GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

TARA CLAIM GROUP

106 C 2, 6, 7.

MAYO MINING DIVISION

64° 15'
132° 55'

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 92,800.00

W D Sinclair
Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B.R. BAXTER
Supervising Mining Recorder
for Commissioner of Yukon Territory

June, 1975 - February, 1976

by

A. O. Birkeland P. Eng.

for

McIntyre Mines Ltd.

090169

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I - SUMMARY

The 250 claim Tara group was staked in the Bonnet Plume exploration camp 100 miles east of Mayo, Yukon Territory, during the 1975 field season. The discovery was the result of a reconnaissance stream silt and prospecting program. McIntyre Mines Limited owns 100% interest in the property.

Mississippi Valley type Pb-Zn mineralization has been observed on surface over a considerable strike length. Definition of high grade (Pb-Zn > 10%) sulfide surface showings is indeterminant due to difficult sampling conditions. Numerous significant geochemical soil anomalies are coincident with the mineralized structure. Diamond drilling for stratigraphic information has indicated pervasive zones of low grade mineralization exist at depth.

The favourable geological setting, extensive low grade and spotty high grade mineralization, and significantly anomalous soil geochemistry indicate the potential for developing a large tonnage of ore grade material. A follow-up diamond drill program is recommended.

II - INTRODUCTION

A. Location and Access

The TARA CLAIM GROUP is located on the east flank of Nadaleen Mountain in the east central Yukon(Figure 1). Two hundred and fifty claims have been staked in N.T.S. 106 C 2, 6, and 7 in the Mayo Mining Division(Figure 2, Table 1).

TABLE 1

CLAIM TENURE

CLAIM	GRANT #	DATE LOCATED	DATE RECORDED
TARA #1 to TARA #24	Y97784 to Y97807	June 26/75	July 18/75
TARA #25 to TARA #78	Y98347 to Y98400	July 21,22, 23,24/75	August 15/75
TARA #79 to TARA #174	YA1000 to YA1095	July 22,23/75	August 15/75
TARA #175 to TARA #250	YA1214 to YA1289	August 20, 27/1975	September 5/75

Access is by fixed wing float plane from Mayo approximately 100 miles to the west. A dock, plywood warehouse, and campsite have been established at Tara Lake.

B. History

Reconnaissance stream sampling originally defined weakly anomalous Zn in a major creek in the southern portion of the property. Follow-up prospecting and stream sampling resulted in the staking of the original 24 claims. The claim group was enlarged to 250 claims when additional mineralization and geochem soil anomalies were located.

A total of 250 man days was spent prospecting and conducting extensive geochem programs on the property during the 1975 field season. Late season drilling of 2436' BQWL core in three "BBS 1" holes and 243' of EXT core in five "Winkie" holes was completed.

III - DISCUSSION

A. Geology

1. Regional Geology

Regional geology of the area is available in G.S.C. Open File 205 on a scale of 1:250,000. Proterozoic to Paleozoic clastics and carbonates form the Mackenzie Mountains in the vicinity of the claim group. The orogenic trend of the thrust and fold belt is north westerly.

The property is located in an upper Hadrynian sedimentary cycle on the northern margin of the Selwyn Basin in the shallow water carbonate facies front. Thick basin clastic sequences in the southeast grade into thick carbonate successions to the northwest. The clastic rocks are predominantly marine grits which tend to become more fine grained up section. Source rocks for these grits are interpretated to be the Wernecke platform, part of the Redstone arch complex to the north and east. The thick carbonate sequences are generally massive micrites often with silty, thinly bedded sections toward the base. Dolomitization and sparry recrystallization are common, particularly in the silty sections. The sedimentary cycle is capped by shales and mudstones containing a regional unconformity. Repeated stacking of cycles typical of the area described occurs from Hadrynian through to Devonian along the carbonate facies front approximately coincident with the Hess thrust system which segregates Proterozoic clastics to the south and predominantly Paleozoic carbonates to the north.

Regional structure is reflected by the two following major structural styles:

McIntyre - Tara
090169

1. Hadrynian (Rapitan) block faulting and isoclinal folding are related to the Racklan orogeny. Block faulting is often normal to the present orogenic trend and may be recognizable over many miles of strike length.

2. Larimide thrusting and folding is the dominant structural overprint. The southwest dipping thrust occurs as a repeated succession of plates onlapping the Redstone arch to the northeast.

2. Local Geology

Hadrynian to Devonian clastics and carbonates outcrop on the Tara claim group (Figure 3, 4). The property is underlain by predominantly clastic rocks of the Hadrynian "Grit Unit" (See Legend, Figures 4, 5). Carbonate deposition increases up section and reaches a maximum during deposition of the Hd unit (particularly in northeast part of the property). The Hd unit is the host for most mineralization on the property. The Hd rocks grade apparently conformably and gradually into green and red shales of the "Sheepbed" formation. A major unconformity occurs at, or near the top of, the shale-mudstone beds. The property is capped by Ordovician to Devonian massive carbonates and minor interbedded shales.

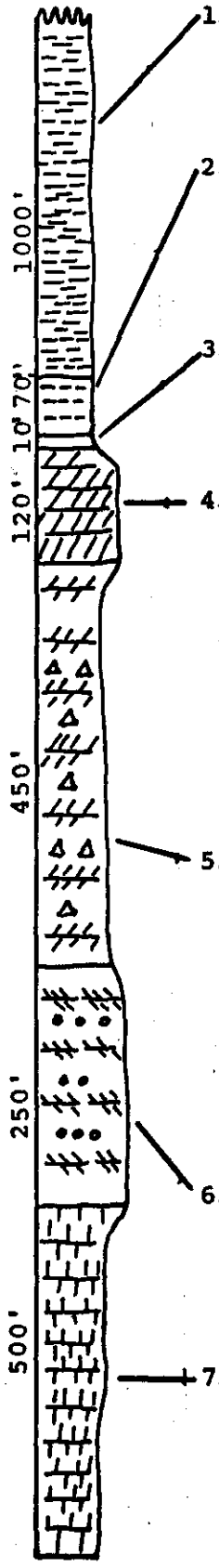
The local structural setting consists of a shallow dripping southwest plunging syncline. Dips

on the limbs of the syncline are flat near the axis, but increase to 30-50° as the edges of the "basin-like" structure are approached. Isoclinal folding of the "Grit Unit" and overlying carbonates is conspicuously absent. Steeply dipping block faults which tend to form horst-graben type structures along the upper Hd contact is the most frequent and significant structural deformation style. These faults are terminated by the unconformity near the top of the HCs unit and are believed to be Rapitan in age. Regional steeply dipping (thrust) faults terminated the property to the north and south.

Brief rock descriptions are reported in Tables 2 and 3. Porosity on a property wide scale is best developed in the Hd unit. Intergranular porosity is excellent in white sandy dolomite beds in the top of the unit. Porosity due to vug development, solution brecciation, and recrystallization, is strong on local scales and strata bound in nature. Good planar porosity is associated with the Laramide block faulting.

The low rolling topography of the foothills of Nadaleen Mountain is largely overlain by a thin veneer of predomindantly residual soil. Glacial deposits occur only at the lowest elevations along major valleys.

GENERALIZED ROCK DESCRIPTIONS - TARA #1 GRID



1. HCs Red, silty well indurated mudstone, occasional microlense of well rounded quartz silt, minor interbedded green mudstone; some sections slightly calcareous.

2. Dark green-dark grey mudstone, well indurated, slightly silty, indistinct bedding usually defined by alternating waxy green mudstone, 0.2"-0.5" beds and lenses of well rounded quartz silt(minor fine sand) are common.

3. Transition zone: alternating green mudstone with white sandy dolomitic beds, thin lamination in mudstone is carried on in dolomite below.

4. Hd_2 White weathering, light grey to creamy white, medium to finely crystalline laminated dolomite. Banding(bedding) becomes less distinct and disappears entirely lower in the section. Small vugs give a high porosity minor short sections of mudstone in upper=part. Gradually section becomes darker(over 50') brecciation and zebra textures start to develop. Late stage white sparry dolomite in a radially fashion(botryoidal) is common near the bottom, minor galena and sphalerite are associated with this late stage dolomitization.

5. Hd_1 Dark grey weathering, black to dark grey finely crystalline "shaly" dolomite. Zebra breccia is the dominate texture. Many other well developed breccia (solution) zones are present. Short uniform sections are common. Large zones of void filling(botryoidal) late stage dolomite are found associated with the Zebra breccia. Abundant pyrite and minor sphalerite and galena are associated with botryoidal dolomite as well as stylotlitic fracture and vug fillings.

6. Short sections of "OODOLOMITE", a dark grey; usually silicified, finely crystalline dolomite mottled with relict structures of pisolites or oolites, intercalated with zebra breccia.

7. Hls_2 Lower unit of grey weathering black to dark grey silty micrite, cross bedding is common, many minor folds are well exposed. Dolomitic intramicrite with large well rounded clasts occurs in thick beds lower in the section. Top of unit is marked by a 100' thickness of recessive black silty mudstone (Hs_2).

TABLE 2

GENERALIZED ROCK DESCRIPTIONS - PUDDLE ZONE

1. Black to dark grey micrite, slight mottled appearance, minor soft sediment deformation: slump brecciation.

2. Dark grey dolomite, gradational contact with micrite above, recrystallized(med x line), abundant chert as irregular patches and lenses. Minor light brown sphalerite commonly enclosing galena grains. Large calcite content throughout.

3. Section of alternating micrite, intramicrite, and dolomite, some recrystallization usually is apparent. Most sphalerite is found in this section associated with cherty zones.

4. Dolomitized intramicrite, very cherty, well preserved detrial quartz grains common, complicated mixture of microcrystalline calcite, dolomite and chert. Some oomicrite sections.

TABLE 3

Since major portions of the property appear to have escaped glaciation, the surface rock outcrops are limited and severely weathered. Average % outcrop in the potentially significant zone is less than 10%.

B. Mineralization

Stratabound mineralization has been traced for a 40,000-foot strike length. Generally two major minerlized zones appear to be present. A Pb-Zn zone is associated with the upper contact of the Hd unit(Hd_2) and a Zn-Pb zone toward the bottom(Hd_1). A 6000' mineralized zone was also located in the Hls_1 unit.

Surface sampling of individual showings was not possible due to poor exposure and severe weathering of the host rock. Grab samples of surface rubble have indicated +10% combined Pb-Zn sulfide material is present. Much surface mineralization may have been leached by weathering as is indicated by drill intersections of 60-89% zinc carbonate.

A summary of the major showing areas is reported in Table 4.

TABLE 4

SUMMARY OF MINERALIZATION - TARA CLAIMS

LOCATION OF SHOWINGS	ESTIMATED SURFACE EXPOSURE & GRADE	TYPE OF MINERALIZATION	MAP REFERENCE
Discovery Zone	Several showings 400' x 200' + local grades - 5-10% average grades - 1-5%	Type 1. Coarse crystalline galena and barite in fractures and open caverns (pods 2-5') along upper contact of Hd_2 unit. Type 2. Pale green, yellow, and colorless sphalerite and minor galena in fractures, vugs, and in matrix of "zebra" breccia zones in Hdl unit. Minor smithsonite occurrences on surface.	Figure 6. 200' geology

TABLE 4 (Continued)

SUMMARY OF MINERALIZATION - TARA CLAIMS

LOCATION OF SHOWINGS	ESTIMATED SURFACE EXPOSURE & GRADE	TYPE OF MINERALIZATION	MAP REFERENCE
Chopper Pad Zone	Predominately 10%+ mineralized float; 200-500' strike lengths, 5-20' true width of 1% in outcrop.	Type 1. Coarse crystalline galena as in Type 1 above. Type 2. Pale sphalerite and minor galena in matrix of zebra breccia, 3' "sphalerite sand" bed in outcrop.	Figures 4, 5. 1000' geology + X-Section
White Ridge Zone	Several small showings in 500'+ strike length, 20-50' true width, local grade grades 1-5%. Float train in covered section 1000' strike length, 5-10% combined Pb-Zn estimated.	Type 1. Sphalerite, fine crystalline galena in matrix of well developed solution collapse zebra breccia zone; some coloform sphalerite associated with coloform sparry dolomite along upper contact of Hd_2 unit. Type 2. Coarse galena and sphalerite in vugs and as matrix of zebra collapse breccia zones near upper contact of Hdl unit; mineralized talus and float, outcrop poor.	Figure 4.

TABLE 4 (Continued)

SUMMARY OF MINERALIZATION - TARA CLAIMS

LOCATION OF SHOWINGS	ESTIMATED SURFACE EXPOSURE & GRADE	TYPE OF MINERALIZATION	MAP REFERENCES
Puddle Zone	Pervasive low grade 5% for 6000' strike length, local 200-500' x 5-20% true thickness of 1-5%.	Coarse crystalline galena and sphalerite in fractures and recrystallized vugs in intramicrite in Hls_1 unit. Galena associated with cherty sections of intra-micrite, sphalerite with ankeritic breccia zone. Smithsonite occurrences frequent, differentiation of weathered smithsonite and ankerite make grade estimations difficult.	Figures 38-41. 200' Geology + X-Sections

Some additional features of the mineralization which indicate geological potential of the property are listed as follows:

1. Continuous large gossan zones exist on surface and intersections of brecciated rock with a heavy pyrite matrix was observed in drill core(Table 5). The heavy pyrite sections appear to be concentrated within 50' of the Hd_1-Hd_2 contact. Bitumen is also associated

with well developed solution breccia zones in the Zebra rock. Three types of pyrite mineralization may be classified as follows:

(a) Massive pyrite occurs in shale and mudstone sections with no associated Pb-Zn mineralization.

(b) Pyrite rich sections are present in sparry white dolomite and contain some associated zinc mineralization.

(c) Solution collapse breccia zones with sutured intraclasts and a heavy pyrite matrix resemble in character intersections from the Harrison Creek property. The Harrison-Cypress unconformity appears to be the same system controlling the mineralization on the Tara claims. Solution collapse breccia zones contain red mudstone (HCs) fragments which have been displaced 10-200' down into the Hd dolomite. Coloform and recrystallized (probably early diagenitic) sphalerite is often present. Localization of mineralization is often controlled by tectonic ground preparation and remobilization of sulfides into these low pressure zones.

2. Mineralization on the Tara group is considered to be Mississippi Valley type mineralization. The classification is supported by the following criteria:

(a) The Bonnet Plume exploration camp contains a high frequence of significant showings and small deposits. A potentially economic metalogenic province may be indicated.

(b) The Tara claim group is classically hosted by the first carbonate sequence overlying a thick grit succession, and capped by shales and an associated unconformity. Mineralization is stratabound and considered to be early diagenetic as indicated by textural intergrowths with primary sparry material.

(c) No evidence of igneous activity is present.

(d) Mineral grade appears controlled by porosity of the country rock. Pervasive low grade mineralization is associated with recrystallization, dissolution, and collapse. Higher grade sections are encountered where added planar porosity is developed by faulting and fracturing.

(e) Mineralization is indicated to be low temporature. No hydrothermal or other alteration products were noted. Results of fluid inclusion work are pending.

(f) The presence of relect gypsum in the mudsontes and bitumen in the dolomite indicates that sulfur was available as a fixing agent to precipitate sulfides from metal-rich chloride brines.

(g) Preliminary results of whole rock geochem analysis (Table 6) indicates associations of Pb-Zn with the major elements Na and Si and the trace element Cd. This is consistent with M.V. associations.

(h) Erratic nature of the deposits, sharp cut-offs of high grade material, and gravity settling of sulfides ("snow on roof" texture) are also diagnositc M.V. characteristics.

C. Geochemistry

1. Stream Silts

Active stream sediments were sampled where possible, dried and sieved to -80mesh, and sent to Vancouver for AA analysis. A statistical analysis of the results arbitrarily defined the following:

(a) Threshold values for Zn = 125 ppm, Pb= 80 ppm.

(b) Anomalous values were defined as +350 ppm Zn, +200 ppm Pb.

Followup of three consecutive anomalous (350 - 450 ppm Zn) samples lead to the location of the Discovery Zone. After staking of the original 24 claims, all creeks suitable for sampling were done for blanket coverage of the area.

Additional anomalies were indicated. Down slopes drainage of the Discovery Zone showed two additional anomalous creeks. Anomalies in the vicinity of Tara Lakes are attributed to an extension of the Chopper Pad Zone. Headwater anomalies in a drainage in the northern portion of the property indicate mineralization is present in Hd unit although no major showings have been found in this area. Low grade mineralization may be indicated. A creek draining the Puddle Zone from the west was indicated to be anomalous further down the drainage.

Sources for all stream sediment anomalies are within the claim group and have been accounted for by soil geochem and prospecting.

2. Residual Soils.

Extensive soil sampling was conducted to:

1. extend mineralized zones into covered areas
2. find new mineralized zones
3. provide DDH targets in areas of poor or no rock exposure.

(a) Standard Tx residual soil sampling.

The B horizon was sampled on a reconnaissance grid spacing of 200' between samples, 400 feet between lines. Later fill-in was done on 100' sample spacing, 200' line spacing in selected anomalous areas)Fig. 8-26). Samples were dried and sifted in camp and sent to Vancouver for AA analysis.

Soil cover was generally thin (colluvium < 20'). Soils were very responsive and good anomalies were indicated as follows:

ZINC

Threshold 1000 ppm

1st order anomaly +2000 ppm

2nd order anomaly +4000 ppm

LEAD

Threshold 100 ppm

1st order anomaly +300 ppm

2nd order anomaly +500 ppm

Interpretation of results was to define what anomalies were due to proximal mechanical transport of material from a mineralized source and what anomalies were distal hydromorphic accumulations.

Since Zn is more mobile in this environment than Pb, if coincident Zn and Pb anomalies were not present, Zn may be hydromorphic. Geomorphology should be considered for transport direction and to indicate hydromorphic "ponding" effect along topographic breaks in slope or low poorly drained areas. The use of % Extractable Ratios was also considered in chosen areas. Generally, when the % Extractable Ratios (See Figures 27-30) were $Cx/Tx < 60\%$, a hydromorphic anomaly was possible. If the $Cx/Tx \ll 60\%$ a mechanical anomaly was probable. Interference from smithsonite and hydrozincite in well mineralized areas may have $Cx/Tx \gg 60\%$ although the anomaly is near source and mechanical.

Sampling of various depths in the soil profile (usually terminated in C zone suboutcrop) also was used as a guide(Figures 32-35). If metal concentration is high in the surface (B) layers and decreases with depth, hydromorphic conditions are indicated. If values increase with depth, near source mechanical transport is probable. Mineralized C horizon material was encountered in many holes.

Zn/Cd ratios were examined in a small study area. Cd in soils increases at a greater rate than Zn as the source of an anomaly is approached. In this way a decrease in the Zn/Cd ratio indicated a near source mechanical anomaly.

Results indicated many strong mechanical type anomalies. In Tara 1 Grid North and Tara 2 Grid South many drill targets are indicated. Selection and priority ranking of targets requires a detailed analysis of all geochemical date couples with geological interpretation. A preliminary proposal of 10,000' of BBSl drilling in 17 holes with Winkie drilling to sample surface showings is required to adequately test targets indicated to date.

Whole rock multi-element analysis of rock chip sampling was carried out on two selected areas. See Figures 36, 37, Table 6). Purpose of the study was twofold. The establishment of a trace element "fingerprint" and dispersion halo was attempted.

Establishment of major and minor element "fingerprints" of the productive lithology by a 20 element analysis proved inconclusive due to lack of data.

Mississippi Valley type deposits appear in general to have a geochemical rock halo. As the channel-way of mineralization is followed toward the deposit, sampling of vein and fracture mineralization, vug and cavity fillings and ore and host may result in establishing a vector toward the chemical precipitation system of the deposit. Very few samples were collected and results were inconclusive. Results of computor-aided interpretation are pending.

Characteristic elements associated with M.V. deposits are:

Major elements - Fe Na Mg Mn Si Ti

Trace elements - Co Ni Pb V As Si Ti Cd Sr

Preliminary results indicate an association was found between minerals on the Tara claims and Na, Si, and Cd. Thus another criteria for establishing the Tara as M.V. type was established.

During the detailed soil survey of the Tara Claim group 1515 soil samples were collected over 51 line miles of geochemical grid lines which were surveyed in by compass and chain, and flagged at 100 ft. stations.

WHOLE ROCK GEOCHEM
MULTI ELEMENT RESULTS
.5 N HCl - LEACHABLE EXTRACTION

PLEASE NOTE: As, Au, Mo, Se, Te, U, W, B, Sn, Rb, Eu -- NOT DETECTED

MCINTYRE MINES - ARNE BIRKLAND RFWO NO: 162

MATRIX: GEO-HNO3 ANALYSIS DATE: 71175 TAPE NO: 35 FILE NO: 2

CLIENT SAMPLE NO	NI PPM	CU PPM	ZN PPM	CR PPM	CO PPM	V PPM	CD PPM
AB-53	556	6	27300	431	134	36	23
111	219	97	3090	182	33	2540	5
19099	38	3	576	59	33	9	2
19100	37	N.D.	412	60	37	11	2
19251	50	N.D.	403	55	36	8	2
52	41	3	938	56	34	9	2
53	41	3	485	57	37	11	2
54	43	N.D.	589	59	37	11	2
55	37	N.D.	394	58	37	8	2
56	34	N.D.	426	57	32	7	2
57	37	3	12000	58	31	9	5
58	35	3	662	63	36	12	2
59	39	N.D.	653	60	36	2	2
60	37	4	818	61	38	12	2
61	41	3	331	61	38	12	2
62	37	3	458	57	37	9	2
63	41	5	731	63	38	12	2
64	37	3	859	63	33	15	2
65	42	4	1470	62	42	12	2

TABLE 5

MCINTYRE MINES - ARNE BIRKLAND RFWO NO: 162

MATRIX: GEO-HNO3 ANALYSIS DATE: 71175 TAPE NO: 35 FILE NO: 2

CLIENT SAMPLE NO	AG PPM	BE PPM	SR PPM	MN PPM	TI PPM	P PPM	PB PPM
AB-53	9.0	1.6	11.5	200	N.D.	410	N.D.
111	6.2	3.8	210	149	1440	1970	20
19099	4.9	N.D.	46.3	682	N.D.	890	30
19100	4.7	N.D.	47.5	743	N.D.	700	15
19251	4.9	N.D.	59.4	600	N.D.	590	30
52	4.4	N.D.	66.3	388	N.D.	1330	9500
53	4.7	N.D.	59.7	380	N.D.	1480	45
54	4.9	N.D.	47.5	567	N.D.	620	35
55	4.7	N.D.	53.1	540	N.D.	570	20
56	4.0	N.D.	60.0	289	N.D.	1330	30
57	5.5	1.4	44.7	491	N.D.	830	20300
58	4.9	0.8	50.0	567	N.D.	1120	75
59	4.4	1.4	47.5	559	N.D.	970	600
60	5.1	N.D.	40.0	418	N.D.	2780	240
61	4.9	N.D.	53.8	232	N.D.	1430	15
62	4.9	N.D.	56.3	571	N.D.	670	40
63	5.3	N.D.	60.0	778	N.D.	860	55
64	5.3	0.8	64.4	466	N.D.	590	40
65	5.3	N.D.	68.2	801	N.D.	760	255

TABLE 5

MCINTYRE MINES - ARNE BIRKLAND RFWO NO: 162

MATRIX: GEO-HNO3 ANALYSIS DATE: 71175 TAPE NO: 35 FILE NO: 2

CLIENT SAMPLE NO	AL %	FE %	SI PPM	CA %	MG %	NA %
AB-53	.886	60.0	2890	.173	.060	.629
111	2.65	1.49	70	11.4	2.21	.171
19099	.210	.563	130	24.4	16.2	.110
19100	.168	.456	100	25.1	16.9	.099
19251	.149	.386	100	26.3	17.9	.090
52	.195	.287	100	26.0	17.4	.126
53	.229	.254	340	27.5	18.1	.119
54	.244	.591	140	26.5	17.8	.120
55	.182	.256	680	27.0	17.9	.119
56	.128	.169	100	26.3	17.3	.117
57	.128	.330	1150	26.0	16.4	.412
58	.317	.258	190	24.2	15.4	.120
59	.128	.352	170	26.3	17.7	.144
60	.132	.206	410	26.3	17.2	.140
61	.267	.196	160	28.0	19.0	.126
62	.187	.256	1330	27.5	17.9	.141
63	.288	.392	210	27.4	18.6	.144
64	.315	.460	140	27.0	18.2	.156
65	.336	.637	160	27.0	18.0	.144

TABLE 5

IV - CONCLUSIONS & RECOMMENDATIONS

A Mississippi Valley type environment has been established.

Potential for large tonnage ore grade material is indicated by the following:

1. Indications of good grade material and continuous large gossan zones are present on surface for a considerable strike length. Down dip potential for hidden deposits is also supported.

2. Geochemical techniques indicate many viable anomalies consistant with geological interpretation over a considerably large area.

Respectfully submitted,

A. O. Birkeland, P.Eng.

V STATEMENT OF QUALIFICATIONS

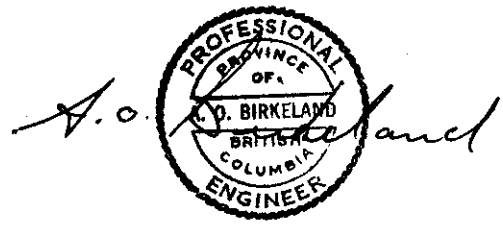
I, A. O. Birkeland of the city of North Vancouver, in the Province of British Columbia, do hereby certify the following:

1. I am a graduate of the British Columbia Institute of Technology (Mining Diploma, 1968) and a graduate of the Colorado School of Mines (B.Sc, Geological Engineering, 1972).

2. I have been engaged in mining exploration on a part time basis since 1964 and on a full time basis since 1972.

3. I am a registered Professional Engineer with the Association of Professional Engineers of British Columbia.

4. I have first hand knowledge of all the data contained in this report, and, that all work was directed under my management.



A. O. Birkeland, P.Eng.

APPENDIX I

Analytical Procedures

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Vancouver, B. C.,
V6C 1T2

FROM: Mr. Conway Chun,
Vangeochem Lab Ltd.,
1521 Pemberton Avenue,
North Vancouver, B. C. V7P 2S3

SUBJECT: Analytical procedure used to determine hot acid soluble Cu, Pb, Zn, Ag in geochemical silt and soil samples.

1. Sample Preparation

(a) Geochemical soil or silt samples were received in the laboratory in wet-strength 3½ x 6½ Kraft paper bags.

(b) The wet samples were dried in a ventilated oven.

(c) The dried soil and silt samples were sifted by using a shaking machine with 80-mesh stainless steel sieves. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

2. Methods of Digestion

(a) 0.50 gram of the minus 80-mesh samples was used. Samples were weighed out by using a top-loading balance.

(b) Samples were heated in a sand bath with nitric and perchloric acids (15% to 85% by volume of the concentrated acids respectively).

(c) The digested samples were diluted with demineralized water to a fixed volume and shaken.

.....2

3. Method of Analysis

Cu, Pb, Zn, Ag analyses were determined by using a Techtron Atomic Absorption Spectrophotometer Model AA4 or Model AA5 with their respective hollow cathode lamps. The digested samples were aspirated directly into an air and acetylene flame. The results, in parts per million, were calculated by comparing a set of standards to calibrate the atomic absorption unit.

4. The analyses were supervised or determined by Mr. Conway Chun and the laboratory staff.

Conway Chun
VANGEOCHEM LAB LTD.

CC:mb

APPENDIX II

Names and Addresses of Employees

PERSONS EMPLOYED ON THE PROPERTY

A. O. Birkeland	# 1003, 409 Granville St., Vancouver.
A. Floyd	# 1003, 409 Granville St., Vancouver.
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C. Perrin	1777 Mathers Avenue, West Vancouver.
B. Whittingham	P.O. Box 36, Mayo, Yukon.
F. La Brie	General Delivery, Mayo, Yukon.
E. Fitzpatrick	P.O. Box 152, Mayo, Yukon.
W. Heyworth	General Delivery, Merritt, B.C.

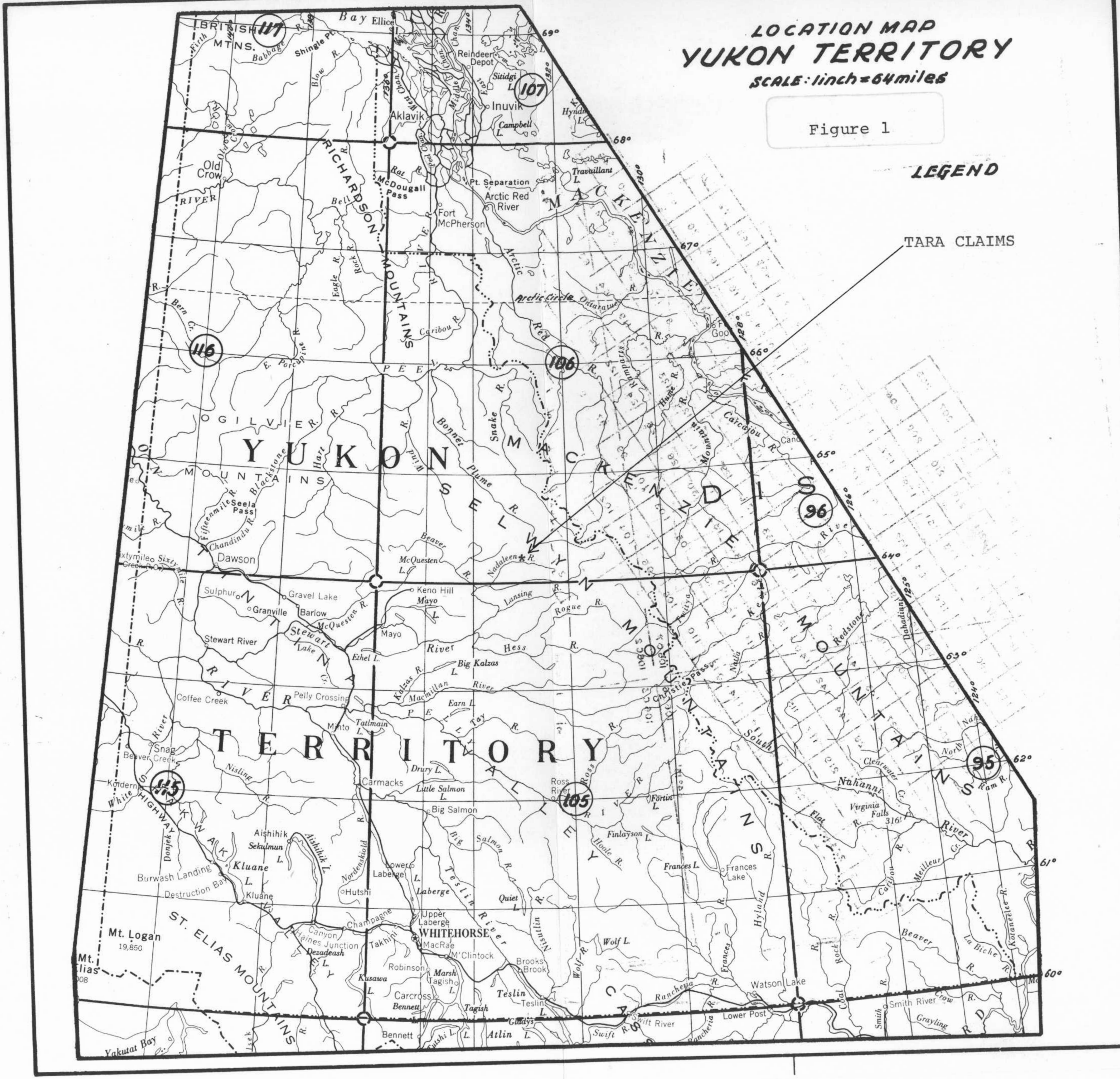

LOCATION MAP
YUKON TERRITORY
SCALE: 1inch=64miles
LEGEND
TARA CLAIMS
YUKON
TERRITORY
OGILVIE
MOUNTAINS
RICHARDSON
MOUNTAINS
MACKENZIE
SELWYN
MOUNTAINS
ST. ELIAS MOUNTAINS
Old Crow
Aklavik
Inuvik
Fort McPherson
Arctic Red River
Dawson
Keno Hill
Mayo
Stewart River
Pelly Crossing
Carmacks
Ross River
Whitehorse
Carcross
Teslin
Watson Lake
Lower Post
Mt. Logan
19,850
Arctic Circle
116
117
107
106
96
95
115
105
69°
68°
67°
66°
65°
64°
63°
62°
61°
60°

Figure 1

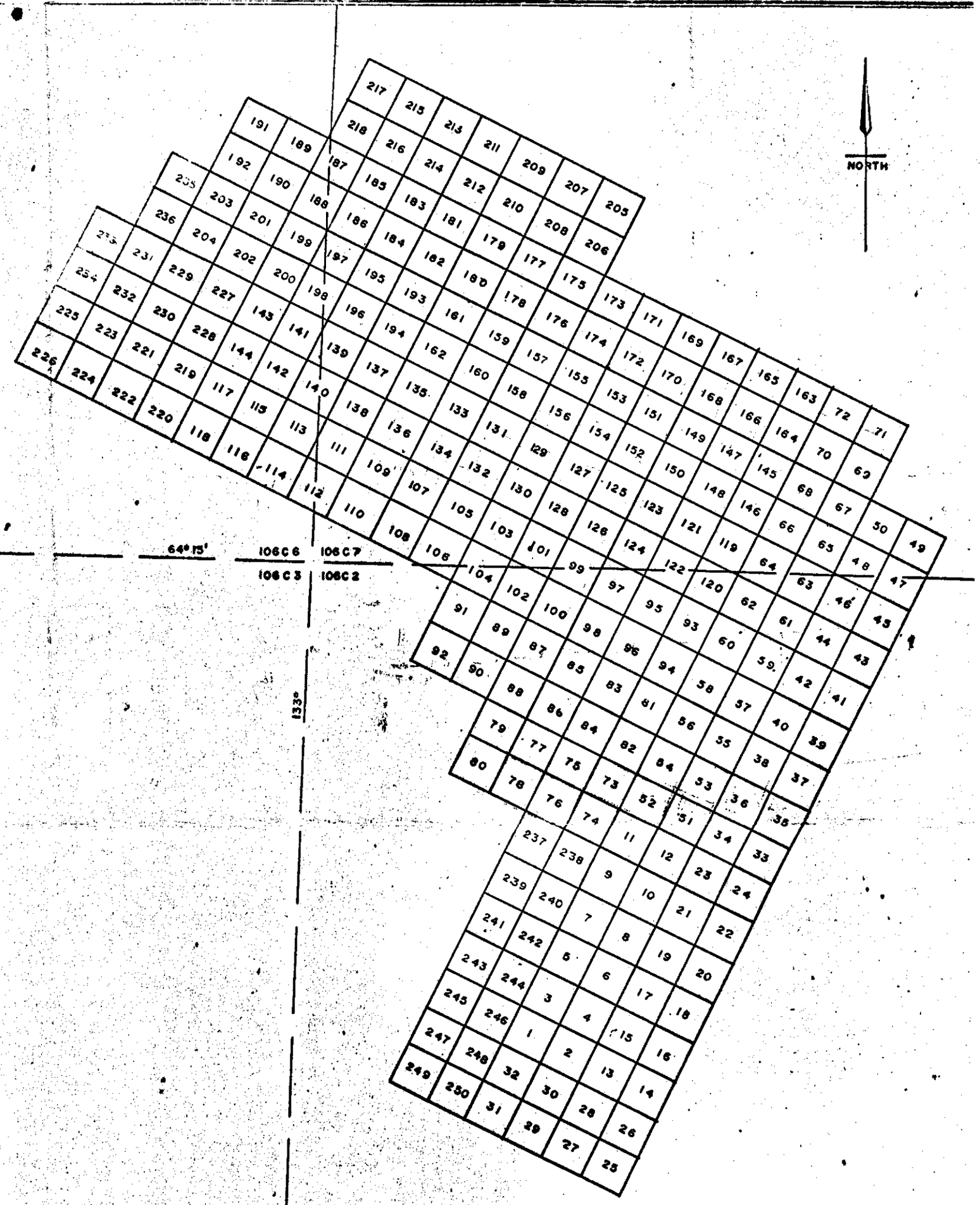


Figure 2

SCALE: 1 — 50000

McINTYRE MINES LIMITED	
TARA CLAIM BOUNDARIES	
WORK BY .	DATE : SEPT 30 , 1975
DRAWN BY T B	N.T.S. : AS SHOWN

M O U N T A I N S

N A D A L E E N

N S

U N T A I N S

U N T A I N S)

R A N G E

A D A L E

NADALEEN MOUNTAIN

NADALEEN R.

NADALEEN RIVER

TARA 1-250

His 1

Hs 1

Hs 2

Hd 1

HCs

ODc

OSDr

SDc

His 2

Hd 2

LEGEND

SDc — ROAD RIVER CARBONATE - Massive light grey cliff forming carbonate.

OSDr — ROAD RIVER SHALE (?) - Recsive dark shale and argillite.

ODc — ROAD RIVER CARBONATE (?) - Massive dark grey cliff forming carbonate, (volcanics ?).

HCs — SHEEPBED (?) - Recsive red and buff weathering shales.

Hd2 — Resistant light grey medium grained dolomite, porous, locally intensly bleached and weathered, silicified, numerous solution collapse breccia zones near upper contact.

Hd1 — Grey and buff weathering medium grained dolomite, locally brecciated, zebra alteration common.

Hs 2 — GRIT UNIT - Buff tan greenish weathering, interbedded flaggy silty slaty limestone, mud chip breccia, conglomerate and quartzite.

His 2 — Grey weathering micrite, intramicrite and conglomerate.

Hs 1 — Brown and maave shales, clastics.

His 1 — Grey weathering limestone, limestone conglomerate, shales, clastics.

Pb-Zn MINERALIZED AREA - Local outcrop and float containing significant amounts of hydrozincite, smithsonite, sphalerite, and galena.

Figure 3

SCALE: 1: 50,000

4000 0 2000 4000

McINTYRE MINES LIMITED	
TARA CLAIMS GEOLOGICAL SKETCH	
WORK BY AOB, TK.	DATE JUNE 76
DRAWN BY AOB.	N.T.S. 106 C/ 2,3,6,7.

090169

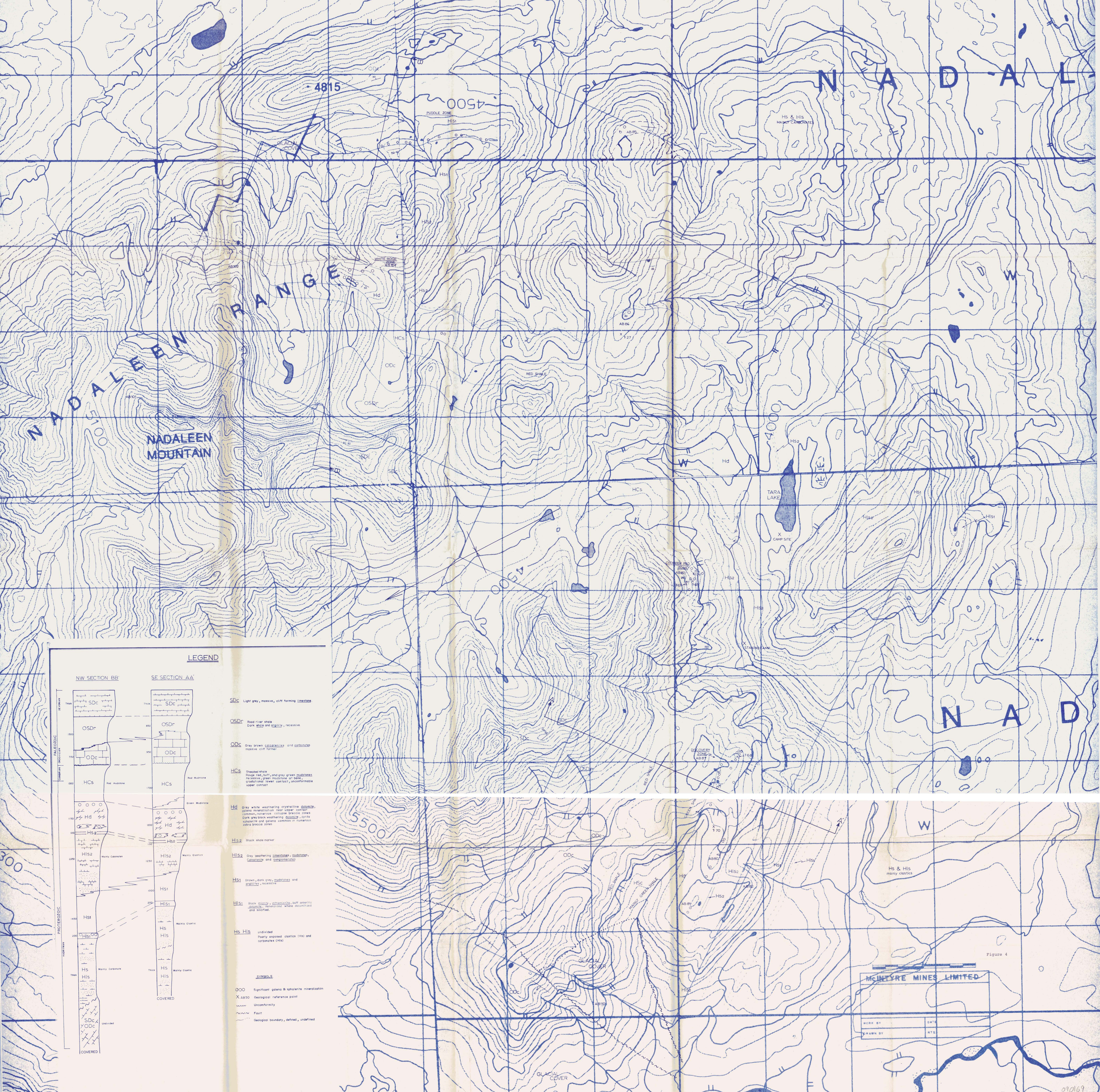
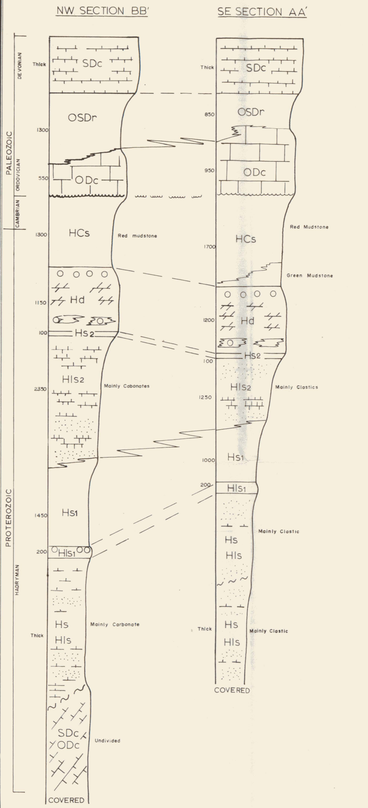

NADALEEN RANGE
NADALEEN MOUNTAIN
NADAL
NAD
4815
4500
5500
TARA LAKE
X CAMP SITE
GLACIAL COVER
RED SHALE
PUDDLE ZONE
DISCOVERY ZONE
Hs & Hls mainly carbonates
Hs & Hls mainly clastics
LEGEND
NW SECTION BB'
SE SECTION AA'
PALEOZOIC
PROTEROZOIC
COVERED
SDc Light grey, massive, cliff forming limestone.
OSDr Road river shale. Dark shale and argillite, recessive.
ODc Grey brown calcarenites and carbonates massive cliff former
HCs Sheepbed shale. Rouge red, buff, and grey green mudstones recessive, green mudstone at base, gradational lower contact, unconformable upper contact
Hd Grey white weathering crystalline dolomite, galena mineralization near upper contact common, numerous collapse breccia zones. Dark grey black weathering dolomite, pyrite sphalerite and galena common in numerous zebra breccia zones
Hs2 Black shale marker
Hls2 Grey weathering limestones, mudstones, Calcarenite and conglomerates
Hs1 Brown, dark grey, mudstones and argillites, recessive
Hls1 Black micrite, intramicrite, buff ankeritic dolomite, mineralized where dolomitized and silicified.
Hs Hls undivided. Poorly exposed clastics (Hs) and carbonates (Hls)
SYMBOLS
OOO Significant galena & sphalerite mineralization
X AB50 Geological reference point
Uncomformity
Fault
Geological boundary, defined, undefined
McINTYRE MINES LIMITED
WORK BY
DATE
DRAWN BY
NTS

Figure 4

LEGEND



SDc Light grey, massive, cliff forming limestone.

OSDr Road river shale
Dark shale and argillite, recessive.

ODc Grey brown calcarenites and carbonates massive cliff former

HCs Sheeted shale
Rouge red, buff, and grey green mudstones recessive, green mudstone at base, gradational lower contact, unconformable upper contact

Hd Grey white weathering crystalline dolomite, galena mineralization near upper contact common, numerous collapse breccia zones
Dark grey black weathering dolomite, pyrite sphalerite and galena common in numerous zebra breccia zones

HS2 Black shale marker

HIS2 Grey weathering limestones, mudstones, Calcarenite and conglomerates

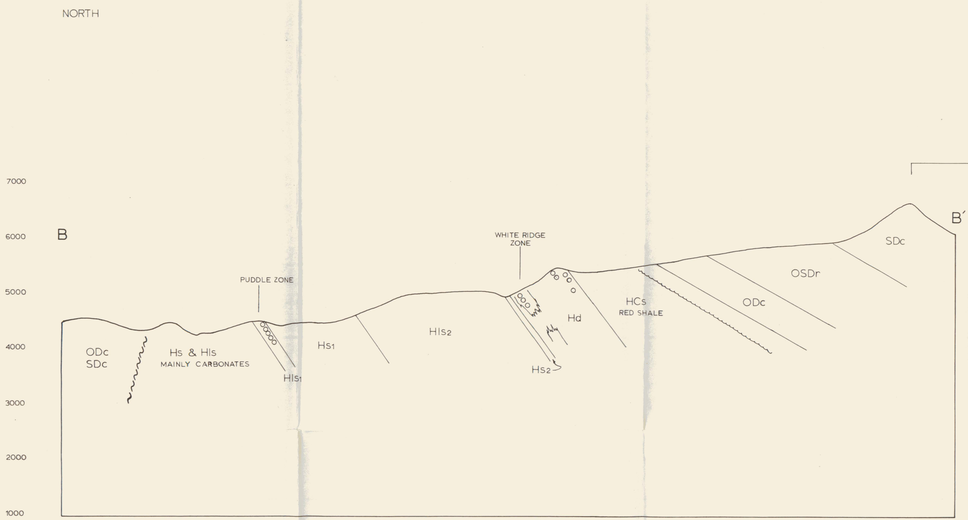
HS1 Brown, dark grey, mudstones and argillites, recessive

HIS1 Black micrite, intramicrite, buff ankeritic dolomite, mineralized where dolomitized and silicified.

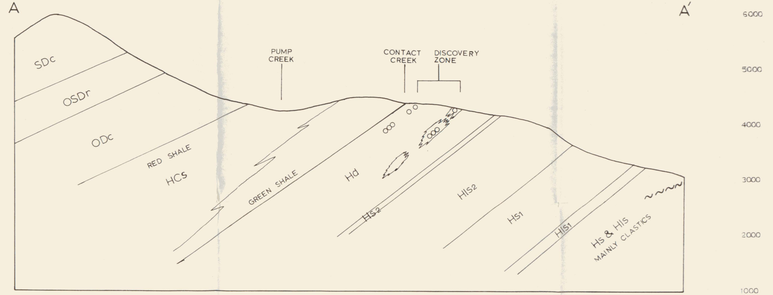
HS HIS undivided
Poorly exposed clastics (Hs) and carbonates (His)

SYMBOLS

OOO Significant galena & sphalerite mineralization
X AB50 Geological reference point
Uncomformity
Fault
Geological boundary, defined, undefined



DIAGRAMATIC CROSS SECTION BB'
LOOKING EAST



DIAGRAMATIC CROSS SECTION AA'
LOOKING EAST

Figure 5

HORIZONTAL : VERTICAL
2000 1000 0 1000 2000
1" = 1000'

McINTYRE MINES LIMITED

DIAGRAMATIC CROSS SECTION AA' - BB'

TARA CLAIMS

WORK BY AOB	DATE OCT. '75
DRAWN BY AOB, TB	NTS 106-D-2, 3, 6, 7

Figure 6

McINTYRE MINES LIMITED

TARA CLAIMS MAYO M.D. Y.T.

DETAIL GEOLOGY

TARA #1 SOIL GRID

WORK BY: J.S.	DATE AUGUST 27, 1975
DRAWN BY: J S	NTS: 106-C-2

Puddle Zone

White Ridge Zone

Chopper Pad Zone

Discovery Zone

WEST

EAST

TARA 3

TARA 2

TARA 1

NORTH

SOUTH

145 W

80 W

198 N

160 N

110 N

90 N

75 S

150 S

8 W

12 W

LEGEND

90 N — 110 N — GRID LOCATION SHOWING REFERENCE CO-ORDINATES AND BASELINES

○ Pb / Zn SULFIDE OCCURRENCE

Figure 8

0 500 1000 2000 3000 3500 4000

1" = 1000'

McINTYRE MINES LIMITED

TARA CLAIMS
SOIL GRID LOCATION

WORK BY	DATE
DRAWN BY	NTS 106-C 2,3,6,7

090169

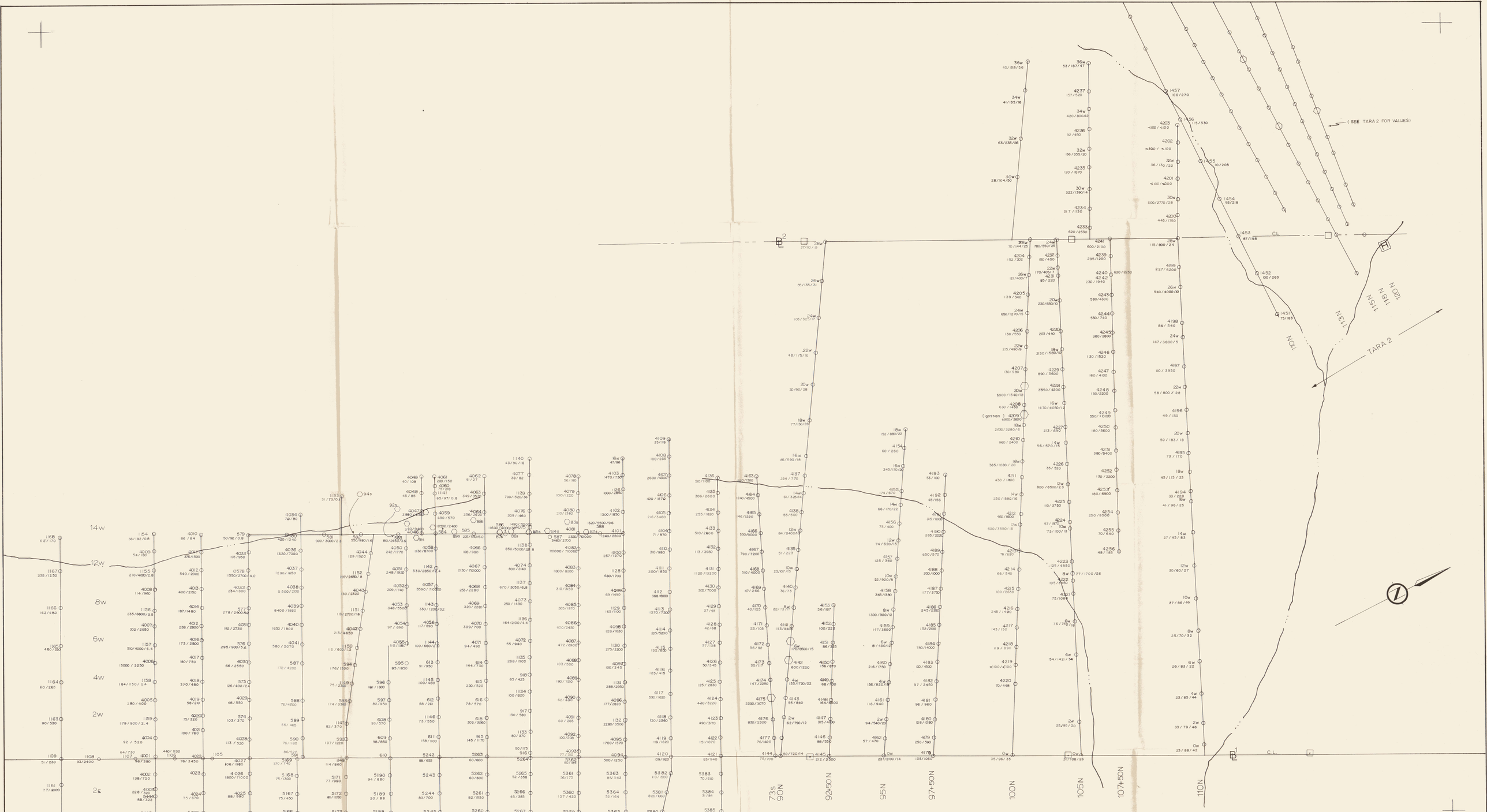


Figure 9

0 100 200 400 600 700 800

1"= 400'

McINTYRE MINES LIMITED

SOIL SAMPLE LOCATION & VALUES

TARA 1 NORTH (105S-110N)

WORK BY CP, BW, BS	DATE JAN. 15, 1976
DRAWN BY TF, TB	NTS 106-C-2

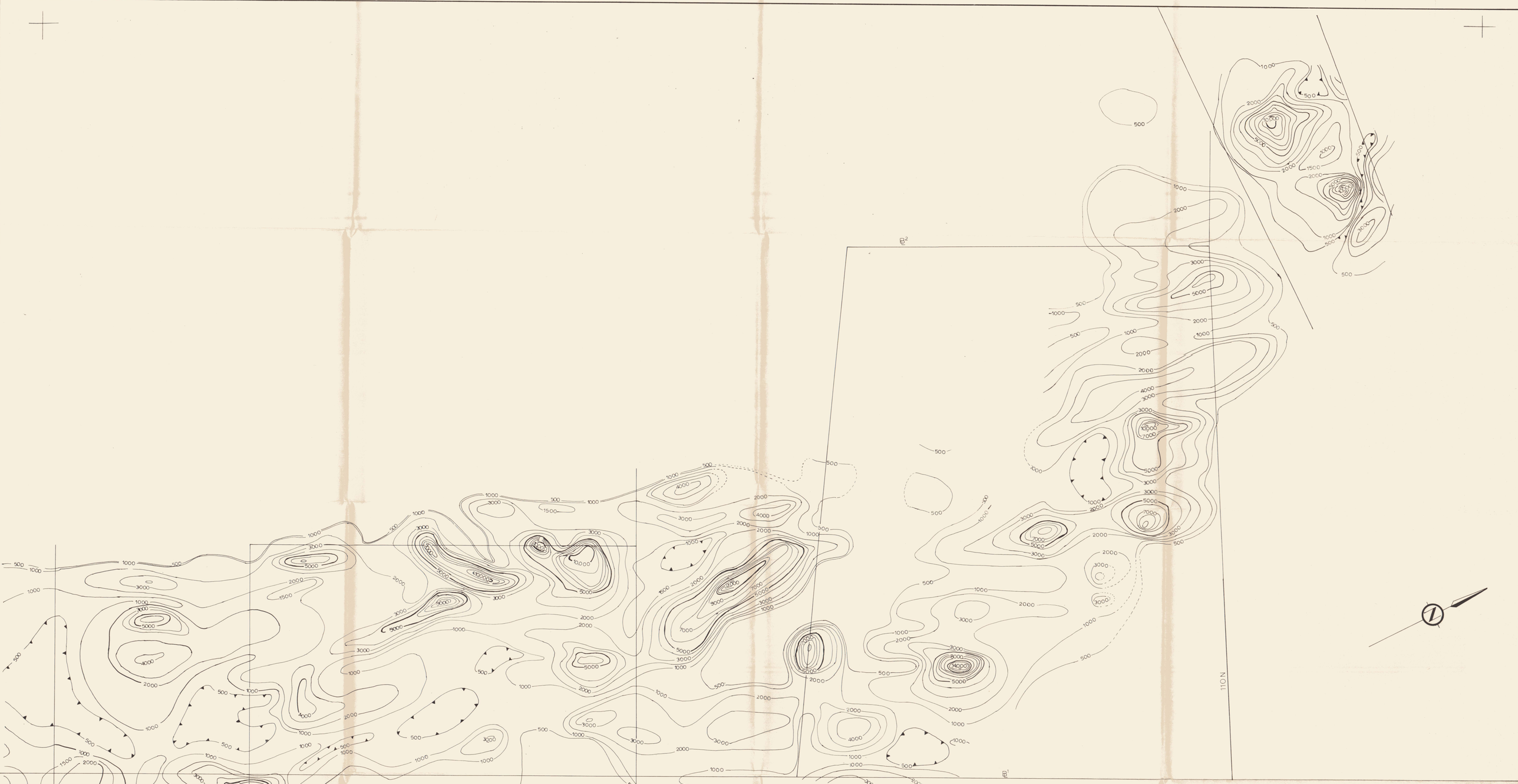


Figure 10

0 100 200 400 600 700 800
1" = 200'

McINTYRE MINES LIMITED

TARA 1 NORTH
CONTOURED ZINC

WORK BY E.M.	DATE DEC 1975
DRAWN BY E.M.	N.T.S. 10G-C-2

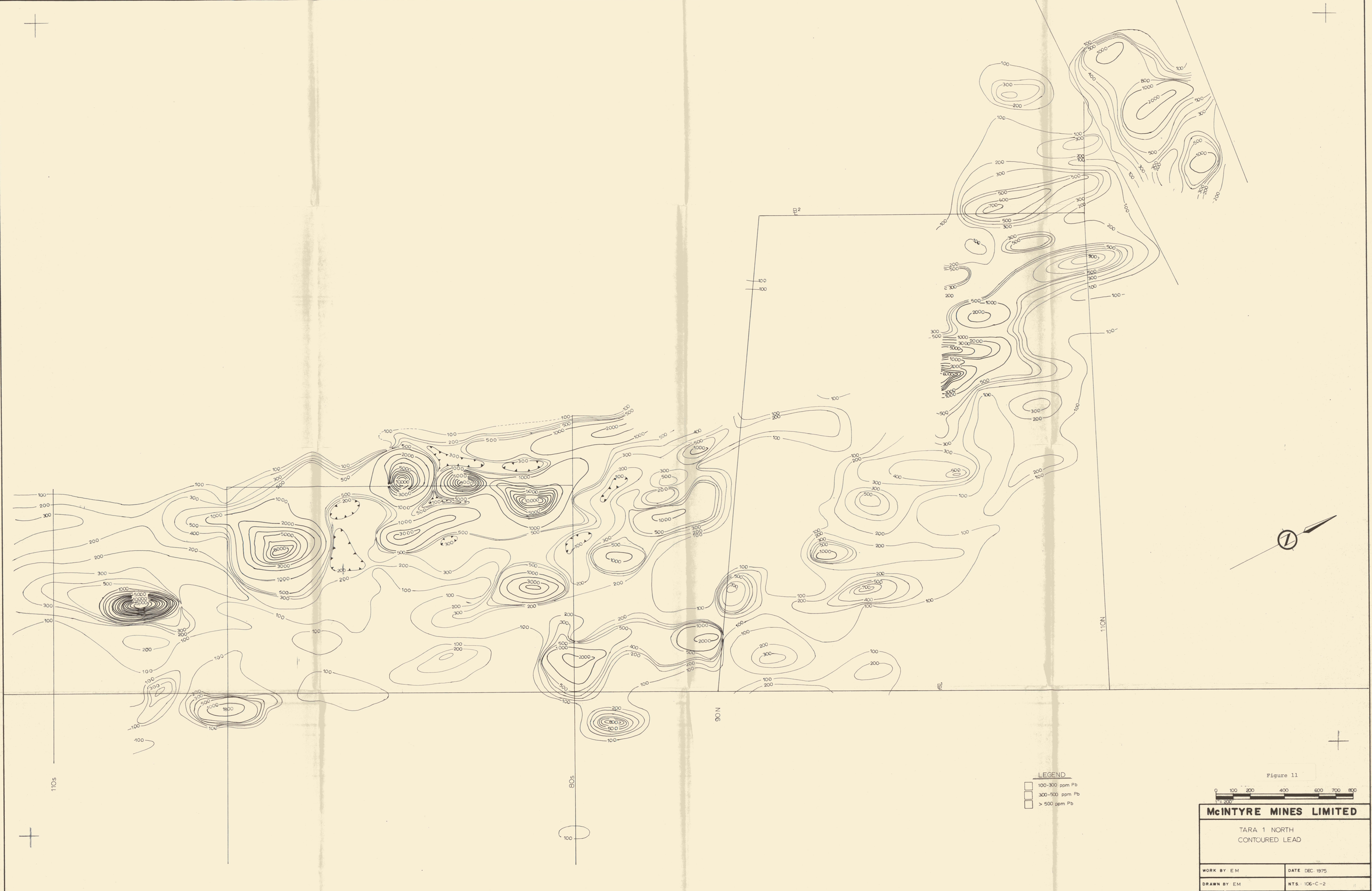


Figure 11

McINTYRE MINES LIMITED

TARA 1 NORTH
CONTOURED LEAD

WORK BY E.M.	DATE DEC. 1975
DRAWN BY E.M.	N.T.S. 106-C-2

Figure 12

0 100 200 400 600 700 800
1" = 200'

McINTYRE MINES LIMITED

SOIL SAMPLE LOCATIONS & VALUES

TARA 1 SOUTH (150s -110s)

WORK BY BW, BS, WK, EM	DATE JAN 19, 1976
DRAWN BY TF, TB	NTS 106-C-2

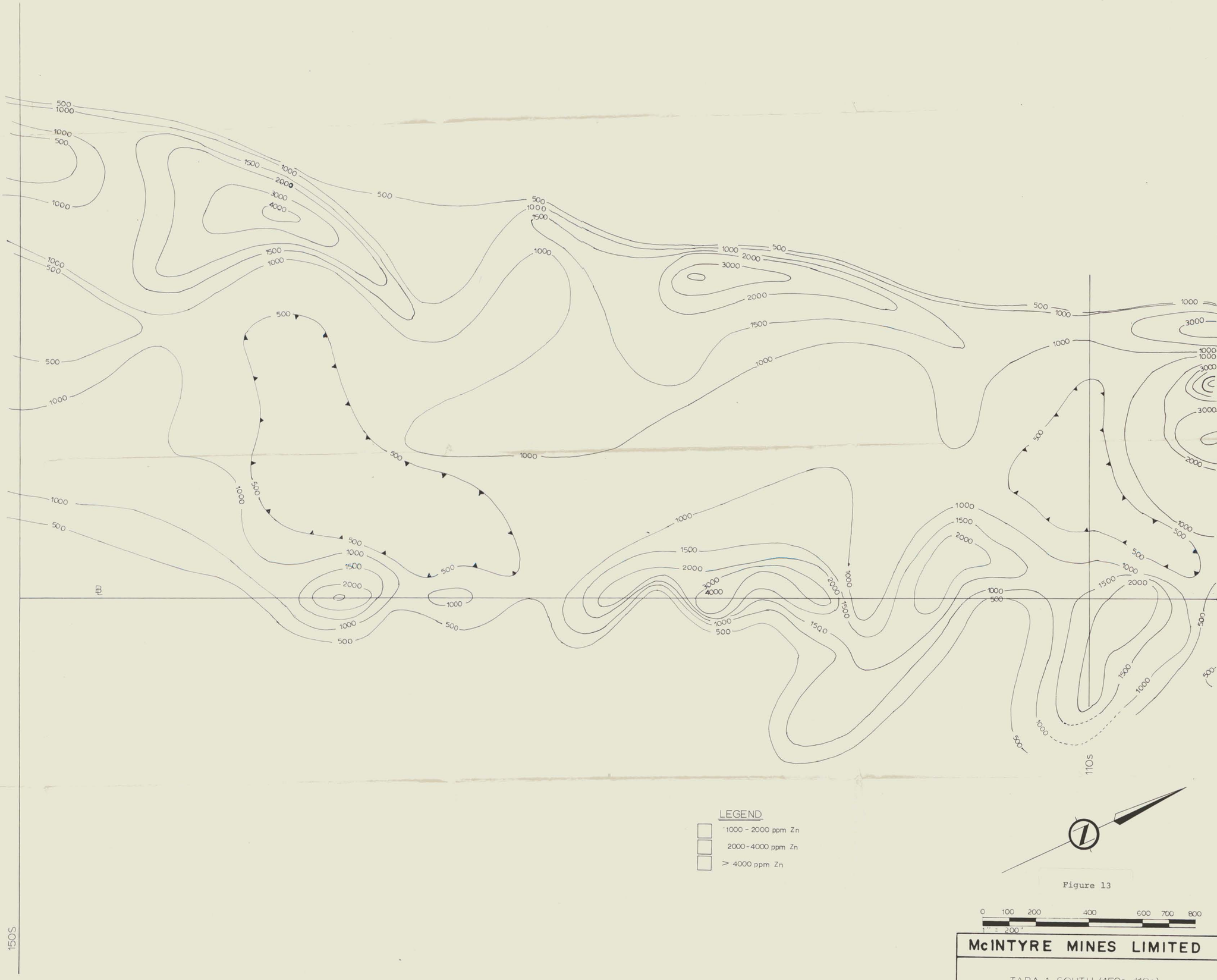


Figure 13

McINTYRE MINES LIMITED

TARA 1 SOUTH (150s–110s)

CONTOURED ZINC

WORK BY E.M	DATE DEC 1975
DRAWN BY E.M	NTS 106-C-2

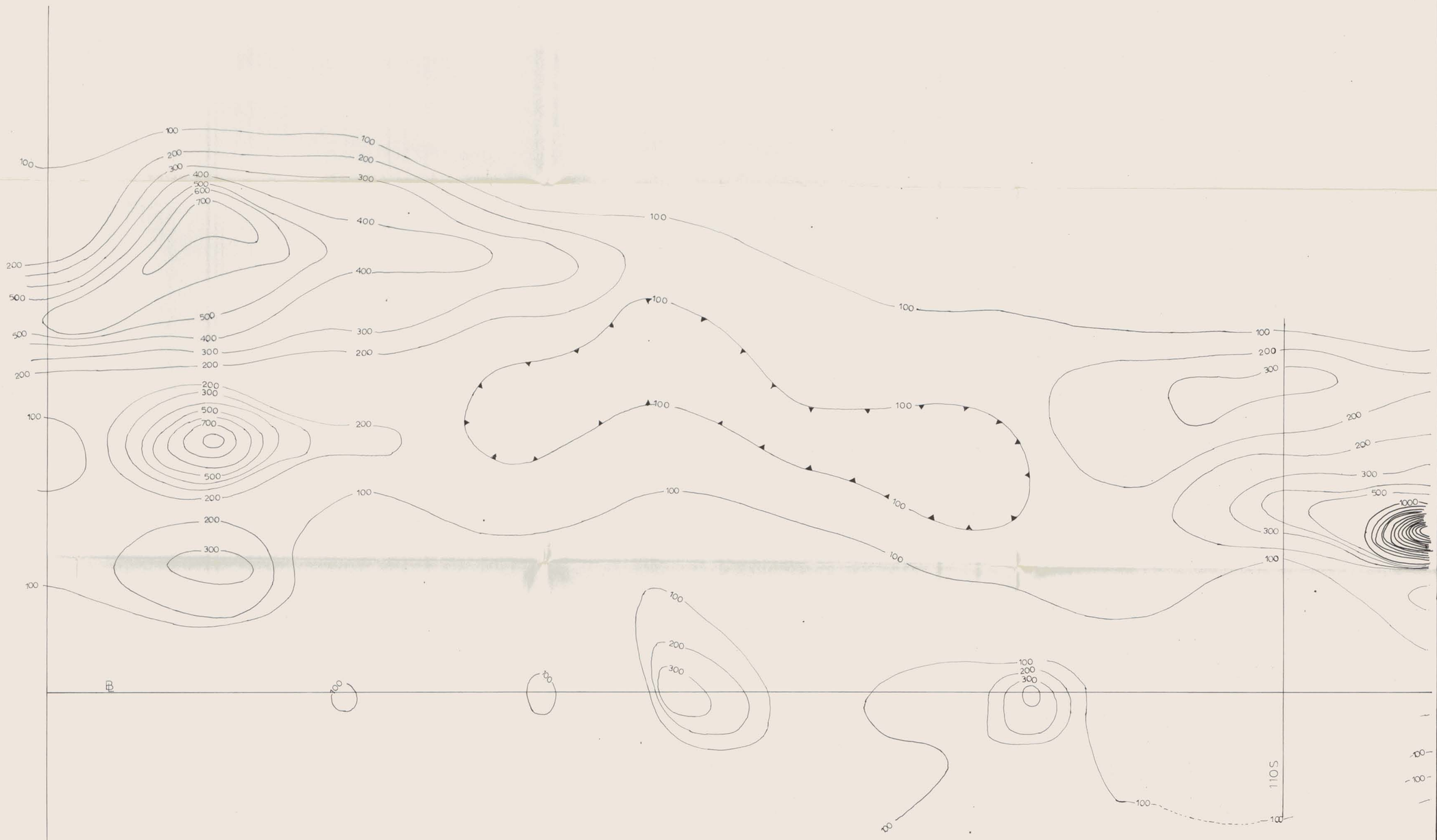


Figure 14

McINTYRE MINES LIMITED

TARA 1 SOUTH (150s – 110s)
CONTOURED LEAD


TARA LAKE
LEGEND
SAMPLE LOCATION
SOIL PROFILE SITE
ROCK GEOCHEM SITE
SAMPLE NO. MINUS 75 PREFIX
Pb/Zn (ppm)
1288
78/560
Figure 15
McINTYRE MINES LIMITED
SOIL SAMPLE LOCATIONS & VALUES
TARA 2 (140N-198N)
(INCLUDES TARA 2/3 WEDGE FILL IN)
WORK BY FL,CP,BN,BS,WK
DATE JAN 6,1976
DRAWN BY TF, TB
N.T.S. 106-C-2+7

Figure 16

McINTYRE MINES LIMITED

TARA 2 (north)

CONTOURED ZINC

DRAWN BY: BS; BW, CP, WK, FL	DATE: DEC 1975
DRAWN BY: EM	NTS: 106C-2,7


155N
145N
135N
00-36N
LEGEND
1000
100
100-300 (ppm)
300-500 (ppm)
>500 ppm
mag. dec.: 32°E
SCALE 1" = 200'
0 100 200 400 600 700 800
Figure 17
McINTYRE MINES LIMITED
TARA 2 (north)
CONTOURED LEAD
WORK BY BW, BS, CP, WK, FL
DATE DEC. 1975
DRAWN BY EM
NTS 106C-2.7

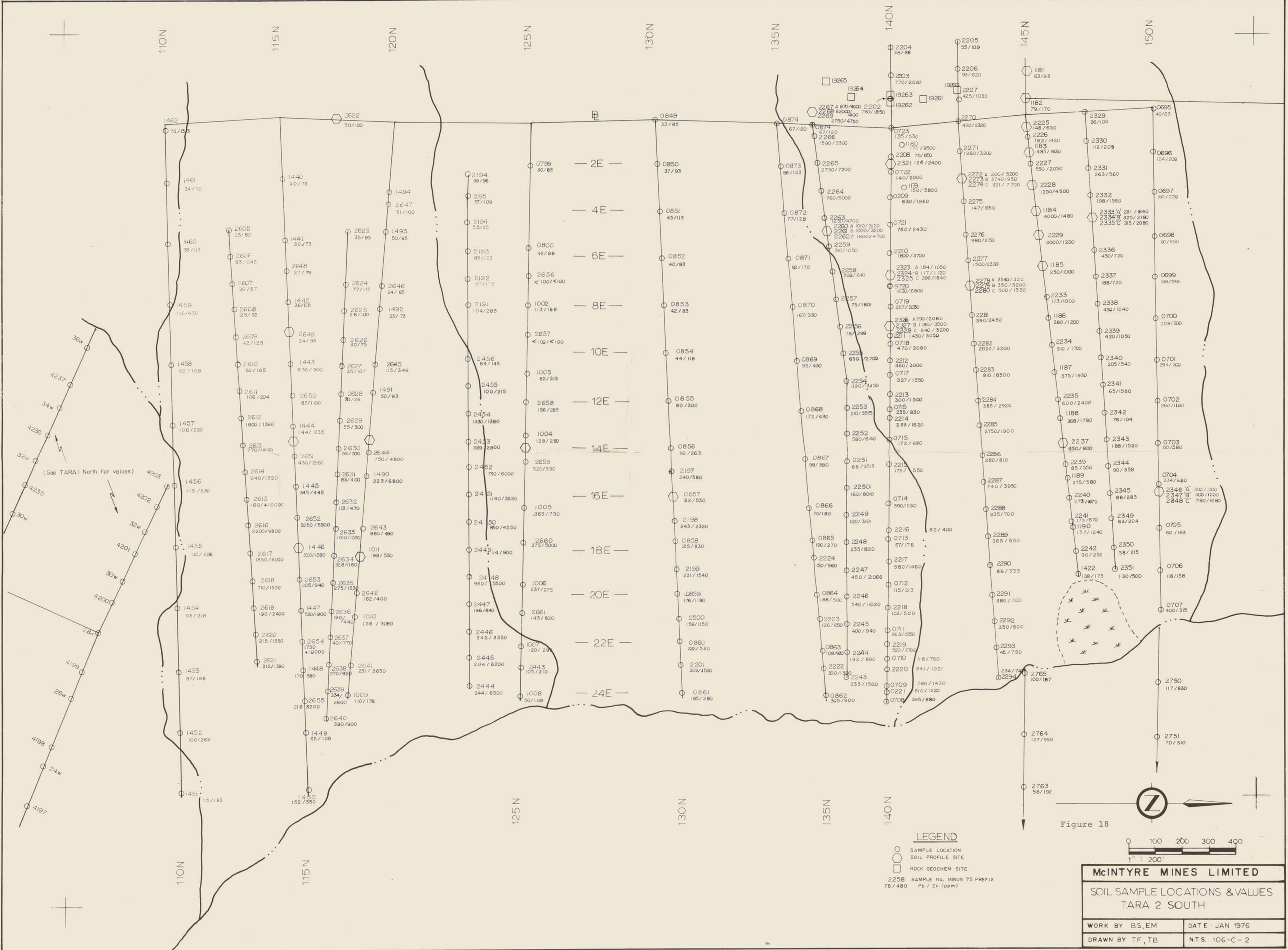


Figure 18

McINTYRE MINES LIMITED	
SOIL SAMPLE LOCATIONS & VALUES TARA 2 SOUTH	
WORK BY BS, EM	DATE : JAN 1976
DRAWN BY TF, TB	NTS. 106-C-2

LEGEND

- 1000-2000 ppm Zn
- 2000-4000 ppm Zn
- > 4000 ppm Zn

110N

150N

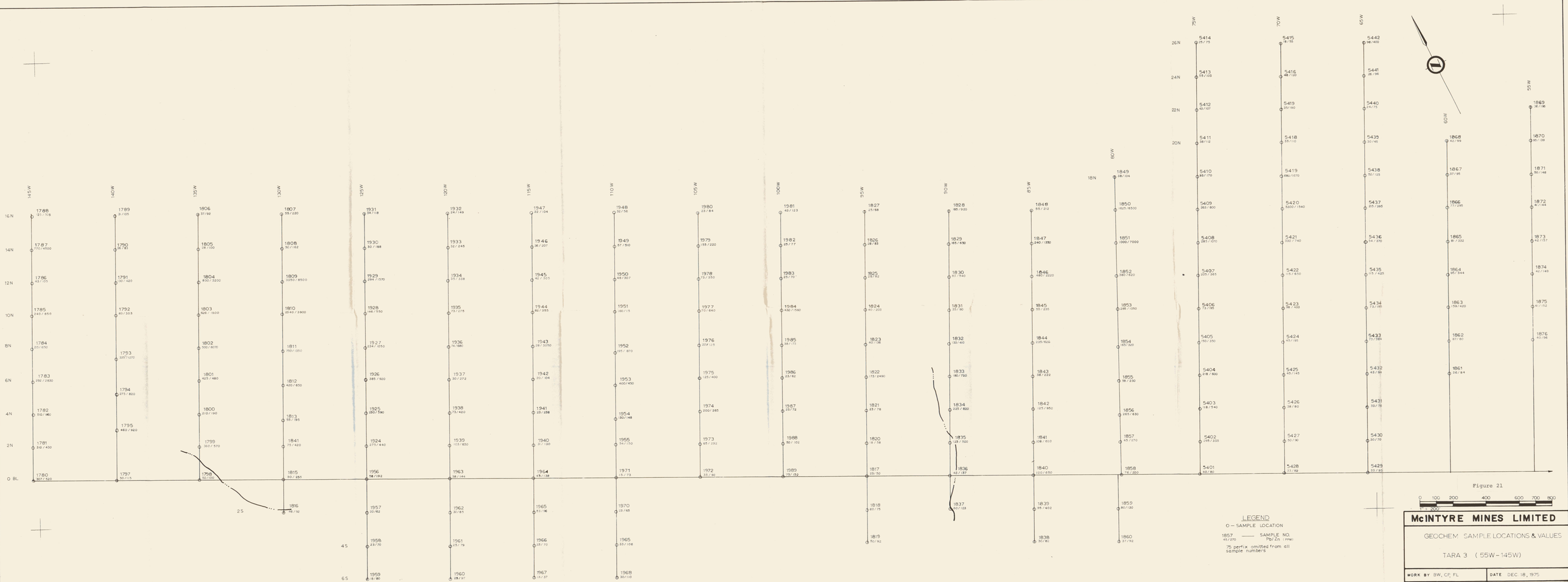
Figure 19

0 100 200 300 400

McINTYRE MINES LIMITED	
TARA 2 SOUTH CONTOURED Zn RESULTS (GEOCHEM)	
WORK BY EM	DATE : DEC 1975
DRAWN BY EM	N.T.S. 106-C-2

Figure 20

McINTYRE MINES LIMITED	
TARA 2 SOUTH CONTOUR LEAD RESULTS (GEOCHEM)	
WORK BY E.M.	DATE : DEC 1975
DRAWN BY E.M.	N.T.S. 106-C-2



LEGEND

O — SAMPLE LOCATION

1857 —— SAMPLE NO.
45/270 Pb/Zn (PPM)

75 prefix omitted from all sample numbers

Figure 21

0 100 200 400 600 700 800
1 : 2000

McINTYRE MINES LIMITED

GEOCHEM SAMPLE LOCATIONS & VALUES

TARA 3 (55W-145W)

WORK BY BW, CF, FL	DATE DEC. 18, 1975
DRAWN BY TF, TB	NTS 106-C-6,7

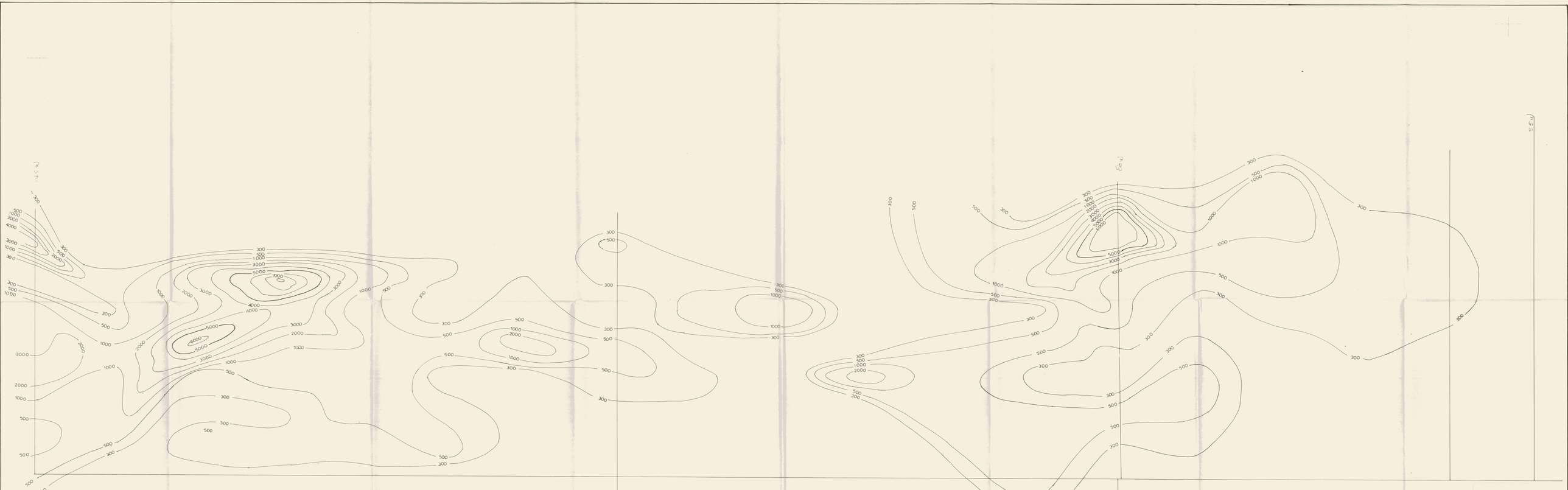


Figure 22

McINTYRE MINES LIMITED

TARA 3 (west)

CONTOURED ZINC

WORK BY BW, CP, FL	DATE JAN 1976
DRAWN BY EM	NTS 104C - 2,7

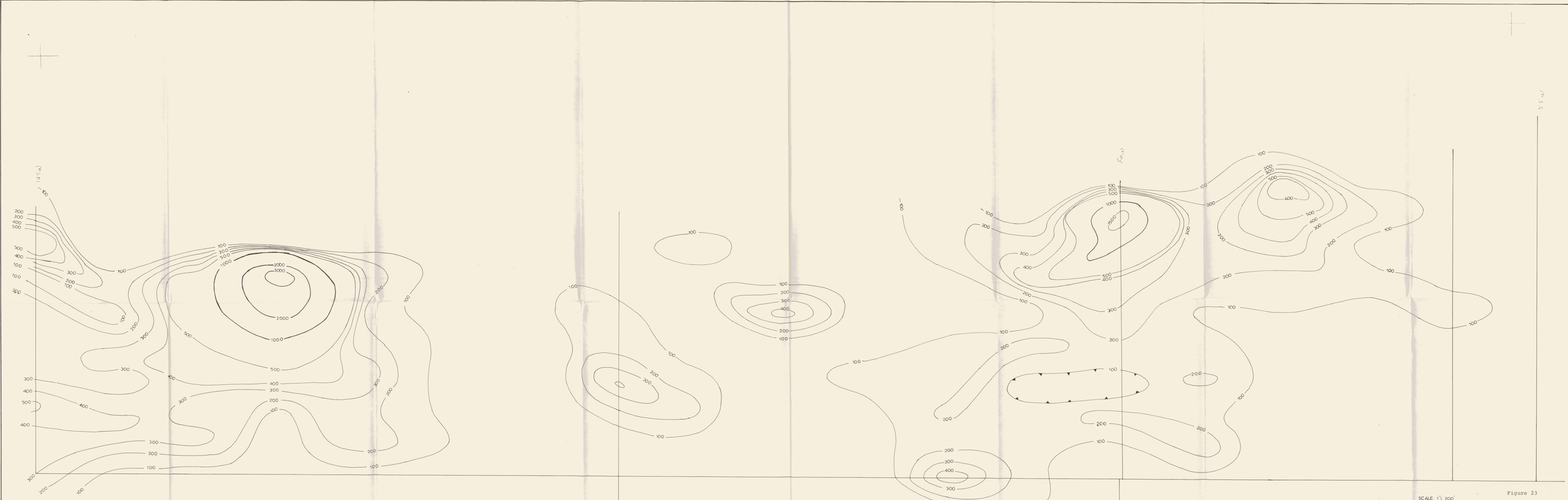


Figure 23

McINTYRE MINES LIMITED

TARA 3 (west)

CONTOURED LEAD

WORK BY BW, CP, FL	DATE JAN 1976
DRAWN BY EM	NTS 106C-2,7

Figure 24

0 100 200 400 600 800
1" = 200'

LEGEND

O — SAMPLE LOCATION

2394 / 118/225 — SAMPLE NUMBER, Pb / Zn (ppm)

75 prefix omitted from all sample numbers

McINTYRE MINES LIMITED

SOIL SAMPLE LOCATIONS & VALUES
TARA 3 EAST 00W—60W

WORK BY BS, FL, CP, BW	DATE JAN. 7, 1976
DRAWN BY TF, TB	NTS 106-C-2,7

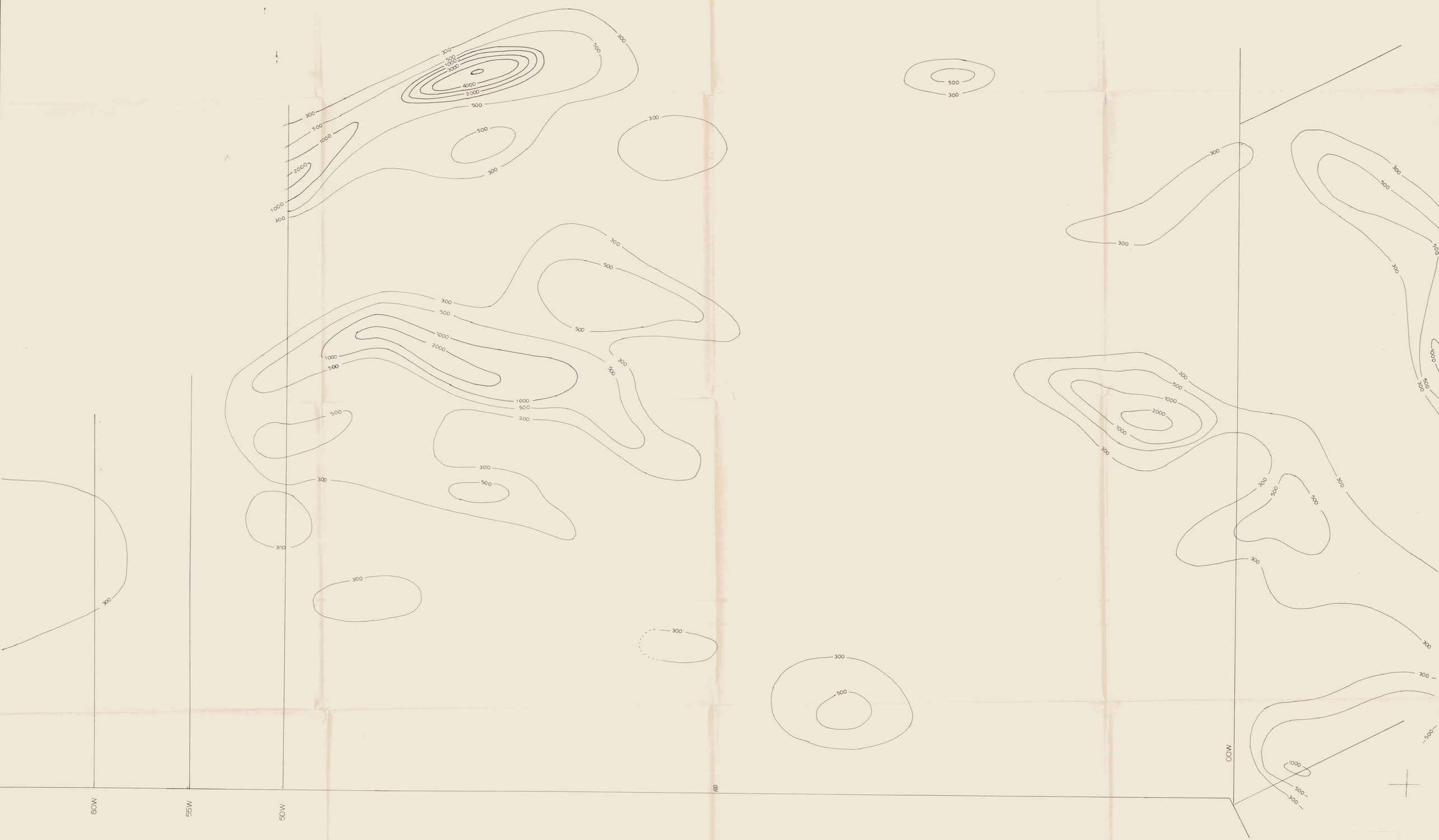


Figure 25

McINTYRE MINES LIMITED

TARA 3 (east)

CONTOURED ZINC

WORK BY BS, CP, BW, FL	DATE JAN 1976
DRAWN BY EM	NTS 106C-2,7

Figure 26

McINTYRE MINES LIMITED	
TARA 3 (east) CONTOURED LEAD	
WORK : BS ; CP ; BW ; FL	DATE JAN. 1976
DRAWN BY EM	NTS 106C-2,7

100 N

110N

90N

80S

73S

110N TARA 2

B

B

LEGEND

~10~ CONTOUR OF % $\frac{Cx}{Tx}$ Zn

CONTOUR INTERVAL 10%

026

Figure 28

0 100 200 300 400

McINTYRE MINES LIMITED	
% EXTRACTABLE LEAD TARA 1 NORTH (75S TO 110 N)	
WORK BY CP BW BS	DATE : AUG 1975
DRAWN BY EM	N.T.S. : 106-C-2

80S

73S

90N

100N

110N

TIONTARA-2

B

B

LEGEND

CONTOUR OF % $\frac{Cx}{Tx}$ Zn

CONTOUR INTERVAL 10 %

026

Figure 27

0 100 200 300 400

McINTYRE MINES LIMITED	
% EXTRACTABLE ZINC TARA 1 NORTH (75S TO 110N)	
WORK BY CP BW BS	DATE : AUG 1975
DRAWN BY EM	N.T.S. 106-C-2

110S 105S 100S 95S 90S 85S 80S 75S

14W 12W 10W 8W 6W 4W 2W

TARA 1 CONTINUES TO 110N

TARA 1 CONTINUES TO 150S

C.L.

LEGEND

CONTOUR OF % $\frac{Cx}{Tx}$ Zn

CONTOUR INTERVAL 10 %

mag. dec. 32° E

026

Figure 29

0 100 200 300 400

McINTYRE MINES LIMITED	
% EXTRACTABLE ZINC TARA 1 SOUTH (105S TO 75S)	
WORK BY CP BW BS	DATE AUG 1975
DRAWN BY EM	N.T.S. 106-C-2

110S 105S 100S 95S 90S 85S 80S 75S

14W 12W 10W 8W 6W 4W 2W

TARA 1 CONTINUES AT 026 TO 110N

TARA 1 CONTINUES TO 150S

C.L.

mag dec
32° E

026

LEGEND

CONTOUR OF % $\frac{Cx}{Tx}$ Pb

CONTOUR INTERVAL 10%

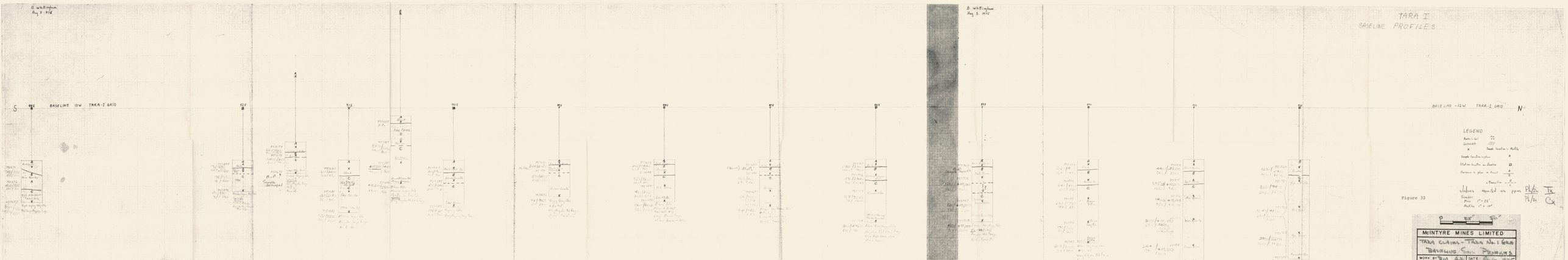
Figure 30

0 100 200 300 400

McINTYRE MINES LIMITED	
% EXTRACTABLE LEAD TARA 1 SOUTH (105S TO 75S)	
WORK BY CP, BW, BS	DATE AUG 1975
DRAWN BY EM	NTS 106-C-2


TARA LAKE
x
Campsite
LEGEND
35/85 SAMPLE LOCATION, RESULTS PLOTTED AS ppm. Pb/Zn
2000' 1000' 0' 1000' 2000'
N
McINTYRE MINES LIMITED
TARA CLAIMS
STREAM SILT GEOCHEM
WORK BY
DATE
DRAWN BY
N.T.S.

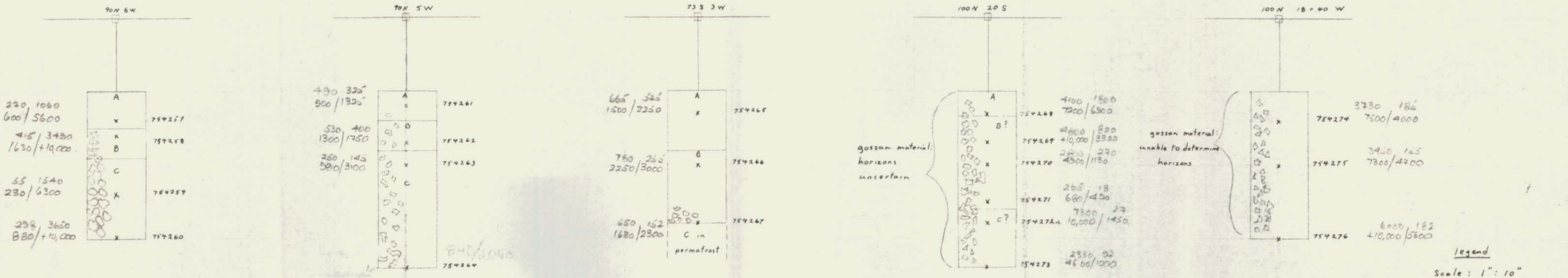
Figure 31


B. Whittington
Aug 3 - 72
S
BASELINE 12W TARA-I GRID
B. Whittington
Aug 3 1972
BASELINE -12W TARA-I GRID
N
TARA I
BASELINE PROFILES
LEGEND
Figure 32
McINTYRE MINES LIMITED
"TARA CLAIMS - TARA No. 1 GRID
BASELINE PROFILES

TARA I GRID

Random Profiles

Figure 33



Presentation Convention:

Value represented as

ppm Pb/Zn Cx (cold extraction)

ppm Pb/Zn Tx (total extraction)

Legend

Scale: 1": 10'

stations: □

sample: x

horizon: A, B, C

rock fragments

Note: Profile description is found on soil data sheets Aug. 13/75 by C. Perrin

Work by C. Perrin

Drawn by C. Perrin

Aug. 23, 1975

B. Whittingham
Aug. 6. 1975
TARA-II GRID
LINE 2 PROFILES
LINE 2 TARA II GRID
1W
N
S
1E
2E
3E
4E
5E
LINE 2 TARA-II GRID
SHALE
Scale: PLAN 1" - 25'
PROFILES 1" - 10"
Stations on plan
Profile location on plan
Sample location in profile
HORIZONS A, B, C
Marked
Transition (Gradation)
Value reported as Pb/Zn Cx (cold extraction)
Pb/Zn Tx (total extraction)
HORIZONTAL SCALE
McINTYRE MINES LIMITED
TARA CLAIMS - TARA No. 2 GRID
LINE 2 SOIL PROFILES
WORK BY
DATE:
DRAWN BY
N.T.S.

Figure 34


B. Whittingham
Aug 7, 1975
RANDOM SOIL PROFILES
TARA II GRID
TARA II GRID
RANDOM PROFILES
130N
LINE 5 16E
(125N)
LINE 6 12E
(120N)
LINE 7 12E
(120N)
LINE 7 16E
(118N)
LINE 7½ (118N) 8E
(115N)
LINE 8 8E
(115N)
LINE 8 12E
(115N)
LINE 8 16E
SCALE: PROFILES
1" - 10"
Stations
Profiles
Samples
HORIZONS A, B, C
Marked
ROCKS
Values reported as
ppm Pb/Zn Cold Extraction
ppm Pb/Zn Total Extraction
McINTYRE MINES LIMITED
TARA CLAIMS - TARA No. 2 GRID
RANDOM SOIL PROFILES
WORK BY
DATE:
DRAWN BY
N.T.S.

Figure 35

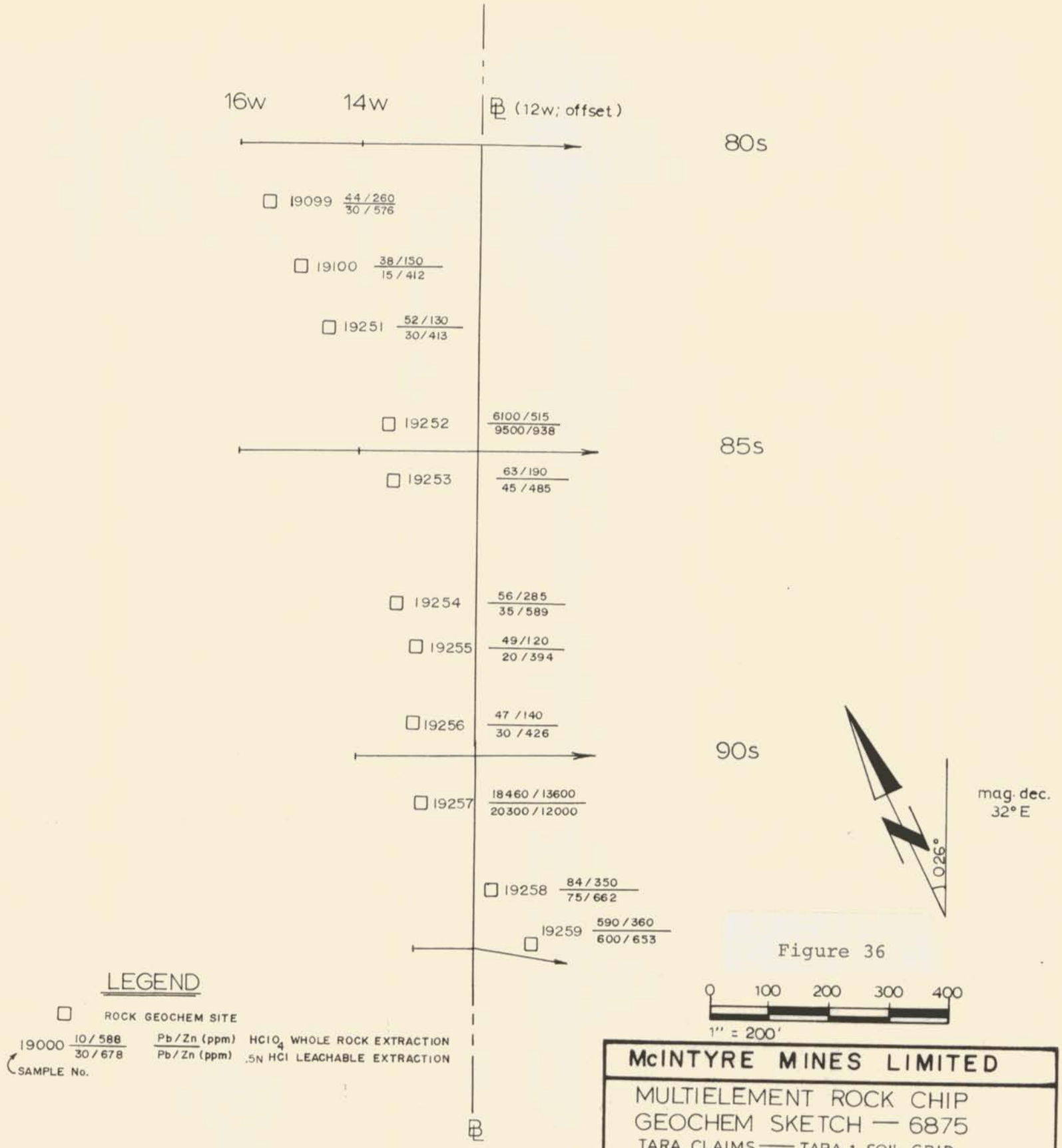


Figure 36

McINTYRE MINES LIMITED	
MULTIELEMENT ROCK CHIP GEOCHEM SKETCH — 6875 TARA CLAIMS — TARA 1 SOIL GRID	
WORK BY AOB, EM	DATE : JAN 1976
DRAWN BY TB	N.T.S. 106-C-2

LEGEND

○ 751188 REFERENCE SOIL LOCATION

□ ROCK CHIP GEOCHEM SITE

19260 240/818 Pb/Zn (ppm) .5N HCl LEACHABLE EXTRACTION
SAMPLE No.

Mag. dec. 32°E

Figure 37

0 100 200 300 400
1" = 200'

McINTYRE MINES LIMITED	
MULTIELEMENT ROCK CHIP GEOCHEM SKETCH — 7875 TARA CLAIMS — TARA 2 SOIL GRID	
WORK BY AOB, EM	DATE JAN 1976
DRAWN BY TB	N.T.S. 106-C-2

090169

189 #1 □ #2 187
190 C.P. 188

LEGEND

WINKIE DRILL HOLE

Pb, Zn OCCURANCE

Figure 38

200 100 0 100 200

090169

McINTYRE MINES LIMITED

TARA CLAIMS
PUDDLE ZONE-SKETCH MAP

WORK BY: A.O.B	DATE: SEPT. 1975
DRAWN BY: A.O.B.	N.T.S. 106 C 6,7