock has a pinkish tinge which may be indicative of potassic alteration. Contains a 4 mm wide quartz healed fracture with some cavities. No Mo evident.

6+00E QMP. Feldspar phenos >1 cm. 10-15% quartz. 3-5% hornblende has been largely chloritized. Moderate sericitization. Hematitic on numerous fractures. Overall slight to moderate hematization.

7+00E QMP. Feldspar to 1 cm. Contains 5-7% mafics principally hornblende and chlorite after hornblende with minor biotite. Slightly sericitic. Slight to moderate hematization. Contains an area of non hematized rock and numerous magnetite blebs.

7+25E QMP. Similar compositionally, but slightly finer grained than previous sample. Hematized parallel fractures. Contains a 1 mm quartz vein and an area of non hematized rock.

1+50E QMP. Feldspar phenos to 1 cm. Contains about 10% quartz. Hornblende crystals to 2 mm are sometimes fresh, but largely chloritized. Slight to moderate sericitization. Moderately hematized with hematitic fractures.

*For Sample 6+50E - please refer to page 1.

SAMPLE DESCRIPTIONS - L2+00N

0+50E QMP. Feldspar phenos to 1.5 cm. Contains 10-15% quartz and 3% hornblende and chlorite often hornblende hematite in fractures. Minor mangenese. Moderately hematized. Slightly sericitized.

2+00E QMP. Feldspar phenos. >1 cm. 10% quartz 2-3% chlorite and biotite often hornblende. Slight to moderate sericitization. Contains a 0.5 mm quartz vein with hematite alteration. Moderately hematized.

3+50E Aplite. Light brownish-grey slightly sericitic rock composed of 20-25% quartz, feldspar and 2-3% mafic material principally biotite. Locally contains coarser grained pegmatitic sections.

3+00E QMP. Feldspar phenos to >1 cm. Contains 10% quartz and 3% mafics, principally hornblende laths to 5 mm. Minor chloritic alteration of the hornblende. Hematite on fractures. Slightly sericitized. Moderately hematitized.

3+50E QMP. Feldspar phenos to 1.5 cm. 10-15% quartz and hornblende laths to 3 mm. 50-60% of the hornblende has been altered to chlorite and minor biotite. Light brownish-grey, very slightly hematitized rock. Hematite on fractures.

4+00E QMP. Feldspar phenos to >2 cm. 10% quartz. Mafic minerals have been largely destroyed. Moderately sericitic. Contains numerous hairline fractures usually hematized. Slightly hematized. Similar texturally to L1+00N at 4+50E.

4+50E QMP. Feldspar phenos to >1 cm. Similar in composition to the previous sample, however, the mafic material has been less altered. Weakly sericitized. Slightly hematized. Contains disseminated pyrite and pyrite on fractures.

5+00E QMP. Feldspar phenos to 1 cm. Hornblende laths to 6 mm make up 3-5% of the rock. 30-40% of the hornblende is at least partially chloritized. 10% quartz. Contains 1-2% disseminated pyrite. Slightly sericitized. 1/3 of sample is moderately hematized, the remainder being relatively unaltered rock.

5+25E QMP. Feldspar to 6 mm. 10% quartz, 1-2% magnetite, 2% hornblende and 3% altered hornblende. Albite twinning common. Slightly sericitic. Contains numerous parallel hairline fractures with hematite and manganese. Slightly hematitic sample.

5+75E QMP. Feldspar phenos to >1 cm. Increased quartz content to 15-20%. 3% largely chloritized hornblende. Minor magnetite. Slightly hematized. Slight to moderate sericitic alteration.

6+50E QMP. Feldspars to 6 mm. Moderately sericitized rock with 5-7% highly altered hornblende. Contains numerous blebs of hematite discolouration after magnetite. 10% quartz . Slightly hematized.

7+00E QMP. Feldspar phenos to 1 cm. Contains 2-4% magnetite and ≈ 3-4% hornblende including a 7 mm crystal. Most of the hornblende shows at least partial alteration to chlorite. Portions of the sample show greenish epidotitic alteration. Contains 10% quartz. Slightly sericitized.

7+50E QMP. Almost aplitic in appearance. Though feldspars reach 3 cm in length, the H.S. is made up principally of 3 mm feldspar crystals in a matrix consisting of ≈ 10% quartz, moderately sericitized feldspar and ≈ 3% mafics including magnetite. Light brownish-grey in colour.

SAMPLE DESCRIPTIONS - L1+00S

2+50W Aplite? Sediment? Fine grained, light grey rock. Highly siliceous. Contains blebs of greenish epidotized material. Probably too fine grained to be an aplite. Also appears to contain less quartz as phenocrysts than aplite.

2+00W QMP. Feldspar phenos to 5-6 mm. Contains about 10% quartz. Mafic minerals (hornblende) have been almost totally obliterated and altered to biotite, chlorite and hematite. Moderately sericitized. Pyrite is disseminated throughout. Contains a barren quartz vein >1 mm in thickness with brownish quartz.

1+50W Aplite. Equigranular fine grained rock composed of feldspar, 15-20% quartz, minor biotite and 2-3% disseminated pyrite. Light brown in colour. Slight to moderate hematization.

1+25W QMP. Feldspar phenos to 1 cm. Hornblende phenocrysts to 2 mm are unaltered. Contains 10-15% quartz. Some hematite alteration on hairline fractures, but overall rock is relatively unaltered.

0+25W QMP. Feldspar to 1 cm. Hornblende to 4 mm. Quartz to 2 mm, makes up 10-15% of rock. 60-70% of the hornblende has been destroyed. Moderately sericitized. Albite twinning common. Part of H.S. is aplitic. Biotite and some chlorite are common. Manganiferous.

1+00E Aplite. Feldspat phenocrysts to 5 mm in a fine grained matrix comprising feldspar, 20-25% quartz and minor biotite. Slight to moderate sericitization. Hematitic and manganiferous on fractures. Contains a barren 1 mm quartz vein.

1+50E QMP. Feldspar phenos to 1.5 cm. Zoned feldspars visible. Hornblende phenos to 6 mm. Quartz makes up about 10% of rock. Very small sample (1 1/2" x 1"). Fresh to slightly hematized relatively unaltered rock. Sample may represent coarser grained QMP.

2+00E QMP. 1 cm feldspar phenocrysts. Albite twinning common. Quartz makes up 10% of rock. Hornblende has begun to break down and shows some chlorite development. Similar to rock at 0+25W. Manganiferous.

3+00E QMP. 1.2 cm feldspars. Albite twinning. Similar in composition to previous sample except that hornblende phenos are much less altered. Some biotite development is evident however. Moderately hematized.

3+50E QMP. Feldspars to >1.5 cm. Hornblende to 5 mm. Contains about 10% quartz. Hornblende is relatively fresh. Slight sericitization evident. Moderately hematized.

4+00E QMP. Feldspars >1.5 cm. Hornblende to 6 mm has been largely chloritized. Contains about 10% quartz. Minor magnetite. Slightly sericitized relatively unaltered rock. Slightly hematized locally.

4+50E Aplite. Equigranular to 2 mm with 25-30% quartz. Minor biotite. Slightly sericitized and hematized.

6+00E QMP. Feldspars to 1 cm. 5-7% fresh to partially altered hornblende. 10% quartz, largely interstitial, well fractured. Moderate to high hematization.

6+50E QMP. Feldspar to 5 mm. Increased quartz to 1-15%. Contains about 5% heavily chloritized hornblende. No quartz veining. Manganiferous. Slightly hematized. Slight sericitization.

7+50E QMP. Two 1" x 1" samples. Similar compositionally to the previous sample, but somewhat finer grained matrix. Almost aplitic in appearance, but slightly coarser than sample at 4+50E. One sample grey unaltered rock. The other is hematized.

8+00E QMP. Well developed feldspars to 5 mm show excellent albite twinning. Contains 15% quartz and frequent blebs of hematite and biotite, probably alteration products of hornblende. Slight to moderate epidotization and sericitization. Numerous parallel fractures indicate probable shearing. Slight hematization. A 1 mm quartz vein shows pyrite and metallic mineral which may be either specularite or molybdenite.

1+50W (continued) The aplite contains about 10% quartz. The QMP is moderately hematized. No pyrite visible. Quartz veining 1 mm in thickness.

1+00W QMP. Feldspar to 3.5 cm. Hornblende 4-5 mm, quartz 3-5 mm QMP. Hematized adjacent to quartz veins of which there are several in the hand sample. The quartz veins average 0.8 mm. No pyrite evident. Contains 15-20% quartz. Minor seritization alteration.

0+50W QMP. Feldspar to 3.5 cm. Hornblende to 1 cm. Quartz to 5-6 mm, 10-15% quartz. Contains numerous hairline hematized fractures. Feldspars show albite twinning. Local sericitization and partial breakdown of hornblende. Hand sample is moderately hematized due to hematitic fractures. Pyrite is evident in sericitic zones. Quartz veins roughly parallel - 3 in H.S. 1 mm.

0+00 QMP. Feldspar phenos to > 2 cm. Hornblende 6-7 mm. Quartz 5-6 mm, well defined quartz phenos. Overall light brown colour due to hematization. Quartz veins to 1 mm contain pyrite, other pyrite is intimately associated with mafic material, some of which is magnetite. Albite twinning evident - some feldspars. Chlorite evident as alt. of mafics. One 7 mm frag of mafic material composed of 50% feldspar - 50% hornblende. Possible xenolith.

SAMPLE DESCRIPTIONS - L2+00S

2+75W Sediment? Similar to previous sample, but contains slightly less epidotized material. Cut by vein of hematitic QMP material bounded by black glassy material. Possible skarn. Weakly foliated in one sample. Reminiscent of volcanic rock.

2+35W Sediment. Fine grained quartzofeldspathic rock composed of 30% epidote and 70% quartzofeldspathic material. Possible aplite, but contains far less quartz than seen in previous aplitic rocks. Cut by a 2 cm vein of highly feldspathic material. Skarn?

2+00W Aplite. Contains 15-20% quartz and feldspar phenocrysts to 2 mm in length. Contains occasional pyrite crystal and about 2-3% mafics. Light brown in colour. Slight hematization. Albite twinning is common.

1+50W QMP. Quartz monzonite porphyry. Feldspar phenos 1.5-2 cm, hornblende phenos 2 mm, quartz phenos 2-3 mm. Contains 15-20% quartz. Finer grained feldspars partially sericitized. Rock composed of finer grained aplitic rock, probably dyke material and coarser grained quartz monzonite porphyry.

0+50E QMP. Similar to previous sample. Mafic phenos to 7 mm. Albite twinning. Local chloritization of hornblende phenocrysts. Moderate hematization. Non pyritic.

1+50E Fine grained aplitic rock composed of 20-30% quartz and white weakly sericitized feldspar. No phenocrysts are evident. Quartz veining to 2 mm is evident with adjacent development of cream coloured feldspar. No mafics evident. White in colour.

2+00E QMP. Feldspars to 1 cm. Hornblende to 3 mm. Quartz 2-3 mm. Similar compositionally to samples of 0+00 and 0+50E. Light brown hematitic rock. Non pyritic. Mafics partially altered.

2+50E QMP. Feldspars to 1 cm. Hornblende to 5 mm. 15% quartz. Albite twinning. Moderately hematized. Local destruction of mafic material. Non pyritic. Slight sericitization overall. Locally more intense with white and yellow clay evident.

2+80E QMP. Feldspars to 1.5 cm. Hornblende 3-4 mm. 10% quartz. Creamy white rock. Non hematized. Alteration confined to partialy breakdown of mafic material. Non pyritic.

3+50E QMP. Feldspars to 0.7 cm. Similar to previous sample. However, mafics have been increasingly altered. Non hematized.

4+00E QMP. Feldspars to 1.5 cm. Hornblende to 3 mm. Moderately hematized. Similar to samples at 2+00E. Contains minor pyrite and fresh to slightly altered mafic material. Mn on fracture.

4+50E QMP. Similar to previous sample.

4+75E QMP. Feldspar to 2 cm. Hornblende to 3 mm. 15-20% quartz. Locally hematitic, but overall rock is fairly fresh. Minor breakdown of mafics evident.

5+25E Aplite. Similar to rock at 1+50E, but contains 5% mafic material varying from fresh hornblende to highly hematized material after hornblende. Minor fracturing evident. White in colour.

6+75E Aplite. Similar to previous sample, but light creamy-brown in colour due to slight hematization. Micaceous material is ubiquitous on the weathered surface, but is barely discernible in the fresh rock.

8+50E Feldspars to 2 cm. Hornblende and quartz to 3 mm. Contains about 10% quartz and <5% mafics. Moderately hematized with hematite on fractures. Non pyritic. Contains less mafic material than previous samples.

SAMPLE DESCRIPTIONS - L3+00S

3+00W QMP. Feldspathic to 1 cm. Hornblende to 4 mm. Quartz to 4 mm makes up 15-20% of rock. Slightly sericitized. Moderately hematized. Fresh to completely altered mafics. Hematite occurs on hairline fractures. No quartz veining evident.

2+50W QMP. Feldspars >3 cm. Hornblende to 5 mm. Quartz to 4 mm makes up 10-15% of the rock. Biotite occurs as an alteration product of hornblende. Moderately sericitized. White in colour. Mn on fractures. Contains hairline fractures, but no quartz veining. Pyrite occurs as occasional disseminations.

2+00W QMP. Feldspar >3 cm. Hornblende to 9 mm. Quartz phenos to 6 mm. 10-15% quartz, 5% mafics. As above biotite occurs as an alteration product of hornblende. Slightly sericitized. Brownish in colour due to hematization. Moderately hematized. No quartz veining.

1+50W Aplite. Finer grained almost aplitic rock. The largest feldspar phenos reach 5 mm. Contains 15-20% quartz and about 3-4% fine grained mafic material. Cut by Mo bearing quartz veins 0.5 mm in width. Also contains blebs of MoS_2 >0.5 mm in diameter. Slightly to moderately hematized.

1+00W QMP. Feldspars phenos to 3 cm. Hornblende to 5 mm. Quartz to 7 mm. Moderately hematized. Slight to moderate sericitization. Albite twinning evident. Minor biotite occurs in a quartz vein which forms a micro breccia with feldspar.

0+50W QMP. Feldspar phenos to 2.5 cm. Moderately to heavily hematized. Few mafics are visible. Occasional hornblende laths are evident as is some chlorite after hornblende. Mn occurs with larger altered hornblende crystals.

0+00 QMP. Feldspar >2 cm. Hornblende to 8 mm. Quartz makes up about 10% of rock, but dows not form prominent phenocrysts. Some chlorite is evident after hornblende. Moderately hematized.

0+85E QMP. Feldspar to 1.5 cm. 60% of the hornblende has been altered to biotite and other secondary minerals. Contains 2% magnetite. Moderately to heavily sericitzed and moderately hematized. Contains 10-15% quartz. Minor quartz veining 1 mm in thickness. No visible Mo.

2+00E QMP. Feldspar to 0.7 cm. Hornblende makes up 5% of rock. 20% of the hornblende has been altered to biotite and chlorite 10-15% quartz. Minor fracturing. Slight to moderate hematization. Albite twinning evident. Slightly sericited.

2+50E Aplite. Composed of about 40% quartz, 57% slightly sericitized feldspar and about 3% mafic material. Pinkish in colour due to slight potassic alteration.

3+00E Aplite. Similar to previous sample. Hematitic on hairline fractures. Pyrite cubes on some fractures. Pinkish in colour due to slight potassic alteration.

3+50E Aplite. Pink rock with moderate K alteration. Contains hairline quartz filled fractures filled with brown quartz. Also visible in the sample is a 1-2mm web of what appears to be cavrotite.

4+00E Aplite & QMP. Feldspar phenos to 1.5cm. Hornblende to 3mm shows some biotitic alteration. One have of rock is aplitic in texture and shows K alteration. Probably represents a contact zone. 20-25% quartz. Albite twinning slight to moderate hematization.

4+30E Aplite. Light brownish grey in colour. Contains 30-40% quartz, 3-5% hornblende as 1mm laths, 1mm feldspar phenocrysts and very minor pyrite. A hairline quartz filled fracture contains some pyrite crystals. Overall, very slightly altered.

5+00E Aplite. Contains about 30% quartz. Feldspars to 2mm. Blebs of hematite occur around clusters of altered pyrite. White to pale brown in colour.

5+50E Aplite. Similar to sample at 3+50E without the K alteration. Contains segregations of slightly coarser minerals.

SAMPLE DESCRIPTIONS - L4+00S

3+50W QMP. Feldspar phenos to 0.5cm. Hornblende to 4mm. Quartz phenos to 1mm. Contains 10-15% quartz, 5-7% mafics and about 5% pyrite as disseminations and stringers. Albite twinning evident in feldspar phenocrysts. Limited secondary biotite development. Brownish in colour. Slight to moderate hematization.

3+00W QMP. Feldspars >3cm in length. Hornblende to 5mm. Quartz "eyes" to 5mm. White moderately sericitized rock. 10-15% quartz. Little alteration of mafics evident. No quartz veining. No visible pyrite.

2+50W QMP. Feldspar to 4cm. Quartz "eyes" to 6mm. Mafics have been almost completely obliterated with only minor biotite and chlorite veining "after" hornblende. Moderately hematized and moderately sericitized. Minor quartz veining.

2+00W QMP. Feldspar phenos >3cm. Quartz "eyes" to 1cm. show good hexagonal profiles. Hornblende phenocrysts 7mm in length show minor local biotite development. White in colour. Slight to moderate sericitic alteration Quartz makes up about 15% of rock.

1+50W QMP. Feldspar phenos to >3cm. Quartz "eyes" to 7mm. Slight to moderate sericitic alteration. Slightly hematized. Hornblende, which makes up 2-3% of the rock has been partially altered to biotite.

1+10W QMP. Feldspar phenos to 1cm. Quartz phenos to 4mm and mafic laths (hornblende and biotite and chlorite after hornblende) to 5mm. Albite twinning common. Moderately hematized. Slight to moderate sericitization. Contains 10% quartz and 3-5% mafics. Contains a 1mm quartz vein with Mo selvidge.

0+50W QMP. Feldspar to 1cm. Quartz to 7mm. Contains biotite and chlorite as an alteration product of hornblende. Less altered than previous sample. Hematization and sericitization are less widespread. 15% quartz. Slight to moderáte hematization. No quartz veining.

0+00 QMP. Feldspars >3cm. Quartz phenos to 4mm. Hornblende 3-4mm. About 50% of the hornblende has been altered to biotite and chlorite. Partially hematized but overall non hematitic sample. Cream colour. Moderately sericitized matrix material.

0+50E QMP. Feldspars to ?cm. Quartz phenos to 4mm. Hornblende to 4mm. As in the previous sample, hornblende has been partially destroyed. Specimen is Y2 moderately hematized and Y2 white moderately sericitized rock. Contains some hematite after magnetite.

1+00E QMP. Feldspars >3cm. Quartz phenos to 5mm. Biotite remnants are all that remain of original mafic material. Albite twinning. Slight sericitic alteration. Moderate.

1+00E Laminitized. Mo occurs as disseminations in several quartz veins which measure to 1mm in width.

4+50E Volcanic rock. Fine grained rock composed of about 30% mafic material and about 70% quartzofeldspathic material. Highly hematized fractures.

SAMPLE DESCRIPTIONS - L5+00S

4+00W Aplitic rock. Feldspars to 3mm with albite twinning. Quartz pehnos to 1mm. Quartz forms 30-40% of rock. Mafics, mainly biotite, makes up 3-4% of rock. Slightly sericitic white rock with blobs of limonitic material.

3+50W QMP. Feldspars to 2cm with quartz to 5mm. Hornblende to 5mm. The hornblende has been partially altered to biotite. The phenocrysts are set in a white fine grained sericitized matrix. Minor quartz veining <0.5 1m width. White rock.

2+90W QMP. Feldspar to 3cm. Quartz "eyes" to 5mm. Pyrite disseminated throughout. Hornblende phenos to 5mm have been partially altered to biotite and chlorite. Magnatite is associated with pyrite stringers. Relatively unaltered rock except that part of the sample is slightly hematized.

2+50W QMP. Feldspar to ? cm. No large phenos in sample. Quartz "eyes" measure to 6mm. Hornblende measures to 7mm. Phenocrysts are set in a white to brownish slightly to moderately hematized, moderately sericitized matrix. Minor hairline fracturing. Minor biotite and pyrite.

2+00W QMP. Feldspar >4cm. Quartz "eyes" to 4mm. Quartz and remnant mafic material is set in a highly sericitized matrix. Slightly hematized.

1+50W QMP. Quartz phenocrysts to 8mm. No feldspar phenos present in this small H.S. The matrix material is highly sericitized. Slight hematite alteration. Some pyrite cubes. Mafics completely altered.

0+50W QMP. Feldspars to 6mm. Quartz phenos to 2mm. Hornblende phenos to 4mm. 40-50% of the hornblende has been altered to biotite. Slighly to moderately hematized. Moderately sericitized. A 2mm hematitic quartz vein is barren of Mo.

0+50E QMP. Feldspar to about 2cm. Heavily fractured rock with numerous hairline fractures. Moderately to heavily sericitized. Slightly hematized. Quartz phenos to 6mm make up about 10% of rock. Hornblende has been largely altered to biotite. Highly sericitized.

1+20E QMP. Feldspars to 2cm. 10-15% quartz 1-2mm in diameter. 30-40% of the mafic material has been altered to biotite. Barren quartz veins to 1mm. Moderately hematized. Slightly sericitized.

4+75E Limey Sediment. Pale green fine grained pyritic rock cut by a vein of epidote green fine grained possibly monzonitic material. Also cut by 2-3mm quartz vein.

10+65E Volcanic Rock. Medium grained rock composed of 40% mafic material and 60% quartzofeldspathic material cut by a >2.5cm hematized quartz vein. Heavily hematized fractures.

10+75E Sediment? Highly siliceous fine grained rock composed mainly of quartzitic material. Cut by serveral veins of epidotized material.

10+85E Aplite? Quartzite? White fine grained rock composed of 30-40% quartz and 60-70% feldspathic material. Very minor mafics, mostly altered.

11+14E Volcanic. Composed of about 70% mafic material including hornblende and biotite and about 30% quartzofeldspathic material. Slightly pyritic. Heavily hematized fractures.

11+15E Oolitic Limestone. Grey oolites in a matrix of grey to black material containing abundant biotite. Possible skarn material. Originally thought to be spherulitic rhyolite.

SAMPLE DESCRIPTIONS - L+00S

4+00W QMP. Feldspars to 2cm. Quartz phenos to 3mm. Hornblende with laths to 5mm has been largely altered to biotite. Contains 15-20% quartz. Phenocrysts are set in a moderately sericitized matrix. Slightly pinkish due to K alteration. Contains a <1mm wide barren quartz vein.

3+50W QMP. Feldspars to 2.2cm, quartz phenos to 5mm. Hornblende to 4mm has been partially altered to biotite and chlorite. 15% quartz. Moderately sericitized rock. Much of the feldspar is pinkish brown in colour, a result of weak hematization and possible potassic alteration. The K alteration is more "hinted" than actual. Several quartz veins to >1mm cut the sample. All are barren.

3+00W QMP. No large feldspar phenos in hand sample. Quartz phenos reach a diameter of 5mm. Hornblende with laths to 4mm have been largely altered to biotite. 10-15% quartz 3% mafics. Moderately sericitized rock. In addition, to slight hematization, weak potassic alteration also is suggested in this sample. Quartz veins to 2mm contain brownish quartz and are barren.

2+50W QMP. With Feldspar pheno to 4cm. Quartz "eyes" to 5mm, with about 10-15% quartz. Mafics largely destroyed. Minor biotite. Moderately hematized. Contains a 1cm wide quartz vein and several quartz veins < 1mm wide. Hematitic on fractures. No Mo visible.

1+50W QMP. Felspar phenos to > 2cm. Quarts "eyes" to 7mm. Albite twinning common. Contains about 15% quartz, 3% mafics include minor hornblende, biotite after hornblende and about 1% magnetite. Slightly hematized, moderately sericitized. A pinkish tinge indicates possible minor potassic alteration.

0+50W QMP. Largest feldspar phenocryst measures to 1cm. Contains 10-15% quartz but no large phenocrysts. 5% mafics, largely biotite after hornblende with minor chlorite. Moderately sericitized. Pinkish in colour due to potassic alteration. Contains numerous cavities. Some Mn staining on fractures. Slightly hematized.

0+70E QMP. Feldspar to 1cm. Quartz phenos to 7mm. Quartz makes up 15-25% of rock. Mafics comprise 5% of rock - 40% hornblende and 60% biotite after hornblende. Moderate to heavy sericitic alteration. No K alteration evident.

1+90E Aplitic Rock. Felspar phenos to 1cm set in a f. to m. gr. matrix consisting of 30-40% quartz, 2% biotite and pinkish feldspar. Slightly sericitized. Minor potassic alteration. Cut by parallel quartz veins to 3mm containing clear quartz and barren of Mo.

SAMPLE DESCRIPTIONS - L7+00S

4+10W QMP. & Aplite. Sample consists of QMP with 5mm feldspar phenos, 2% biotite, 20% quartz and pyrite in in contact with moderately hematized fine grained aplitic rock containing 40% quartz and minor pegmatitic material. Hematitic fractures.

3+50W QMP. No large feldspar phenos evident. Contains 10-15% quartz with "eyes" to 3mm. 5-7% mafics consisting of 30% hornblende with laths to 5mm, biotite after hornblende and minor magnetite. Minor potassic alteration Hematite on fractures and heels a hairline fracture. Slightly hematized

2+75W QMP. Feldspar phenos > 2cm. Quartz "eyes" to 4mm. 3-5% mafics consist largely of biotite after hornblende. Moderate to heavy sericitic alteration. Slight potassic alteration. Contains barren quartz veins to 3mm in width.

1+50W QMP. Feldspar phenos to 2cm. Quartz phenos to 5mm. Mafics comprise 5% of rock and are predominantly biotite after hornblende and hornblende with minor magnetite. Moderately sericitized. Pinkish due to K alteration. Contains barren quartz veins to 2mm.

0+00 at 7+25S	QMP. Feldspar phenos to 2cm. Quartz phenos average 2-3mm. Contains 3% mafic material consisting of hornblende and chloritized hornblende. Moderate to heavy sericitic alteration. Mn staining on fractures. Quartz veins to 2mm. Very slight potassic alteration.
2+40E	QMP. Feldspar to 3cm. Quartz phenos to 4mm. Quartz comprises 10-15% of rock. Albite twinning common. Contains 3% mafics mainly biotite and minor remnant hornblende. Cut by numerous parallel 1mm quartz veins. Contains some pinkish potassic material. No Mo visible. Moderately sericitized. Hematic fractures.
2+80E	QMP. Feldspar > 2cm. Quartz phenos to 4mm. 3% mafic material is largely hornblende with some biotite development. Contains 15-20% quartz. Slightly pinkish in colour due to minor K alteration. Contains a 2mm quartz vein.
6+50E	Volcanic Rock? Fine grained rock containing about 30% fresh to altered mafic material and about 70% quartzo-feldspathic material. Weakly foliated. Highly hematized. Pale green in colour due to chloritization and epidotization.

SAMPLE DESCRIPTIONS - L8+00S

8+00W Two samples collected.

Sample 1 consists of a fine grained highly siliceous probably recrystallized rock consisting of black quartz and partially sericitized feldspar. Locally bleached. Possible altered volcanic rock. Due to the segregation of dark and light material, the rock appears brecciated.

Sample 2 consists of quartz monzonite porphyry dike material with inclusions of altered material similar to the above. The QMP comprises feldspar phenos with albite twinning to 8mm, quartz phenos to 2mm and hornblende phenos to 2-3mm. Contains 15-20% quartz. Moderately hematized.

7+50W Highly siliceous, very fine grained rock. Light green in colour. Rhyolitic in appearance but may be recrystallized sediment. Pyritic. Contain some hematized hairline fractures.

7+00W Highly siliceous rock. Similar in appearance but slightly courser grained than previous sample. Cut by very narrow quartz stringers. Contains minor pyrite.

6+50W Dark grey highly siliceous rock cut by a 1cm vein of aplitic material. The dark grey rock contains an increased mafic content indicating the rock may be of altered beseltic composition.

5+50W Two samples collected.
Sample 1 consists of about 30% mafic material with the remaining 70% made up of quartzofeldspathic material. Vulcanic composition. Cut by narrow quartz veins. Contains numerous hairline hematitic fractures. Slightly siliceous.
Sample 2 appears to be aplitic or quartzitic rock. The rock is well fractured and may be intrusive rock. Well hematized fractures.

6+00W Rhyolitic or possible recrystallized sedimentary rock. Highly siliceous rock. Weakly chloritic throughout with a pale greenish grey colour. Contains some hematitic very narrow quartz veins.

SAMPLE DESCRIPTIONS - L8+00S

4+25W QMP. No large feldspar phenos in H.S. Quartz "eyes" to 4mm. Hornblende phenocrysts reach 3mm with about 40% of the hornblende being at least partially altered to biotite and/or chlorite. Quartz makes up about 20% of the rock. Moderately sericitized. Slightly hematitic as a result of the alteration of magnetite which makes up about 2% of the rock. Cut by a 6mm quartz vein.

4+00W QMP. Feldspar phenos to 3cm. Quartz phenos to 2mm. Mafics have been largely obliterated with only 1-2% hornblende remaining unaltered. Contains about 2% magnetite. Slightly pinkish in colour due to minor K alteration. Minor sericitic alteration.

3+50W Aplite. Composed of feldspar. 20-25% quartz and 2-3% biotite. Slightly sericitized.

3+00W QMP. Feldspar phenos to 3cm. Quarts "eyes" to 4mm. Contains about 3% biotite after hornblende. Slight to moderate sericitic alteration. No magnetite evident.

2+50W QMP. Pinkish feldspar phenos, indicative of potassic alteration to >2cm. Mafics phenos 1-2mm in size make up 2-3% of rock and are largely hornblende and biotite. Quartz "eyes" to 4mm. Sample cut by quartz veins to 4mm. Slight to moderate sericitic alteration. Moderate potassic alteration.

2+00W QMP. Feldspars pinkish in colour are > 2cm in length. Quartz "eyes" to 4mm. 3% mafics include biotite and chlorite after hornblende with minor remnant hornblende and minor magnetite. Pinkish in colour due to slight to moderate potassic alteration. Contains barren quartz veins to 4mm in width. Slightly sericitic.

1+50W Aplitic Rock or fine grained QMP. Composed of 25-30% quartz, pinkish feldspar and 5-7% mafics consisting predominently of biotite and hornblende. Phenocrysts do not exceed 2.5mm in length. Slight potassic alteration.

1+00W QMP. Fine grained rock similar in texture to previous sample, but contains less quartz. Contains occasional quartz "eyes" to 3mm. The 5% mafics consist largely of biotite and chlorite after hornblende. Cut by quartz veins to 4mm with some hematite on fractures. This appears to be feldspar growth along one fracture. Minor potassic alteration.

0+50W QMP. Quartz "eyes" to 5mm. Feldspar phenos to 8mm. 3% mafics are largely biotite and chlorite with hornblende. Slight potassic alteration. Cut by quartz veins < 1mm in width. Slight to moderate sericitic alteration. Hematitic on fractures. Very similar in appearance to previous sample.

0+00 QMP. Feldspar phenos to 8mm set in a finer grained matrix similar to the previous samples. Hornblende phenos to 3mm make up about 3% of the rock. Quartz phenos to 2mm. Cut by quartz veins to 6mm. Slight to moderate potassic alteration. Slightly saricitized.

2+00E QMP. Feldspar phenos to 3cm but average 4mm in size. Quartz phenos to 2-3mm. with quartz composing 15-20% of rock. Mafics make up 3-5% of the rock and are largely hornblende. Overall slightly coarser grained than previous sample.

2+50E QMP. Feldspar phenos >2cm. Contains 10-15% quartz and 1-2% mafics, principally hornblende. Much of the original mafic returned has been totally obliterated. Cut by numerous quartz veins to 4mm in width. Moderately sericitized. Moderate potassic alteration. Contains hematite as blebs and along fractures.

3+00E QMP. Small sample. Feldspars >2cm. Mafics consist of highly altered hornblende (now biotite and hematite) to 5mm. Quartz is present as vein material making up about 40% of the rock. Pink rock. High potassic alteration.

4+00E Aplite & QMP. Aplite consisting of 20-25% quartz with feldspar and minor mafics cutting QMP of similar composition, possibly representing pegmetitic phases of the mplite. Slight potassic alteration and sericitic alteration.

SAMPLE DESCRIPTIONS - L9+00S

7+50W Highly siliceous, medium grey rock with minor hornblende laths and spotted throughout with chloritic blebs. < 1/0 mm in size. Probable hornfelsic material. Hemafitic on fractures. Pyritic.

7+00W QMP material consisting of 7-10% mafics (hornblende with minor biotite, feldspar phenocrysts to 2mm and 10% quartz. Probable dike material. Brecciated, with mafic material rehealing fractures.

6+50W QMP & recrystallized volcanic material. Contains 5-10% mafics, principally biotite. Moderately siliceous. slight to moderate hematization. Slightly brecciated.

6+00W Rhyolitic light grey, very fine grained, highly siliceous rock. Contains about 1% pyrite. Cut by Y10mm quartz veins.

5+50W Rhyolitic rock. Slightly coarser than prevous sample. Light green in colour due to epidotization. Contains brownish possibly highly altered mafic material and pinkish slightly K altered feldspar. Mangeniferous on fractures.

4+80W QMP. Feldspar phenos to 6mm with quartz "eyes" to 6mm. Quartz makes up 25-30% of the rock. Predominantly is phenocrysts. Contains about 2-3% mafic material principally hornblende, Very minor K alteration and hematization.

3+85W Recrystillized volcanic rock consisting of 40-50% mafic material, pink potassic feldspars, fine grained siliceous material and pyrite. Highly hematized on fractures.

3+50W QMP. Feldspar phenocrysts to 1cm. Quartz "eyes" to 4mm. 3% hornblende has been altered to chlorite and biotite. Contains 15-20% quartz. Pinkish in colour due to slight to moderate potassic alteration. Cut by a 4mm barren quartz vein. Slight to moderate sericitic alteration. Mn on fractures.

3+00W QMP. Quartz "eyes" to 4mm set in a moderate to highly sericitized fine grained matrix with 3% fine grained mafic material, principally chloritized hornblende. Contains an occasional feldspar phenocryst to >1.5cm . Pinkish in colour due to minor potassic alteration.

2+50W QMP. No feldspar phenocrysts evident. Quartz phenos to 3mm. Hornblende phenos to 3mm are highly altered. Slight to moderate sericitic alteration. Pinkish rock with minor K alteration. Cut by several barren quartz veins 1mm in width. Hematitic on fractures.

2+00W QMP. Quartz phenos to 4mm in a groundmass consisting of 3% fine grained mafic material (hornblende in biotite after hornblende). Feldspars phenocrysts reach 2mm in length. Contains 15-20% quartz. Slight potassic alteration. Hematitic on fractures.

1+50W QMP. Coarser grained than previous sample. Contains feldspar phenos to 1.5cm and quartz phenos to 4mm. 5% mafics consist of hornblende with laths to 3mm. Contains 15-25% quartz. Pinkish in colour due to slight to moderate potassic alteration.

1+00W QMP Feldspar phenos to >2cm with quartz phenos to 5mm. Contains 3-5% mafic material (fresh hornblende) with laths to 2mm. and 15-20% quartz. Mn on fractures. Fresh unaltered rock.

0+50W QMP. No large felspar phenocrysts in H.S. Quartz phenos reach 4mm. Hornblende phenos to 3mm. 15-20% quartz similar in composition but slightly coarser than previous sample. Hematitic on fractures.

0+00 QMP. Similar compositionally to,but coarser grained than previous two samples. Hornblende laths to 5mm. However, quartz phenos have decreased to 2mm in diameter. No large feldspars evident. Slightly hematitic. Hematite and manganese cast fracture surfaces.

0+50E QMP. Feldspar phenos to 2cm. Quartz phenos to 3mm. Contains 2% hornblende with laths to 7mm. Contains about 15% quartz and about 2-3% magnetite slightly sericitic and very minor K alteration.

1+10E QMP. Feldspars to 2cm. Quartz phenos 1-2mm in diameter. Hornblende laths to 4mm. Similar in composition to previous 4 samples, but finer grained than at 0+50E. Aplite twinning common. Contains 3-5% mafic material. Very minor hematization. Minor potassic alteration.

1+50E QMP. Feldspar phenos >1cm. Contains 3-5% mafics (hornblende & magnetite). Similar in texture and composition to previous sample.

2+00E QMP. Feldspars to >2cm. Similar in texture and composition to sample at 1+10E but no K alteration evident. Hematitized fractures. Sample is very slightly hematized with destinction of some of the mafic material.

2+50E QMP. Feldspar to 2cm. 5% mafics to 2mm are hornblende and magnetite. Contains 10-15% quartz and hematized hairline fractures. Similar to 0+50E but is slightly greenish in colour, probably a result of epidotization.

3+15E QMP. Feldspar to > 1.5cm. Quartz "eyes" to 7mm. and hornblende laths to 4mm. Contains 15-20% quartz and 5.7% mafics including hornblende, altered hornblende and magnetite. Slight potassic alteration. Hematitic fractures.

4+10E QMP. Felspar phenos to 2cm. Quartz phenos to 3mm. 3% mafics consisting of hornblende, biotite after hornblende and magnetite. Contains 15-20% quartz but no "eyes" as in previous sample. Slight potassic alteration. Contains narrow hematic fractures.

4+50E QMP. Feldspar phenos to 1.5cm with quartz "eyes" to 5mm. 3% fine grained mafics consist of hornblende and magnetite. Contains 25% quartz and moderate potassic alteration. Of interest is a 1.5mm quartz vein that has been bisected by an obviously later growing pink feldspar phenocryst.

5+50E QMP. Feldspars to 1.5cm. Contains 15-20% quartz. 3% mafics are largely highly altered hornblende phenocrysts. Lightly hematitic. Cut by 2-3mm barren quartz vein. Manganiferous on fractures. Slight to moderate sericitic alteration.

6+00E QMP. Pinkish feldspar phenos to 2.5cm. Quartz phenos to 4mm. with 15-25% quartz. 2-3% mafics are chlorite and biotite after hornblende. Cut by quartz veins to 5mm. Moderately sericitized. Slight to moderate potassic alteration. Pitted rock.

6+50E QMP. Feldspar phenos to 2cm. Contains < 10% quartz exclusive of veining and 2% mafics consisting of biotite after hornblende. Slight local hematization. Cut by numerous quartz veins to 4mm. Slight to moderate potassic alteration. Contains numerous hematitic hairline fractures.

7+100E Aplitic rock. Pink seemingly recrystallized feldspars to 1.5cm with quartz phenos to 2mm are set in a matrix of finer grained material composed of 30-25% quartz, minor mafic material and feldspar. Moderate to heavy potassic alteration. Cut by a < 1mm quartz.

7+50E Coarse grained aptite or fine grained QMP. Feldspar phenos to 2mm. 20-25% quartz. Minor mafic material. Moderately hematized. Cut by 3mm hematized quartz vein.

8+00E Two samples collected.

See L10 00S at:+25E Sample A. Aplite. Similar in composition, but finer grained than previous sample. Slight potassic alteration. Hematitic fractures.

Sample B is a schistose rock composed of 20-25% well foliated biotite and 75-80% quartzofeldspathic material. Well hematized fractures. Probable volcanic rock.

8+50E Sandstone? Fine grained slightly fuisble rock composed of 90% feldspar and about 10% quartz. Weakly foliated locally with minor pyrite. Well hematized. Sample appears to be sedimentary in origin, but may be altered rhyolite or tuffaceous rock.

8+75E Volcanic rock. Rounded feldspar and quartz phenos in a matrix of dark grey quartzofeldspathic and mafic material.

9+62E Sample A. QMP. Feldspar phenos to 3mm. 5-10% quartz and 2% mafics, predominantly hornblende and magnetite. Mainly hematitic to sericitic rock but contains some fresh material containing possible fine grained Mo. Moderately hematized. Slightly sericitized.

9+62E (cont') Sample B is a pale green slightly epidotized rock composed mainly of feldspar phenocrysts 2-4mm in length and about 10% quartz. The crystal direction and over-all texture indicate this sample may be recrystallized rock, possibly originally rhyolite.

10+00E Two samples collected.

Sample A. Hornfelsic rock. Fine grained black siliceous rock. Pyritic. Well hematized fractures. Many fractures also are coated with a soft clear, non carbonate mineral, possibly gypsum?

Sample B. QMP. Feldspar phenos to 1cm. Albite twinning common and 10-15% quartz as phenos to 2mm and 2% mafics mainly hornblende. Contains small xanoliths of pale green rock which appears to be recrystallized rhyolite. About 20% of the sample is a wedge shaped area containing increased hornblende, pyrite and Molybdenum. Light pinkish brown, slightly to moderately hematized rock.

9+07S 10+00E QMP. Feldspar phenos to 1.5cm. Quartz with phenos to 3mm makes up 15% of rock. 5-7% mafic material consisting of hornblende with laths to 5mm and biotite after hornblende. Slightly sericitic. Slight potassic alteration and minor hematization. Hematitic on fractures.

SAMPLE DESCRIPTIONS - L10+00S

8+00W QMP or recrystallized volcanic rock. Consists of 25-30% hornblende laths to 4mm - feldspar phenos to 1mm in a fine grained moderately sericitized matrix. Probable dike material.

7+00W Volcanic rock of possible beseltic composition. Fine grained rock consisting of mafic material in a u.f.g. dark grey matrix. Cut by 1mm veinlets of hematized quartzitic and epidotized quartzofeldspathic material.

6+50W QMP. Felspar phenos to 1.2cm with quartz "eyes" to 5mm. Contains about 2-3% hornblende laths and 15-20% quartz. Minor hematization and slight potassic alteration.

5+50W Sample "A". Breccia. Pinkish K altered, moderately sericitized fine grained QMP fragnets set in a groundmass of chloritic and epidotized mafic and quartzofeldspathic material.
Sample "B". Breccia. Similar to previous sample but cnt by a 2cm vein of QMP containing feldspar phenos to 5mm and quartz "eyes" to 4mm.

5+00W QMP. Feldspar phenos to 5mm with quartz phenos to 3mm. and hornblende to 2mm. Contains 2-3% mafics and 10-15% quartz. Slight hematitic alteration. Minor magnetite.

4+50W Fine grained pale green slightly epidotized rock. Highly siliceous. Areas of less alteration show a high mafic content which may indicate a volcanic origin. Contains pyrite cubes and is cnt by a 3cm QMP vein containing chlorite, pyrite and hornblende. The rock may also be an epidotized, fine grained quartz Monzonite Porphyry.

4+00W Altered volcanic? Blebs and phenos of chloritic and epidotized material are set in a matrix of fine grained moderately sericitized feldspathic material. Contains some unaltered hornblende. Similar in texture to the previous sample.

3+75W Volcanic of fine grained diorite. Composed of 30-40% mafic material, hornblende and chlorite after hornblende in a white moderately sericitized felsic matrix. Pyritic. Similar in texture to previous samples. May be coarser grained volcanic rock.

3+50W Breccia. Brecciated material is a cross between the previous two samples in terms of alteration. The brecciated material is centered by mafic material which consists largely of magnetite and by epidote. The mafic material in the brecciated rock has been largely chloritized. Highly hematitic on fractures. Very slight potassic alteration.

2+75W AMP, Aplite, Volcanic Rock. Hand sample contains three rock types - QMP with feldspars to 5mm, 20% quartz, and 3% mafics - Aplite containing 25-30% quartz and volcanic rock similar to the sample of 3+75W. Moderately sericitic.

2+50W QMP. Feldspar phenos to 6mm. Contains 15-20% quartz and 1-2% mafics, principally hornblende with minor magnetitic cut by a 5mm quartz vein. Relatively fresh rock with very minor hematitic alteration.

2+00W QMP. Feldspar phenos >1cm. Quartz phenos to 2mm and hornblende to 2mm. Slightly pyritic. Contains 10-15% quartz and about 5% mafics including minor magnetite. Light brownish in colour due to very minor hematitic alteration.

1+50W QMP. Feldspar phenos >1cm. Quartz phenos 1-2mm with hornblende laths to 2mm. Very fresh rock with slightly pinkish white colour. Very minor potassic and hematic. Contains 10-15% quartz and 5-6% hornblende and magnetite. Finer grained than previous sample.

0+50W QMP. Similar in texture and composition to previous sample. However, contains slightly more magnetite than previous sample. Sample is also pinker in colour as a result of increased potassic and hematitic alteration.

0+50E QMP. Felspar phenos to 1.5cm. Quarts "eyes" to 5mm. Mafics make up 5% of rock. Mafics include hornblende to 2mm and magnetite. Contains 10-15% quartz. Moderately sericitized. Slight potassic alteration.

1+00E QMP. No large feldspars evident. Similar in composition and texture to previous sample. However, this sample is much less altered. Minor potassic alteration. Albite twinning common. Minor sericitic alteration.

1+50E QMP. Feldspar to >1cm.Quartz "eyes" to 4mm. 10-15% quartz. 5% mafics are finer grained than previous sample but have a higher magnetite content. Slightly pinkish in colour due to minor potassic alteration. Cut by several hematitic fractures. Minor sericitic alteration.

2+00E QMP. Feldspar phenos >1cm. Quartz "eyes" to 5mm Hornblende phenos to 5mm. Mafics make up 5-6% of the rock and include about 1.2% magnetite. Slightly hematitic. Contains about 15% quartz.

2+56E QMP. Similar to previous sample. Slightly increased magnetite content. Cut by numerous parallel hematitic fractures.

3+50E QMP. Feldspar to 1.5cm. Quartz phenos to 3mm. Slightly decreased quartz content over previous sample and slightly finer grained. Very similar in composition.

4+00E QMP. No feldspars evident larger than 7mm. Quartz phenos to 3mm. 10-15% quartz content. Hornblende phenos to 3mm. Very light brown in colour. Contains 3-5% mafic material.

4+60E QMP. Feldspar phenos to 1cm. Similar in texture to previous sample. Slight to moderate hematitic alteration. 3-5% mafic material, mostly hornblende.

5+00E QMP. Feldspar >1.5cm. Hornblende phenos to 3mm. 10-15% quartz with phenocrysts to 3mm. 5% mafic material largely hornblende. Slight to moderate hematitic alteration.

5+50E QMP. Feldspars >1.5cm. Quartz phenos to 3mm. Hornblende laths to 2mm. Contains about 15% quartz and 3-4% mafics including about 1% magnetite. Relatively fresh rock.

6+00E QMP. Feldspar >2cm. Quartz "eyes" to 1cm. Contains 2-3% mafics including hornblende, biotite after hornblende and magnetite. Moderately sericitized. 15-20% quartz. Manganese on fractures. Slight K alteration.

6+50E QMP. Similar in texture to previous sample with feldspars to >2cm but with quarts "eyes" to 5mm. Mafic minerals have been largely destroyed. Moderately sericitized. Cut by a 1cm quartz vein.

7+00E QMP. Similar in composition and texture to previous sample. Heavily hematized. Mafics have not been completely altered but have been heavily chloritized. Cut by a 5mm quartz vein.

7+30E Aplitic rock. Contains 30-40% quartz and little mafic material. Contains some coarser grained material of similar composition. Slight to moderate hematization.

7+75E Coarse grained Aplite as fine grained QMP. Feldspars to 2mm. 25-30% quartz. 1-2% mafic material largely altered hornblende. Slight to moderate hematitic alteration. Hematized hairline fractures.

8+25E Sample A. Aplite. Similar composition but finer grained than previous sample. Slight potassic and hematitic alteration. Hematitic fractures. Slightly sericitized.
Sample B. Volcanic? Schistose rock composed of 50% mafic and 50% quartzofeldspathic material. Well hematized fractures. Contours rounded feldspar phenos. Both rocks are similar to samples seen on L9+00S at 8+00E.

8+75E Volcanic rock. Rounded to well formed feldspar and quartz phenos in a matrix of fine grained dark grey quartzo-feldspathic material.

9+25E QMP. Contains 20-25% quartz. No large feldspar phenos evident. 3-5% mafics including 1-2% magnetite. Moderately sericitized cut by numerous fine hematitic fractures.

9+90E Rhyolite. Fine grained moderately sericitized rock containing minor quartz phenos and hematite blebs after pyrite. Light grey in colour. Contains 3-5% riccoeous material.

SAMPLE DESCRIPTIONS- L11+00S

7+00W Volcanic rock composed of 30-40% mafics and 60-70% moderately sericitized feldspathic material. Cut by several veins of aplitic material to 1cm in width which have themselves been fractured. Hematitic quartz and epidotized feldspathic material heals the fractures in the aplite.

6+50W Sample A. QMP. Feldspar phenos to 1cm. Quartz "eyes" to 6mm and hornblende phenos to 4mm. Quartz makes up 10-15% of the rock with mafics comprising 2-3% of rock. Slight potassic alteration. Cut by numerous hematitic fractures. Sample B. Hornfelsic rock. Fine grained siliceous black volcanic rock composed of 60-70% mafics and 30-40% quartzo-feldspathic material. Cut by veinlets of quartz and epidotized feldspathic material.

6+00W QMP. Feldspars to 1cm. Quartz "eyes" to 5mm. Hornblende phenos to 3mm. Contains 10-15% quartz and about 3% mafic material. Contains veinlets and blebs of epidotized material and is slightly greenish overall due to minor epidotization. Contains hematite and Mn on fractures.

5+50W QMP vein cuts a black medium grained rock composed principally of chlorite, epidote and hornblende phenocrysts. Probable coarse grained or altered recrystallized volcanic rock.

5+00W Volcanic breccia or vent material. Angular to rounded fragments of epidotized alpite material, quartz and volcanic rock in a matrix of fine grained chlorite and epidotized material. Similar to material on L10+00S at 5+50W.

4+50W QMP. Feldspar phenos to 2cm with quartz "eyes" to 4mm. Contains 2-3% mafic material including hornblende, biotite and chlorite after hornblende and minor magnetite. The pinkish feldspar phenos indicate minor K alteration and include hornblende laths, indicating possible secondary growth of feldspar phenocrysts. Contains 15-20% quartz.

4+25W Volcanic rock. Fine grained well foliated rock composed of 30-40% mafics and 60-70% sericitic and epidotitic feldspathic material. Slightly hematized with hematite and manganese on fractures.

3+50W Sample A. QMP. Feldspars > 1cm. Small quartz "eyes" to 3mm. Hornblende phenos to 2mm. 10-15% quartz and 2-3% mafics includes minor magnetite. Slight serifiic alteration. Very minor potassic alteration.

Sample B. Breccia. Sample composed of 30-40% largely chloritized mafic material and 60-70% sericitized to epidotized quartzofeldspathic material cut by veinlets of fine grained quartz and feldspar as well as veinlets of volcanic breccia as seen at 5+00W. Contains 3-4% magnetite.

3+00W Breccia. Rounded fragments of well epidotized quartzo-feldspathic material possibly aplite and healed by fine grained chloritic material. Containing feldspar laths.

2+50W Breccia. Similar to sample at 5+00W. Fragments to 2cm in length.

2+00W QMP. Narrow feldspar phenos to 2.5cm. with quartz phenos to 3mm and hornblende phenos averaging 2-3mm. Contains about 10% quartz and 4-5% mafic material including 1-2% fine grained magnetite. Relatively unaltered rock.

1+50W Volcanic rock. Fine grained black rock. Contains 50-60% mafic material and 40-50% quartzofeldspathic material. Cut by veins of epidotized and unaltered feldspathic material. Possible recrystallized volcanic rock.

1+00W QMP. Feldspar phenos to >1cm. Quartz phenos to 4mm. Contains 10-15% quartz and 3-5% fine grained mafic material consisting of hornblende and minor magnetite. Slightly pinkish in colour due to minor potassic alteration. Cut by a 1mm hematitic quartz vein.

0+50W QMP. Largest feldspar pheno on H.S. measures 7mm. Contains quartz phenos to 5mm with 10-15% quartz. Mafic phenos to 3mm consists of hornblende and biotite and chlorite after hornblende. Slightly sericitized. Slight potassic alteration. Contains minor dissimated Molybdenum.

5+00E QMP. Feldspars to >1cm. Quartz "eyes" to 4mm. Hornblende laths to 4-5mm. Contains 5% mafics including 1% magnetite and 10-15% quartz. Relatively fresh rock.

5+50E QMP. Feldspar to 1.5cm. Poorly defined quartz "eyes" to 5mm. Hornblende laths to 3mm. Contains 3-5% mostly fine grained mafic material, including minor magnetite and 15-20% quartz. Similar in texture to previous sample. Slightly hematitic. Albite twinning common. Very minor potassic alteration.

6+00E QMP. Feldspar phenos to 2cm. Contains 15% quartz with no "eyes" and 3-5% mafics, predominantly hornblende and biotite after hornblende. Contains numerous blebs of hematitic discolouration, probably a result of the breakdown of magnetite. Albite twinning common. Minor potassic alteration.

6+50E QMP. Feldspar phenos > 2.5cm. Quartz "eyes" to 7mm. Contains 15-20% quartz. The original mafic material has largely been altered to chlorite, biotite and hematite. Manganese appears on fractures. Slight potassic alteration. No obvious quartz veining.

7+00E QMP? or possible recrystallized Aplite. Similar to aplite in composition with 35-40% quartz, feldspar and no evident mafic material. Felspar to 1cm and quartz "eyes" to 5mm. Medium grained. Cut by a 4mm quartz vein.

0+00 QMP. Feldspars phenos > 1cm. Quartz with phenos to 4mm makes up 10-15% of rock. Contains about 3-4% mafics mainly hornblende with laths to 3mm. biotite and magnetite. Slight sericitic alteration. Minor potassic alteration.

1+00E QMP. Pinkish Feldspars >1cm. Quartz "eyes" 5-6mm in diameter. Contains 3-4% mafics, mainly hornblende with about 1% magnetite. Contains about 15% quartz. Pinkish feldspars indicative of slight to moderate potassic alteration.

1+50E QMP. Feldspars to 7mm evident. Contains 15-20% quartz with no "eyes" and 5-7% mafic material, principally hornblende with minor biotite after hornblende. Hornblende laths 2-3mm. Light brownish, slightly hematitic rock. Slightly sericitized. Contains minor hematitic hairline fractures.

4+00E QMP. Feldspars to 1.5cm. Quartz "eyes" to 4mm. Hornblende laths to 4mm. Contains 5% mafics predominantly hornblende with about 1-2% magnetite. Slight potassic alteration.

4+50E QMP. Feldspar > 1.5cm. Quartz phenos to 2-3mm with 10-15% quartz. Contains 5-6% mafics with hornblende laths to 3mm and 1-2% magnetite. Brownish in colour due to minor hematization of matrix material.

7+00E (Con't)	Hematitic fractures. Slight to moderate hematitic alteration. Minor manganese.
7+42E	QMP. Feldspars to > 1.5cm. Contains mafic material possibly indicative of secondary feldspar growth quartz phenos to 3mm. 10-15% quartz. Hornblende with laths to 4mm makes up 3-4% of rock. Moderately hematized.
8+00E	QMP. Feldspar to > 1.5cm with quartz "eyes" to 5mm. Hornblende laths to 5mm but most average 2-3mm. Slightly to moderately sericitized relatively fine grained matrix. Very light brown in colour with very minor potassic alteration.
8+50E	QMP. Feldspars phenos to 4cm x 1cm. Quartz "eyes" to 3mm. Quartz makes up 10-15% of rock. 5-7% mafics are predominantly hornblende. Hematitic on fractures. Slight to moderate hematization.
8+:5E	QMP. Feldspar phenos > 2cm. <u>No</u> quartz "eyes" evident. Contains 10-15% quartz and about 5% mafics including about 4% hornblende with laths to 2-3mm and minor magnetite. Similar in composition, but finer grained than previous sample.

9+00E Rhyolite. Fine grained light greenish grey rock. Manganiferous. Non porphyritic.

9+50E Phyolite. Light creamy coloured rock. Slight to moderate sericitic alteration. Contains quartz phenos to 1mm. Slightly manganiferous.

SAMPLE DESCRIPTIONS - L12+00S

7+00W QMP. Feldspar phenos evident to 7mm. Quartz "eyes" to 7mm. Hornblende laths to 3mm have been largely chloritized. Minor biotite evident. 2-3% mafics. 10-15% quartz. Slight potassic alteration. Cut by hematitic fractures.

6+50W Volcanic rock. Siliceous black rock composed largely of fine grained chloritic mafic material with 30-40% quartzofeldspathic material. Contains pyrite in occasional veinlets of epidotized material. Well hematized fractures.

6+00W Volcanic rock. Similar in composition to previous sample. Brownish fine grained rock. Much less altered than previous sample. Cut by several narrow hematite and epidote veinlets.

5+50W Volcanic rock. Brownish black rock. Coarser grained but similar in composition to previous sample. Slight to moderate chloritic alteration.

5+00W Volcanic. White feldspar and hornblende laths in a fine grained greenish quartzofeldspathic matrix. Base H.

4+50W Volcanic rock. Similar in composition but slightly more siliceous than sample at 6+00W. Brownish in colour.

4+00W Volcanic breccia? Hornfels? Two samples collected. One sample is composed of volcanic and sericitized fine grained aplitic material in a fine grained chloritic and epidotitic matrix.
Sample two is a fine grained siliceous chloritic and epidotic rock cut by veinlets of epidotitic material including one with a bleb of MoSz. Both samples are obviously in very close proximity.

3+10W Sample A. QMP. bx. Felspar phenos to lcm and QMP fragments in a dark grey highly siliceous matrix. Sample also contains a fragment of volcanic material containing 40-50% mafic and 50-60% quartzofeldspathic material Contains 2-3% magnetite.
Sample B. Breccia. Fragments of volcanic and fine grained QMP material in a matrix of dark greenish grey mafic and epidotized quartzofeldspathic material. Contains 3-4% magnetite.

2+60W Volcanic breccia. Volcanic and QMP fragments in a matrix composed of 50-60% mafics, 45% partially epidotized quartzofeldspathic material and 5% pyrite and magnetite. Much coarser grained than previous sample ("B").

1+50W Volcanic. Black medium grained rock composed of 50-60% mafics and 40-50% quartzofeldspathic material, including 5-10% introduced QMP material. Hematitic fractures. Contains about 2% magnetite.

1+00W Volcanic rock. Slightly coarser grained than previous sample with a decreased mafic content. Cut by a veinlet of partially epidotized quartzofeldspathic material.

0+50W QMP. Feldspars to > 1cm. Hornblende laths to 5mm. Quartz phenos 2-3mm. Contains 10-15% quartz and about 5% mafic material mainly fine grained hornblende. 60-70% of the hornblende has been altered to chlorite and biotite. Slight potassic alteration. 1-2% magnetite.

0+35E QMP. Feldspars to > 1cm. Quartz "eyes"to 7-8mm. 3-4% hornblende laths to 2mm show partial chloritic alteration. Contains 10-15% quartz, and 2-3% magnetite. Very light brown. Slightly altered rock.

1+00E QMP. Feldspar phenos to 2.5cm. Quartz phenos 4-5mm do not show as distinct "eyes". 10-15% quartz. Contains 5-7% mafics including chloritic and biotitic hornblende laths to 3mm and about 3% magnetite. Slight to moderate potassic alteration.

1+90E QMP. Feldspar to 7mm. Simialr in composition to previous sample, but overall is finer grained. Slightly hematized with minor sericitic alteration.

4+00E QMP. Feldspar phenos to 2cm. Quartz phenos to 3mm with about 10% quartz. 5-6% mafics include about 4% unaltered hornblende with laths to 3mm and 1-2% magnetite. Hematitic fractures. Slightly brownish in colour.

4+50E QMP. Feldspar phenos to 2cm. Quartz "eyes" to 6mm. 10-15% quartz. Contains 5-6% mafics including 4% partially altered hornblende with laths to 5mm. and about 2% magnetite. Slight potassic alteration.

5+00E QMP. Feldspar phenos >1cm. Quartz "eyes" to 4mm. with 15-20% quartz. 5-7% mafics include 5-6% hornblende with laths to 4mm and 1-2% magnetite. Slight potassic alteration.

5+50E QMP. Feldspar to >1cm. No quartz "eyes" evident. Quartz phenos to 2-3mm. 10-15% quarts. About 5% mafics mainly hornblende with laths to 5mm. Light brownish in colour.

6+00E QMP. Feldspar phase >2cm. Cut by fracture but growth along fracture indicates possible secondary growth. 20-25% quartz with phenos to 2-3mm with occasional quartz "eyes" to 5mm. Similar to 5+00E in texture. About 5% mafics,mainly hornblende with laths to 2mm.

6+50E QMP. Feldspar phenos >1.5cm. Quartz phenos 2-3mm. 10-15% quartz. 5-7% mafics include about 5% hornblende with laths to 3mm and about 1-2% magnetite. Slightly brownish in colour due to minor hematitic alteration.

7+00E QMP. Feldspar phenos to 1cm. 10-15% quartz with occasional phenos to 3mm. 5% mafics, mainly fresh hornblende with minor magnetite. Pinkish rock. Slight to moderate potassic alteration. Minor pyrite.

8+00E QMP. Feldspar >1.5cm. Contains about 15% quartz. About 5% mafic material, originally hornblende has been about 50% destroyed. Slight to moderate sericitic alteration. Light brownish to pinkish in colour indicative of very minor hematization and K alteration.

8+50E QMP. Feldpars to >2cm. Quartz "eyes" to 6mm. 10-15% quartz content. 5-6% mafics predominantly hornblende with laths to 7mm and 1-2% magnetite. Pinkish rock with slight potassic alteration.

9+42E Rhyolite. Cream coloured rock. Slight to moderate sericific alteration. Contains quartz phenos to 1mm. Manganiferous along occasional fractures.

10+07E QMP. Feldspar phenos to 1cm. Contains about 15% quartz and 5% mafics. The mafics consist mainly of fine grained (to/mm) hornblende phenos with occasional 4mm laths. Slightly hematized. Cut by a 3mm quartz vein.

QMP from West to East, very similar in colour.

SAMPLE DESCRIPTIONS - L13+00S

7+00W Volcanic Rock. Black fine grained rock, almost schistoss in appearance. Contains 40-50% mafic material and 50-60% quartzofeldspathic material. Cut by veinlets of epidotized material. Well hematized fractures.

6+50W Volcanic Rock. Similar to previous sample. However, contains minor zones of introduced material.

5+75W Volcanic Rock. Similar in compositions and texture to previous samples. Contains narrow bands of white quartzofeldspathic material which may be zonational but are probably fine grained introduced QMP material. Slightly pyritic rock.

5+00W Volcanic Rock. Foliated fine grained rock containing 30-40% mafic material and 60-70% quartzofeldspathic material. Slight to moderate sericitic alteration of feldspars with very minor epidotization. No pyrite evident. Hematitic fractures.

4+50W QMP. Feldspar phenos to 1cm. 10-15% quartz content. Contains 6-8% including 5-6% hornblende with phenos to 2mm and 2-3% magnetite. Slightly hematized. Cut by hematitic hairline fractures.

4+00W QMP. Feldspar phenos to 7-8mm evident. 10-15% quartz. Contains about 5% fine grained mafic material including hornblende and about 1% magnetite.

3+50W QMP. Feldspar phenos to 8mm. Quartz phenos to 4mm. 10-15% quartz. Contains about 6% mafic material including 3-4% hornblende and 2-3% magnetite. The mafic material is mostly fine grained but contains hornblende laths to 3mm. Slight potassic alteration.

3+00W QMP. Feldspar phenos to >1cm. Contains 10-15% quartz with occasional phenos to 4mm and 3-5% fine grained mafic material composed of 60-70% hornblende and magnetite. Slightly hematitic.

2+50W QMP. Feldspar phenos to 1cm evident. 10-15% quartz with occasional phenos to 4mm. Much coarser grained than previous sample. 5-7% mafics consist mainly of unaltered hornblende. Cut by numerous parallel hematitic fractures. Slight to moderate hematitic alteration. Hornblende laths to 3mm.

2+00W QMP. Feldspar phenos to 1.7cm x 4mm. Contains about 15% quartz with phenos to 4mm. Mafic content similar to previous sample, but slightly finer grained and with an increased magnetite content. Hematitic along fractures. Pyritic.

0+00 QMP. Feldspars to >1.5 cm. 15-20% quartz with phenos to 4mm. 3-5% mafics include hornblende, with laths to 2-3mm and about 2% magnetite. Relatively course grained compared to works to west. Slight potassic alteration.

0+50E QMP. Feldspar phenos to >1.5cm. Similar in composition and texture to previous sample, but contains slightly coarser mafics. Slight potassic alteration.

1+00E QMP. Feldspars to 1.5cm. Contains 10-15% quartz and 5% fine grained mafic material consisting mainly of magnetite. Overall finer grained rock. Cut by 1-2mm quartz veins. Pyritic along fractures.

4+00E QMP. Feldspar phenos to 1cm. Quartz phenos average 2.3mm with occasional "eyes" to 5mm. 10-15% quartz. Hornblende laths to 3mm. 5-6% mafics include 2-3% magnetite and 3-4% hornblende. Light brown to white in colour.

5+00E QMP. Feldspar phenos to 2cm. 15-20% quartz with occasional "eyes" to 5-7mm. Most phenos average 2.3mm 5-7% mafics are relatively fine grained hornblende and magnetite. However, contains a 1cm fragment of hornblende which may be a phenocryst on a xenolith. Greyish brown in colour due to hematization of matrix material. Albite twinning common.

5+50E QMP. Feldspars to 1.5cm. 15-20% quartz with "eyes" to 5mm. 5-7% mafic material consists of equal amounts of hornblende and magnetite. Hornblende laths to 3mm. Very slight sericitic alteration.

6+00E QMP. Feldspar phenos to > 2cm. 15-20% quartz with "eyes" to 4mm. About 5% mafics include hornblende laths to 3mm, biotite, after hornblende and magnetite. Spotted with blebs of hematite after hornblende and magnetite Very light brownish in colour. Slight to moderate sericitic alteration.

6+50E Sample "A" - QMP. Feldspars to > 1cm. Contains 15-20% quartz with phenos to 2-3mm. 5-7% mafics include hornblende with laths to 2-3mm and magnetite. Brownish in colour due to minor hematitic alteration.
Sample "B" - Rhyolite. Fine grained moderately sericitic rock, containing quartz phenos less than 1mm in diameter. Manganiferous. Cut by numerous parallel fractures.

7+00E QMP. Feldspar phenos to > 2cm. Majority of rock is made up of finer grained material including 15-20% quartz and about 3% mafics predominantly hornblende with laths to 2mm. Minor biotite development after hornblende. Minor Pyrite. Hematitic fractures. Slightly hematitic rock.

SAMPLE DESCRIPTIONS - L14+00S

8+00W Sediment? Aplite? Very fine grained light greenish grey rock. Composed of epidotitic, quartzofeldspathic material with no mafics evident. Highly hematized fractures with pyrites on one fracture.

7+50W Breccia. Rock composed of 40% slightly hematized rounded albite phenocrysts in a fine grained matrix composed of 60% quartzofeldspathic material and 40% mafics including hornblende and 3-4% magnetite.

6+42W QMP. Feldspar phenos to > 1cm. 15-20% quartz as phenos 2mm with occasional phenos to 3mm. 5-6% fine grained matic material includes hornblende with occasional thin laths to 5mm and 2-3% magnetite. Relatively fresh rock.

6+00W QMP. Feldspar phenos to 1cm. 10-15% quartz with "eyes" to 5mm. 5-7% mafics include hornblende with laths to 2-3mm and 2-3% magnetite. Hematitic fractures. Very slightly hematitic rock.

5+50W QMP. Feldspar phenos to > 2cm. 10-15% quartz with phenos averaging 1-2mm. Occasional phenos to 3-4mm. Albite twinning common. 5-6% fine grained mafic material Consists of 4-5% hornblende with laths to 2mm and 1-2% magnetite. Brownish in colour due to minor hematitic alteration.

5+00W QMP. Feldspar phenos > 1cm. Quartz "eyes" to 4-5mm. 15-20% quartz content about 5% mafic material includes 1-2% magnetite and hornblende with laths to 4mm. Cut by hematized hairline fracctures. Slightly sericitized. Very minor K alteration.

4+50W QMP. Feldspars > 2cm.15% quartz with phenos 2-3mm. Contains 5-7% mafic material including 2-3% magnetite and hornblende with occasional laths to 3mm. Relatively fresh rock.

4+00W QMP. No large feldspars in H.S. Contains about 15% quartz with phenos to 2-3mm. Very similar in texture and composition to previous sample.

3+50W QMP Feldspars > 2cm. Contains numerous quartz "eyes" to 5mm. Contains 15-20% quartz. 3% hornblende with laths to 4mm. Slight to moderate hematitic alteration.

3+00W QMP. Feldspar to > 1cm in H.S. Contains about 15% quartz with "eyes" to 5mm. "Eyes" do not stand out as in previous sample. 3-5% mafics include about 2% magnetite and hornblende with laths to 4mm. Slight potassic alteration. Relatively fresh rock.

2+50W QMP. Feldspars to > 1.5cm. Contains about 15% quartz. Quartz phenos to 5mm form indistinct "eyes". 3-5% mafics, predominantly hornblende. Slight to moderate local sericitic alteration. Cut by hematitic fracture. Slightly hematitic.

2+00W QMP. Feldspar phenos to > 1.5cm. Quartz makes up 15-20% of rock with quartz "eyes" to 8mm. 3-5% mafics include a 1-2% magnetite and hornblende laths to 4mm. Slight potassic alteration.

1+50W QMP. Feldspar phenos to 1cm. Contains 10-15% quartz as distinct phenocrysts to 2-3mm. About 5% mafic material including hornblende with laths to 3mm and 1-2% magnetite. Slightly sericitized. Appears to be finer grained equivelent of rocks to immediate west.

0+00	QMP. Feldspar phenos to 1.5cm. Contains about 15% quartz with "eyes" to 5mm. Contains 5-7% mafics including hornblende, minor biotite after hornblende, minor magnetite and menatite after magnetite. Slight to moderate sericitization. Slightly to moderately hematized. Pyritic.
3+00E	No sample available.
3+75E	QMP. Feldspars to > 1.5cm. 10-15% quartz with phenos to 4mm. 5-7% mafics include 2-3% magnetite and hornblende with laths to 4mm. Very minor potassic alteration.
4+00E	QMP. Feldspars to > 7mm. Contains about 10% quartz with phenos to 3mm. 5-7% mafics include 2-3% magnetite and hornblende with laths to 2mm. Slight sericitic alteration. Similar to previous sample.
5+32E	QMP. Feldspars > 1cm. 10-15% quartz with "eyes" to 5mm. 3-5% mafics include 1-2% magnetite and hornblende with laths to 2mm. Later hornblende growth evident along fractures. Slight K alteration. Slightly sericitized.
5+75E	QMP. Feldspar to > 1cm. Contains about 10% quartz with phenos averaging 1-2mm. Also contains veiny, occasional quartz "eye" to 5mm. Mafics similar to previous sample. Light brownish in colour.

6+00E QMP. Feldspars to 2cm. 10-15% quartz with "eyes" to 6mm. Contains 5-6% mafics including 1-2% magnetite and 4-5% hornblende with laths to 3-4mm. Light brown. Slightly hematized rock.

6+50E Rhyolite. Fine grained sericitic light green manganiferous rock. No phenocrysts evident.

6+90E Rhyolite. Fine grained light brownish grey rock with occasional quartz pheno < 1mm. in diameter. Contains ubignitons pale yellow vicaceous material. Less altered and less Mn than previous sample.

SAMPLE DESCRIPTIONS - L17+80S (Main grid)

7+35E	QMP. Feldspar to >1.5cm. Contains about 10% quartz as phenos to 4mm. Contains 5-6% mafics including 1-2% magnetite, hornblende with laths to 4mm, biotite after hornblende and what appears to be primary biotite. Slightly hematized. Very minor K alteration.
14+60S 6+50E	Rhyolite. Light greenish grey, very fine grained rock with quartz phenos to 0.5mm and about 3% disseminated manganese.

SAMPLE DESCRIPTIONS - L18+00S

0+75E Sediment? Volc.? Well foliated rock composed of about 70% quartzofeldspathic material and about 30% mafic material. Well hematized fractures. Minor gypsum in fractures.

1+83E Quartzite? White fine grained siliceous rock containing about 20% pale green epidotized material. Cut by numerous hematitic fractures.

3+70E Argillitic sediments. Very fine grained black rock. Pyrite, gypsum and hematite on fractures.

4+10E Rhyolite. Fine grained greyish rock containing numerous quartz phenos < 1mm in diameter. Manganeferous.

4+50E Argillitic sediments. Very fine grained black rock containing 5% pyrite. Gypsum and hematite on fractures. Slightly hornfelsic in appearance.

5+00E Rhyolite. Fine grained greyish rock similar to 4+10E But contains no quartz phenos. However, does contain occasional mafic phenos. Mn on fractures.

6+25E	QMP. Feldspars to 2.5cm. Quartz makes up about 10% of rock with phenos to 2mm. 5-7% mafics include 1-2% magnetite and 5-6% hornblende with laths to 4mm and includes partially altered material. Slightly sericitized.
18+17S 7+13E 50-7	QMP. Feldspar phenos to > 1.5 cm. 15-20% quartz with occasional "eyes" to 7mm. Most quartz phenos average 2-3mm. 4-5% mafics include 1-2% magnetite and 3-4% hornblende with laths to 3mm. Light brown rock due to minor hematization. Very minor potassic alteration.
8+90E	Rhyolite. Very fine grained light grey rock containing 5-7% brown fine grained micoceous material and manganese. Manganese and hematite on fractures.
9+40E	Rhyolite. Light grey rock with quartz phenos to 1.5mm. Manganiferous. Contains about 3% micoceous material. Cut by manganese coated fractures.
9+65E	QMP. Feldspar phenos to > 1.2 cm. 15-20% quartz with phenos to 7mm, but very poor "eye" development. Hornblende laths to 2mm in diameter and 8mm in length. 5-6% mafics include hornblend, biotite after nornblende and about 2% magnetite. Brownish grey, slightly hematitic rock.

SAMPLE DESCRIPTIONS - L19+20S

3+25E Rhyolite. Light grey slightly to moderately sericitized rock containing quartz phenos to 0.5mm and about 3% brownish material and possibly hematized micoceous material.

3+80E Sample "A" QMP. Feldspars to 1.5cm. Contains 10-15% quartz with phenos to 6-7mm. 5-7% mafics include 3-4% magnetite, hornblende and chlorite after hornblende. Slight potassic alteration. Minor epidotization. Hematitic fractures.

Sample "B" QMP. Highly manganiferous sample with slickensides evident. No fresh surfaces. Texturally the sample appears to be a quartz Monzonite Porphyry and is a sample of a manganiferous "pad" contained within a shared QMP - Sample "A"

2+85E QMP. Sample incorrectly marked 3+85E. Feldspar phenos to > 1cm. 10-15% quartz with phenos to 3mm. Contains 5-7% mafics predominantly hornblende with laths to 4mm. Partial chloritization of the hornblende is common. Heavily hematized fractures. Slight to moderate hematitic alteration. Albite twinning common.

4+10E Rhyolite. Similar to sample at 3+25E. Slightly greenish in colour. Contains blebs of yellow clayey material. Cut by Mn coated fractures.

5+38E QMP. Feldspars > 1cm. 10-15% quartz with phenos to 3-4mm. Contains about 5% mafics consisting of 1-2% magnetite and 3-4% hornblende with laths to 2mm. Very minor hematitic alteration. Slight sericitization.

6+75E QMP. Feldspar phenos to 1.5cm. 10-15% quartz with phenos to 5mm. 5% mafics include hornblende with laths to 3mm, about 1-2% magnetite and well developed biotite after hornblende. Hematitic fractures. Slight hematitic discolouration.

7+33E QMP. Feldspar phenos to 2cm. 10-15% quartz with phenos to 2-3mm. 5-6% mafics include hornblende with laths to 4-5mm and about 2% magnetite. Slight potassic alteration. Slight to moderate sericitic. Hematic. Minor pyrite noted in o/c. Minor chlorite after hornblende.

7+60E QMP. Feldspars to > 1.5cm. 15-20% quartz with phenos to 4mm. 5-6% mafics include about 2% magnetite, hornblende laths to 3mm and biotite both primary and secondary. Minor K alteration. Slight to moderate sericitic alteration. Contains blebs of Mn with material.

8+25E Rhyolite. Greyish rock with numerous quartz phenos. The phenos average about 0.5mm. Also contains an occasional feldspar pheno as well as about 3% micoceous material.

8+45E QMP. Feldspars to 1.5cm. 10-15% quartz with phenos to 2-3mm. 5-7% mafics include about 2% magnetite and about 4-5% hornblende. Slight hematitic discolouration.

8+50E Rhyolite. Light grey, moderately sericitized fine grained rock with quartz phenos to > 1mm. Contains 3-5% brownish micaceous material.

8+55E QMP. Similar in texture and composition to sample at 8+45E. Cut by hematitic fractures. Minor biotite development after hornblende. Slight hematitic discolouration.

9+00E QMP. Feldspars to > 1cm. 10-15% quartz with phenos to 3mm. Contains 5-6% mafics predominantly hornblende with laths to 3mm and about 2% magnetite. Albite twinning common. Minor biotite and chlorite development.

9+35E QMP. Feldspars to 1cm. 10% quartz with phenos to 2-3mm. 5-6% mafics include 2-3% magnetite and hornblende with laths to 2mm. Brownish in colour due to slight hematitic alteration.

SAMPLE DESCRIPTIONS - L20+40S

3+60E Rhyolite. Pale green epidotitic rock with quartz phenos to 0.5mm. Contains fine grained hematitic micareous material. Mn coated fractures. Contains blebs of hematitic material. Slightly sericitized.

3+75E QMP. Feldspars to 1cm. 10-15% quartz with phenos to 3mm. Contains about 5% mafics including 1-2% magnetite and hornblende with phenos to 4mm. The hornblende ranges from fresh to highly altered. Feldspars show albite twinning. Cut by numerous hematitic fractures.

20+34S
4+50E QMP? Pale green epidotitic highly calcic rock. Contains 5-7% mafics including about 1% magnetite. chlorite and hornblende. Some talc on shear surfaces. Appears to be highly altered quartz Monzonite Porphyry cut by a vein of pale green pyritic calcareous material. Contains 10-15% quarts. Possibly from shear zone.

5+50E QMP. Feldspars to 3cm. 10% quartz with phenos to 5mm but averaging 2-3mm. Contains about 2% magnetite and 4-5% hornblende with laths to 4mm. Albite twinning common. Light brownish in colour. Very slight hematite discolouration. Slightly sericitized.

5+62E	Basaltic Rock. Dark green fine grained rock containing rounded to well formed feldspar phenos as well as rounded quartz crystals. Contains some calcite as vesicle filling.
6+12E	QMP. Feldspars to 1cm. Contains 15-20% quartz about 6% mafics are made up of 2-3% magnetite and 3-4% hornblende Overall the rock is relatively fine grained and almost aplitic in appearance.
20+65S 6+58E	QMP. Similar in composition to previous sample with possibly slightly decreased quartz. Feldspar to 1.2cm Quartz phenos to 3mm. Hornblende laths to 3mm. Very light brown in colour. Slightly sericitized.
9+10E	Diabase or coarse grained volcanic. Contains 50-60% mafic material largely hornblende and 40-50% dark grey to white quartzofeldspathic material.
20+49S 9+61E	Rhyolite. Dark grey rock containing quartz and occasional feldspar phenocrysts.
9+88E	QMP. Feldspars to 2cm. 10-15% quartz with phenos averaging 2-3mm with occasional phenos to 4mm. 5-7% mafics include 2-3% magnetite, hornblende and biotite and chlorite after hornblende. Very white rock.

20+24S
10+44E

QMP. Feldspars to 7mm in H.S. 10-15% quartz with phenos averaging 2-3mm. Mafics comprise about 5% of rock i.e. 4% hornblende with laths to 3mm and about 1% magnetite. Slight to moderate hematization due to alteration of magnetite. Cut by small aplite dike. Finer grained than previous sample.

10+75E

QMP. Feldspars to 1cm. Contains an occasional pinkish feldspar which appears to be secondary - i.e. a result of K alteration. Contains 10-15% quartz mainly as matrix material. 5-6% mafics comprising 2-3% magnetite, hornblende and minor biotite and chlorite after hornblende. Fine grained mafic material. Similar in texture to 10+44E

12+00E

QMP. Feldspars to > 1cm. Contains about 15% quartz with phenos averaging 1-2mm with occasional phenos to about 5mm. Albite twinning evident. 5% mafic content includes about 2% magnetite, hornblende with phenos to 3-4mm and minor biotite after hornblende. Slightly pyritic. Slight to moderate sericitic alteration.

SAMPLE DESCRIPTIONS - L21+60S

3+25E QMP. Feldspars to 1cm. About 15% quartz content. Hornblende laths to 3mm. 5-6% mafics include about 2% magnetite. Cut by numerous parallel fractures. Hornblende partially altered. Slightly hematitic.

5+30E QMP. Feldspars to > 1.5cm. 10-15% quartz with phenos to 2-3mm. 5-6% mafics include about 3% fine grained magnetite and about 2-3% hornblende with laths to 5mm. Very slightly hematitic, light brownish rock.

6+45E QMP. Feldspars to 2cm. 10-15% quartz as above. 5-6% mafics, slightly coarser than previous samples, with about 2-3% magnetite and 3-4% hornblende with laths to 3mm. Light brownish rock. Very slightly hematitic.

6+35E Rhyolite. Light grey rock containing rounded quartz phenos and hematized micaceous material. Manganiferous on fractures.

7+25E QMP. Feldspars to 1cm. 10-15% quartz including occasional phenos to 4-5mm. Contains about 5% mafics including about 2% magnetite and hornblende laths to about 4mm.

11+75E QMP. Feldspar phenos to 2cm x 7mm. About 15% quartz includes occasional pheno to 5mm. 5-7% mafics composed of 2-3% magnetite and hornblende with laths to 6mm. Hematitic fractures.

12+50E QMP. Feldspars to > 1cm.Contains 10-15% quartz with phenos to 2-3mm and about 5% relatively fine grained mafics comprising about 2% magnetite, hornblende with laths to 4mm and that appears to be primary biotite. Very light brown slightly to moderately sericitized rock.

SAMPLE DESCRIPTIONS - L22+80S

1+00E QMP. Feldspar phenocrysts to 1.5cm. Contains about 10% quartz with phenos to 2-3mm. 5-7% mafics include about 2% magnetite and 3-5% hornblende with laths to 3mm. Relatively unaltered rock.

1+75E Phyolite. Greenish grey rock with quartz and occasional mafic phenocrysts.

2+60E QMP. Feldspars to 1cm. Contains about 10% quartz and about 5% mafic material including altered magnetite, hornblende with phenos to 7mm and altered hornblende (largely chloritized). Slightly sericitized. Slightly hematized. Hematitic fractures. Coarser grained than sample at 1+00E

3+65E QMP. Feldspars to 1cm. Contains about 10% quartz with occasional phenos to 3mm. Contains 5-7% mafics with about 1% magnetite, and 5-6% hornblende. Hornblende laths average 2mm and occasionally reach 4mm. Slightly more sericitized than previous sample.

22+70S
4+00E

Sample "A" QMP. Feldspars to 5mm. Contains 10-15% quartz with phenos to 3mm. 5-6% mafic material includes 1-2% magnetite and 4-5% hornblende with laths averaging 1-2mm. Hematitic fractures.

Sample Beseltic rock. Fine grained dark greenish grey rock composed of 40-50% mafics and 50-60% grey to greenish. Contains rounded to angular feldspar phenocrysts. Similar to 20+40S at 9+10E and 24+00S at 2+80E.

4+25E

QMP. Feldspars to > 1cm. Contains 10-15% quartz with occasional "eyes" to 5-6mm and 5-7% mafics including about 2% magnetite and hornblende with laths to 5mm. White, slight to moderate sericitization. Contains pinkish phenos indicative of minor K alteration.

5+00E

QMP. Slightly pinkish feldspars to > 1.5cm. Contains 10-15% quartz with occasional "eyes" to 5mm. and 5-6% mafics made up of 2-3% magnetite and 3-4% hornblende with laths averaging 2mm. Minor potassic alteration.

6+00E

QMP. Feldspars to > 1cm. Contains about 10% quartz with phenos to 2mm. and about 5% mafics comprising 1-2% magnetite and 3-4% hornblende with laths averaging 2mm. Pinkish rock with slight to moderate potassic alteration.

6+90E Rhyolite. Fine grained brownish grey rock containing quartz phenos to 0.5mm and 3-5% micaceous material. Slight to moderate sericitic alteration.

7+35E QMP. Feldspars to > 1cm. Contains 10-15% quartz with four distinct phenos evident. 5-7% mafics include about 3% magnetite and 2-4% hornblende with laths to 2-3mm. Partial chloritization of hornblende. Slightly hematized rock.

8+00E QMP? Highly altered. Highly calcareous rock composed of 20-25% micaceous material most of which is slightly greenish in colour and probably chloritic. Contains about 10% quartz. No mafics obvious except for biotitic looking mica. Rock may be heavily altered QMP with mica after feldspar are recrystallized rhyolite.

8+60E QMP. Feldspars to 3cm x 7mm. Contains about 15% quartz with phenos averaging 3mm with occasional phenos to 5mm. Contains 5-6% mafics including 2-3% magnetite and 3-4% hornblende with laths averaging 2-3mm. Cut by parallel slightly hematitic fractures.

9+35E Rhyolite. Light grey rock containing occasional quartz phenos to 0.5mm and minor manganese. Cut by manganese coated fractures.

11+12E QMP. Feldspars to 1.5cm. Contains 10-15% quartz with phenos averaging 1-2mm and 5-7% mafics including hornblende with laths to 3mm. 2-3% magnetite and hematized magnetite and biotite. The biotite appears to be primary. Slightly sericitized.

11+65E QMP Feldspars to > 1cm. Contains about 15% quartz with phenos to 5mm. 5-7% mafics include about 2% magnetite, hornblende and biotite. Biotite appears to be both primary and as an alteration of hornblende. Contains 3-4% biotite. Minor potassic alteration.

12+00E QMP. Feldspars to 7mm in H.S. Contains about15% quartz with phenos to 3-4mm and 5-7% mafics including > 2% magnetite, hornblende and both primary and secondary biotite. Contains numerous blebs of hematitic discolouration after magnetite and biotite.

12+50E QMP. Feldspars to 1.5cm. Contains about 15% quartz with phenos averaging 2mm with occasional phenos to 4mm. 5-6% mafics include about 1% magnetite, hornblende with laths to 4mm and biotite both primary and secondary after hornblende.

13+10E QMP. No large feldspars in hand sample. Contains about 15% quartz as phenos 1-2mm in diameter. Very occasional quartz phenos reach 4mm. Fine grained (1-2mm) mafics make up about 5% of rock and include 2-3% magnetite, hornblende and minor magnetite. Several hornblende phenos reach 3mm. Rock is a fine grained quartz Monzonite Porphyry or a coarse grained Aplite. In the former case it may represent the eastern limit of the intrusion.

SAMPLE DESCRIPTIONS - L24+00S

0+00 Rhyolite. Light greenish rock with quartz phenos to 1mm. Contains Manganese and micaceous material near weathered surface.

0+75E QMP. Feldspars to 1.5cm. 10% quartz as phenos to 2mm. 3-5% mafics are predominantly hornblende with laths to 3mm but averaging 1-2mm. Albite twinning evident in smaller feldspar. Moderate to heavy hematization.

1+45E QMP. Feldspar to 1cm. 10% quartz with phenos to 2mm. Contains about 5% mafics, mainly hornblende with laths to 2-3mm and chloritized hornblende. Moderatly hematized.

2+00E QMP. Feldspars to 7mm. 10-15% quartz with phenos to 1-2mm. Contains 5-6% mafics including hornblende with laths to 6mm but averaging 2-3mm and partially altered hornblende. Slightly sericitized rock. Cut by numerous fractures as well as a vein of coarse grained aplitic rock with 25-30% quartz. Hematized fractures.

2+50E QMP. Feldspars to > 1cm. Contains 10-15% quartz with phenos to 2mm. 7% mafics include about 1% magnetite and hornblende laths to 6-7mm. About 30% of the hornblende is partially altered. White slightly to moderately sercitized rock.

2+80E Diabase or volcanic rock. Mafic phenos to 3mm and calcite filled vesicles in a matrix composed of fine grained40-50% mafic and 50-60% quartzofeldspathic material. Dark grey in colour.

3+25E QMP. Feldspars to 1cm in H.S. Averages 15% quartz with phenos to 4mm. Contains 5-6% mafics made up of about 2% magnetite and 3-4% hornblende with narrow laths to 7mm but averaging 2-3mm. Contains minor chlorite after hornblende. Albite twinning common. Light brownish due to hematite discolouration.

3+65E QMP. Feldspars to 1cm. 15% quartz with "eyes" to 4mm. Contains about 5% mafics comprising about 3% hornblende with laths to 5mm but averaging 2-3mm and about 2% magnetite. Slightly sericitized as is the previous sample.

4+35E Rhyolite. Light greenish grey with quartz phenos to 1mm and about 3% pale green micareous material.

4+50E QMP. Similar in composition to samples at 3+65E but mafics are finer grained. Quartz "eyes" to 3-4mm. Cut by hematized fractures. Slight to moderate sericitic alteration.

5+20E QMP. Feldspars to > 2cm. 10-15% quartz with phenos to 1-2mm. Contains about 7% mafics, mainly hornblende laths to 2-3mm, about 1% magnetite and minor biotite after hornblende. White slightly to moderately sericitized rock.

5+75E QMP. No large feldspars in H.S. Contains 10-15% quartz with phenos to 4mm (poorly developed "eyes"). Contains about 5% mafics made up of about 3% hornblende with laths to 3mm and about 2% magnetite "spots" of slightly hematized material are found throughout the rock. Slight to moderate servicitization.

6+50E QMP. Feldspars to 1.5cm. Contains about 10% fine grained quartz and 4-5% fine grained hornblende material with laths to 2mm. A relatively fine grained porphyry.

7+25E Phyolite. Light grey rock with quartz phenos to 0.5mm and containing about 3% micaceous material.

7+50E QMP. Highly pyritic rock. Feldspars to 7mm. Variably quartzitic ranging from 10-25%. May be cut by coarse grained aplite which would explain highly quartzitic sections. Mafics consist of uses of hornblende material. 5-10% pyrite. Moderate hematization. Possible shear zone on contact with rhyolite.

9+15E Rhyolite. Pale green relatively fresh rock. Quartz phenos to 1mm. No micaceous material evident.

9+50E QMP. Feldspars to > 1.5cm. 10-15% quartz with phenos to 5mm but averaging 2-3mm. 4-5% mafics are made up of about 2% magnetite. 2-3% hornblende with laths to 4mm and biotite and chlorite after hornblende.

10+00E QMP. Feldspars to 1cm. Contains about 15% quartz with phenos averaging 2mm. 5-7% mafics include 2-3% magnetite, hornblende and biotite after hornblende. Contains occasional lath to 1cm and quartz pheno to 4mm. Slightly sericitized.

10+50E QMP. Feldspars to > 1.5cm. Contains 10-15% quartz with phenos averaging 2-3mm with occasional phenos to 4mm. 5-6% mafics comprising about 2% magnetite, hornblende with stubby laths to 2mm, and both secondary and primary biotite. Slightly sericitized.

11+18 QMP. No large feldspars evident. Contains about 15% quartz with phenos to 3-4mm. 5-6% fine grained mafics made up of 2-3% magnetite, hornblende and biotite largely primary. Slightly sericitized and very slightly hematitic.

11+55E QMP. Feldspar phenos to 1.5cm in a relatively fine grained matrix. 10-15% quartz with occasional phenos to 2mm. Fine grained mafics include magnetite hornblende and minor biotite. Fine grained QMP? Occasional hornblende lath to 5mm.

SAMPLE DESCRIPTIONS - L25+20S

12+50W Volcanic Rock. Fine grained black rock composed of about 40% mafics and about 60% quartzofeldspathic material. Contains disseminated pyrite. Weakly foliated. Heavily hematized fractures.

12+00W Sample "A". QMP. Feldspars to 1cm. 10-15% quartz. Aplite twinning common. 5% mafic material largely hornblende with minor magnetite. Cut by parallel hematitic fractures. Dike material.
Sample "B". Lanprophyre. Biotite phenocrysts in a medium grained matrix composed of 40% biotite and about 60% quartzofeldspathic epidotized material. Medium green in colour. Contains about 2% magnetite.

11+00W QMP. Feldspar phenos to 1.5cm. Contains about 15% quartz with phenos to 3-4mm. 5-6% mafics are made up of 4-5% well formed hornblende laths to 3mm and 1-2% magnetite. Albite twinning common. Unaltered rock.

10+50W QMP. Feldspars to 1.2cm. Contains about 10% quartz with no phenos evident. Similar in texture to previous sample 5-6% mafics with about 2% magnetite and hornblende.

10+00W	QMP. Feldspars to 6mm in H.S. 10-15% quartz with phenos to 2mm. 5-7% mafics made up of about 2% magnetite and fine grained hornblende with laths averaging 2mm.
9+50W	QMP. No large feldspars evident. Contains 10-15% quartz with occasional phenos to 3mm. About 5% mafics comprising about 2% magnetitie and about 3% hornblende with laths averaging 2mm. Slightly sericitiezed.
9+00W	QMP. Similar in composition to previous sample though magnetite has been largely altered. Slightly coarser in texture. Slightly hematitic. Well hematized fractures.
8+50W	QMP. Simialr in texture to previous sample. No quartz phenos evident. Light brownish in colour due to slight hematitic discolouration. Contains about 2% magnetite.
7+50W	QMP. Feldspars to 1.5cm. Contains 10-15 quartz with phenos averaging 2-3mm. Contains about 5% mafics comprising 2-3% magnetite and hornblende with laths to 2mm. Albite twinning common.

7+00W QMP. Feldspars to 8mm. 10-15% quartz with phenos to 2-3mm. Contains 5-6% mafics predominently hornblende with laths to 4mm and about 2% magnetite. Slightly pinkish due to minor K alteration. Very minor hematization.

2+75W QMP. Feldspars to > 1cm. Contains about 15% quartz with phenocrysts to 4mm and 3-5% mafics comprising about 2% magnetite, hornblende and biotite after hornblende. Light brownish due to hematitic discolouration. Slightly sericitized.

2+50W QMP. Feldspars to 2cm x 2cm. 10-15% quartz with phenos to 3mm. 5-6% mafics are made up of about 2% magnetite and 3-4% hornblende with laths to 4mm. Brownish in colour due to hematitic discolouration. Slightly sericitized.

1+85W QMP. Feldspars to 1.5cm. Contains 10-15% quartz with phenos to 3mm, and 4-5% mafics comprising 2% magnetite and 2-3% hornblende with laths to 3mm. Slightly sericitized.

1+50W	QMP. Feldspars to > 2cm. in a moderately sericitized relatively fine grained matrix containing about 10% quartz. 1-2% magnetite and 3-4% hornblende with laths to 3mm. Quartz phenos to 3-4mm. The fine grained appearance is a result of sericitization. Pinkish feldspars are indicative of K alteration.
0+90W	QMP. Feldspar to 2cm. 10-15% quartz content with phenos ranging from 2-4mm. Contains 5-6% mafics composed of 2% magnetite and 3-4% hornblende with laths averaging 2mm but with large phenos to > 5mm. Slightly sericitized. Minor hematitic discolouration.
0+40W	QMP. Feldspars to > 1cm. 15-20% quartz content with phenos averaging 2mm. 5-6% mafic material comprising 3-4% hornblende with laths to 2-3mm and about 2% magnetite. Slight to moderate sericitic alteration contains some cavities.
0+00	QMP. Similar in texture and composition to previous sample, however, sericitic alteration is not as strong Manganiferous fractures. Minor hematitic discolouration.

3+00E Aplite. White fine grained rock containing 25-30% quartz and 70-75%. Slightly sericitized feldspathic material. Contains occasional mafic material.

3+40E Quartzite. Highly siliceous brownish rock containing about 15% sulphide minerals including pyrite chalcopyrite and an abundent silvery mineral which is probably partlendite. Weakly banded. Cut by a 1-2mm quartz vein.

4+10E Rhyolite. Light greenish rock containing quartz phenos to 1mm and 3-5% pale green to hematitic and manganiferous micaceous material.

4+50E QMP. No felspar phenos evident. Contains 15-20% quartz with phenos to 3mm and about 5% mafics. Composed of very minor magnetite and about 4% hornblende with phenos to 5mm. Contains blebs of hematitic material. Slight to moderate sericitic alteration.

8+00E Volcanic rock. Rock composed of quartzofeldspathic and epidotized quartzofeldspathic material. Sample collected from near QMP intrusive so is probably partially altered. Little mafic material evident.

8+10E Sample "A" Aplite. Uniformly white rock composed predominently of feldspathic material with about 5-10% quartz. Contains 1-3mm albitic feldspar phenos and 2-3% altered hornblende.
Sample "B". Volcanic rock. Composed largely of epidotized quartzofeldspathic material. Fresh portions of sample are composed of about 40% mafic and 60% quartzofeldspathic material.

8+50E Rhyolite. Light brownish grey rock with quartz phenos to 1mm. Moderately sericitized. Contains 5-10% pale green to black to brownish micaceous material the latter a result of Mn and hematite staining. manganiferous.

11+60E Sample "A". Fine grained QMP. Contains feldspars to 3mm, 15-20% quartz and about 5% mafics comprising roughly equal amounts of hornblende and primary biotite. But by a 1-2mm hematitic quartz vein. Slightly sericitized. 1-2% magnetite. Aplitic in appearance.
Sample "B". Volcanic rock. Schistose. - appearence

11+60E (cont)	composed of 40% mafics made up of hornblende and biotite and about 60% quartzofeldspathic material. Schistosity cut by hematized fractures. 1-2% magnetite.

SAMPLE DESCRIPTIONS - L26+40S

10+00W QMP. Feldspars to 1.5cm. Contains 15-20% quartz with phenos to 2-3mm and about 5% fine grained mafics composed of about 2% magnetite, hornblende and biotite and chlorite after hornblende. Brownish in colour due to minor hematitic discolouration.

9+50W QMP. Feldspars to about 2cm. 15-20% quartz content with phenos averaging 2mm with occasional phenos to 4mm. Contains 5-7% mafics comprising about 2% magnetite hornblende with narrow laths to 3mm and biotite at least some of which appears primary. Medium brownish colour due to hematite discolouration. Albite twinning common.

9+00W QMP. Feldspars to 1cm. Contains about 15% quartz with phenos to 2-3mm. and about 5% mafic material comprising about 2% magnetite and about 3% hornblende with laths to 3mm. Slightly brownish rock. Albite twinning common. Slight potassic alteration.

3+60W QMP. Feldsparts to 1cm. Contains 10-15% quartz with phenos to 3-5mm. Also contains about 3% mafics composed of 1-2% magnetite and 3-4% hornblende. Minor potassic alteration. Cut by parallel hematitic fractures.

3+00W QMP. Feldspars to 2.5cm. 10-15% quartz with phenos averaging 2-3mm. Contains 5-6% mafics made up of about 2% magnetite and 3-4% hornblende with laths averaging 2-3mm. but with occasional laths to 5mm. Very slight sericitic alteration.

2+75W QMP. Feldspars to 1.2cm. Similar in composition and texture to previous sample. Albite twinning evident in phenos. Very light brown. Slightly sericitic.

2+00W QMP. Feldspars to 2cm. Contains 10-15% quartz with phenos to 1-2mm. 5-6% mafic content is composed of about 2% magnetite and 3-4% hornblende including laths to 6mm.

1+65W QMP. Feldspars to 1.2cm. 10-15% quartz content with phenos averaging 2mm. in diameter. 5-6% mafics consist of 1-2% magnetite and 4-5% hornblende with laths to 3mm. Partial alteration of hornblende is evident. Moderate hematitic alteration. Hematitic fractures.

0+75W QMP. Feldspars to 6mm. 15-20% quarts content with quartz phenos averaging 1mm. in diameter. Contains 3-4% mafics including about 1% magnetite and 2-3% hornblende. Greenish weakly epidotized rock. Fine grained QMP.

0+25W	Rhyolite. Cream coloured rock containing quartz phenos to 1mm. 5% pale green micaceous material and about 5% manganese and hematite.
0+50E	Volcanic rock. Rounded quartz-feldspar fragments in a very fine grained dark greenish grey largely quartzofeldspathic matrix. Possibly andestic in composition.
1+00E	Sample "A". Rhyolite. Pale green rock with quartz phenos to 1mm. No micaceous material evident. Mn staining on fractures. Sample "B". Aplite. Fine grained rock containing 30-35% quartz and 65-70% feldspathic material. Slightly sericitized. Very light brown in colour.
1+65E	Basalt porphyry. Weakly foliated rock consisting of rounded to angular moderately sericitic feldspar phenos to 5mm. in a black fine grained matrix. The matrix is composed of 40% mafic and 60% quartzofeldspathic material. Hematitic fractures.

1+75E	Sample "A". Basalt porphyry. Feldspar fragments to 5-6mm in a much coarser grained matrix than previous sample. In the matrix hornblende phenos to 2mm are set in a very fine grained partially epidotized quartzofeldspathic matrix.
3+00E	Basalt Porphyry. Semilar to samples at 1+65E and 1+75E except that the matrix material has been moderately sericitized. There is also a weak foliation probably indictive of shearing. Hematitic fractures.
3+50E	Volcanic rock. Fine grained black rock consisting of mafic material in a dark grey very fine grained quartzofeldspathic matrix. Hematite and gypsum coated fractures.
5+75E	Argillite. Very fine grained uniformly black rock with no discernible crystalline minerals. Well hematized fractures. Very weak foliation.

6+50E	Volcanic rock. Fine grained greyish black. Slightly crystalline rock. Locally highly siliceous. Contains about 2% disseminated pyrite. Heavily hematized fractures.
6+75E	Rhyolite. Light grey slightly sericitic rock containing quartz phenos to 1mm as well as about 3% pale green micaceous material. Also contains manganese and hematite.
7+40E	Sediment? Fine grained, medium green highly pyritic rock. Weakly bedded, extremely hematized rock.
7+55E	Sediment? Altered rhyolite? Very fine grained, pale green siliceous rock. May also be altered aplitic rock.
8+90E	Rhyolite. Cream coloured moderately sericitized rock with quartz phenos to 1mm and about 3% pale green to manganiferous micaceous material.

9+40E	Volcanic rock. Rounded feldspar phenos in a matrix of 40% mafic and 60% quartzofeldspathic material. Slightly similar to rocks at 1+65E and 1+75E except that this sample has much less phenocrysts.
10+00E	Volcanic rock. Medium to coarse grained. Composed of 40% mafic material, largely hornblende and 60% quartzofeldspathic material. Black in colour.
11+00E	Volcanic rock? Grey in colour. Hornblende phenos to 2mm in a medium grey very fine grained quartzo-feldspathic matrix.
11+50E	Volcanic rock? Similar in colour and composition to previous sample but contains finer grained mafic material.
12+00E	Volcanic rock. Finer grained than sample at 10+00E but similar in composition.

SAMPLE DESCRIPTIONS - L27+60S

8+90W QMP. Feldspars to > 2.5cm. 10-15% quartz with phenos to 2.5mm. Albite twinning common in feldspars Contains about 5% mafics composed of about 2% magnetite and hornblende with laths to 3mm. Relatively fresh rock.

8+00W QMP. No feldspar phenos evident. Contains about 15% quartz with phenos to 5mm. Mafic material has been largely destroyed with only hematite remaining. Slightly to moderately sericitized, moderately hematized rock. Cut by parallel hematitic fractures.

7+00W see 32+10S 3+50W Biotite porphyry. Well developed "books" of biotite to 1mm in diameter form about 25% of the rock. The remainder of the rock is composed of about 5% quartz 35% pink feldspar and about 35% epidote green material which appears to be a result of alteration of hornblende on argite. Highly magnetic.

3+00W QMP. Feldspar phenos to > 2cm. Contains 10-15% quartz with phenos to 3mm and about 5% mafic material largely hornblende with minor magnetite. Hornblende phenos to 3mm. Slightly sericitic. Slight to moderate hematization. Cut by a 3-5mm pyritic quartz vein.

1+75W	Altered volcanic rock. Silicified fine grained rock composed of about 40% mafic and about 60% quartzo-feldspathic material. Contains minor pyrite stringers and pyrite paralleling hematitic fractures.
1+50W	Volcanic rock. Weakly foliated. Similar in composition to previous sample but less silicification evident. Also slightly coarser grained. Contains about 3% disseminated pyrite. Hematitic fractures.
0+50W	Rhyolite. Cream coloured moderately sericitized rock containing occasional quartz phenos to 1mm. No micaceous material evident. Cut by Mn coated fractures.
0+00	Rhyolite. Creamy coloured. Contains fine grained pale green micaceous material and occasional quartz phenos. Hematic fractures.

0+60E Sample "A". Rhyolite. Creamy colouring to occasional quartz pheno but no evident .icaceous material.
Sample "B". Basic volcanic. Sericitic rounded feldspars in a fine grained matrix consiting of about 40% mafic and 60% quartzofeldspathic material. Shearing evident with parallel hematitic fractures common.

1+00E Volcanic rock. Fine grained black rock composed of about 40% mafic and 60% quartzofeldspathic material. Fractures are coated with what appears to be gypsum a clear non-calcareous soft material.

2+25E Volcanic rock. Similar to previous sample but contains numerous parallel hematitic fractures probably representtative of shearing. Moderately foliated - almost schistose in appearance.

2+50E Volcanic rock. Similar in composition but slightly coarser grained than previous samples. No foliation evident. Hematiitic fractures.

3+00E Sample "A". Diabase? Fine to medium grained rock. Black in colour. Comprised largely of biotite and quartzofeldspathic material with an occasional quartz pheno. Contains calcite filled cavities. Also possible lamprophyre or fine grained biotite augite Monzonite

3+00E (cont)	Sample "B" Sediment? Fine grained dark grey weakly banded highly pyritic rock. Moderately siliceous.
3+50E	Sediment? Dark grey to black pyritic highly siliceous very similar to previous Sample "B". Appears to be partially recrystallized argillaceous to quantzitic material. Highly hematitic fractures.
4+00E	Biotite Augite Monzonite. (BAM) Biotite"plates" comprising small biotite phenos to 3mm and argite phenos to 4mm in a white to grey quartzofeldspathic matrix. Contains > 1% magnetite.
4+50E	Biotite Augite Monzonite(BAM) Similar in composition and texture to previous sample.
5+00E	BAM. Coarser grained than previous samples. Biotite plates to 4mm. Augite phenos average 2-3mm. Contains < 1% magnetite.
6+50E	Quartzite? Contains 3-5% pyrite in a fine grained grey highly siliceous matrix. Contains an occasional quartz pheno which may indicate a rhyolitic composition.

7+40E	Altered volcanic rock. Greenish largely epidotized rock, within less altered areas, typical volcanic texture and composition - i.e. about 40% mafic and about 60% quartzofeldspathic material. Highly siliceous.
9+60E	Rhyolite. Light grey rock containing abundant quartz phenos to 0.5mm. Locally manganiferous.
11+85E	Volcanic rock. Medium grained rock composed of horblende phenocrysts in a fine grained sugary quartzofeldspathic matric.

SAMPLE DESCRIPTIONS - L28+80S

2+00W	Sediment. Fine grained grey calcareous rock. Siliceous in appearance but reasonalbe soft rock. Pyritic Cut by calcite stringers. Hematitic fractures.
1+25W	---
0+50W	Biotite Augite Monzonite (BAM). Biotite "plates" to 5mm with Augite phenos to 4mm. Both minerals are set in a matrix of grey to white quartzofeldspathic material. Mafics comprise 35-40% of rock.
0+00	BAM. Biotite plates to 7mm. Similar composition but fine grained overall than previous sample. Contains about 1% magnetite.
0+50E	Volcanic rock. Feldspar, quartz and occasional chlorite pheno (after biotite) in a pale green quartzofeldspathic matrix. Possible andesitic composition.
1+00E	BAM. Contains biotite plates to 1.5cm. with no preferred orientation direction. Augite is present as relatively fine grained material and is largely inconspicuous. Greenish grey matrix material.

1+50E	Rhyolite. Light brown rock with occasional quartz phenos and 3-5% fine grained pale green chloritic material Slightly hematitic.
2+40E	BAM. Biotite plates to about 5mm. Augite phenos to 6mm but average 2-3mm. Biotite plates form a psendo "spinifex" texture on weathered surfaces resembling somewhat the spinifex texture in ultrebisic flows.
3+50E	BAM. Biotite plates to 5mm. Augite phenos to 2-3mm. Contains slightly decreased mafic content with 30-35% mafics evident. Grey quartzofeldspathic matrix.
4+00E	BAM. Texture and composition similar to sample at 3+00E. Complete with psendo "spinifex" texture. Biotite plates to 1.5cm.
6+00E	BAM. Biotite plates to 3mm. Decreased biotite and increased angite content evident. Angite phenos to 3mm. Similar in texture to 2+40E. Predominantly white matrix.

6+90E	Rhyolite. Brownish white moderately sericitized rock containing quartz phenos to 1mm and 3-5% pale green to black. Mn stained nicaceous material.
7+50E	BAM. Biotite plates to 5mm and occasional angite phenos to 4mm. 35-40% mafic material.
7+75E	BAM. Similar in texture but contains increased biotite content over previous sample.
9+10E	Rhyolite. Pale greenish grey in colour. Containing quartz phenos and about 3% very fine grained pale green micareous material.
10+40E	Volcanic rock. Composed of 35-40% mafics principally hornblende in a fine grained grey matrix. Similar to rock sampled on L26+40S at 11+50E. Possible fine grained BAM? No biotite evident.
11+00E	Volcanic rock. Rhyolite vein (2cm in width) cuts a black fine to medium grained rock composed of 40% mafics, principally hornblende, in a fine grained grey quartzofeldspathic matrix. Hematitic fractures.

SAMPLE DESCRIPTIONS- L30+00S

2+00W	Sediment? Volcanic? Fine grained dark grey rock. Contains 35-40% chloritized mafic material in a grey quartzofeldspathic matrix. Phyritic. Cut by calcreous hematitic fractures.
1+25W	Volcanic rock. Fine grained rock composed of about 40% mafics mainly hornblende in a greenish grey epidotitic quartzofeldspathic matrix. Pyritic.
0+40W	Rhyolite. Brownish grey rock containing occasional quartz phenos to 1mm. Moderately to heavily sericitized and weakly epidotized. Contains fine grained pale green nicaceous material - numerous blebs of hematitic stained clay.
0+00	Biotite Augite Monzonite. Chill margin. Sample composed of BAM with biotite plates to 7-8mm in contact with fine grained greenish black rock which appears to be a very fine grained BAM or a possible partially recrystallized xenolith.

1+00E	BAM. Biotite plates to 7mm and angite phenos to 2mm Mod. altered hematitic, sericitized rock. Augite has started to breakdown.
1+50E	Rhyolite. Creamy brown in colour. Very few quartz phenos evident. Contains about 5% fine grained pale yellow micareous material.
2+00E	BAM. Biotite occurs as discreet fine grained crystals with augite to 5mm as the dominant phenocrysts. Contians a 30% mafis in a fine grained grey quartzo-feldspathic matrix.
3+00E	BAM. Biotite plates to 4mm. Augite phenos to 2mm make up about 30-40% of the mafic material. Contains occasional quartz phenos.
3+50E	BAM. Biotite plates to 7mm with occasional augite phenos to 5mm but averaging 1-2mm. Contains psendo "spinifex" texture. Mafics comprise 30-35% of rock.
3+90E	BAM. Similar composition to previous sample but much coarser grained. Biotite plates to 2cm form psendo "spinifex" texture. Contains augite phenos to 3-4mm.

5+00E BAM. Biotite plates to > 2cm. However, there is a dramatic increase in augite content and grain size. Augite with pehmos averaging 2-3mm in diameter, make up about 60% of mafics with an attending decrease - psendo spinifex texture.

5+85E BAM. Contains occasional biotite plates to > 2cm. However, as in the previous sample augite forms the dominent mafic material with phenos to 4mm but averaging about 2mm.White slightly sericitic matrix.

6+75E Rhyolite. Light brown rock with occasional quartz phenocrysts. Contains 5-10% pale yellow to brown hematitic micaceous material. Slightly sheared.

7+50E Rhyolite. Similar to previous sample in composition. Rock is greenish grey in colour.

8+50E BAM. Biotite plates to 1cm with augite phenos to 5mm. White matrix material. Contains 35-40% matrix material.

9+00E BAM. Biotite plates to 7mm. Augite with phenos to 3mm forms 60-70% of the mafic material. Grey to white matrix material.

9+50E	BAM. Biotite plates to 7mm. Similar in composition and texture to previous sample. Hematitic fractures.
10+00E	BAM. Similar in composition but overall finer grained than previous sample. Augite phenos average about 1mm with occasional phenos to 5mm. Biotite plates to 3-4mm.
10+50E	BAM. Similar in composition and texture to samples at 9+00E and 9+50E, though augite phenocrysts may be slightly coarser grained.
11+00E	BAM. Mafics form 30-35% of rock. Augite phenos to 3-4mm. Biotite is evident as discreet fine grained crystals.

SAMPLE DESCRIPTIONS - L31+20S

0+25E Rhyolite. Contains occasional quartz phenos. Greenish slightly epidotized rock. Contains blebs of hematite stained clay. Hematitic fractures.

1+50E Volcanic rock. Black schistose rock composed of 40% mafic material, predominantly hornblende, in a dark grey very fine grained quartzofeldspathic matrix.

2+50E Biotite Augite Monzonite. Contains occasional biotite "plates" to 3-4mm. Biotite, however, occurs more as discrete fine grained particles than as plates. Augite, with phenos to 5mm is the dominent mafic mineral. Sample contains about 40% mafics in a dark grey matrix.

3+50E BAM. Similar in composition to but slightly coarser than prevous sample. Contains augite phenos to 7mm.

4+00E BAM. Biotite "plates" to 5mm becoming more abundent. Augite phenos to 4mm. White to grey matrix material.

4+60E BAM. Biotite "plates" to 2cm form a psendo spinifex texture. Augite phenos are much smaller in size seldom measuring > 3mm.

5+00E BAM. Similar in composition and texture to sample at 3+50E

5+50E BAM. Similar texturally to previous sample but contains far fewer biotite plates. Cut by a 1cm vein of quartzofeldspathic material containing books of biotite.

6+00E BAM. Biotite plates to > 1cm with augite phenos to 5-6mm. Similar to sample at 4+60E, however, augite phenos are somewhat larger. Contains psendo spinifex texture.

6+50E BAM. Biotite plates to 2cm form prominent psendo "spinifex" texture. Contains much less augite than previous sample with phenos to 2-3mm.

7+20E Rhyolite. Light brown in colour. Contains few quartz phenos. Pale green to yellowish nicaceous material and disseminated manganese make up 5-7% of the rock. Mn coated fractures.

7+75E Rhyolite. Light grey rock. Contains quartz phenos to 1mm and 3-5% disseminated pale green to brown hematitic nicaceous material. Manganiferous fractures.

8+00E Volcanic rock? Black fine grained rock with biotite as the principal mafic constituent in a fine grained quartzofeldspathic matrix. May also be a fine grained BAM.

8+50E Volcanic? Fine grained BAM? Fine grained black rock containing 1mm augite phenos as well as numerous laths of albite twinned feldspar measuring about 1mm in length. Highly hematized fractures.

9+00E BAM. Biotite plates to > 2cm. Biotite, however, is not the principal mafic. No spinifex texture present. Augite, with phenos to 5mm, make up 60-70% of mafic material.

9+75E Rhyolite. Light grey rock with quartz phenos to 1mm. Light to moderate sericitic alteration. Contains about 5% pale green to yellowish micareous material.

10+00E	BAM. Biotite plates to 1cm. As at 9+00E, augite forms the principal mafic constituent. Finer grained than previous BAM sample with augite phenos seldom exceeding 2-3mm.
10+50E	BAM. Few biotite plates evident. Augite, with phenos to 3-4mm, forms about 60% of mafic material.
11+50E	BAM. Biotite present as discrete particles with very few plates evident. Contains augite phenos with diameters to 5mm. However, contains more finer grained material overall than previous two samples.

SAMPLE DESCRIPTIONS - L32+40S

3+50W See 27+60S 3+50W	Biotite porphyry. Samples composed of well developed biotite books and greenish granular material which is epidotitic in appearance. Mafics including the greenish material form about 60% of the rock. About 70% of the rock is composed of white to pink feldspar. No quartz evident.
32+50S 0+00	Volcanic rock. Black fine grained rock containing about 40% mafic material in a partially epidotized quartzo-feldspathic matrix. Weakly foliated. Well hematized fractures
0+75E	Volcanic rock? Fine grained BAM? Dark grey to black rock consisting of 1mm feldspar laths and 1mm augite or hornblende laths in a matrix of grey very fine grained quartzofeldspathic material.
1+50E	Volcanic rock. Very fine grained crystalline black rock consisting of about 40% mafic material 1mm on dark grey quartzofeldspathic matrix. Weakly foliated.

2+50E Volcanic rock? Laths of mafic material which appears to be hornblende but may be augite in a matrix of fine grained grey material. Similar to sample on L26+40S at 11+50E. Cut by vein of white quartzofeldspathic material.

3+00E Volcanic rock? Fine grained BAM? Similar in composition to, but coarser grained than previous sample. Weakly foliated. No biotite evident.

3+50E Volcanic rock? Fine grained BAM? Similar in composition and texture to previous sample. Contains segregations of epidotized and quartzofeldspathic material.

4+50E Biotite Augite Monzonite. Biotite plates to 5mm are present but no common. Augite phenos to 5mm as the dominent phenocryst. Contains occasional quartz phenocryst.

4+90E BAM. Similar in composition and texture to previous sample. Slightly longer augite phenocrysts.

5+50E BAM. Biotite plates to 5mm are more common than in previous sample. Augite phenos are generally smaller in size and range to 4mm. Greyer than previous sample.

6+00E Rhyolite. Abundantquartz phenos to 1mm. Cut by numerous parallel fractures probably indicative of shearing. Light greenish grey in colour.

6+45E BAM. Biotite plates to 5-6mm with augite phenos also to 6mm very similar in colour and texture to sample at 4+90E.

7+00E BAM. Biotite plates to 1cm. Augite phenos to 3-4mm with occasional phenos to 5-6mm. Grey to white matrix material.

7+90E Rhyolite. Creamy grey rock with manganese forming weak foliation. Well fractured sheared rock. Contains quartz phenos and about 5% fine grained micaceous material.

9+50E BAM. Similar in composition to previous sample. Biotite plates are slightly smaller in size reaching only 1cm in width.

10+00E	BAM. Similar in composition and texture to sample at 9+00E. Weakly developed psendo "spinifex" texture.
10+50E	BAM. Similar in texture and composition to sample at 9+50E. Slightly sericitized matrix. Contains minor pyrite and numerous blebs of hematitic material.
10+75E	BAM. Biotite plates to 1cm. Biotite occurs mainly as discrete particles with few plates evident. Augite phenos to 5mm.
11+50E	BAM. Very far biotite plates evident. Appears to contain an increased augite content as sample is much darker in colour. Overall finer grained than previous samples. Similar to samples at 4+50E

SAMPLE DESCRIPTIONS - L33+60S

4+50E Volcanic rock. Basalt. Fine grained rock consisting of fine grained hornblende phenos in a dark grey to greenish quartzofeldspathic matrix. Cut by epidote vein. Blackish grey in colour.

5+00E Volcanic rock? Fine grained BAM? Similar to sample at 2+50E on L32+40S. Consists of greenish hornblende laths in a fine grained quartzofeldspathic matrix.

5+50E Rhyolite. Abundant quartz phenos to 1mm in a brownish grey matrix. Contains very fine grained pale yellow nicaceous material. Mn coating on fractures.

5+75E Volcanic rock. Coarser grained version of sample at 5+00E. Weakly foliated with increased mafic content. Mafic laths to 2mm.

6+50E Biotite Augite Monzonite. Contains augite phenos to 3-4mm and biotite as discrete fine grained crystals. Grey matrix material contains an occasional feldspar lath to 2mm.

7+00E	BAM. Decreased mafic content evident. Mafics form 30-35% of rock with augite phenos to 4mm.
9+00E	BAM. Contains biotite plates to 7mm with augite phenos to 3mm. Coarser grained than previous samples.
9+50E	BAM. Similar to sample at 7+00E. Few biotite plates evident.
10+00E	BAM. Augite phenos to 3mm in a fine grained dark grey matrix which appears to be more highly siliceous than in previous samples. May represent faster cooling.
10+50E	BAM. Augite phenos to 3mm in a medium grey matrix. Sample texturally and compositionally seems to fall somewhere between previous two samples.

c) Rock Geochemical Survey Results

Each of the 584 rock chip samples was analyzed for SiO_2, Na_2O, K_2O, AL_2O_3, CaO, MgO, Fe_2O_3, MnO, TiO_2, P_2O_5, Cr_2O_3, Rb, Zr, Sr and fluorine. In addition, each sample was subjected to a 30 element emission spectrometer analysis for metallic elements. In total the program returned 26,864 individual analysis or 46 elements for each of the 584 rock samples.

Due to the obvious difficulties in plotting and interpreting such a large data base, the data was submitted to Dataplotting Services Ltd. of Toronto for plotting and contouring. These data and contour maps at 1:5 000 scale are appended to this report and indicate the location and significance of each sample.

A brief summary of the results is given in the following table which outlines ranges of values for each major rock type. Due to the low number of samples within the country rocks, the Hall Sediments and Elise Volcanic samples have been treated together.

CORRELATION MATRIX FOR DATABASE <DP887 >

	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO
SIO2	1.0000							
AL2O3	-.1384	1.0000						
CAO	-.8740	-.0142	1.0000					
MGO	-.8628	-.2461	.7375	1.0000				
NA2O	.4356	.6509	-.4338	-.6401	1.0000			
K2O	.0242	-.2854	-.2876	.1912	-.5082	1.0000		
FE2O3	-.9319	-.0807	.8305	.8526	-.5650	-.0325	1.0000	
MNO	-.4925	-.0826	.5626	.3644	-.2804	-.3127	.6102	1.0000
TIO2	-.9523	.0245	.8039	.8710	-.4904	.0201	.9250	.4415
P2O5	-.8227	-.1705	.6350	.9042	-.5714	.1863	.8068	.3043
CR2O3	-.4914	-.4067	.3830	.7889	-.5775	.3578	.4853	.0869
RB	.1310	-.4672	-.3105	.1872	-.4567	.7856	-.0549	-.2427
SR	-.3491	.6079	.1928	.1214	.3381	-.1499	.1241	.0182
ZR	-.3983	.1534	.1678	.4324	-.0275	.1342	.2887	.0231
F	-.7417	-.1862	.6650	.7572	-.4718	.0460	.7875	.4725

	TIO2	P2O5	CR2O3	RB	SR	ZR	F
TIO2	1.0000						
P2O5	.8978	1.0000					
CR2O3	.5309	.6941	1.0000				
RB	-.0613	.1513	.3480	1.0000			
SR	.2650	.2062	.0254	-.4370	1.0000		
ZR	.4639	.5503	.4270	.0543	.4387	1.0000	
F	.7552	.7023	.4704	.1422	.0415	.2828	1.0000

CORRELATION MATRIX FOR DATABASE <DP887 >

	SIO2	AL2O3	CAO	MGO	NA2O	K2O	FE2O3	MNO
SIO2	1.0000							
AL2O3	-.1384	1.0000						
CAO	-.8740	-.0142	1.0000					
MGO	-.8628	-.2461	.7375	1.0000				
NA2O	.4356	.6509	-.4338	-.6401	1.0000			
K2O	.0242	-.2854	-.2876	.1912	-.5082	1.0000		
FE2O3	-.9319	-.0807	.8305	.8526	-.5650	-.0325	1.0000	
MNO	-.4925	-.0826	.5626	.3644	-.2804	-.3127	.6102	1.0000
TIO2	-.9523	.0245	.8039	.8710	-.4904	.0201	.9250	.4415
P2O5	-.8227	-.1705	.6350	.9042	-.5714	.1863	.8068	.3043
CR2O3	-.4914	-.4067	.3830	.7889	-.5775	.3578	.4853	.0869
RB	.1310	-.4672	-.3105	.1872	-.4567	.7856	-.0549	-.2427
SR	-.3491	.6079	.1928	.1214	.3381	-.1499	.1241	.0182
ZR	-.3983	.1534	.1678	.4324	-.0275	.1342	.2887	.0231
LOI	-.3415	-.1285	.3352	.1930	-.3257	-.1537	.3662	.2988

	TIO2	P2O5	CR2O3	RB	SR	ZR	LOI
TIO2	1.0000						
P2O5	.8978	1.0000					
CR2O3	.5309	.6941	1.0000				
RB	-.0613	.1513	.3480	1.0000			
SR	.2650	.2062	.0254	-.4370	1.0000		
ZR	.4639	.5503	.4270	.0543	.4387	1.0000	
LOI	.3817	.3307	-.0100	-.1207	-.0211	.0330	1.0000

	F	LOI
F	1.0000	
LOI	.2405	1.0000

```
SIO2      FREQUENCY HISTOGRAM
CLASS WIDTH =      2.3180

   %     NO.    UPPER LIMIT |<-------- MAX =  165.------------------------------>
  .9      5.     45.6780   |*
  .3      2.     47.9960   |I
 2.4     14.     50.3140   |****
11.0     64.     52.6320   |********************
 6.2     36.     54.9500   |***********
 4.6     27.     57.2680   |********
 2.4     14.     59.5860   |****
 2.6     15.     61.9040   |****
 5.3     31.     64.2220   |*********
 8.4     49.     66.5400   |***************
28.4    165.     68.8580   |*************************************************************
 9.6     56.     71.1760   |*****************
 2.4     14.     73.4940   |****
13.1     76.     75.8120   |************************
 2.2     13.     78.1300   |***
  .2      1.     80.4480   |I

NO. OF SAMPLES BELOW      43.360 =          0.
NO. OF SAMPLES ABOVE      80.448 =          0.


STATISTICAL SUMMARY FOR <SIO2     >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =       43.360
          25 PERCENTILE =       56.970
          50 PERCENTILE =       66.900
          75 PERCENTILE =       69.530
          90 PERCENTILE =       75.090
          95 PERCENTILE =       75.600
          98 PERCENTILE =       75.940
          99 PERCENTILE =       76.160
          MAXIMUM VALUE =       78.130
          RANGE OF DATA =       34.770

                   MEAN =       64.454
     STANDARD DEVIATION =        8.086
               VARIANCE =       65.391
```

```
AL203     FREQUENCY HISTOGRAM
CLASS WIDTH =        .7573

   %     NO.    UPPER LIMIT |<-------- MAX =  136.-----------------------------
  .5      3.      9.4073   |*
  .2      1.     10.1647   |I
  .5      3.     10.9220   |*
  .5      3.     11.6793   |*
 1.5      9.     12.4367   |***
 5.7     33.     13.1940   |************
14.1     82.     13.9513   |*******************************
 9.1     53.     14.7087   |********************
10.0     58.     15.4660   |**********************
13.9     81.     16.2233   |******************************
23.4    136.     16.9807   |*****************************************************
12.9     75.     17.7380   |****************************
 5.8     34.     18.4953   |************
 1.2      7.     19.2527   |**
  .5      3.     20.0100   |*
  .2      1.     20.7673   |I

NO. OF SAMPLES BELOW       8.650 =          0.
NO. OF SAMPLES ABOVE      20.767 =          0.
```

```
STATISTICAL SUMMARY FOR <AL203    >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =        8.650
          25 PERCENTILE =       14.160
          50 PERCENTILE =       15.990
          75 PERCENTILE =       16.870
          90 PERCENTILE =       17.480
          95 PERCENTILE =       18.050
          98 PERCENTILE =       18.470
          99 PERCENTILE =       18.640
          MAXIMUM VALUE =       20.010
          RANGE OF DATA =       11.360

                   MEAN =       15.560
     STANDARD DEVIATION =        1.777
               VARIANCE =        3.158
```

```
CAD       FREQUENCY HISTOGRAM
CLASS WIDTH =      1.2707

   X     NO.   UPPER LIMIT |<--------- MAX =  231.-----------------------------------|
 18.9    110.      1.3107  |***********************
  9.1     53.      2.5813  |***********
 39.7    231.      3.8520  |*************************************************************
  4.1     24.      5.1227  |*****
  6.2     36.      6.3933  |*******
 11.3     66.      7.6640  |***************
  5.5     32.      8.9347  |******
  2.1     12.     10.2053  |**
   .9      5.     11.4760  |*
   .9      5.     12.7467  |*
   .3      2.     14.0173  |I
  0.0      0.     15.2880  |
   .2      1.     16.5587  |I
   .3      2.     17.8293  |I
   .3      2.     19.1000  |I
   .2      1.     20.3707  |I

NO. OF SAMPLES BELOW        .040 =          0.
NO. OF SAMPLES ABOVE     20.371 =           0.
```

```
STATISTICAL SUMMARY FOR <CAD      >
TOTAL NUMBER OF SAMPLES =        582.
NUMBER OF NULL SAMPLES  =          0
          MINIMUM VALUE =       .040
          25 PERCENTILE =      2.260
          50 PERCENTILE =      3.360
          75 PERCENTILE =      6.040
          90 PERCENTILE =      7.730
          95 PERCENTILE =      9.110
          98 PERCENTILE =     11.730
          99 PERCENTILE =     16.470
          MAXIMUM VALUE =     19.100
          RANGE OF DATA =     19.060

                   MEAN =      3.980
     STANDARD DEVIATION =      2.989
               VARIANCE =      8.934
```

```
MGO       FREQUENCY HISTOGRAM
CLASS WIDTH =       .7087

   %     NO.   UPPER LIMIT |<-------- MAX =  386.----------------------------->
 66.3    386.       .7387  |*****************************************************
  4.0     23.      1.4473  |**
  2.6     15.      2.1560  |*
  3.6     21.      2.8647  |**
  4.8     28.      3.5733  |***
  4.6     27.      4.2820  |***
  2.9     17.      4.9907  |**
  1.9     11.      5.6993  |*
  1.2      7.      6.4080  |I
  3.6     21.      7.1167  |**
  2.9     17.      7.8253  |**
   .7      4.      8.5340  |I
   .5      3.      9.2427  |I
   .2      1.      9.9513  |I
  0.0      0.     10.6600  |
   .2      1.     11.3687  |I

NO. OF SAMPLES BELOW        .030 =          0.
NO. OF SAMPLES ABOVE      11.369 =          0.


STATISTICAL SUMMARY FOR <MGO      >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =         .030
          25 PERCENTILE =         .400
          50 PERCENTILE =         .510
          75 PERCENTILE =        2.650
          90 PERCENTILE =        5.560
          95 PERCENTILE =        7.080
          98 PERCENTILE =        7.770
          99 PERCENTILE =        8.200
          MAXIMUM VALUE =       10.660
          RANGE OF DATA =       10.630

                   MEAN =        1.691
     STANDARD DEVIATION =        2.230
               VARIANCE =        4.974
```

```
NA20      FREQUENCY HISTOGRAM
CLASS WIDTH =        .4653

   %     NO.    UPPER LIMIT |<-------- MAX =  192.----------------------------------->
  .2      1.        .9253  |I
  .5      3.       1.3907  |I
 1.0      6.       1.8560  |*
 5.0     29.       2.3213  |*******
10.1     59.       2.7867  |****************
 6.0     35.       3.2520  |*********
 6.5     38.       3.7173  |*********
10.1     59.       4.1827  |****************
13.7     80.       4.6480  |*********************
33.0    192.       5.1133  |*****************************************************
 5.7     33.       5.5787  |********
 5.3     31.       6.0440  |********
 1.9     11.       6.5093  |**
  .5      3.       6.9747  |I
  .2      1.       7.4400  |I
  .2      1.       7.9053  |I

NO. OF SAMPLES BELOW        .460 =          0.
NO. OF SAMPLES ABOVE       7.905 =          0.
```

```
STATISTICAL SUMMARY FOR <NA20     >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =         .460
          25 PERCENTILE =        3.440
          50 PERCENTILE =        4.560
          75 PERCENTILE =        4.920
          90 PERCENTILE =        5.350
          95 PERCENTILE =        5.890
          98 PERCENTILE =        6.140
          99 PERCENTILE =        6.290
          MAXIMUM VALUE =        7.440
          RANGE OF DATA =        6.980

                   MEAN =        4.201
     STANDARD DEVIATION =        1.127
               VARIANCE =        1.269
```

```
K20        FREQUENCY HISTOGRAM
CLASS WIDTH =        .7540

   %     NO.    UPPER LIMIT |<-------- MAX =  167.------------------------------>
  1.4      8.      1.1540  |**
  2.1     12.      1.9080  |***
  3.6     21.      2.6620  |******
 24.1    140.      3.4160  |*******************************************
 28.7    167.      4.1700  |*****************************************************
 16.8     98.      4.9240  |******************************
  6.2     36.      5.6780  |**********
  7.6     44.      6.4320  |*************
  7.0     41.      7.1860  |************
  1.5      9.      7.9400  |**
   .3      2.      8.6940  |I
  0.0      0.      9.4480  |
   .3      2.     10.2020  |I
   .2      1.     10.9560  |I
  0.0      0.     11.7100  |
   .2      1.     12.4640  |I

NO. OF SAMPLES BELOW        .400 =          0.
NO. OF SAMPLES ABOVE      12.464 =          0.
```

```
STATISTICAL SUMMARY FOR <K20      >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =         .400
          25 PERCENTILE =        3.330
          50 PERCENTILE =        3.780
          75 PERCENTILE =        4.830
          90 PERCENTILE =        6.390
          95 PERCENTILE =        6.740
          98 PERCENTILE =        7.420
          99 PERCENTILE =        8.300
          MAXIMUM VALUE =       11.710
          RANGE OF DATA =       11.310

                   MEAN =        4.183
     STANDARD DEVIATION =        1.442
               VARIANCE =        2.080
```

```
FE203    FREQUENCY HISTOGRAM
CLASS WIDTH =       .8740

   %     NO.   UPPER LIMIT |<-------- MAX =  187.---------------------------->
 14.1     82.      1.1240  |*********************
 20.6    120.      1.9980  |********************************
 32.1    187.      2.8720  |*************************************************
  2.9     17.      3.7460  |****
  1.4      8.      4.6200  |**
  2.7     16.      5.4940  |****
  2.7     16.      6.3680  |****
  2.7     16.      7.2420  |****
 11.2     65.      8.1160  |*****************
  3.1     18.      8.9900  |****
  1.7     10.      9.8640  |**
  3.8     22.     10.7380  |*****
   .7      4.     11.6120  |*
  0.0      0.     12.4860  |
  0.0      0.     13.3600  |
   .2      1.     14.2340  |I

NO. OF SAMPLES BELOW        .250 =          0.
NO. OF SAMPLES ABOVE      14.234 =          0.
```

```
STATISTICAL SUMMARY FOR <FE203    >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =         .250
          25 PERCENTILE =        1.580
          50 PERCENTILE =        2.410
          75 PERCENTILE =        6.000
          90 PERCENTILE =        8.070
          95 PERCENTILE =        9.710
          98 PERCENTILE =       10.360
          99 PERCENTILE =       10.650
          MAXIMUM VALUE =       13.360
          RANGE OF DATA =       13.110

                   MEAN =        3.631
     STANDARD DEVIATION =        2.896
               VARIANCE =        8.386
```

```
MNO       FREQUENCY HISTOGRAM
CLASS WIDTH =        .1093

   %      NO.   UPPER LIMIT  I<--------- MAX =  325.------------------------------->
 55.8    325.       .1093    I*************************************************
 37.8    220.       .2187    I*********************************
  5.3     31.       .3280    I****
   .3      2.       .4373    II
   .3      2.       .5467    II
  0.0      0.       .6560    I
   .2      1.       .7653    II
  0.0      0.       .8747    I
  0.0      0.       .9840    I
  0.0      0.      1.0933    I
  0.0      0.      1.2027    I
  0.0      0.      1.3120    I
  0.0      0.      1.4213    I
  0.0      0.      1.5307    I
  0.0      0.      1.6400    I
   .2      1.      1.7493    II

NO. OF SAMPLES BELOW      0.000 =          0.
NO. OF SAMPLES ABOVE      1.749 =          0.




STATISTICAL SUMMARY FOR <MNO      >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES   =            0
          MINIMUM VALUE =        0.000
          25 PERCENTILE =         .060
          50 PERCENTILE =         .100
          75 PERCENTILE =         .120
          90 PERCENTILE =         .180
          95 PERCENTILE =         .250
          98 PERCENTILE =         .280
          99 PERCENTILE =         .370
          MAXIMUM VALUE =        1.640
          RANGE OF DATA =        1.640

                   MEAN =         .104
     STANDARD DEVIATION =         .095
               VARIANCE =         .009
```

```
TI02      FREQUENCY HISTOGRAM
CLASS WIDTH =       .1153

   %     NO.    UPPER LIMIT |<-------- MAX =  202.------------------------------>
 16.3     95.       .1253  |***********************
 34.7    202.       .2407  |*****************************************************
 17.2    100.       .3560  |************************
  2.4     14.       .4713  |***
  3.1     18.       .5867  |****
  8.8     51.       .7020  |************
 11.5     67.       .8173  |****************
  4.5     26.       .9327  |******
   .7      4.      1.0480  |I
   .2      1.      1.1633  |I
  0.0      0.      1.2787  |
  0.0      0.      1.3940  |
   .3      2.      1.5093  |I
   .2      1.      1.6247  |I
  0.0      0.      1.7400  |
   .2      1.      1.8553  |I

NO. OF SAMPLES BELOW        .010 =          0.
NO. OF SAMPLES ABOVE       1.855 =          0.
```

```
STATISTICAL SUMMARY FOR <TI02     >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =        .010
          25 PERCENTILE =        .170
          50 PERCENTILE =        .240
          75 PERCENTILE =        .610
          90 PERCENTILE =        .790
          95 PERCENTILE =        .830
          98 PERCENTILE =        .870
          99 PERCENTILE =        .980
          MAXIMUM VALUE =       1.740
          RANGE OF DATA =       1.730

                   MEAN =        .352
     STANDARD DEVIATION =        .279
               VARIANCE =        .078
```

```
P205     FREQUENCY HISTOGRAM
CLASS WIDTH =       .1353

   %     NO.    UPPER LIMIT |<-------- MAX =  404.---------------------------->
 69.4    404.       .1453   |*****************************************************
  4.3     25.       .2807   |***
 10.5     61.       .4160   |*******
  3.8     22.       .5513   |**
  1.0      6.       .6867   |I
  6.4     37.       .8220   |****
  3.6     21.       .9573   |**
   .2      1.      1.0927   |I
  0.0      0.      1.2280   |
   .2      1.      1.3633   |I
   .2      1.      1.4987   |I
  0.0      0.      1.6340   |
   .2      1.      1.7693   |I
   .2      1.      1.9047   |I
  0.0      0.      2.0400   |
   .2      1.      2.1753   |I

NO. OF SAMPLES BELOW        .010 =          0.
NO. OF SAMPLES ABOVE       2.175 =          0.
```

```
STATISTICAL SUMMARY FOR <P205     >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =         .010
          25 PERCENTILE =         .060
          50 PERCENTILE =         .080
          75 PERCENTILE =         .300
          90 PERCENTILE =         .730
          95 PERCENTILE =         .820
          98 PERCENTILE =         .860
          99 PERCENTILE =        1.060
          MAXIMUM VALUE =        2.040
          RANGE OF DATA =        2.030

                   MEAN =         .213
     STANDARD DEVIATION =         .278
               VARIANCE =         .077
```

```
CR203     FREQUENCY HISTOGRAM
CLASS WIDTH =        .0047

   %     NO.    UPPER LIMIT |<-------- MAX =  424.------------------------------>
 72.9    424.       .0047   |*************************************************
  0.0      0.       .0093   |
 15.5     90.       .0140   |**********
  0.0      0.       .0187   |
  2.9     17.       .0233   |**
  0.0      0.       .0280   |
  4.1     24.       .0327   |**
  0.0      0.       .0373   |
  3.8     22.       .0420   |**
  0.0      0.       .0467   |
   .5      3.       .0513   |I
  0.0      0.       .0560   |
  0.0      0.       .0607   |
  0.0      0.       .0653   |
  0.0      0.       .0700   |
   .3      2.       .0747   |I

NO. OF SAMPLES BELOW        0.000 =          0.
NO. OF SAMPLES ABOVE         .075 =          0.


STATISTICAL SUMMARY FOR <CR203    >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =        0.000
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          50 PERCENTILE =        0.000
          75 PERCENTILE =         .010
          90 PERCENTILE =         .020
          95 PERCENTILE =         .030
          98 PERCENTILE =         .040
          99 PERCENTILE =         .040
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          RANGE OF DATA =         .070

                   MEAN =         .005
     STANDARD DEVIATION =         .011
               VARIANCE =         .000
```

```
RB        FREQUENCY HISTOGRAM
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  1.4      8.     50.0000  |***
  2.2     13.     70.0000  |*****
  9.5     55.     90.0000  |**********************
 18.2    106.    110.0000  |*******************************************
 21.6    126.    130.0000  |*************************************************
 11.2     65.    150.0000  |*************************
  6.9     40.    170.0000  |***************
  4.6     27.    190.0000  |**********
  5.5     32.    210.0000  |************
 10.3     60.    230.0000  |************************
  5.3     31.    250.0000  |************
   .9      5.    270.0000  |*
   .7      4.    290.0000  |*
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   .2      1.    330.0000  |I

NO. OF SAMPLES BELOW     10.000 =          0.
NO. OF SAMPLES ABOVE    330.000 =          0.


STATISTICAL SUMMARY FOR <RB       >
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NUMBER OF NULL SAMPLES  =          0
          MINIMUM VALUE =     10.000
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          50 PERCENTILE =    120.000
          75 PERCENTILE =    170.000
          90 PERCENTILE =    220.000
          95 PERCENTILE =    230.000
          98 PERCENTILE =    240.000
          99 PERCENTILE =    260.000
          MAXIMUM VALUE =    310.000
          RANGE OF DATA =    300.000

                   MEAN =    135.241
     STANDARD DEVIATION =     54.692
               VARIANCE =   2991.250
```

```
SR        FREQUENCY HISTOGRAM
CLASS WIDTH =    508.0000

   %     NO.   UPPER LIMIT |<-------- MAX =  250.------------------------------>
 14.9     87.    558.0000  |*****************
 28.7    167.   1066.0000  |*********************************
 43.0    250.   1574.0000  |**************************************************
  5.2     30.   2082.0000  |******
  6.0     35.   2590.0000  |*******
  2.1     12.   3098.0000  |**
  0.0      0.   3606.0000  |
  0.0      0.   4114.0000  |
  0.0      0.   4622.0000  |
  0.0      0.   5130.0000  |
  0.0      0.   5638.0000  |
  0.0      0.   6146.0000  |
  0.0      0.   6654.0000  |
  0.0      0.   7162.0000  |
  0.0      0.   7670.0000  |
   .2      1.   8178.0000  |I

NO. OF SAMPLES BELOW      50.000 =          0.
NO. OF SAMPLES ABOVE    8178.000 =          0.
```

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STATISTICAL SUMMARY FOR <SR       >
TOTAL NUMBER OF SAMPLES =        582.
NUMBER OF NULL SAMPLES  =          0
          MINIMUM VALUE =     50.000
          25 PERCENTILE =    800.000
          50 PERCENTILE =   1130.000
          75 PERCENTILE =   1300.000
          90 PERCENTILE =   1860.000
          95 PERCENTILE =   2400.000
          98 PERCENTILE =   2600.000
          99 PERCENTILE =   2730.000
          MAXIMUM VALUE =   7670.000
          RANGE OF DATA =   7620.000

                   MEAN =   1117.921
     STANDARD DEVIATION =    631.252
               VARIANCE = 398478.803
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CLASS WIDTH =     40.6667

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 35.4    206.    132.0000   |************************************************
  8.4     49.    172.6667   |***********
  6.5     38.    213.3333   |********
  2.9     17.    254.0000   |***
   .5      3.    294.6667   |I
   .2      1.    335.3333   |I
  0.0      0.    376.0000   |
  0.0      0.    416.6667   |
  0.0      0.    457.3333   |
  0.0      0.    498.0000   |
   .3      2.    538.6667   |I
  0.0      0.    579.3334   |
  0.0      0.    620.0001   |
   .2      1.    660.6667   |I

NO. OF SAMPLES BELOW      10.000 =          0.
NO. OF SAMPLES ABOVE     660.667 =          0.
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STATISTICAL SUMMARY FOR <ZR       >
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NUMBER OF NULL SAMPLES  =            0
          MINIMUM VALUE =       10.000
          25 PERCENTILE =       80.000
          50 PERCENTILE =      100.000
          75 PERCENTILE =      120.000
          90 PERCENTILE =      180.000
          95 PERCENTILE =      210.000
          98 PERCENTILE =      230.000
          99 PERCENTILE =      260.000
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          RANGE OF DATA =      610.000

                   MEAN =      108.557
     STANDARD DEVIATION =       56.480
               VARIANCE =     3189.996
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F          FREQUENCY HISTOGRAM
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 51.9    302.    432.0000   |*************************************************
 20.4    119.    744.0000   |*******************
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  3.3     19.   1368.0000   |***
  5.3     31.   1680.0000   |*****
  7.7     45.   1992.0000   |*******
  1.9     11.   2304.0000   |*
   .9      5.   2616.0000   |I
   .7      4.   2928.0000   |I
   .7      4.   3240.0000   |I
   .2      1.   3552.0000   |I
   .7      4.   3864.0000   |I
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   .2      1.   4800.0000   |I
   .2      1.   5112.0000   |I

NO. OF SAMPLES BELOW    120.000 =          0.
NO. OF SAMPLES ABOVE   5112.000 =          0.


STATISTICAL SUMMARY FOR <F        >
TOTAL NUMBER OF SAMPLES =        582.
NUMBER OF NULL SAMPLES  =          0
          MINIMUM VALUE =    120.000
          25 PERCENTILE =    340.000
          50 PERCENTILE =    420.000
          75 PERCENTILE =    900.000
          90 PERCENTILE =   1800.000
          95 PERCENTILE =   2000.000
          98 PERCENTILE =   3000.000
          99 PERCENTILE =   3800.000
          MAXIMUM VALUE =   4800.000
          RANGE OF DATA =   4680.000

                   MEAN =    748.316
     STANDARD DEVIATION =    706.588
               VARIANCE = 499266.351
```

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LOI        FREQUENCY HISTOGRAM
CLASS WIDTH =        .3743

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 22.7    132.       .5323   |************************
 46.7    272.       .9067   |*************************************************************
 14.4     84.      1.2810   |***************
  6.2     36.      1.6553   |******
  1.4      8.      2.0297   |*
  1.7     10.      2.4040   |*
  1.5      9.      2.7783   |*
   .5      3.      3.1527   |I
  1.0      6.      3.5270   |*
  1.2      7.      3.9013   |*
   .9      5.      4.2757   |I
   .7      4.      4.6500   |I
   .3      2.      5.0243   |I
   .2      1.      5.3987   |I
   .3      2.      5.7730   |I
   .2      1.      6.1473   |I

NO. OF SAMPLES BELOW        .158 =          0.
NO. OF SAMPLES ABOVE       6.147 =          0.
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STATISTICAL SUMMARY FOR <LOI      >
TOTAL NUMBER OF SAMPLES =          582.
NUMBER OF NULL SAMPLES  =            0
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          25 PERCENTILE =        .542
          50 PERCENTILE =        .696
          75 PERCENTILE =       1.004
          90 PERCENTILE =       1.696
          95 PERCENTILE =       3.081
          98 PERCENTILE =       4.235
          99 PERCENTILE =       4.773
          MAXIMUM VALUE =       5.773
          RANGE OF DATA =       5.615

                   MEAN =        .966
     STANDARD DEVIATION =        .868
               VARIANCE =        .754
```

TABLE OF GENERAL GEOCHEMICAL TRENDS
FOR VARIOUS ROCK TYPES

MAJOR ROCK TYPES

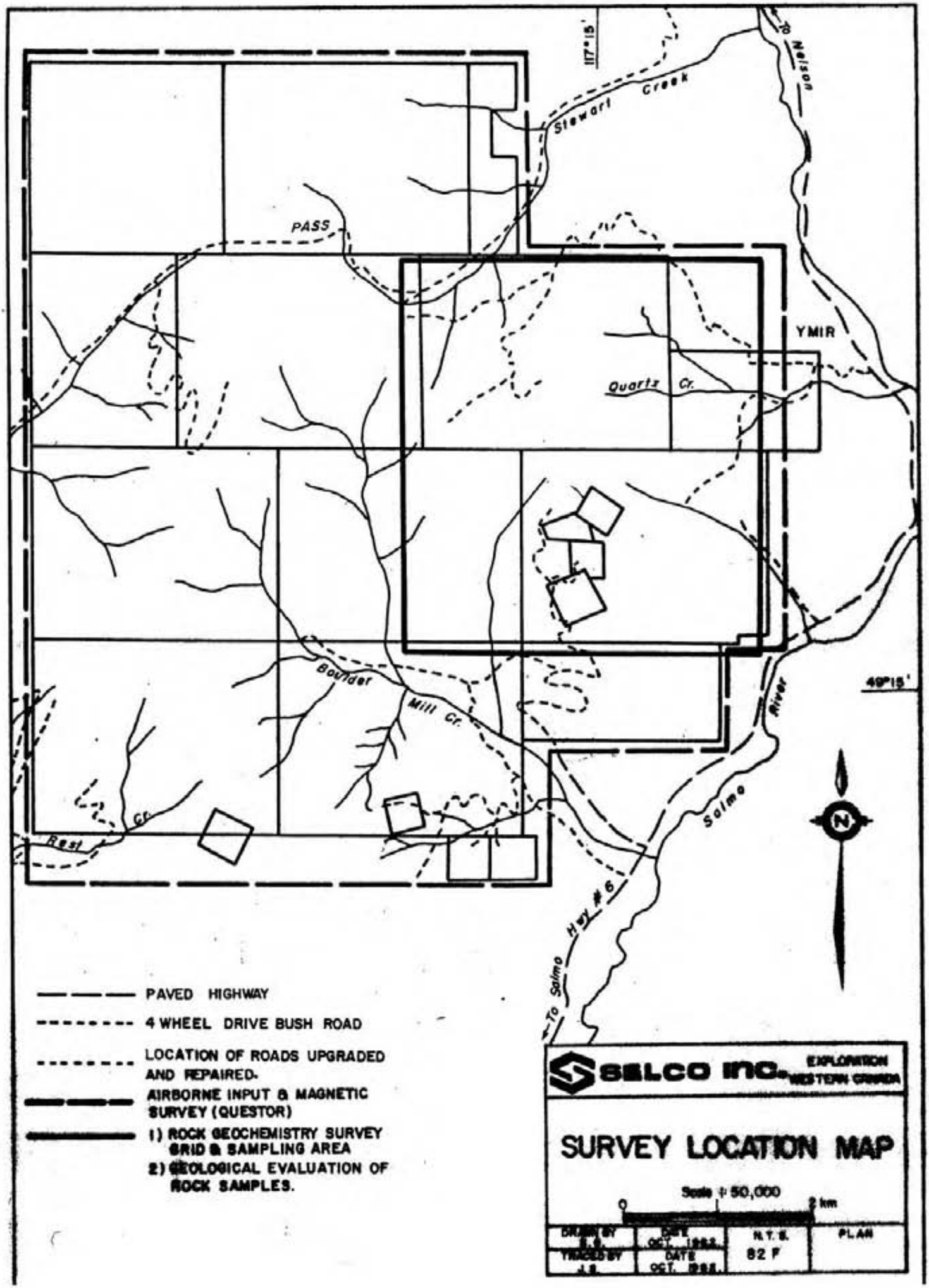
ELEMENT	QUARTZ MONZONITE (QMP)	BIOTITE-AUGITE MONZONITE (BAM)	RHYOLITE	APLITE	PHASE 1 BRECCIA	HALL SEDIMENTS & ELISE VOLCANICS
SiO_2 (%)	66 to 78	50 to 53	75 - 76	low 70's	50 - 55	45 to 55
$AL0_3$ (%)	15 to 17	14 to 15	13.5	13 to 14		15 to 17
CaO (%)	3.2 to 3.8	6 to 7	0.1 to 0.7	0.7 to 1	5 to 7	6 to 8
MgO (%)	0.3 to 0.5	4 to 7	0.03 to 0.1	0.1 to 0.2	2 to 7	2 to 4
Fe_2O_3(%)	2.5	7 to 8	1 to 2.5	0.5	5 to 7.5	7 to 9
MnO (%)	0.05 to 0.15	0.12	0.06	0.01	0.1 to 0.25	0.13 to 0.25
TiO_2 (%)	0.1 to 0.3	0.75	0.02	0.04 to 0.06	0.25 to 0.5	0.6 to 0.7
P_2O_5 (%)	0.02 to 0.15	0.7 to 0.8	0.25 to 0.3	0.01 to 0.02	0.25 to 0.3	0.3 to 0.4
Cr_2O_3(%)	Not significant.	0.01 to 0.07	Not signif.	Not signif.	Not signif.	Not significant
Na_2O (%)	3.5 to 5	2.5	4.5	3 to 4		3
K_2O (%)	2 to 8	6 to 7	4 to 5		2 to 3	2 to 5
F (ppm)	300 to 500	1500 to 1800	300 to 400	200	500 to 4500	800 to 1100
Rb (ppm)	100 to 140	200 to 270	200 to 230	150 to 200		
Sr (ppm)	1100 to 1300	1100 to 1300	80 to 200	400 to 600	500 to 900	
Zr (ppm)	100	200	70 to 90	20 to 50	70 to 90	70 to 80

There are several general trends and results which are noted in the data and these are as follows:

1) At approximately L2+00S, 14+00W a zone between the Phase II Breccia and the Quartz Monzonite shows anomalous chemical responses with almost every element. This is interpreted to indicate a zone of very strong alteration and chemical enrichment within a wedge of Hall Sediments. This may in fact be a skarn zone and further work must be carried out in this area.

2) There is a general northeasterly trend in the contoured data running from about L18+00S, 14+00W to about L4+00S, BL0+00. This is a zone of moderately high silica and shows up in most of the contoured data maps. It is interpreted to be a NE trending fault zone which cuts the Quartz Monzonite and Phase I Breccias. Regional magnetic data from government surveys, supports this structural trend.

3) The rock geochemical data in most cases serves to distinguish between the various rock types such as Quartz Monzonite and Rhyolites. In addition, the data points out two anomalous areas within the Quartz Monzonite complex.


117°15'
Stewart Creek
To Nelson
PASS
YMIR
Quartz Cr.
Boulder
Mill Cr.
49°15'
Salmo River
Rest Cr.
To Salmo Hwy #6
PAVED HIGHWAY
4 WHEEL DRIVE BUSH ROAD
LOCATION OF ROADS UPGRADED AND REPAIRED.
AIRBORNE INPUT & MAGNETIC SURVEY (QUESTOR)
1) ROCK GEOCHEMISTRY SURVEY GRID & SAMPLING AREA
2) GEOLOGICAL EVALUATION OF ROCK SAMPLES.
SELCO INC. EXPLORATION WESTERN CANADA
SURVEY LOCATION MAP
Scale 1:50,000
0
2 km
DRAWN BY B.S.
DATE OCT. 1982.
N.T.S. 82 F
PLAN
TRACED BY J.S.
DATE OCT. 1982.

The first anomalous zone is centered at about L22+20S, 2+50W and is coincident with a Questor magnetic high. This zone has high fluorine, Fe_2O_3, TiO_2, Zr plus low Si_2O_3 and Rb.

A second anomalous feature lies at about L1+00N, 3+00W and it exhibits high fluorine, Zr, Sr, Fe_2O_3, TiO_2 plus low Si_2O_3 and Rb with a low K_2O over the anomaly.

It is interpreted that these anomalous zones are features caused by intrusive and alteration activity both during and past emplacement of the Quartz Monzonite Porphyry.

CONCLUSIONS

The surveys dealt with in this report were carried out with the objective of establishing an effective and reliable data base regarding the Stewart intrusive complex and its country rocks. This purpose has been achieved and this report documents the extensive data base which has been compiled. The purpose of these preliminary surveys has been to provide pertinent geochemical and geophysical information which may be used in evaluating and planning further geological exploration of the property for economic deposits of metallic elements.

The results of these surveys have indicated favourable geophysical targets within the Hall Sediments and Elise Volcanics which should be evaluated further for economic base metal sulphides.

Geophysics, geology and geochemistry have indicated that the Stewart intrusive complex has excellent potential to host a porphyry molybdenum system. It has been demonstrated that the intrusive centre is host to a complex suite of intrusives which have been emplaced over a long period of time. It has also been demonstrated that the quartz-monzonite itself is probably a multi-phased complex and that one or more phases may be host to economic concentrates of metallics.

ITEMIZED COST STATEMENT

X-RAY LABORATORIES, TORONTO, ONTARIO

584 whole rock analysis @ $17.50 each	$10,220.00
584 fluorine analysis @ $5.00 each	2,920.00
584 element emmission spec. analysis @ $20.00 each	11,680.00
584 rock sample preparation @ $2.50 each	1,460.00
Copying results and transfer of data files from X-Ray Labs to Dataplotting Services Ltd.	100.00
Shipping rock samples - B.C. to Toronto	300.00
Sample bags, shipping cannisters, flagging tape, markers etc.	250.00

DATAPLOTTING - COMPUTER SERVICE

Data processing and digitizing base maps	650.00
Plotting data maps - 16 maps @ $50.00 each	800.00
Contouring data maps - 16 maps @ $75.00 each	1,200.00
Calculating basic statistics	100.00
Shipping maps and data - Toronto to Vancouver	50.00

QUESTOR GEOPHYSICAL SURVEYS LTD.

Airborne Input + Mag. Survey - 277 km @ $115.17/line km	31,902.09
Shipping and miscellaneous	100.00

McELLHANEY SURVEYS LTD.

Preparation of orthophoto base maps for plotting and control of airborne survey and results by Questor Ltd.	1,250.00

GEOLOGICAL EVALUATION OF ROCK CHIP SAMPLES FOR GEOCHEMICAL INTERPRETATION

1 geologist - 6 weeks - salary and benefits @ $3000/month	4,500.00
Microscope and miscellaneous equipment	150.00
Data preparation and typing	500.00

MISCELLANEOUS COSTS (OFFICE AND ADMINISTRATION)

Project supervision, evaluation and interpretation of results, report preparation:

Senior geologist - 6 weeks - salary and benefits @ $4000/month	$ 6,000.00
Drafting and typing services - 10 days @ $125/day	1,250.00
Map reproduction, reproduction of text and figures and assay results + binding etc.	1,000.00
Office supplies, postage, telephone	300.00
	$ 8,550.00

DISTRIBUTION OF COSTS

Airborne Survey

Direct costs	$33,252.09
Office & admin. (30% of $8,550.00)	2,565.00
	$35,817.09

Rock Geochem. Survey

Direct costs	$34,880.00
Office & admin. (70% of $8,550.00)	5,985.00
	$40,865.00

TOTAL EXPENDITURE: $76,682.09

STATEMENT OF QUALIFICATIONS

I, Donald Brian Grant, currently of Castlegar, British Columbia hereby certify that:

1. I am senior geologist with Selco Inc. of 402-535 Thurlow Street, Vancouver, BC V6E 3L2.

2. I have received a Bachelor of Science degree in Geology from Memorial University of Newfoundland in 1970.

3. I have been practising my profession continuously since my graduation in 1970.

4. I am a fellow of the Geological Association of Canada and a Registered Professional Engineer of the Province of Saskatchewan.

5. I did personally plan and supervise the work which was carried out and which is documented in this report.

6. I hold no interest either directly or indirectly in this property.

Respectfully submitted,

D.B. Grant, FGAC, P.Eng
March 15, 1983

APPENDIX I

Questor Airborne
Geophysical Survey
Report

SUMMARY OF QUESTOR REPORT

A total of 277 line kilometers of helicopter Input was flown over the Stewart Property utilizing the Questor helicopter-borne Input system with a vertical receiving coil. Data is presented on a series of six 1:5 000 scale maps as contoured magnetics and interpreted electromagnetic "ball" maps.

Review of the flight records reveals that a large portion of the survey area is overlain by thick conductive overburden, which enhances reponse in all six channels and could easily mask a buried, favourable conductor. In a considerable portion of the survey area, the first 3 or 4 channels were off-scale.

On a regional scale, several points are evident:

1. The electromagnetic response is fairly quiet over the known intrusives.

2. Magnetic highs correlate to the known intrusives.

3. Regional contacts, especially between Hall Sediments and Elise Volcanics are characterized by long bands of 6 channel conductors.

4. Conductors follow regional strike, and where dip is discernible, are conformable.

Locally, discrete conductors are difficult to discern because of the overburden effects. The following is a summary of the reported data:

Sheets One and Two (Flight Lines 10010W-10101E)

Questor labelled all conductors on these sheets as due to conductive overburden with the exception of their anomaly 7, which was attributed to graphite. This anomaly is probably caused by a contact between Hall Formation sandstone and Elise Volcanics. On the east side of the maps sheets, intercepts 10061E B, 10080E R and 10101E S may represent a similar contact trending roughly 150°, however, this is not as strong as the western contact. In addition, three areas may be of interest; These are anomaly 10020E N - 10030W J(10) intercepts 10070W T - 10091W T(11) and 10101E C - 10080E A(12). The first is along strike from an old adit, both intercepts display similar character. The other two anomalies are similar, discrete, but overburden response renders them uninterpretable. It is possible that these are purely overburden channel effects, however, they require checking. A small intrusive is located by the magnetics in the north-west corner of sheet one, while the north of sheet two is magnetically dominated by a high representing the major intrusion.

Sheets Three and Four (Flight Lines 10090W-10271E)

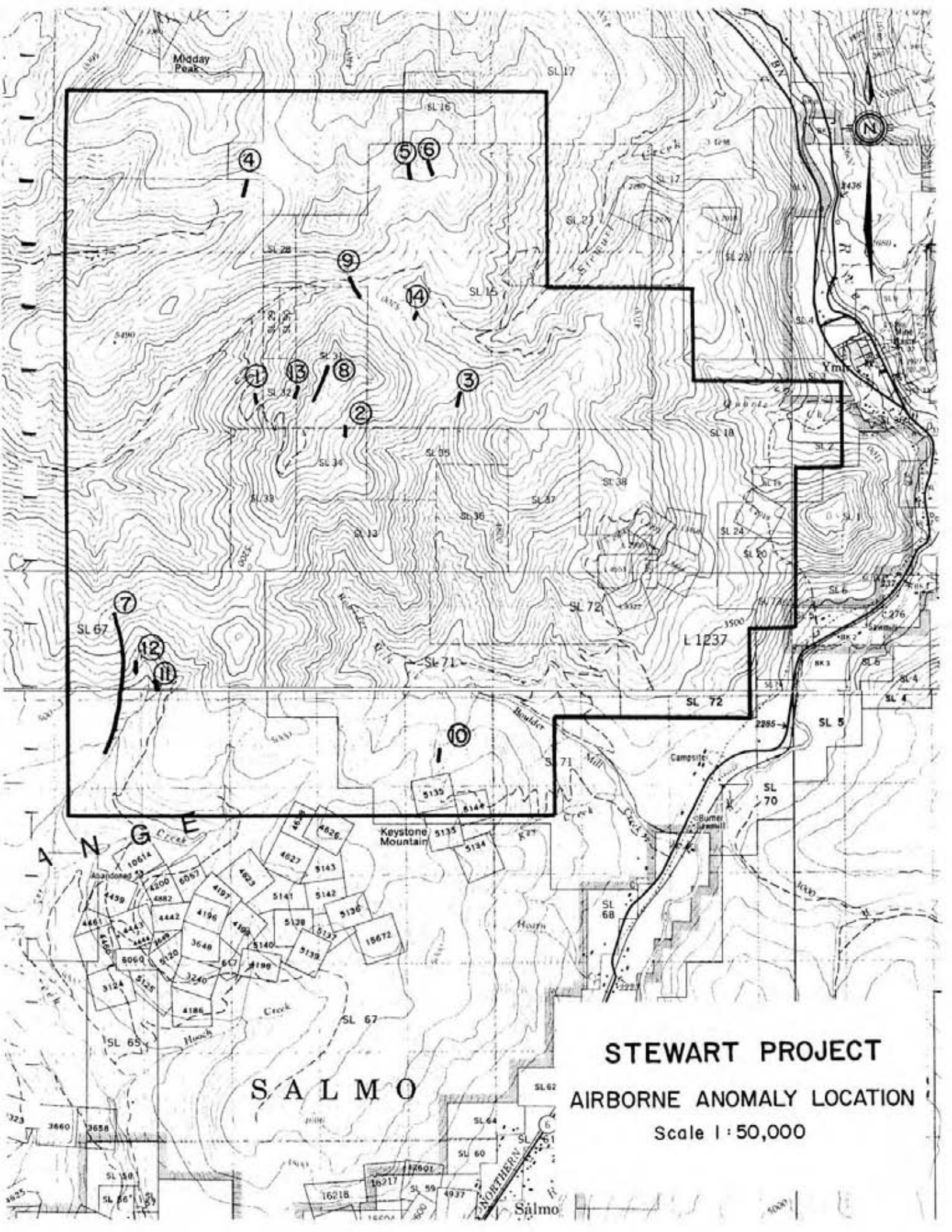
Sheet four is dominated by an electromagnetically quiet, magnetically high zone corresponding to the main intrusive. No EM anomalies of note were located.

The magnetics on sheet three generally exhibit a north-south trend with two highs signifying intrusives, one north and slightly east of centre (NE), the other north and slightly west of centre (NW). It is interesting to note that the magnetics appear shifted to the west of the mapped NW intrusive. Questor picked four anomalies on this sheet, 1, 2, 3 and 8. Anomaly one is on the north gradient of the NW intrusive, anomaly two on the south gradient of the NE intrusive. Both are interesting, 2 is slightly more conductive. Anomaly three is on the western edge of a breccia pipe or slightly into the sandstone unit. Number eight is again related to the NE intrusion. Two intercepts of interest not picked by Questor lie between the two central intrusives, intercept 10237K and 10240H (13).

Sheets Five and Six (Flight Lines 10280W-10400W)

On these sheets the magnetics trend northeasterly, except for the northwest corner where an intrusive is present. Questor picked four conductors 4, 5, 6 and 9 on the basis of short strike length and apparent association with magnetics. Conductor 9 is given a high priority. However, it is unlikely that this anomaly crosscuts the regional trend as shown. A more reasonable correlation would be intercepts 10290E A - 10285W H - 10300E S which is the continuation of a regional, likely graphitic, trend. The north ends of anomalies 5 and 6 appear to be more obscured by overburden, hence emphasis should be placed on the southern ends. Conductor 4 is probably overburden response. One further interesting area is line 10280L - 10285D (14) where a moderate conductor is associated with a magnetic high.

In summary, the magnetics succeeded in outlining areas of intrusive activity. These areas were uniformly electromagnetically quiet. The EM was successful in delineating numerous regional trends, most of which are probably geological contacts. In addition, 9 anomalies were picked by Questor, on the basis of short strike length and magnetic correlation, to warrant follow-up. Initial study of the data has located 5 more favourable geophysical targets, for a total of fourteen.


STEWART PROJECT
AIRBORNE ANOMALY LOCATION
Scale 1 : 50,000
Midday Peak
Keystone Mountain
SALMO
Salmo
Ymir
Campsite
Burner
Abandoned
NORTHERN
SL 17
SL 16
SL 28
SL 15
SL 31
SL 32
SL 34
SL 35
SL 38
SL 37
SL 36
SL 33
SL 13
SL 18
SL 24
SL 20
SL 6
SL 72
SL 71
SL 67
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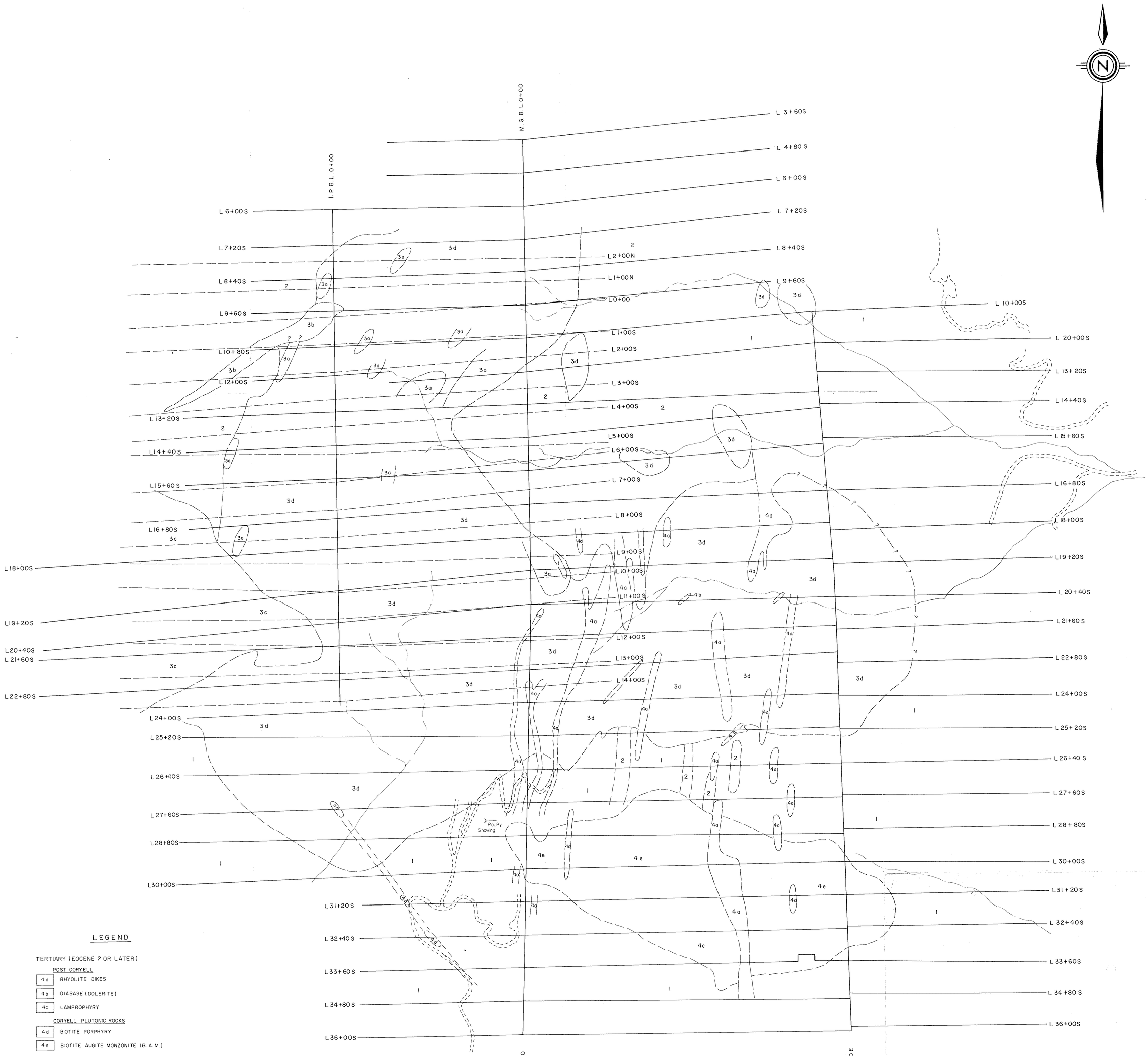


LEGEND

TERTIARY (EOCENE ? OR LATER)

POST CORYELL

- 4a RHYOLITE DIKES
- 4b DIABASE (DOLERITE)
- 4c LAMPROPHYRY

CORYELL PLUTONIC ROCKS

- 4d BIOTITE PORPHYRY
- 4e BIOTITE AUGITE MONZONITE (B. A. M.)

LOWER CRETACEOUS

NELSON PLUTONIC ROCKS

- 3a APLITE
- 3b PHASE II BRECCIA (+ MoS_2) - QMP
- 3c PHASE I BRECCIA (QMP + VOLCANIC BRECCIA FRAGMENTS & QMP AS MATRIX)
- 3d QUARTZ MONZONITE PORPHYRY (QMP)

MIDDLE & UPPER JURASSIC

- 2 HALL FORMATION (UNDIFFERENTIATED ARGILLITES, SANDSTONES, CONGLOMERATES, LIMESTONES/DOLOMITES

LOWER JURASSIC

- 1 ELISE (ROSSLAND) VOLCANICS (UNDIFFERENTIATED ANDESITES, LATITES, BASALTS, AUGITE PORPHYRY, AGGLOMERATE, TUFF & MINOR SHALE)

LEGEND

- MAIN GRID
- I.P. GRID
- GEOLOGICAL BOUNDARY APPROX., ASSUMED, INTERPETED
- STREAM
- ROAD

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670
Part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

PRELIMINARY GEOLOGY 1982-83

DRAWN BY	DATE	N.T.S.	PLAN
T. CARPENTER B. GRANT	JANUARY 1983.	82 F/3,6	
TRACED BY J.S.	DATE JANUARY 1983.		

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670

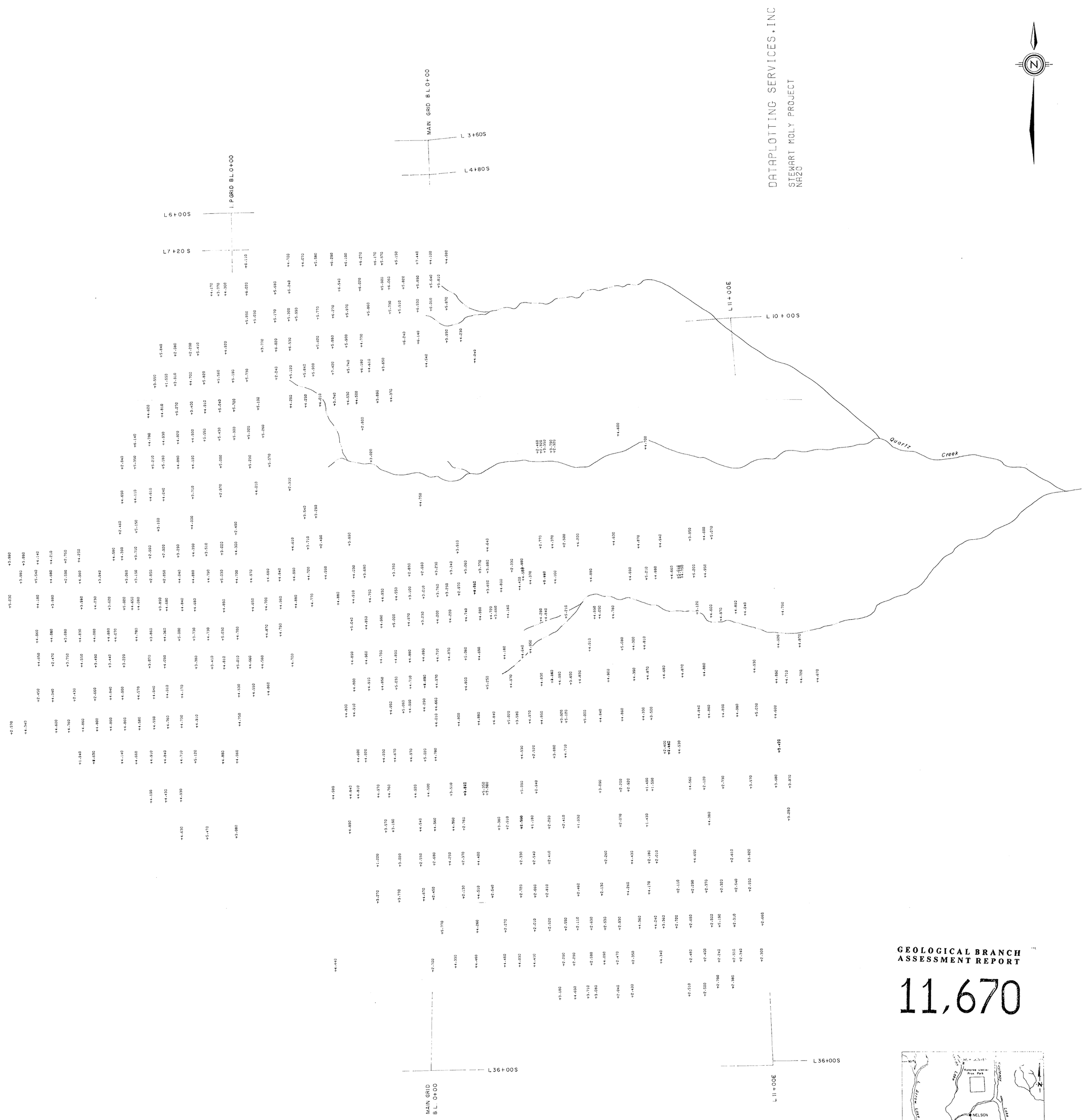
Part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

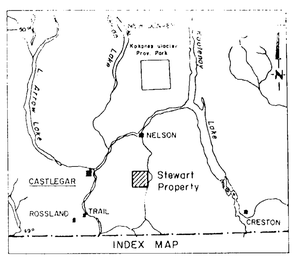
ROCK GEOCHEM SURVEY
SiO_2 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



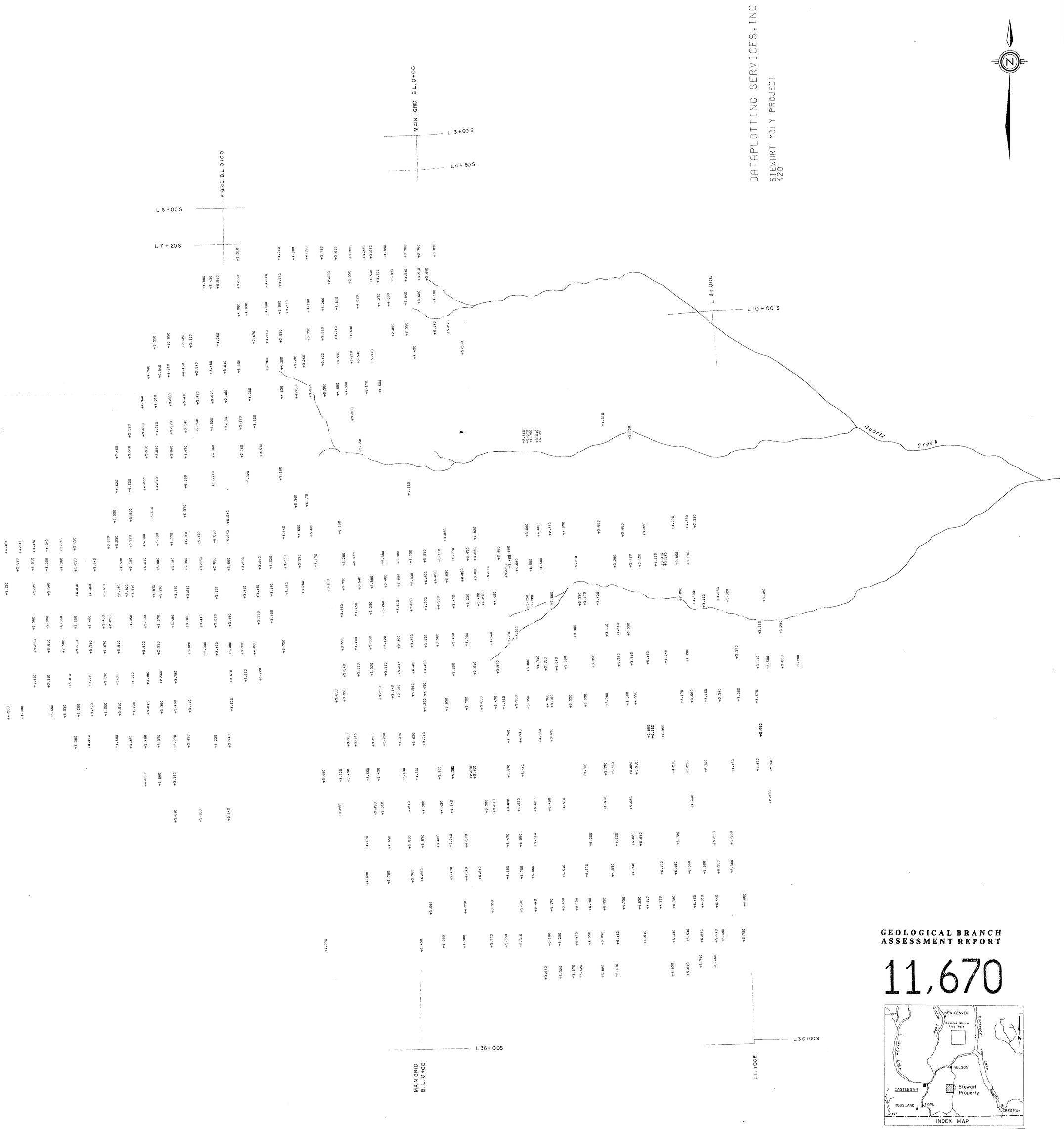
Part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Na_2O RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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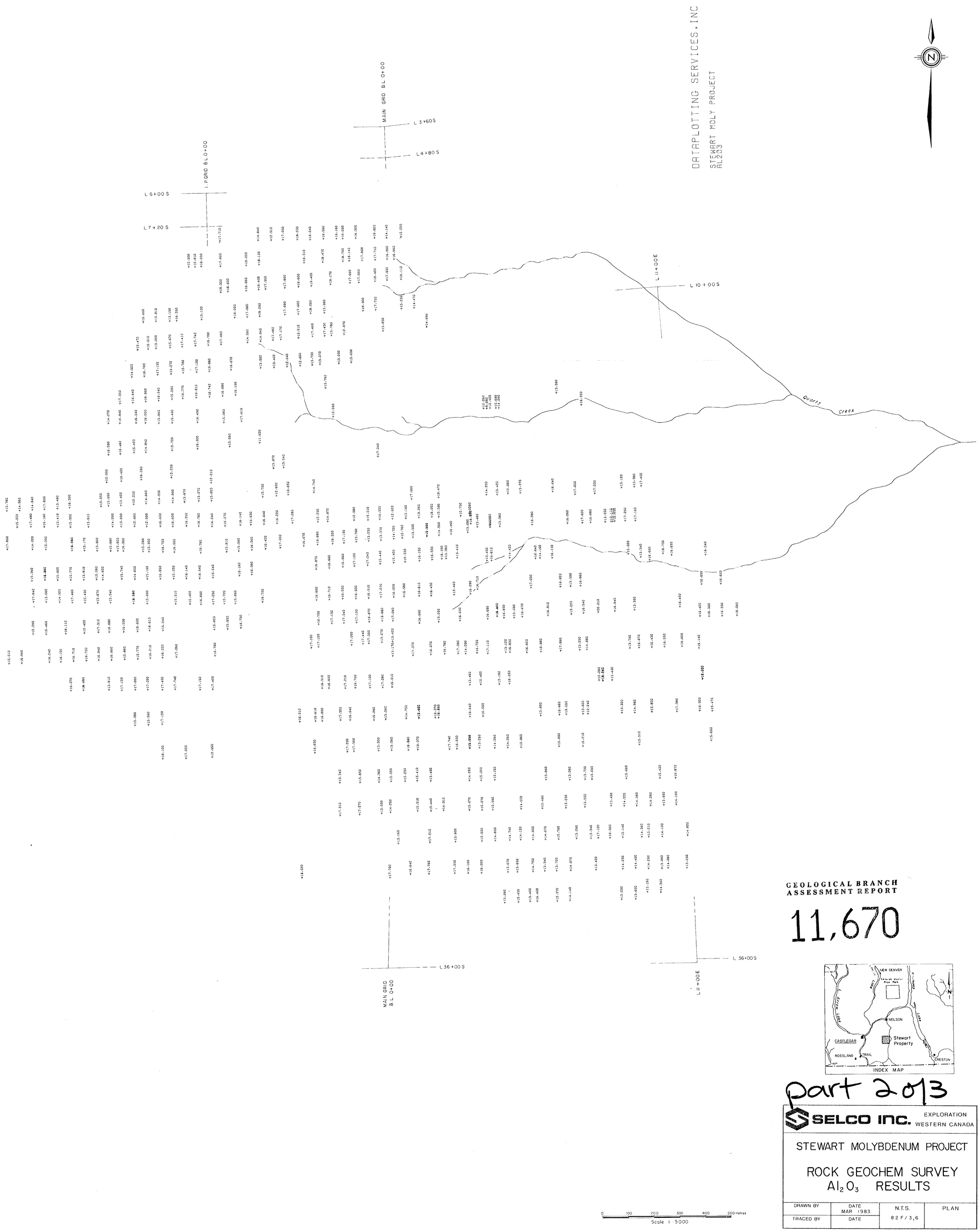
Part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
K_2O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670

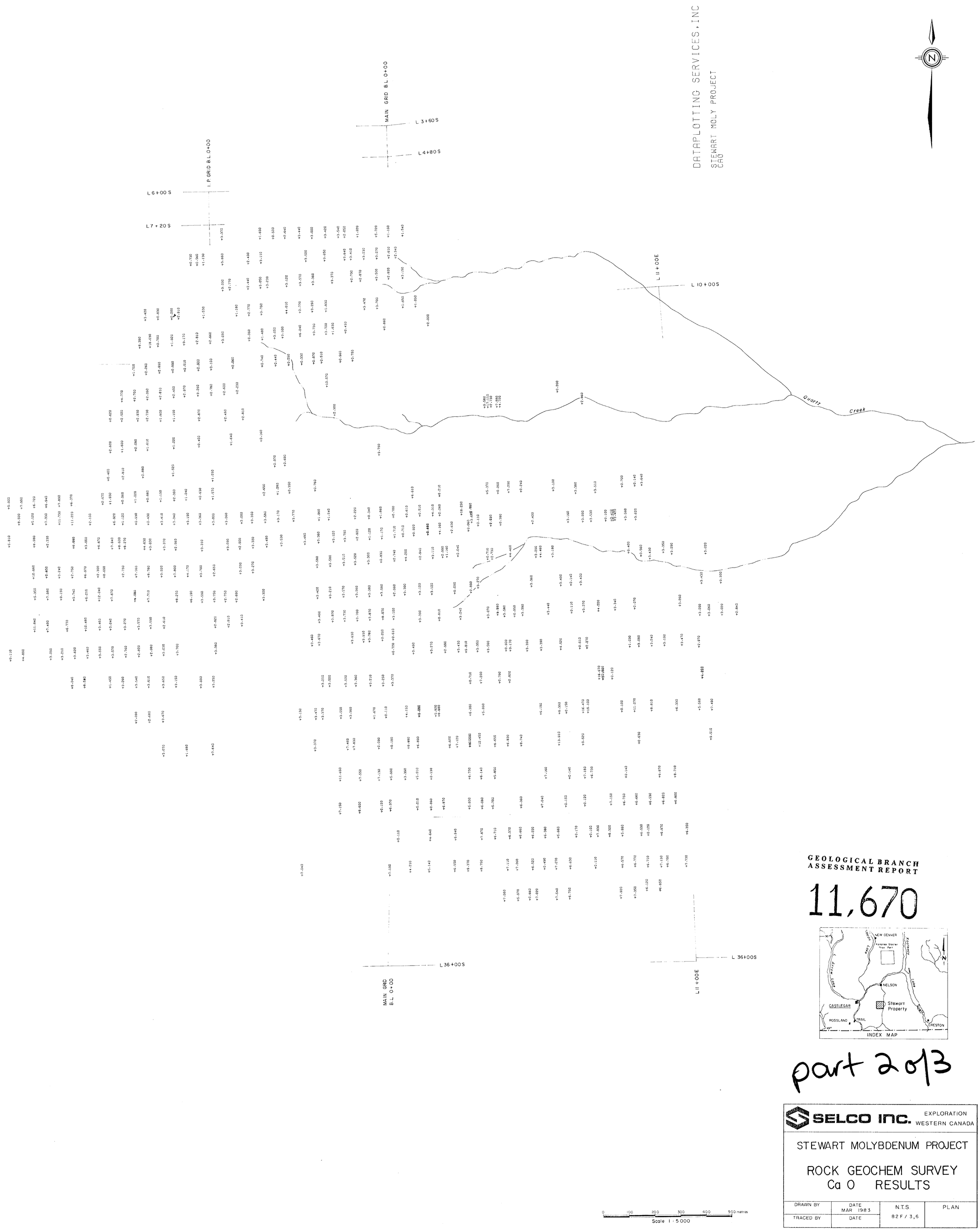
part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Al_2O_3 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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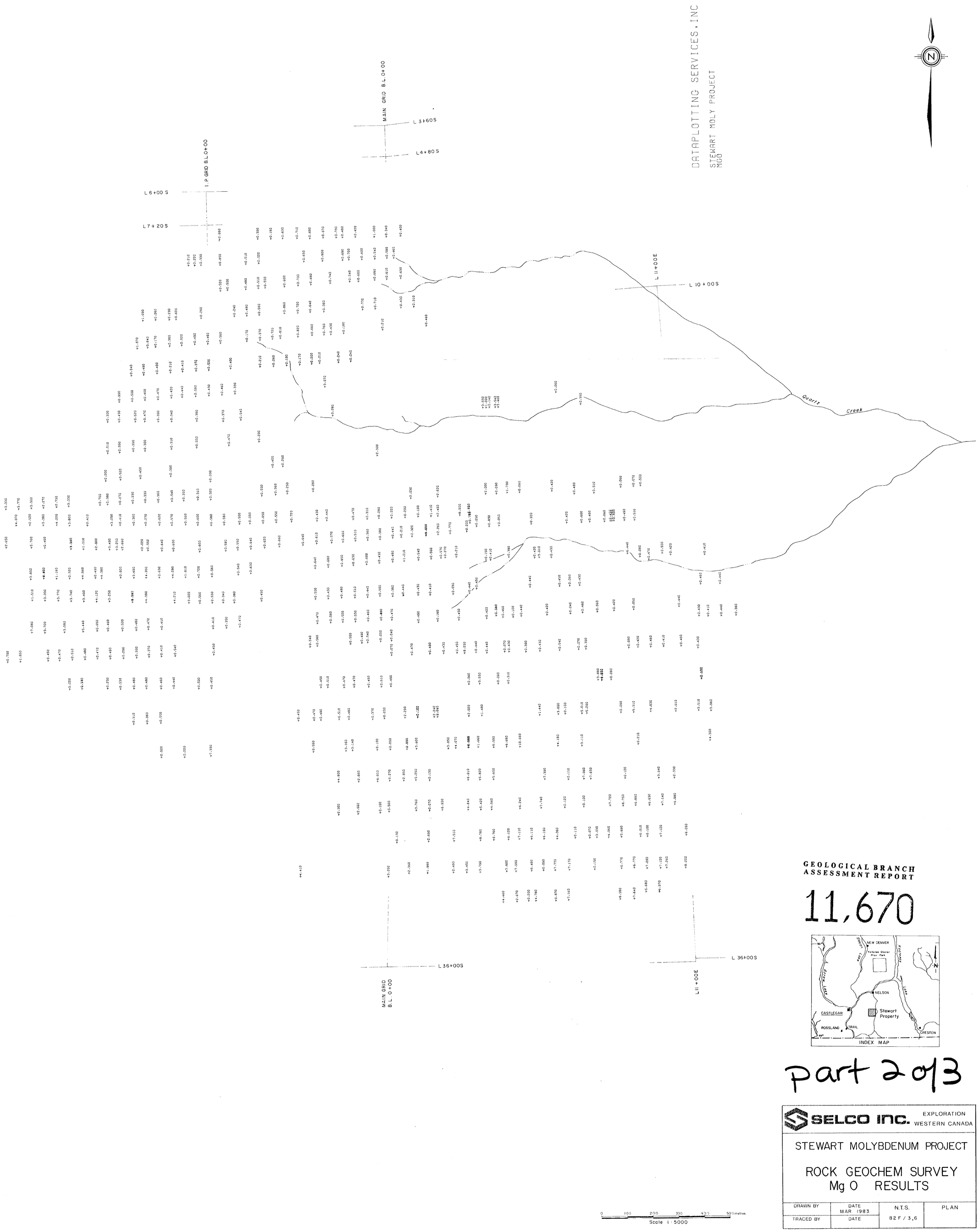
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Ca O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82 F / 3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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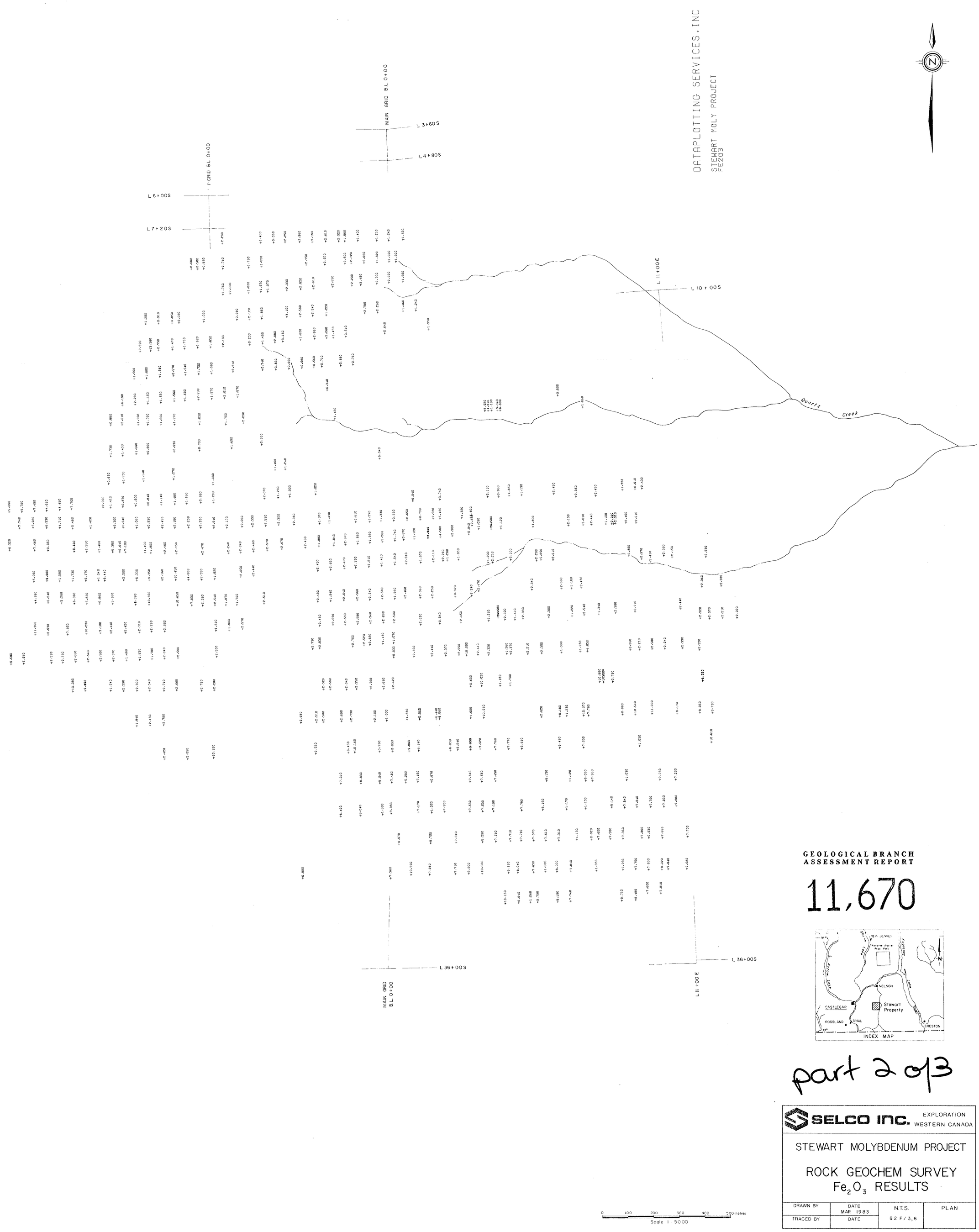
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Mg O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82 F / 3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Fe_2O_3 RESULTS

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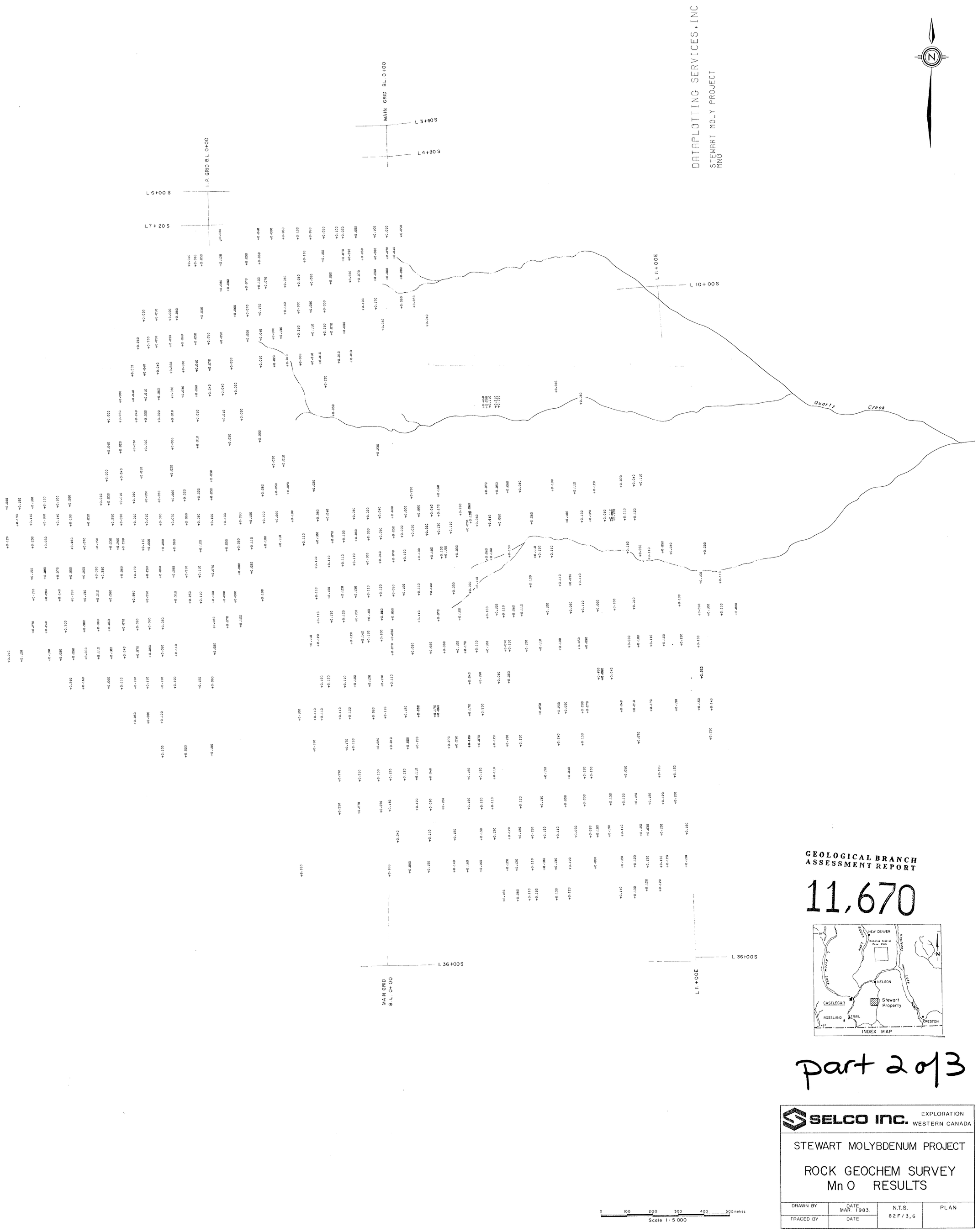
TRACED BY	DATE	82 F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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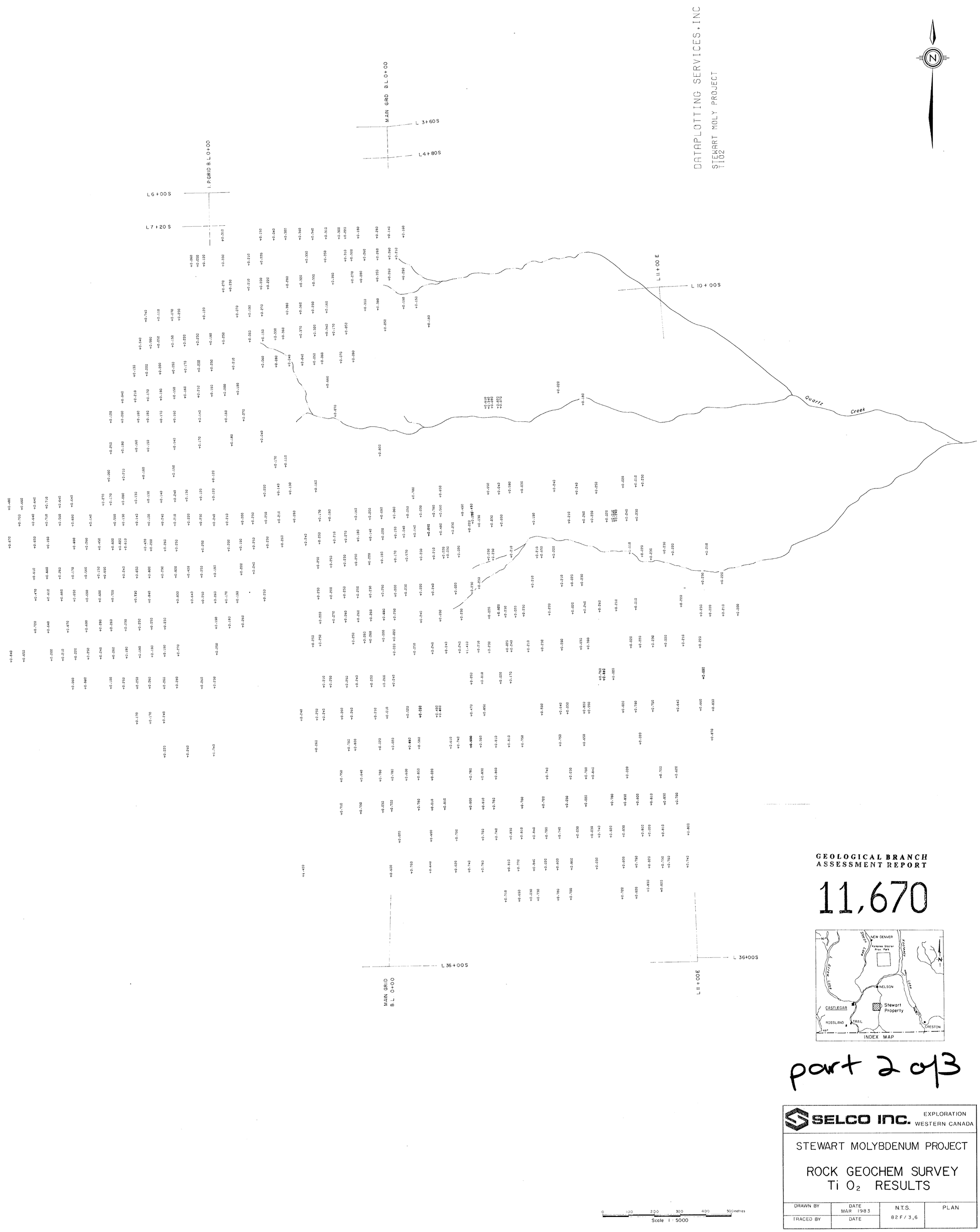
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Mn O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
TiO_2 RESULTS

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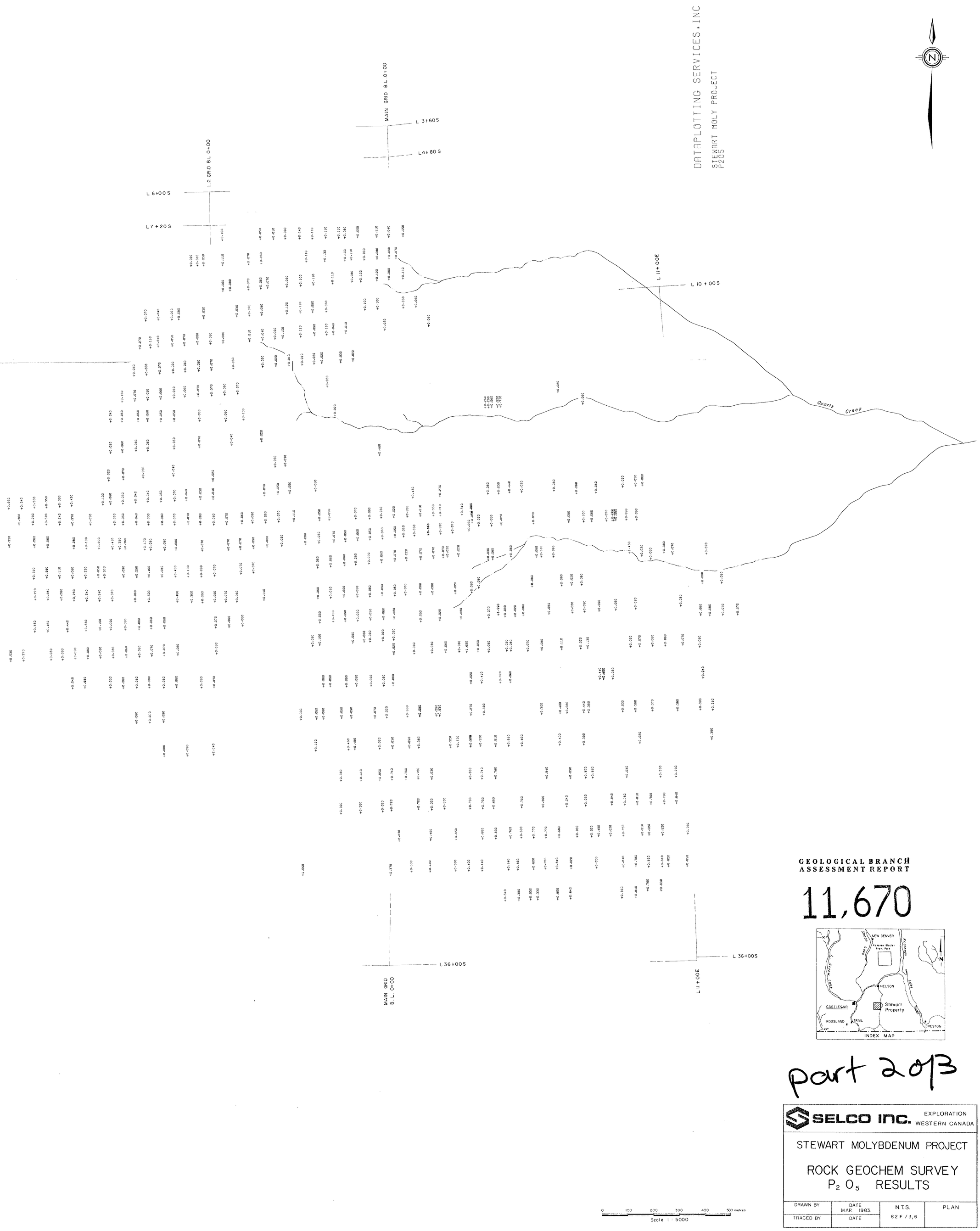
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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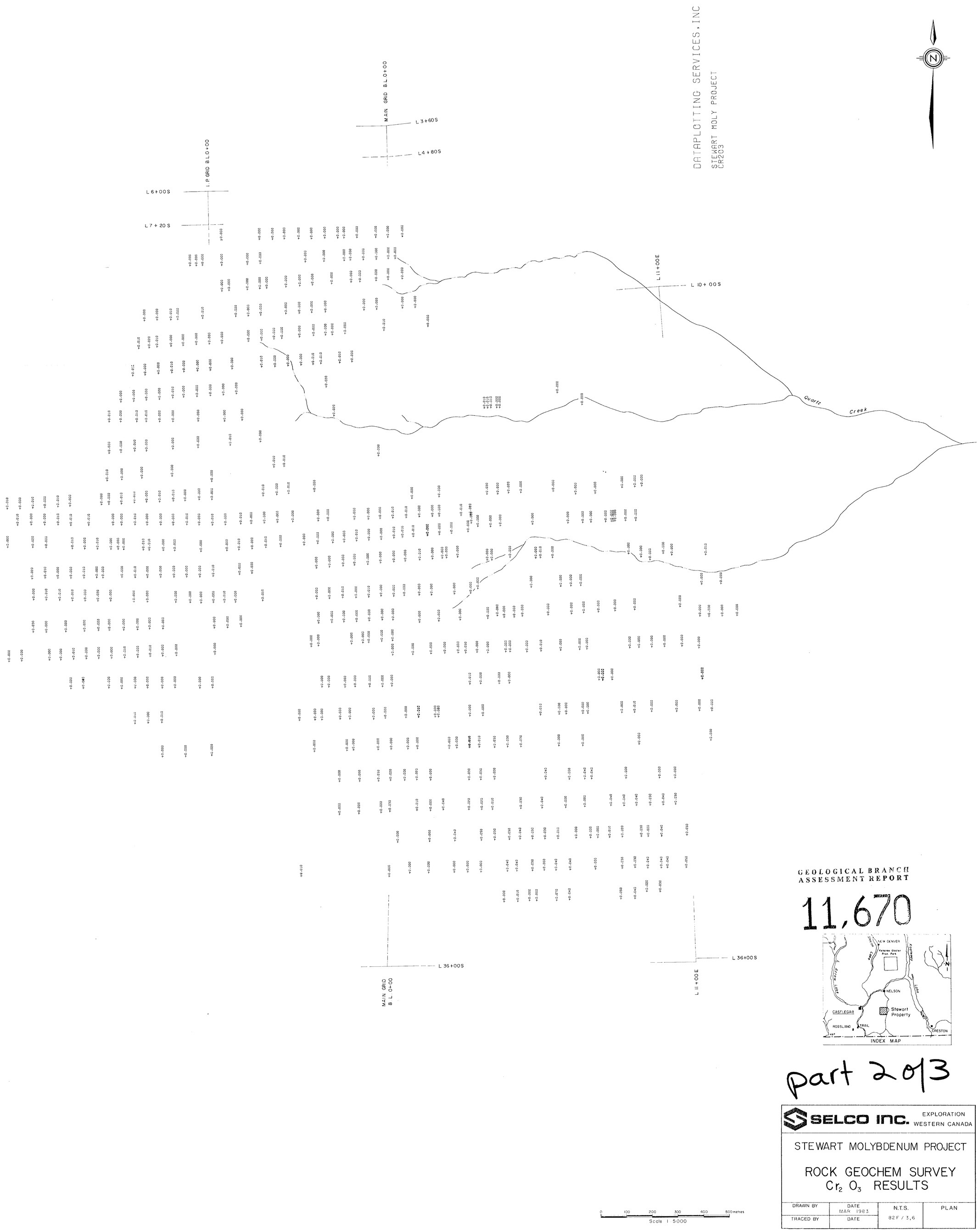
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
P_2O_5 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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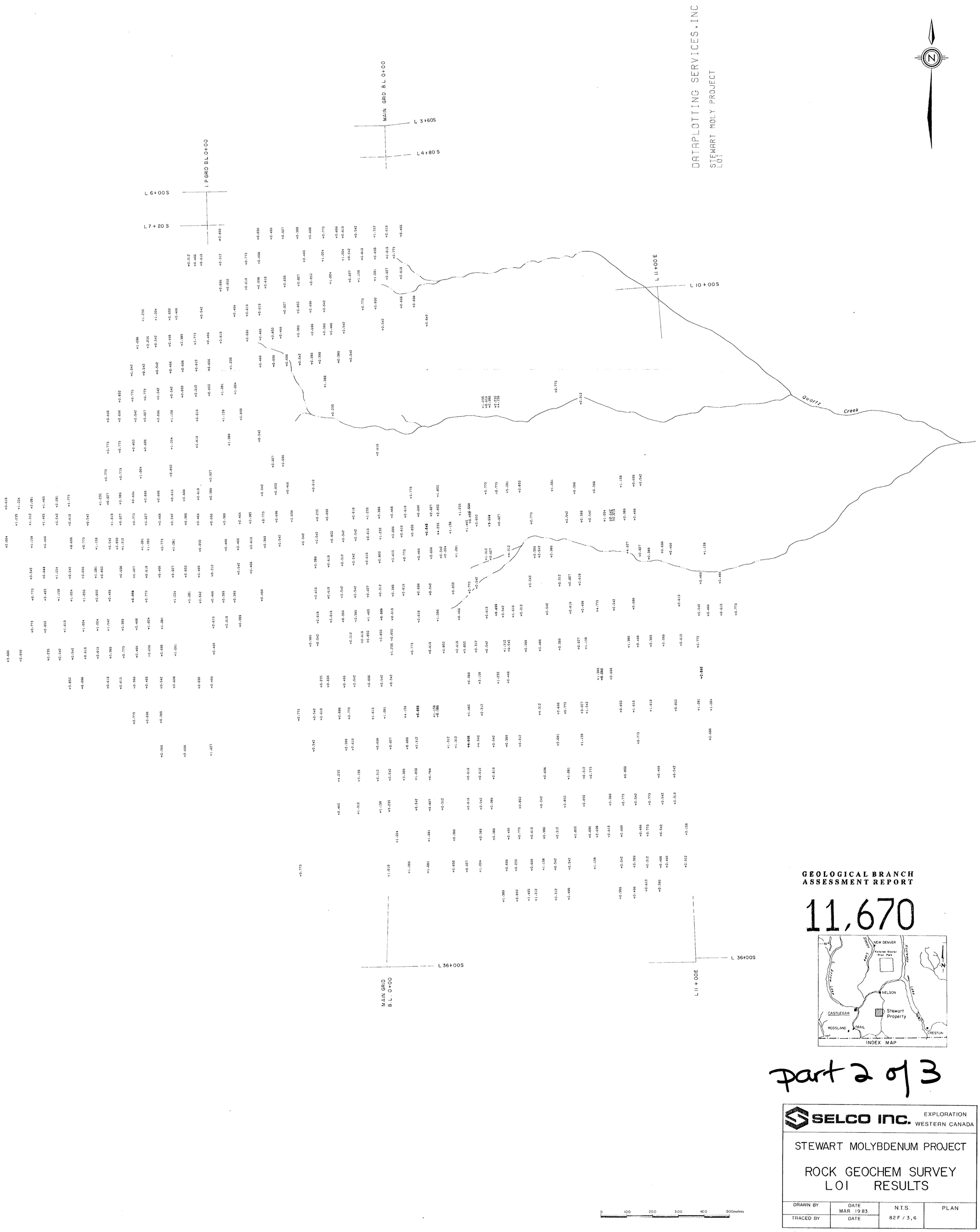
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Cr_2O_3 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
L01 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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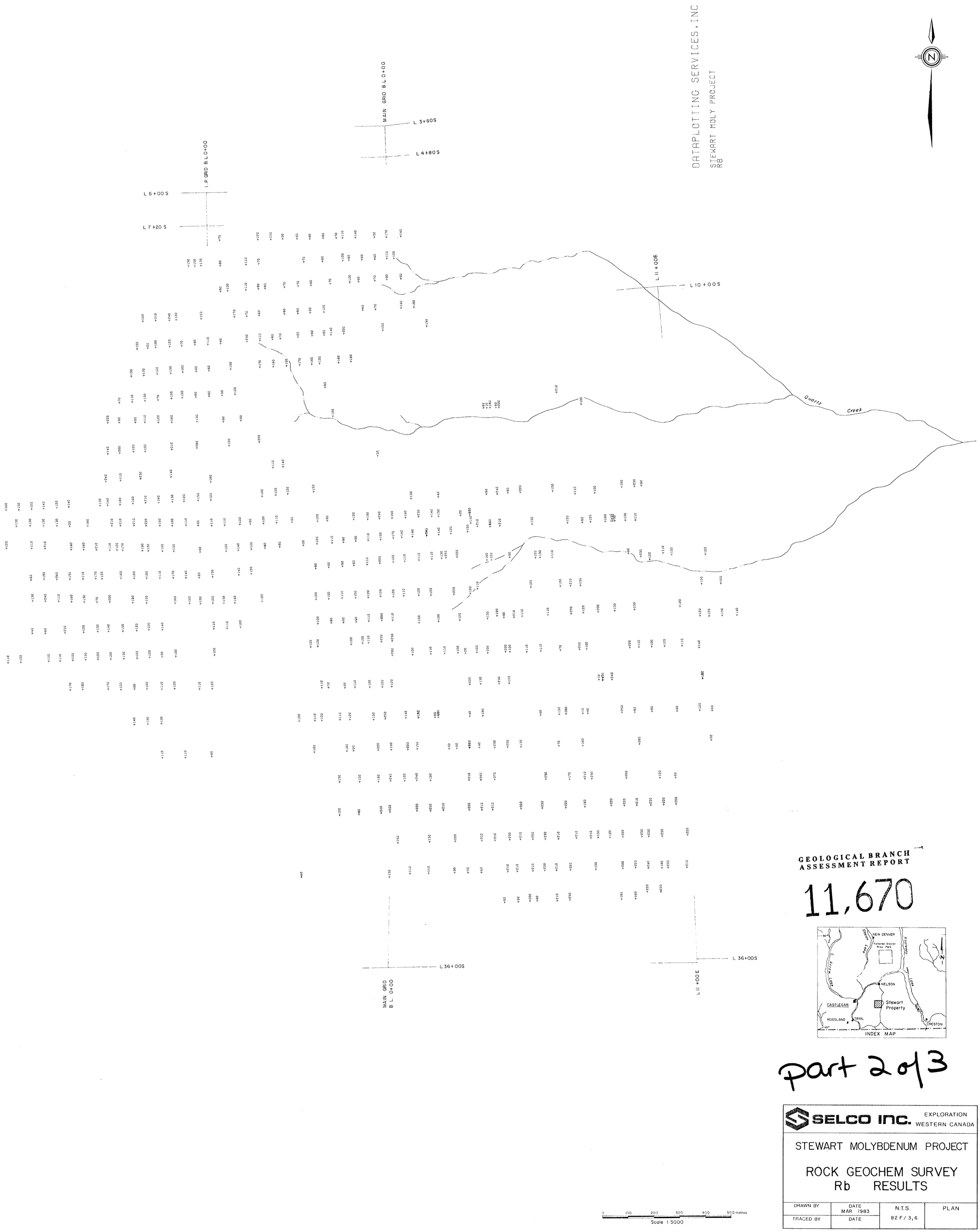
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
F RESULTS

DRAWN BY	DATE MAR 1983.	N.T.S.	PLAN
TRACED BY	DATE	82 F / 3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Rb RESULTS

DRAWN BY	DATE MAR 1983	N.T.S. 82 F/3,6	PLAN
TRACED BY	DATE		

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Sr RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S.	PLAN
TRACED BY	DATE	82F / 3,6	

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

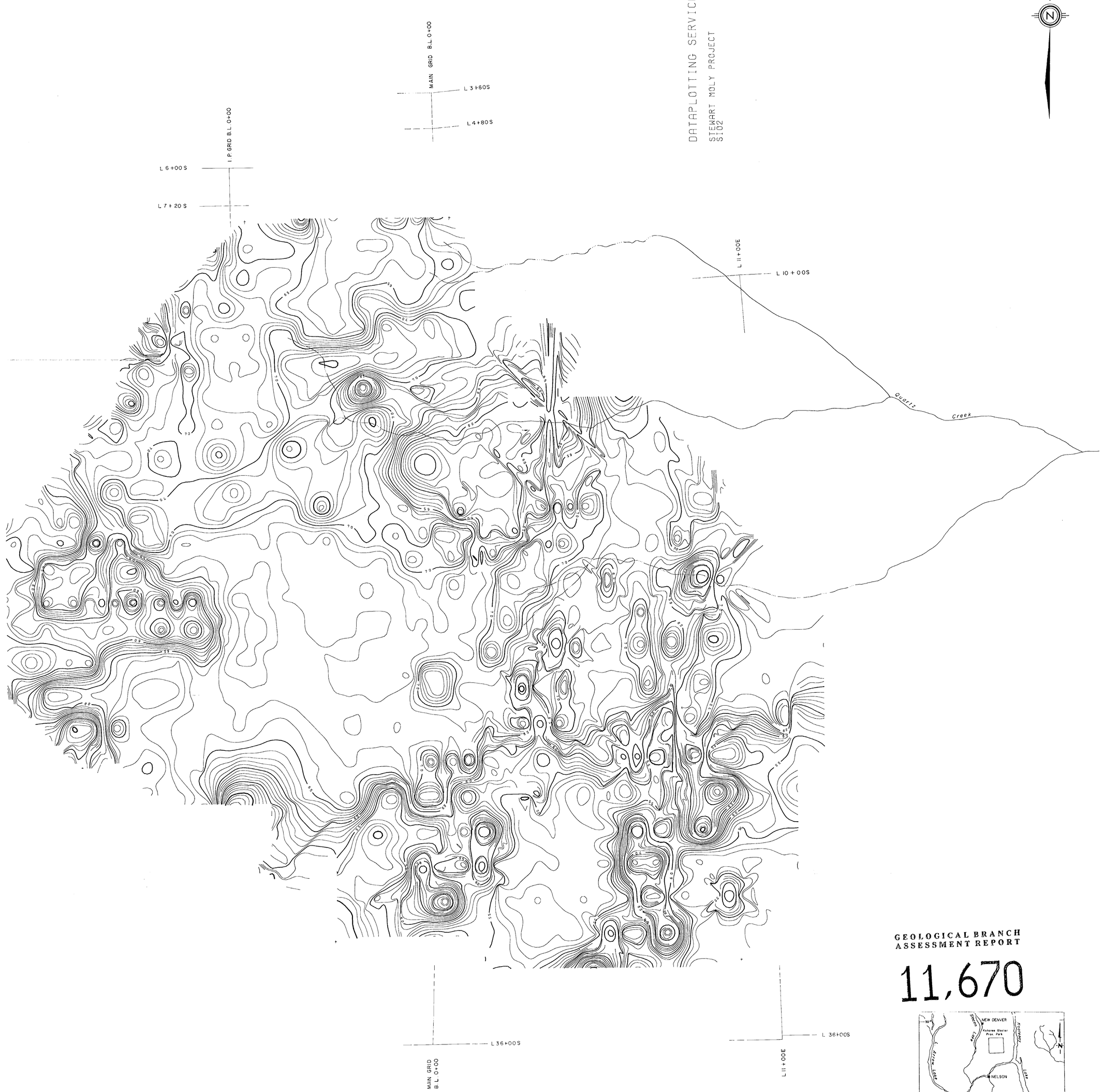
STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Zr RESULTS

DRAWN BY	DATE MAR 1983	N.T.S. 82 F/3,6	PLAN
TRACED BY	DATE		

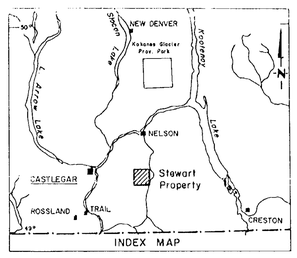
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
SIO2



GEOLOGICAL BRANCH
ASSESSMENT REPORT

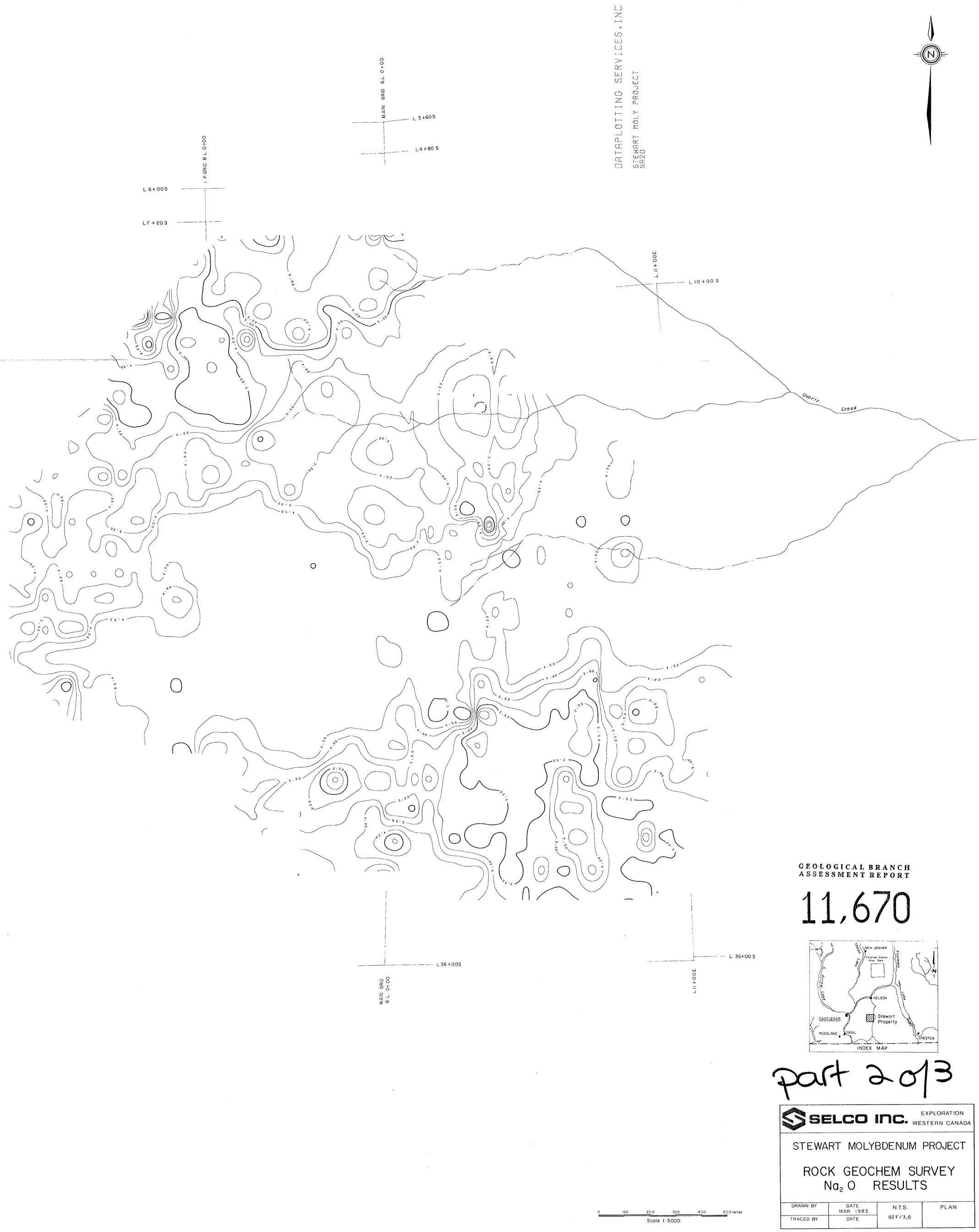
11,670



Part 2 of 3

0 100 200 300 400 500 metres
Scale 1 : 5 000

SELCO INC. EXPLORATION WESTERN CANADA			
STEWART MOLYBDENUM PROJECT ROCK GEOCHEM SURVEY SiO_2 RESULTS			
DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82 F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

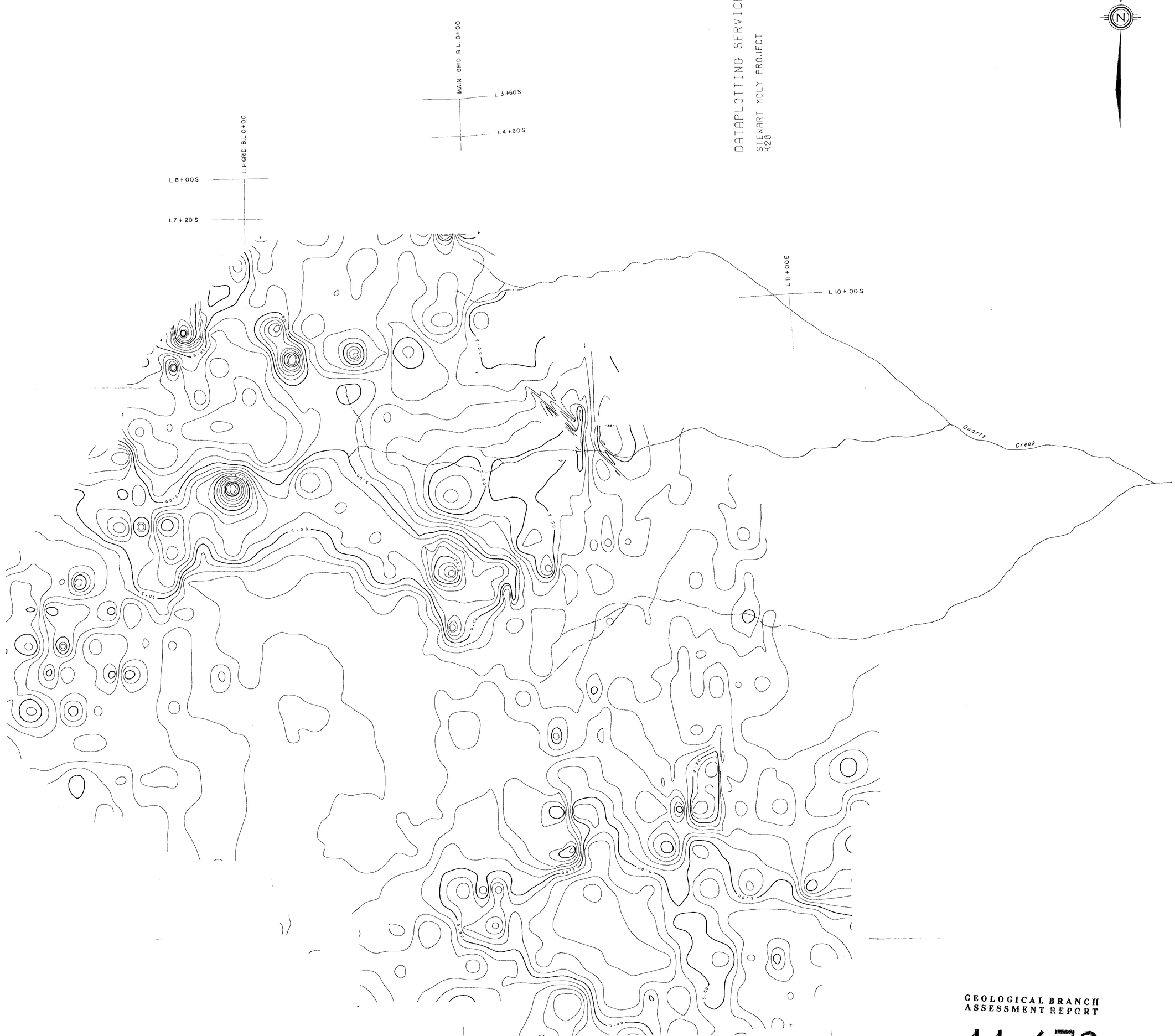
STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Na_2O RESULTS

DRAWN BY	DATE MAR 1983.	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

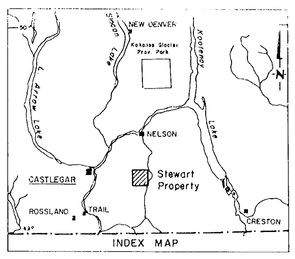
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
K20



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

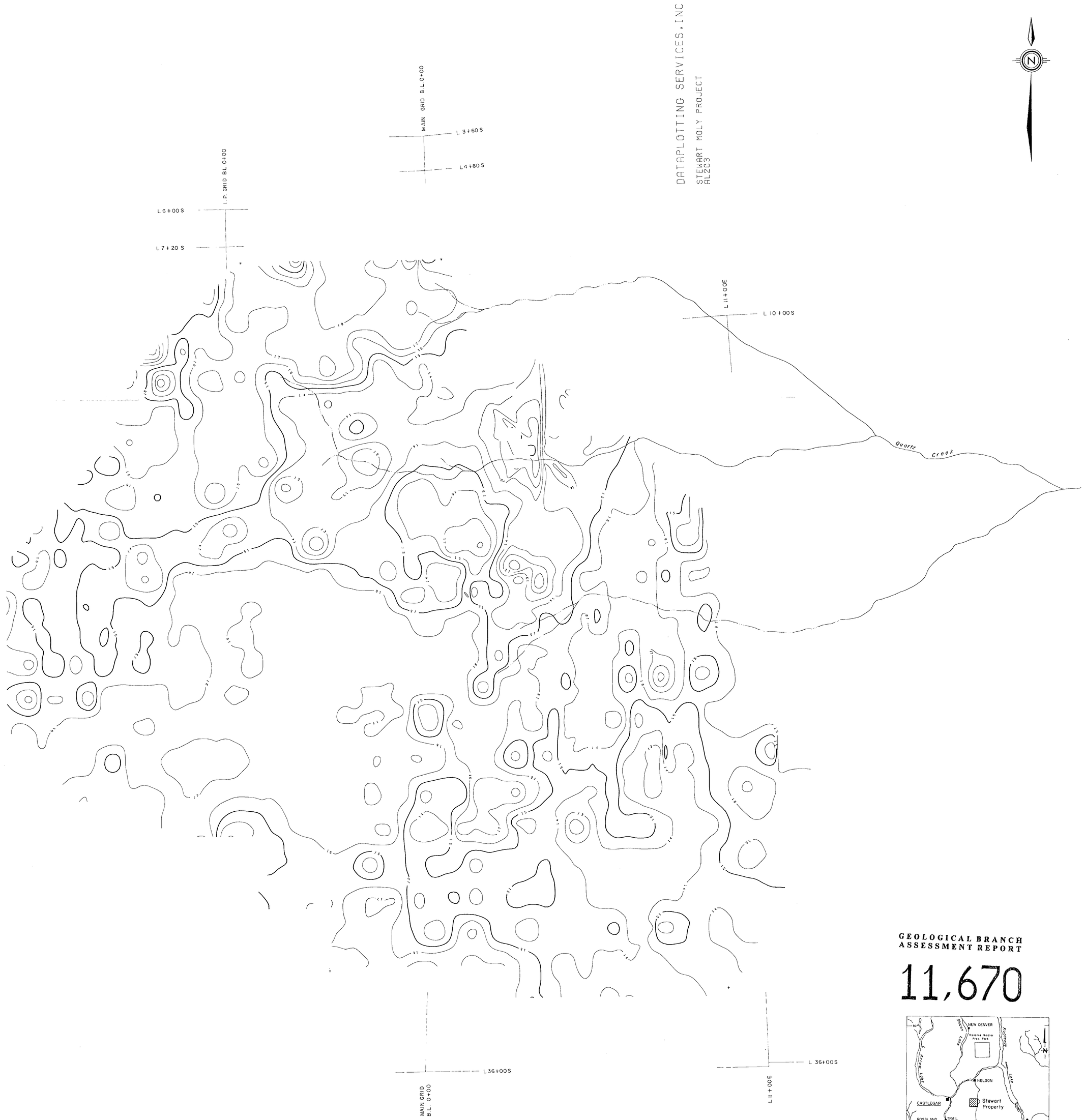
ROCK GEOCHEM SURVEY
K_2O RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S.	PLAN
TRACED BY	DATE	82 F/3,6	

0 100 200 300 400 500 metres
Scale 1:5000

DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
AL203



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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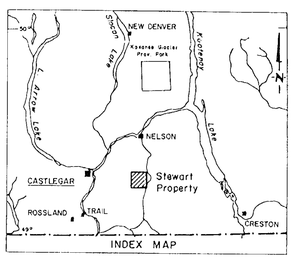

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Al_2O_3 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		

0 100 200 300 400 500 metres
Scale 1:5000

DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
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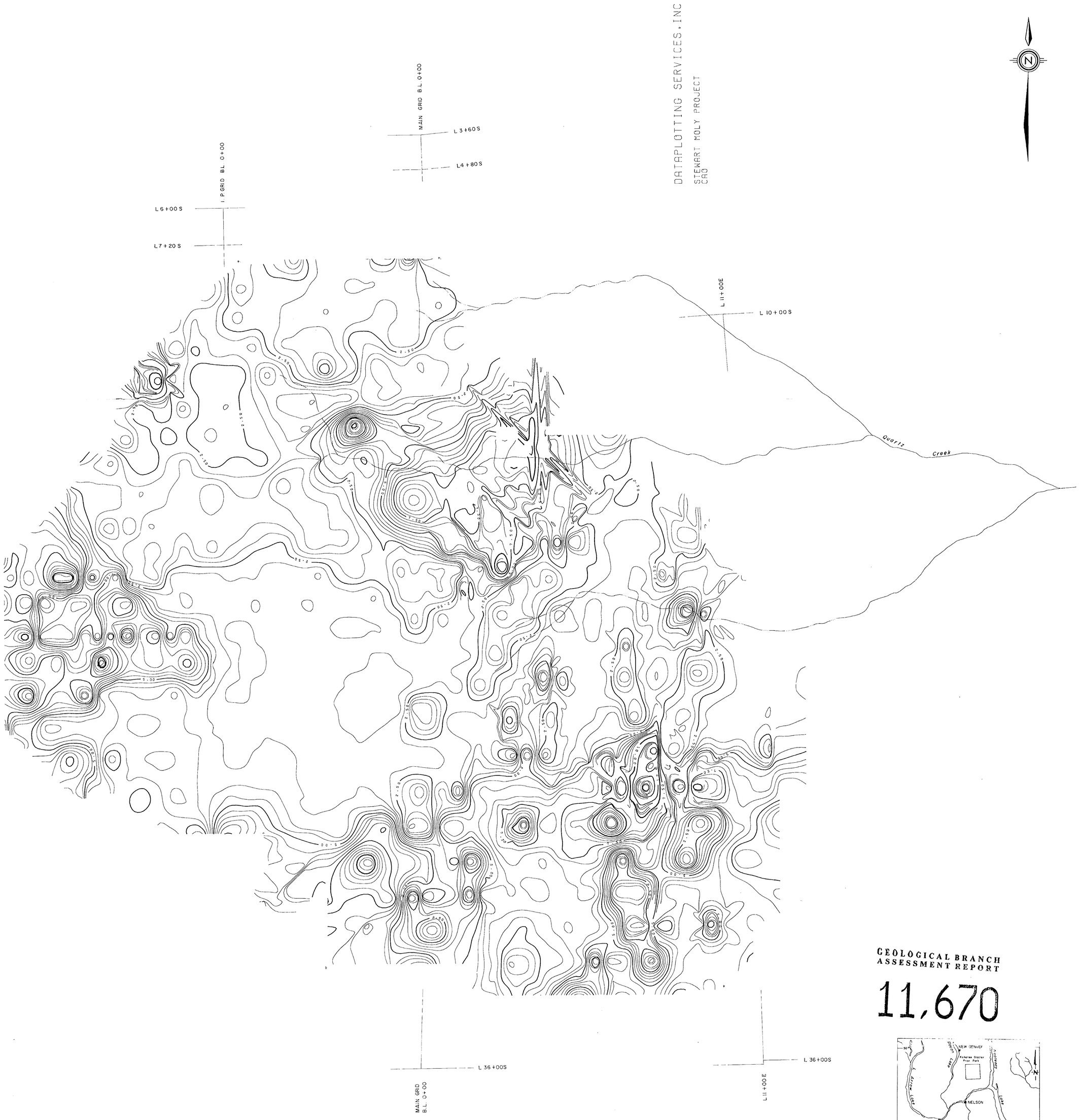

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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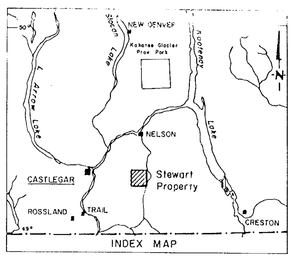

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Ca O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

0 100 200 300 400 500 metres
Scale 1:5000

DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
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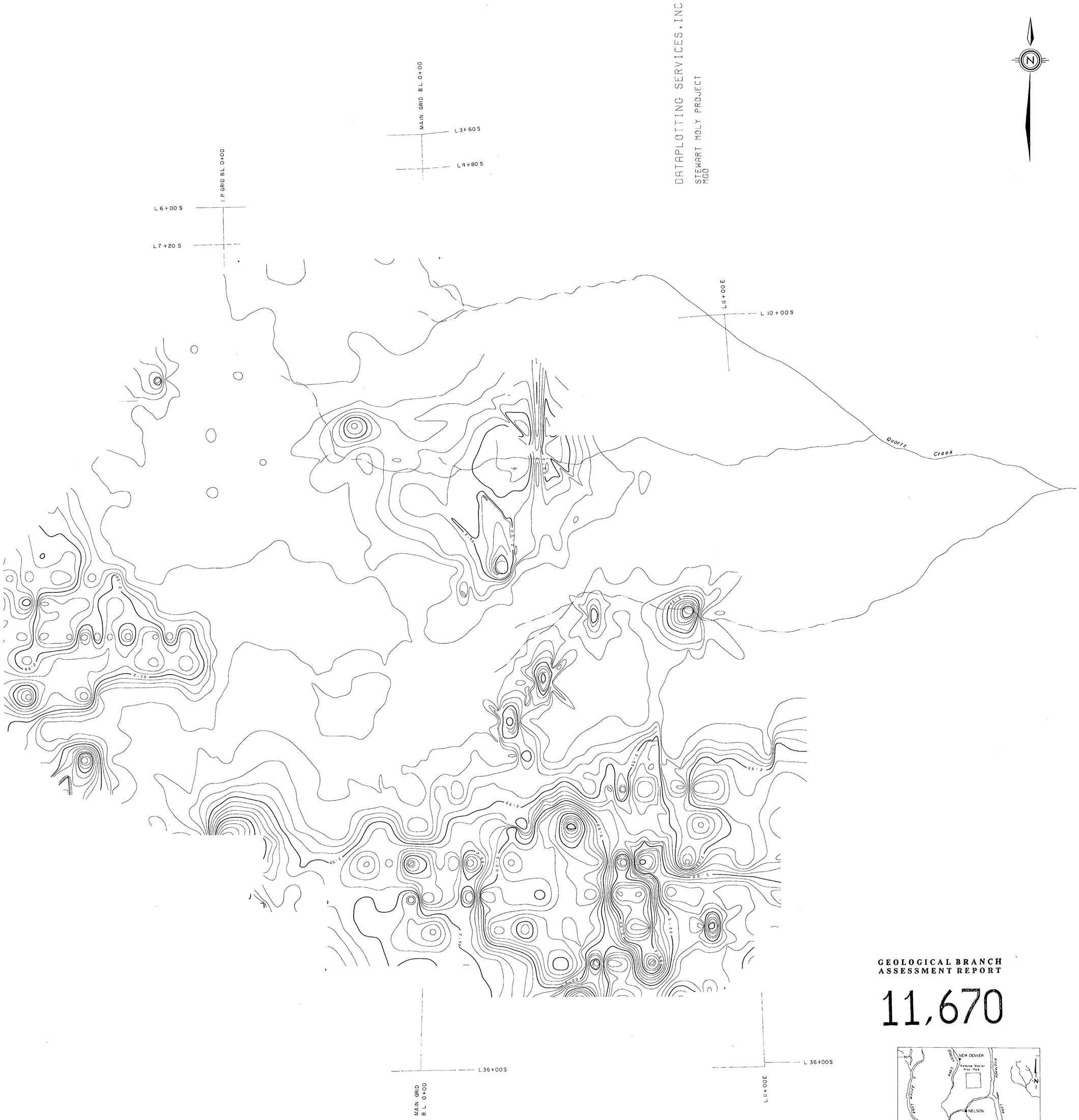

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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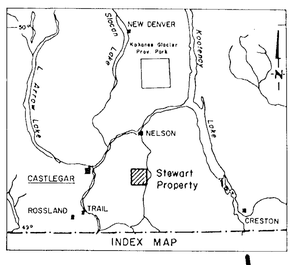


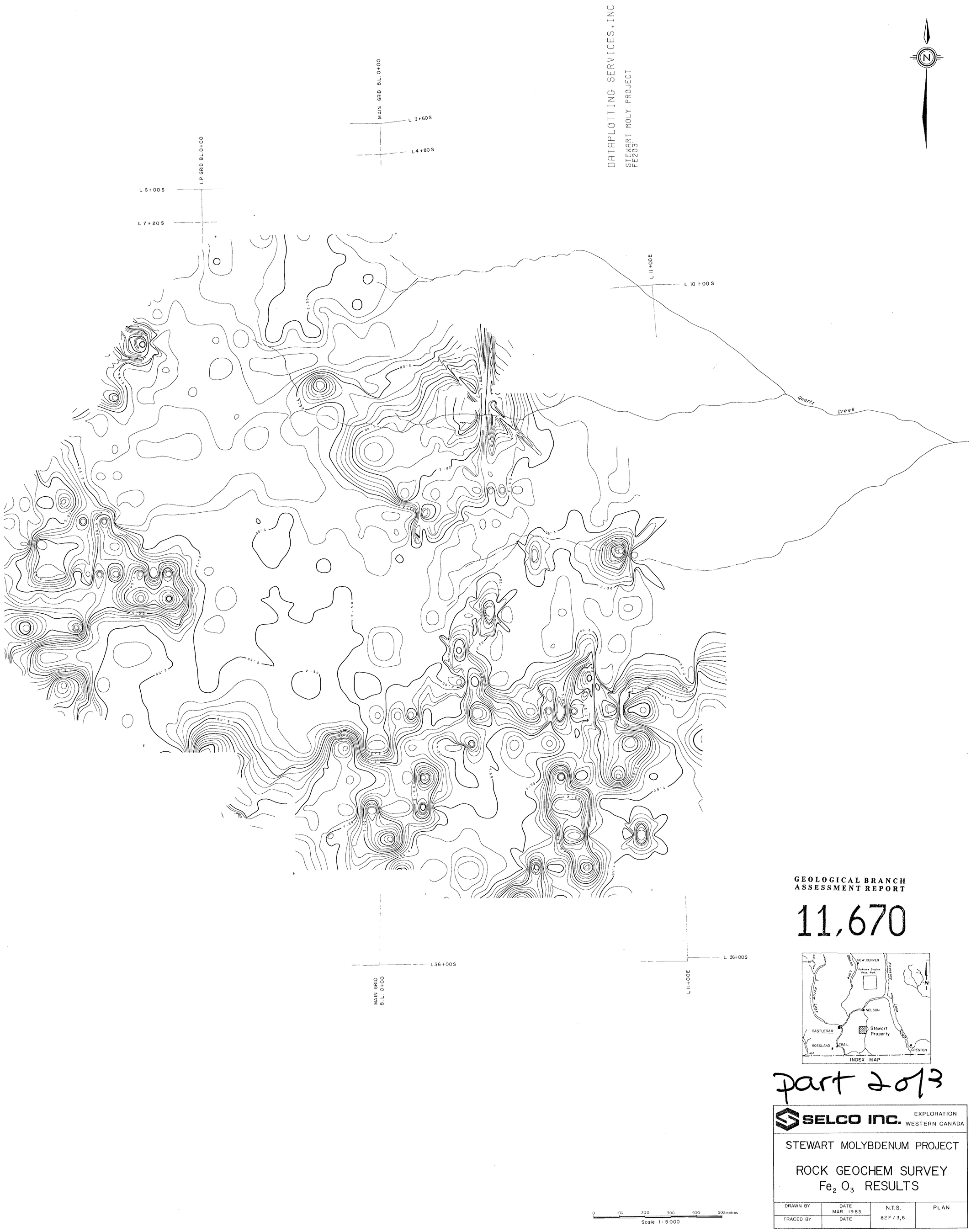
part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Mg O RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F / 3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Fe_2O_3 RESULTS

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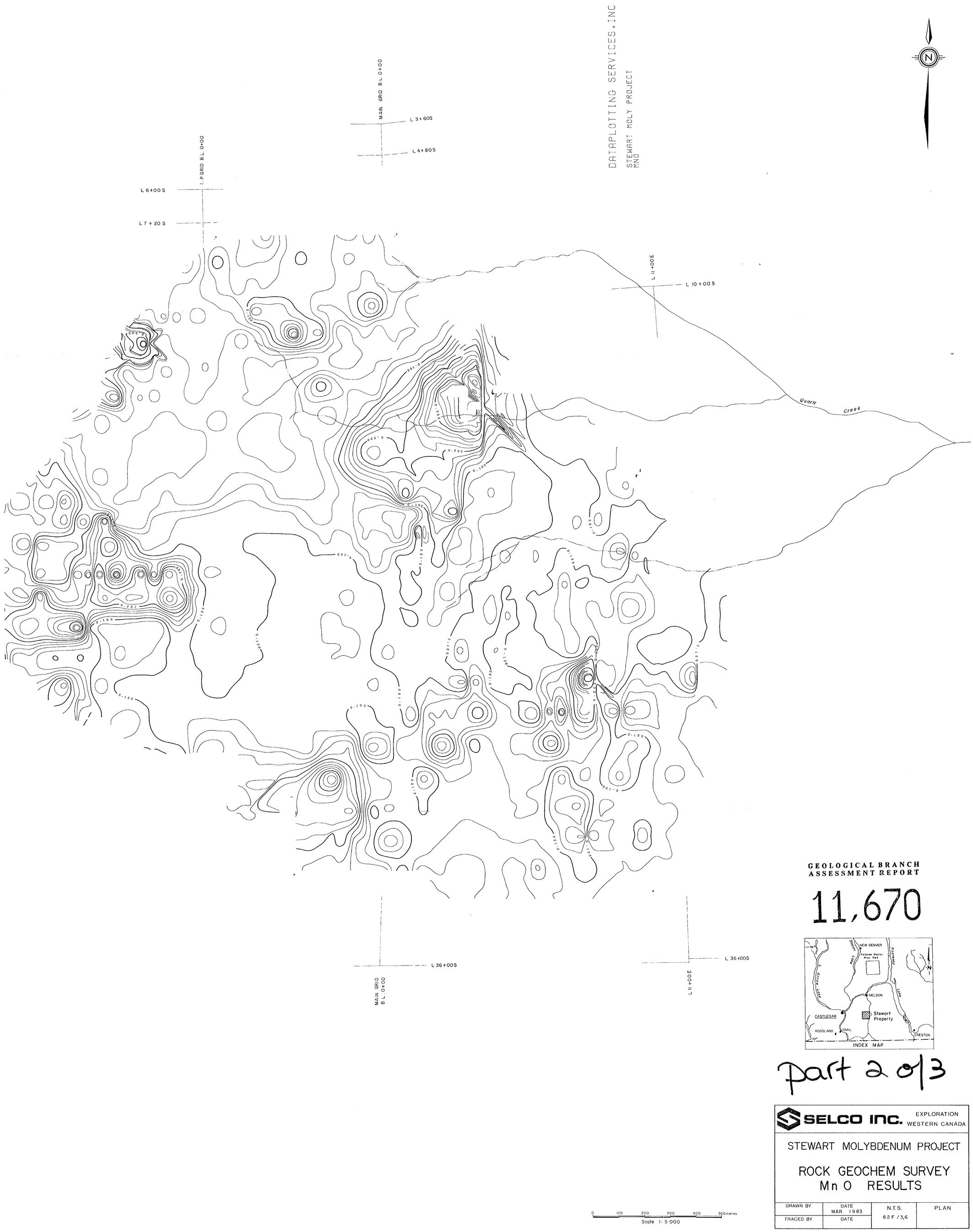
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Mn O RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		

DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
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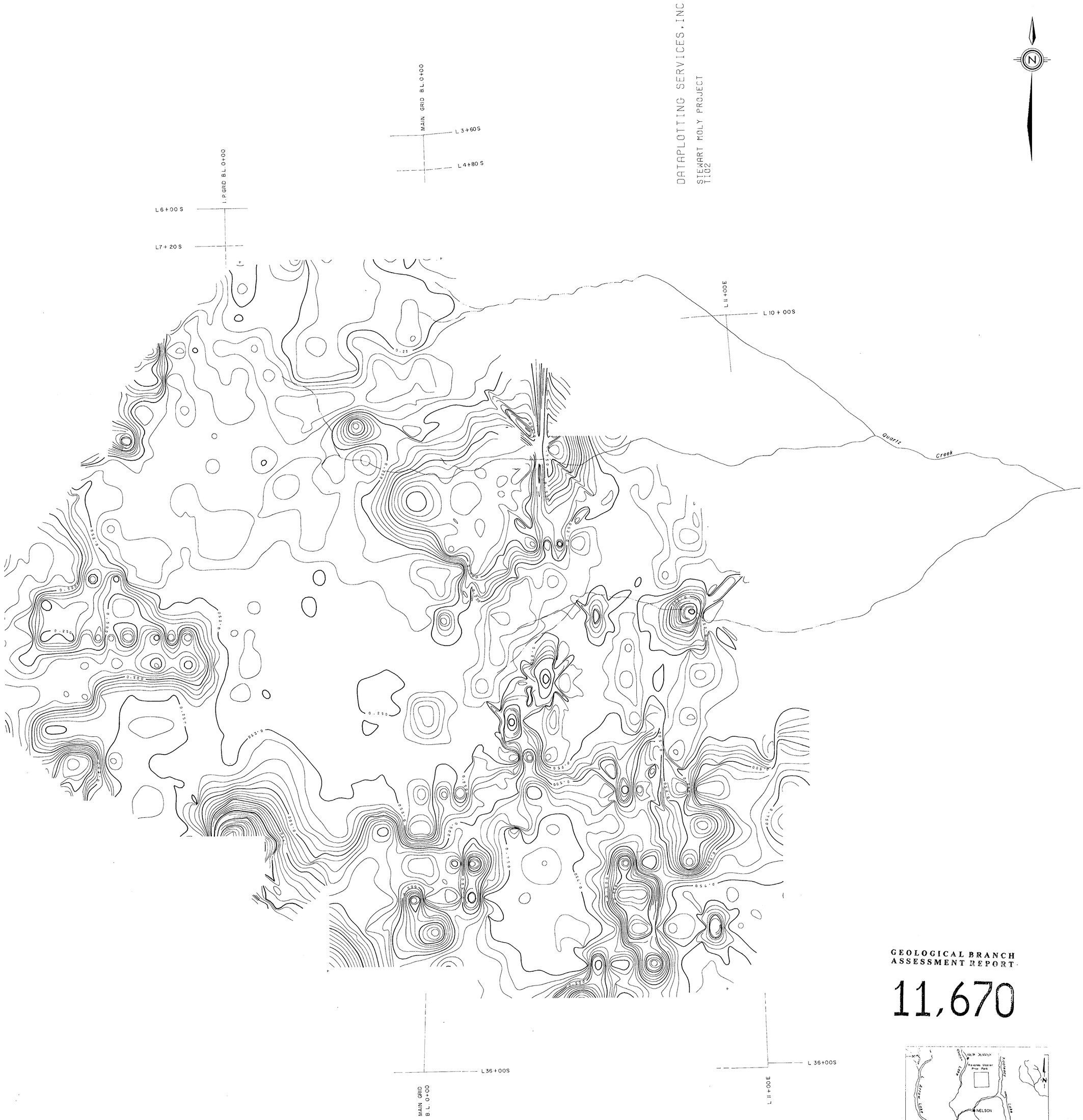

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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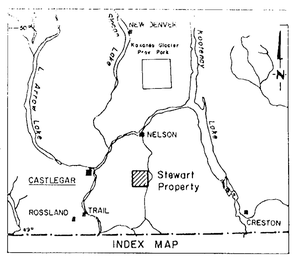

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
TiO_2 RESULTS

DRAWN BY	DATE MAR. 1983.	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

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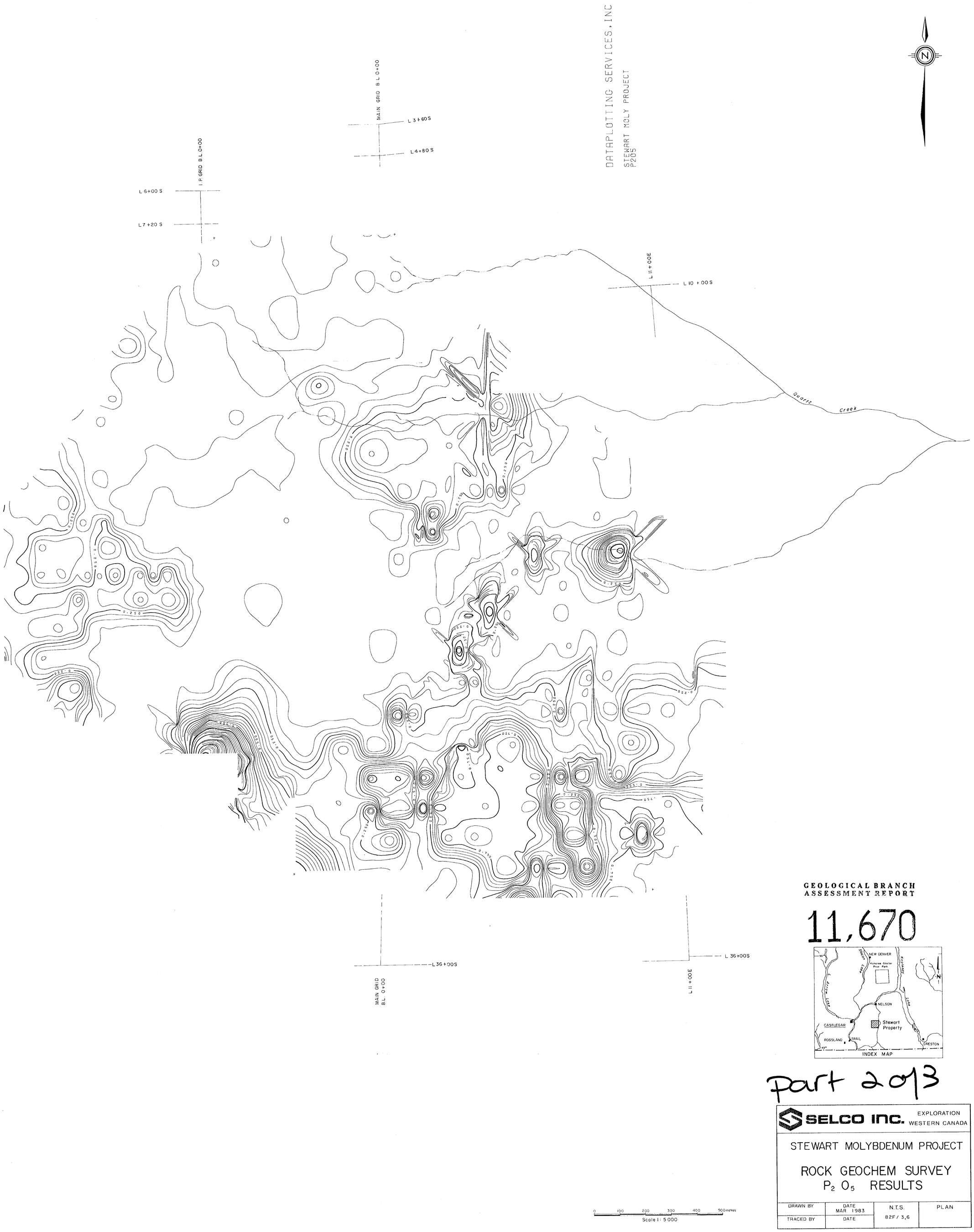
Scale 1:5000



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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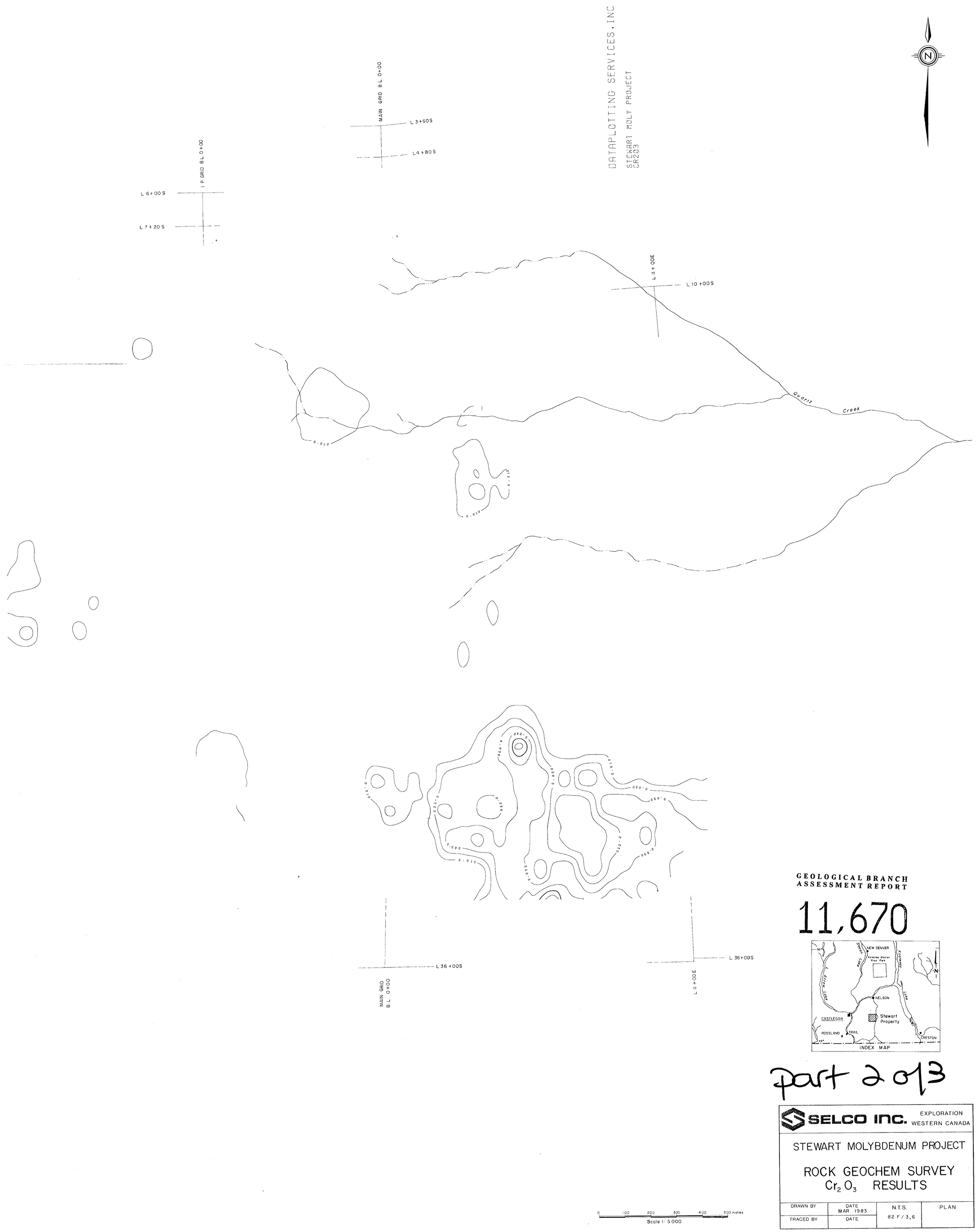
SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
P_2O_5 RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Cr_2O_3 RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S. 82 F/3,6	PLAN
TRACED BY	DATE		

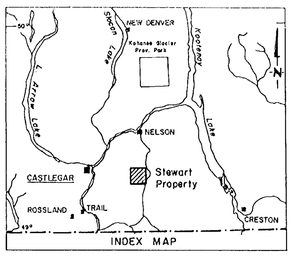
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
LOI

0 100 200 300 400 500 metres
Scale 1:5000

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

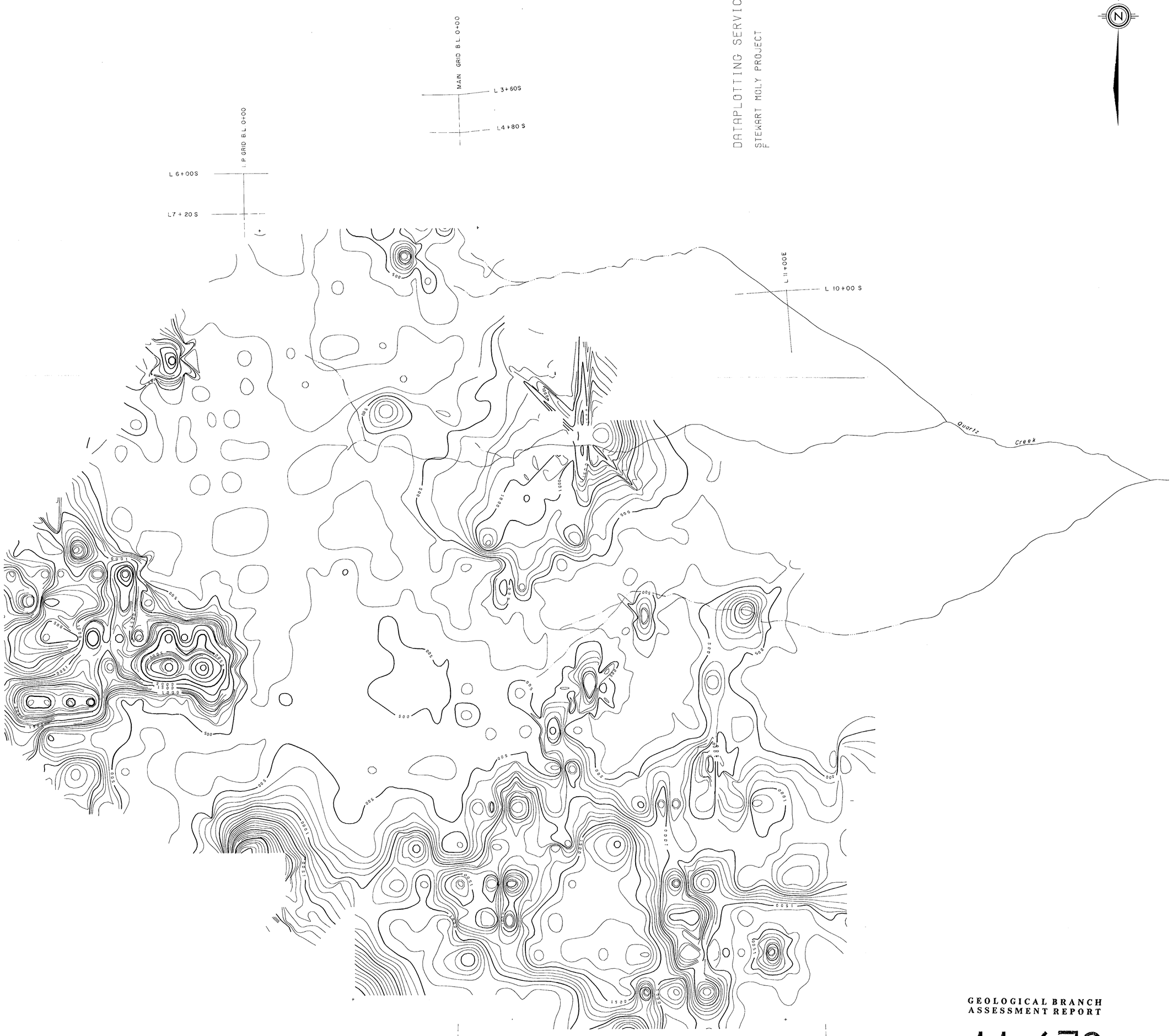
STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
LOI RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

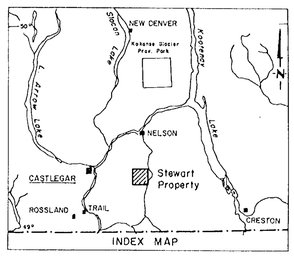
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
F



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



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STEWART MOLYBDENUM PROJECT

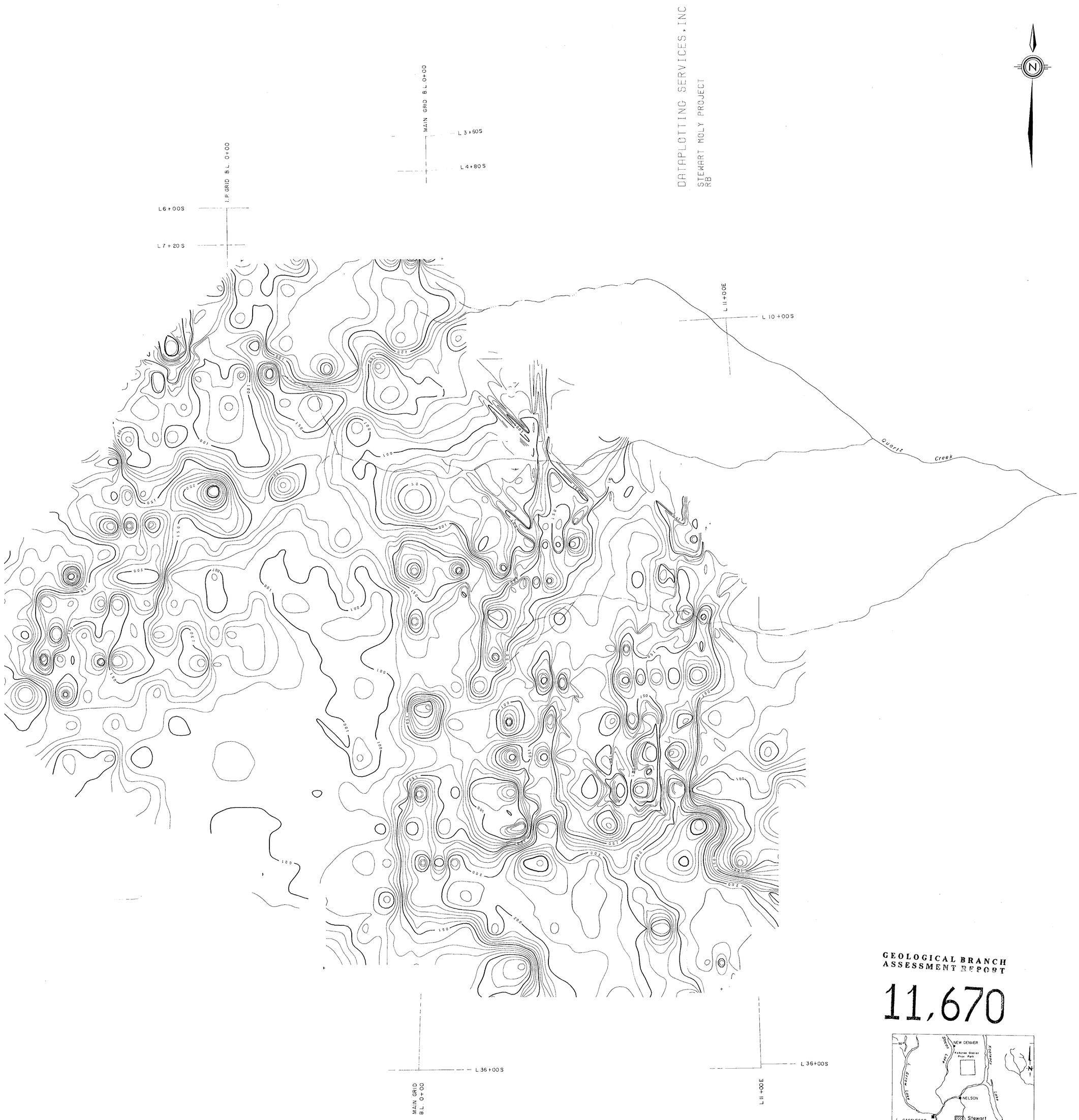
ROCK GEOCHEM SURVEY
F RESULTS

DRAWN BY	DATE MAR. 1983	N.T.S.	PLAN
TRACED BY	DATE	82 F/3,6	

0 100 200 300 400 500 metres
Scale 1: 5 000

DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
RB



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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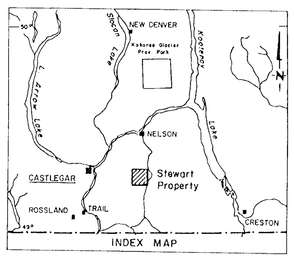

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SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

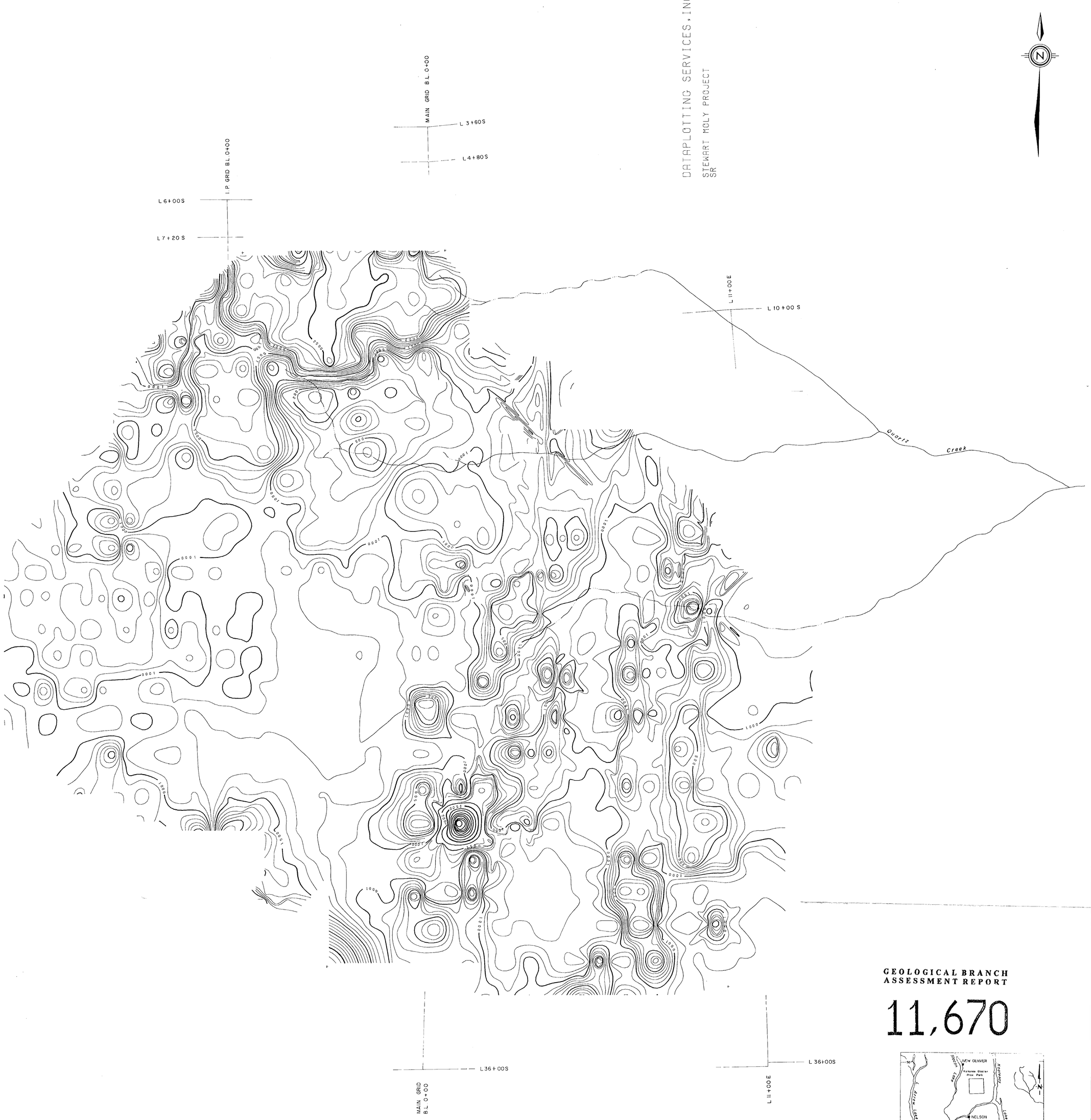
ROCK GEOCHEM SURVEY
Rb RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

0 100 200 300 400 500 metres
Scale 1:5000

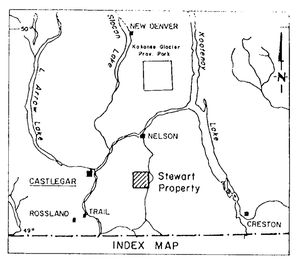
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
SR



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

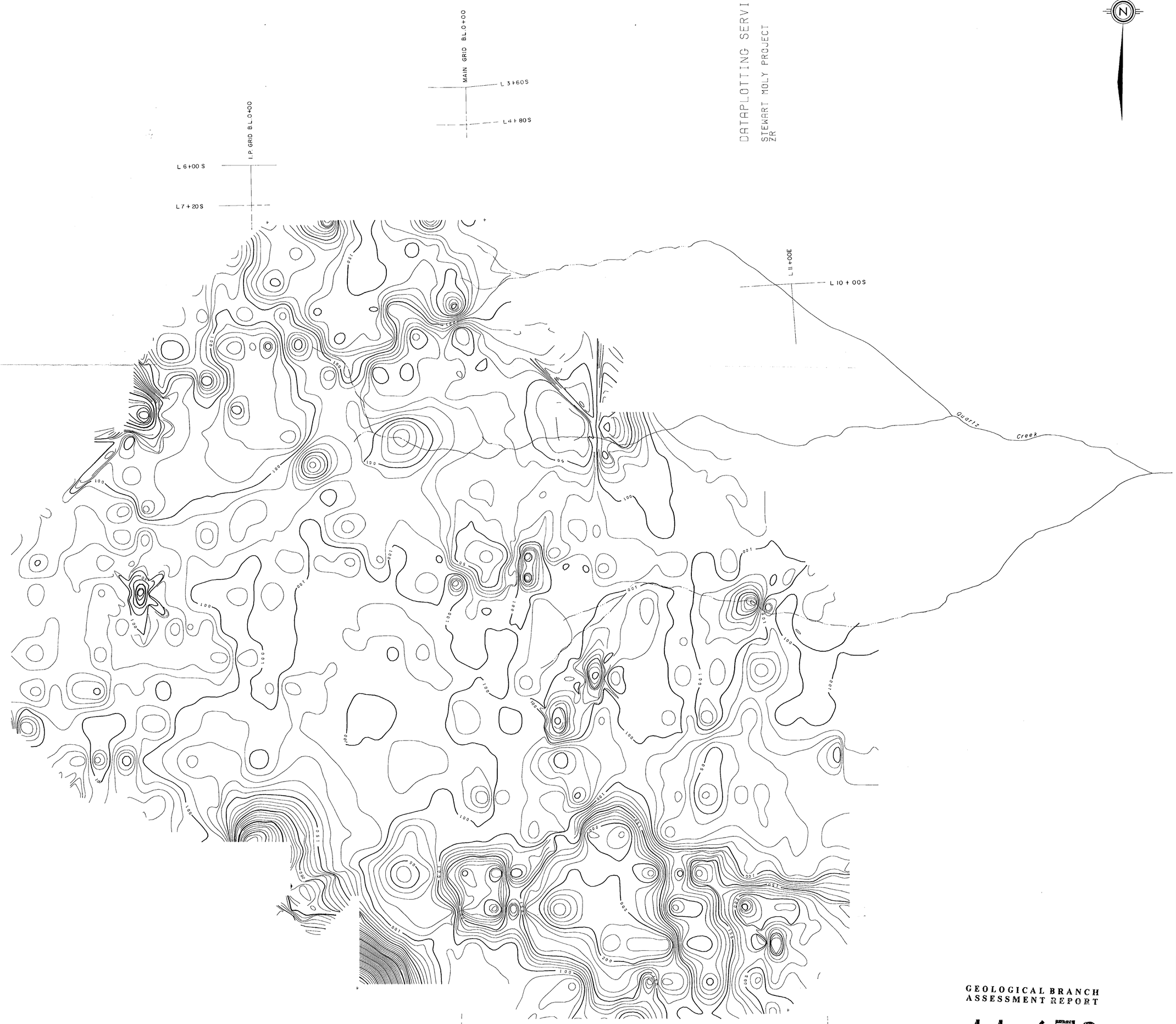
ROCK GEOCHEM SURVEY
Sr RESULTS

DRAWN BY	DATE MAR 1983	N.T.S.	PLAN
TRACED BY	DATE	82F/3,6	

0 100 200 300 400 500 metres
Scale 1:5000

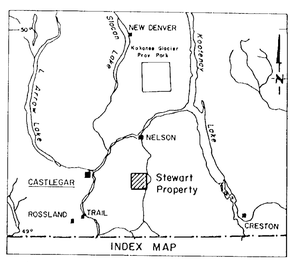
DATAPLOTTING SERVICES, INC

STEWART MOLY PROJECT
ZR



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,670



part 2 of 3

SELCO INC. EXPLORATION WESTERN CANADA

STEWART MOLYBDENUM PROJECT

ROCK GEOCHEM SURVEY
Zr RESULTS

DRAWN BY	DATE MAR. 1983.	N.T.S. 82F/3,6	PLAN
TRACED BY	DATE		

0 100 200 300 400 500 metres
Scale 1 5000